



**Julius Kühn-Institut**

Bundesforschungsinstitut für Kulturpflanzen  
Federal Research Centre for Cultivated Plants

# Status Quo of the German Nematode Collection

**Johannes Hallmann**

# Dieter Sturhan - >50 years of taxonomic expertise



# DNST - German Nematode Collection



- Start of collection: 1962
- Origin of specimen: primarily Germany
- Focus: Cyst nematodes, virus vectors, EPN's
- ca. 800 international samples (e.g. Slovakia, Iran, Vietnam, New Zealand, Benin, Cape Verde, Nicaragua, Dominican Republic)
- Listed in Zentralregister Biologischer Forschungssammlungen in Germany (ZEFOD)

# DNST - Storage in glycerol



ca. 4000 Petri dishes  
ca. 5 Mio. nematodes



# DNST - Permanent slides



- ca. 5000 slides
- ca. 330 genera
- ca. 800 species
- ca. 300 type material
- ca. 8000 slides awaiting final identification



# DNST - Documented information



E 3634		M D 39 <sup>V</sup>		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Bad zwischen ahn				schwarze (an Bachufer), mit Scirpus, Brennessel, Gramin n.a.																										
Cc. 100 m nördl von E 3632				schwach- feuchter, humoser Sand. Ton																										
				PH - 5.79																										
24.8.90		Pflanzprobe aus Wieselbrunn		250 ml kg SD <sub>4</sub> 27.8.90										TAF 27.8.90																
Finken		mit mittelgroßen schwarze												KKG 17.9.90																
<i>Melospiza notata</i> A																														
<i>Troglodytes dubius</i> A																														
<i>Stipidomys jacobus</i> A																														
<i>Melospiza</i> <i>adcausata</i> A																														
<i>Sphaeronema albi</i>																	<i>Trichostema variopapillatus</i> A													

# DNST - Documented information



		crenatus Loof 1960			
		Pratylenchus			
1		Bremen	Gärten, an Feigpflanzen	zus. mit <i>P. penetrans</i>	8.3.68
2		Bargteheide / Kolster	Erbsenfeld	zelle.	1. 1968, leg. PSA Lübeck
3		Erlenfeld b. Osnabrück	Gerste		12.10.1967, leg. Zelle
4		Dülmen		zelle.	leg. Japst
5	NA 58	Ulrichshausen / Rhön	Ausgraben Reife		E 571
6	MV 82	Jam. Mühlacker, Kr. Thuringen	Acker?	Gemisch mit <i>Pratylenchus neglectus</i>	leg. Heiling, 23.12.75
7	NV 73	Hirschhof, Kr. Graubünden	Acker?		leg. Heiling, 23.12.75
8		Munichel b. Freiburg	Acker?		Ginsendung: PSA Singen
9	PA 40	Langensendelbach b. Osnabrück	Rhizosphäre von Spargeln		
10	NA 32	Schöllbrunn / Spessart	Biese		E 505 ✓
11	NA 10	Groschenbach / Main	Reckeland	+ <i>P. penetrans</i>	E 95 ✓
12	LC 54	Zoben Gelf.	Kartoffelacker		E 247 ✓
13	MD 23	Groß-Mimmelslage b. Outekenbrück	Erbsenfeld		E 95 ✓
14	LD 95	Ruppenert b. Zatten/Am	Roggenfeld	zelle.!	Ginsendung PSA Oldenburg
15	MD 56	Dötlingen b. Wildeshausen	Ackerland	Sandboden, zus. mit <i>Trat. neglectus</i> , <i>Trat. convallariae</i>	E 84 ✓
16	MD 33	Anakenbrück	Erbeeranlage	Sandboden	E 86 ✓
17	NA 10	Großheubach / Main	Baumstulboden?	sandig, zus. mit <i>Trat. neglectus</i>	E 184 ✓
18	MA 90	Unter Ostern / Odenwald	Erbeeranlage am Hang gelegen	grusig-lehmig	E 316 ✓
19	LB 29	Krefeld	Birken-, Hasel-, Erlen-, Pappel-Bestand	z.T. sandig-humus	E 716 ✓
20	LV 64	Bliemengen	Akazienwald	grauer fester Lehm, Kalkstein durchsetzt	E 790 ✓
21	LV 35	Lauterbach	Tal im Waldgebiet mit Pappeln+Weiden	lehmiger Sand, stark verwehrt	E 794 ✓
22	TU 69	Obergrasheim a.d. Donau	Wiese zwischen 2 Kartoffelfeldern	moorig, großer Humusanteil	E 858 ✓
23	MD 54	Goldensiedt b. Wildeshausen	Roggenfeld	sandiger Lehm, zus. mit <i>Pratylenchus thornei</i> , <i>P. penetrans</i> , <i>P. fallax</i>	E 882 ✓
24	ND 39	Helvesiek	Kartoffelfeld	humoser Sand	E 891 ✓

# DNST - Objectives

- Documentation of all terrestrial nematode taxa in Germany
- Conservation of important collections material
- Reference for identification
- Teaching and demonstration



Workshop Nematode Identification



Biology class, High school Coesfeld



# DNST - Objectives

