

# The TRY Database System

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<https://www.try-db.org>

**TRY**

## Plant Trait Database

Pulsatilla vulgaris 75 traits  
Photo by A. Günther

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**Quantifying and scaling global plant trait diversity**

TRY is a network of vegetation scientists headed by [Future Earth](#) and the Max Planck Institute for Biogeochemistry, providing a global archive of curated plant traits. The TRY database is a research platform of iDiv.

**Database Version 4 online (2017-07-20)**  
Updated to 4.1 on 2018-02-04

**6.9 million trait records**  
148,000 plant taxa  
largely open access

[Data Portal](#)

**News**

**Activity Report (2018-07-02)**  
In June 2018, TRY received 129 requests and released 16.8 million trait data for 125 requests; 1 new publication was reported. This brings the totals to 4781 received requests, 449 million trait records released for 3897 requests, and 178 recorded publications ([link](#))

**Paper published (2018-05-22)**  
Zeeman et al.: Non-native plant cover and functional trait composition of urban temperate grasslands in relation to local- and landscape-scale road density. *Biological Invasions*. ([link](#))

**Paper published (2018-02-26)**  
Schneider et al.: Mapping functional diversity from remotely sensed morphological and physiological forest traits. *Nature Communications*. ([link](#))

**Paper published (2018-01-18)**

We collect Plant Trait Datasets from Custodians, curate the data, and hand them out to request PIs

# Statistics

Mid July 2018

<https://www.try-db.org/TryWeb/StatBasics1.php>

Database	Members	Workshops	Requests	Public
<b>Basic Statistics</b>				
<b>Number of publications</b>				
	178			
				7
<b>Number of accepted species</b>				
	148333			
				2
<b>Number of traits</b>				
	2918			
<b>Number of trait measurements</b>				
	6904553			
<b>Number of georeferenced trait measurements</b>				
	2725578			
<b>Number of observations</b>				
	2567404			
<b>Number of georeferenced observations</b>				
	536805			
				1
<b>Number of trait measurements provided to request PIs</b>				
	460305550			
				4
<b>Number of datasets</b>				
	391			
<b>Number of custodians</b>				
	282			
<b>Number of contributors</b>				
	430			
				3
<b>Number of requests</b>				
	4863			
<b>Number of data releases for requests</b>				
	3972			
<b>Number of published requests</b>				
	152			
<b>Number of request PIs</b>				
	2592			
<b>Number of requesters</b>				
	4129			
				5
<b>Number of TRY members</b>				
	4369			
<b>Number of registered users</b>				
	5244			
				6

# Users Origin

Mid June to Mid July 2018



# Statistics by Time

## Internal Pages



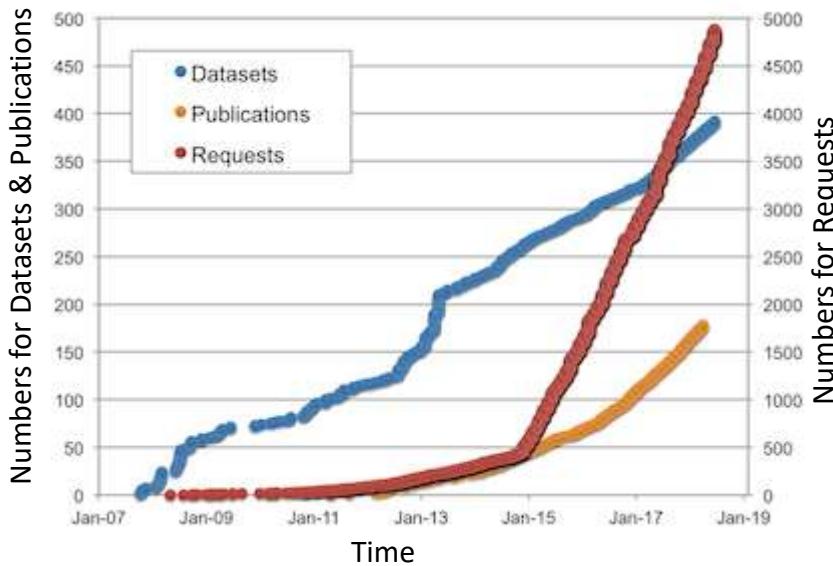
### Data Releases by Date

year	month	CountOfProjectID
2018	7	75
2018	6	125
2018	5	111
2018	4	119
2018	3	100
2018	2	121
2018	1	107
2017	12	67
2017	11	118
2017	10	139
2017	9	106
2017	8	79
2017	7	90
2017	6	83

### Trait Records Released

year	month	SumOfTraitNum
2018	7	11034658
2018	6	16875230
2018	5	13671281
2018	4	17937940
2018	3	10848264
2018	2	18803597
2018	1	25107473
2017	12	16680274
2017	11	9709283
2017	10	16851077
2017	9	5124305
2017	8	5549510
2017	7	5913318
2017	6	10755688

Mid July 2018

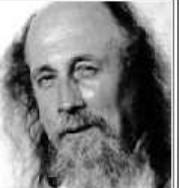


# Pillar 1 - Trust

## Steering Committee

All activities of the TRY initiative are headed by the Steering Committee, which comprises leading scientists from around the globe, including the principle investigators of the former IGBP Fast Track Initiative on Refining Plant Functional Classifications and the hosting institute of the TRY database.

The Steering Committee provides guidance for the development of the TRY initiative and has facilitated third party funding from DIVERSITAS, IGBP, QUEST and the Max Planck Institute for Biogeochemistry - the basis for a long-term perspective of TRY.

	<b>Sandra Diaz</b> <ul style="list-style-type: none"><li>Future Earth Scientific Committee</li><li>USA National Academy of Sciences</li><li>CONICET and National University of Cordoba, Argentina</li></ul>		<b>Colin Prentice</b> <ul style="list-style-type: none"><li>IGBP Scientific Committee (up to 2010)</li><li>IPCC lead author in 3rd report</li><li>Macquarie University, Sydney, Australia</li><li>Imperial College, London, UK</li></ul>
	<b>Sandra Lavorel</b> <ul style="list-style-type: none"><li>CNRS, Grenoble, France</li><li>Joseph Fourier University, Grenoble, France</li></ul>		<b>Christian Wirth</b> <ul style="list-style-type: none"><li>Director of the German Center of Integrative Biodiversity Research (iDiv)</li><li>University of Leipzig, Germany</li><li>TRY database management</li></ul>
	<b>Paul Leadley</b> <ul style="list-style-type: none"><li>Past Chair of Future Earth bioDISCOVERY</li><li>IPCC lead author in 5th report</li><li>University Paris-Sud, Orsay, France</li></ul>		<b>Jens Kattge</b> <ul style="list-style-type: none"><li>TRY project coordination</li><li>TRY database management</li><li>Max Planck Institute for Biogeochemistry, Jena, Germany</li></ul>
	<b>Gerhard Boenisch</b> <ul style="list-style-type: none"><li>TRY database design and management</li><li>TRY IT infrastructure and workflow development</li><li>TRY website development and administration</li><li>Max Planck Institute for Biogeochemistry, Jena, Germany</li></ul>		

# Pillar 2 – Database Structure

## That does not limit traits and covariates

File 111				
Species	Trait1	Trait2	Covar1	Covar2
S1	T11	T21	C11	C21
S2	T12	T22	C12	C22
S3	T13	T23	C13	C23

Tables				
Observation		(line)		
ObsID	FileID	SpeciesID		
1	111	S1		
2	111	S2		
3	111	S3		

ObsData				
ODID	ObsID	DataID	(cell)	& fields
1	1	Trait1	T11	
2	1	Trait2	T21	
3	1	Covar1	C11	
4	1	Covar2	C21	
5	2	Trait1	T12	
6	2	Trait2	T22	
7	2	Covar1	C12	
8	2	Covar2	C22	
9	3	Trait1	T13	
10	3	Trait2	T23	
11	3	Covar1	C13	
12	3	Covar2	C23	

### **& Tables for:**

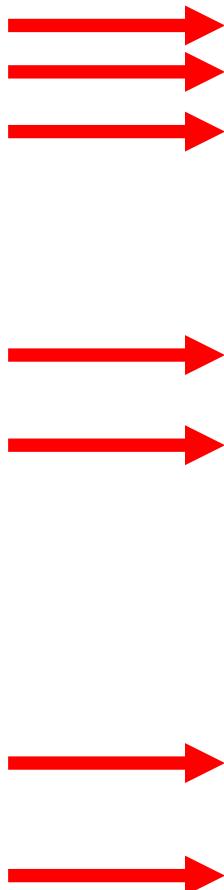
- Data
- Species
- Files
- Original File Column Headings
- Etc.

# Pillar 3 – No Effort For Contributors

Species	Comment	Bol	LocalityCoord	LocalityName	SLA	SWTDW	SSLA	Leaf size	Lat	Long		
					34912	Hathersage	34912	8.116005124				
7. Acer platanoides		MILLSTONE GRT (acidic sandstone)			24.726071843		5.523053714		5962	53.4	-1.5	
8. Acer platanoides		MILLSTONE GRT (acidic sandstone)			24.726071843		5.523053714		5962	53.4	-1.5	
9. Acer platanoides		MILLSTONE GRT (acidic sandstone)			34912	Hathersage	16.61945941	2.629913200	6.320654161	6042	53.4	-1.5
10. Acer platanoides		MAGNESIUM LIMESTONE			34899	Roche Abbey	15.0088254	2.523111111	5.94875721	4878	53.4	-1.5
11. Acer platanoides		MILLSTONE GRT (acidic sandstone)			34912	Hathersage	20.9287242	2.817565975	7.42913992	5730	53.4	-1.5
12. Acer platanoides		MAGNESIUM LIMESTONE			34899	Roche Abbey	22.76094431	2.783126242	6.221104912	9691	53.4	-1.5
13. Acer platanoides		MILLSTONE GRT (acidic sandstone)			34912	Hathersage	15.145125	2.505371	7.643104326	2974	53.4	-1.5
14. Acer platanoides		MAGNESIUM LIMESTONE			34899	Roche Abbey	14.04904777	2.52020625	6.164625668	4635	53.4	-1.5
15. Acer platanoides		MILLSTONE GRT (acidic sandstone)			34912	Hathersage	24.56167674	2.785145970	6.680241226	3007	53.4	-1.5
16. Acer platanoides		MAGNESIUM LIMESTONE			34899	Roche Abbey	14.5932203	2.429232780	6.011075923	10656	53.4	-1.5
17. Acer platanoides		MILLSTONE GRT (acidic sandstone)			34912	Hathersage	17.6313321	2.843271160	6.272031157	10269	53.4	-1.5
18. Acer platanoides		MAGNESIUM LIMESTONE			34899	Roche Abbey	18.15386861	2.668175182	6.605254852	5128	53.4	-1.5
19. Acer platanoides		MILLSTONE GRT (acidic sandstone)			34912	Hathersage	20.81832982	2.511803892	7.311803847	6634	53.4	-1.5
20. Acer platanoides		MAGNESIUM LIMESTONE			34899	Roche Abbey	25.98033184	3.194868233	6.837646675	10281	53.4	-1.5
21. Acer platanoides		MILLSTONE GRT (acidic sandstone)			34912	Hathersage	14.46974797	2.575760975	6.602287582	5910	53.4	-1.5
22. Acer platanoides		MAGNESIUM LIMESTONE			34899	Roche Abbey	14.61497197	2.411982727	6.16936687	15651	53.4	-1.5
23. Acer platanoides		MILLSTONE GRT (acidic sandstone)			34912	Hathersage	15.82519722	2.663412993	5.945084444	6622	53.4	-1.5
24. Acer platanoides		MAGNESIUM LIMESTONE			34899	Roche Abbey	13.00480987	2.466165901	6.52139137	9949	53.4	-1.5
25. Acer platanoides		MILLSTONE GRT (acidic sandstone)			34912	Hathersage	15.5279123	2.564659607	6.855768859	9965	53.4	-1.5
26. Acer platanoides		MAGNESIUM LIMESTONE			34899	Roche Abbey	16.39062525	2.565576249	6.590469331	4951	53.4	-1.5
27. Acer platanoides		MILLSTONE GRT (acidic sandstone)			34912	Hathersage	17.62970324	2.619821429	6.845295481	5809	53.4	-1.5
28. Acer platanoides		MAGNESIUM LIMESTONE			34899	Roche Abbey	17.5500781	2.567321652	6.167913669	12990	53.4	-1.5
29. Acer platanoides		MILLSTONE GRT (acidic sandstone)			34912	Hathersage	17.3665984	2.805	7.196394932	10049	53.4	-1.5
30. Acer platanoides		MAGNESIUM LIMESTONE			34899	Roche Abbey	16.26177083	2.538268288	7.160038916	8359	53.4	-1.5
31. Acer platanoides		MILLSTONE GRT (acidic sandstone)			34912	Hathersage	17.30972223	2.693266331	6.429553886	9900	53.4	-1.5

# No Template to fill out

# Pillar 4 - Data Curation



## Data Standardization

**Trait data:** Trait names are standardized conforming the standards of the TOP Thesaurus of Plant Characteristics (<http://top-thesaurus.org>, Garnier et al. 2017). Whenever the definition of a trait is available in the TOP Thesaurus, the link is provided. Numerical trait values are standardized to one appropriate unit.

## Plant taxonomy:

Taxonomic names are resolved using the [Taxonomic Name Resolution Service](#) (TNRS, accessed 17 April 2017, Boyle et al. 2013). If possible TNRS standardizes names against [The Plant List](#). Synonyms are resolved and other species checklists are used

- Missouri Botanical Garden
- The Global Compositae Checklist
- USDA Plants Database
- The National Center for Biotechnology Information
- The International Legume Database and Information System

**Auxilliary data:** Geo-reference data are standardized to Water Bodies (<https://www.esa-landcover-cci.org/?q=noc>). Climatic information about conditions during plant growth (natural environment vs. experimental) and maturity of plants and organs (juvenile vs. mature) is consolidated.

## Data completion

When two traits are mathematically convertible without additional information, e.g. leaf mass per area (LMA) and leaf specific area (SLA), or leaf water content (LWC) and leaf dry matter content (LDMC), the data for one of the two traits are complemented by the other, and the other trait is omitted.

In case of leaf traits, mass-based and area-based data are related via SLA. If two of the three traits are obtained within one observation the third trait is being calculated and this value is added to the database.

In the context of qualitative or categorical traits textual information is standardized and complemented. So far we have developed a species specific look-up table for plant growth form, woodiness, leaf type, leaf phenology and photosynthetic pathway covering up to 40.000 or the 69.000 plant species in the TRY database. The table is available for download: [here](#).

Information about climate and soil at the sampling sites has been derived from global databases (WorldClim, Koeppen-Geiger Climate Regions, The Harmonized World Soil Database). The table is available for download [here](#).

## Identification of Duplicates

Duplicates of numerical trait records are identified by trait name, accepted species name and the logarithm of the standardized trait value rounded to three digits. The information about duplicates is added to the database.

## Identification of Outliers

The standardized values of numerical traits are checked for inconsistencies and if necessary corrected in cooperation with the data owners. Outliers are then identified in terms of number of standard deviation of the trait value from the respective trait mean on species, genus and family level and for all data. This information is added to the database.

## GUI MS Access Tools with Graphics

1. Data transferred from main database (MySQL)
2. Handled and corrected if necessary in local tables
3. Moved back to main database

# Data Portal



## Plant Trait Database

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\(Request PIs only\)](#)[Dataset Custodian Center  
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### Data Portal

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(Request PIs only)

[TRY File Archive](#)[File Pickup](#)

(File Requesters only)

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(Custodians only)

[File Owner Cntr.](#)

(File Owners only)

Max Planck Institute  
for Biogeochemistry

TRY uses Google Analytics

# Data Request to The TRY Database

<https://www.try-db.org/TryWeb/Prop0.php>



## TRY Select Traits

Please use the Show Traits button to **check the up-to-date trait list** (status: 2017-07-21).

[Show Traits](#)

You can also use the [Advanced Trait Search](#) (This will open a new window).

First you have to tell for which traits you want data. You can use the Show Traits button to check which traits are available in a new window.

Please enter a list of comma separated TraitIDs as shown in the example.  
Anything else will be ignored.

Example: 1, 12, 15

[Continue](#)

<https://www.try-db.org/TryWeb/Prop023.php>



## TRY Data Explorer

Download table [Download](#)

## Trait List

Table fields:

ObsNum: Number of [Observations](#)

ObsGRNum: Number of geo-referenced [Observations](#)

PubNum: Number of public [Observations](#)

AccSpecNum: Number of Accepted Species

TraitID	Trait
3124	Aboveground woody biomass per ground area
2137	Absorptive fine root 12 phenol content per absorptive fine root C content
2120	Absorptive fine root acid hydrolyzable extractives per absorptive fine root dry mass
2054	Absorptive fine root arsenic (As) content per absorptive fine root dry mass
2123	Absorptive fine root bound phenol content per absorptive fine root C content
2098	Absorptive fine root branching intensity by length: number of root tips devided by total absorptive
2097	Absorptive fine root branching intensity: number of absorptive fine roots per higher order absorptiv
2055	Absorptive fine root cadmium (Cd) content per absorptive fine root dry mass
2056	Absorptive fine root calcium (Ca) content per absorptive fine root dry mass
2134	Absorptive fine root carbon (C) content not hydrolyzable in acid extractives per absorptive fine roo
2039	Absorptive fine root carbon (C) content per absorptive fine root dry mass
2273	Absorptive fine root carbon content per ground area
2272	Absorptive fine root carbon content per soil dry mass
2057	Absorptive fine root carbon/nitrogen (C/N) ratio

# Data Output

## TRY 4 Data Output Vs 4 27.2.2018

TRY DB Version

Local Cache

Project

Checks

**Includes original and standard data**

## MS Access Tool

1. Connects to web database (MySQL) for request data
2. Connects to main database (MySQL) for trait data
3. Selects output records
4. Writes output records in output format to text file
5. Zips output text file
6. Adds Data Release Notes (pdf) to zip file
7. Adds IPG (pdf) to zip file



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[Dataset Custodian Center  
\(Dataset Custodians only\)](#)

User: boenisch@bgc-jena.mpg.de

## **Request PI Center (Gerhard Boenisch)**

### Requests On Hold - Edit and Submit

Request by traits and optionally species:

Request by dataset:

### Requests - Review Custodian Responses And Start Data Release

Request:

### Requests - Download Data

Request:

### Requests - Summary

(General Information - Reference List - Notify Dataset Custodians - Report Publication - etc.)  
Only requests are shown, whose data release are at least requested (not On Hold or Permission Requested ).





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\(Dataset Custodians only\)](#)

User: boenisch@bgc-jena.mpg.de

## **Dataset Custodian Center (Gerhard Boenisch)**

### Pending Requests

You can change the permission status of your data for these Requests.

Request:  ▾

### Manage Your Datasets

Change availability (public or restricted), coauthorship request, republication setting, or get general information about the datasets.

### All Requests For Your Data

### Your Notification Setting

Email notifications for request for **public** datasets.

Notification:  yes ▾

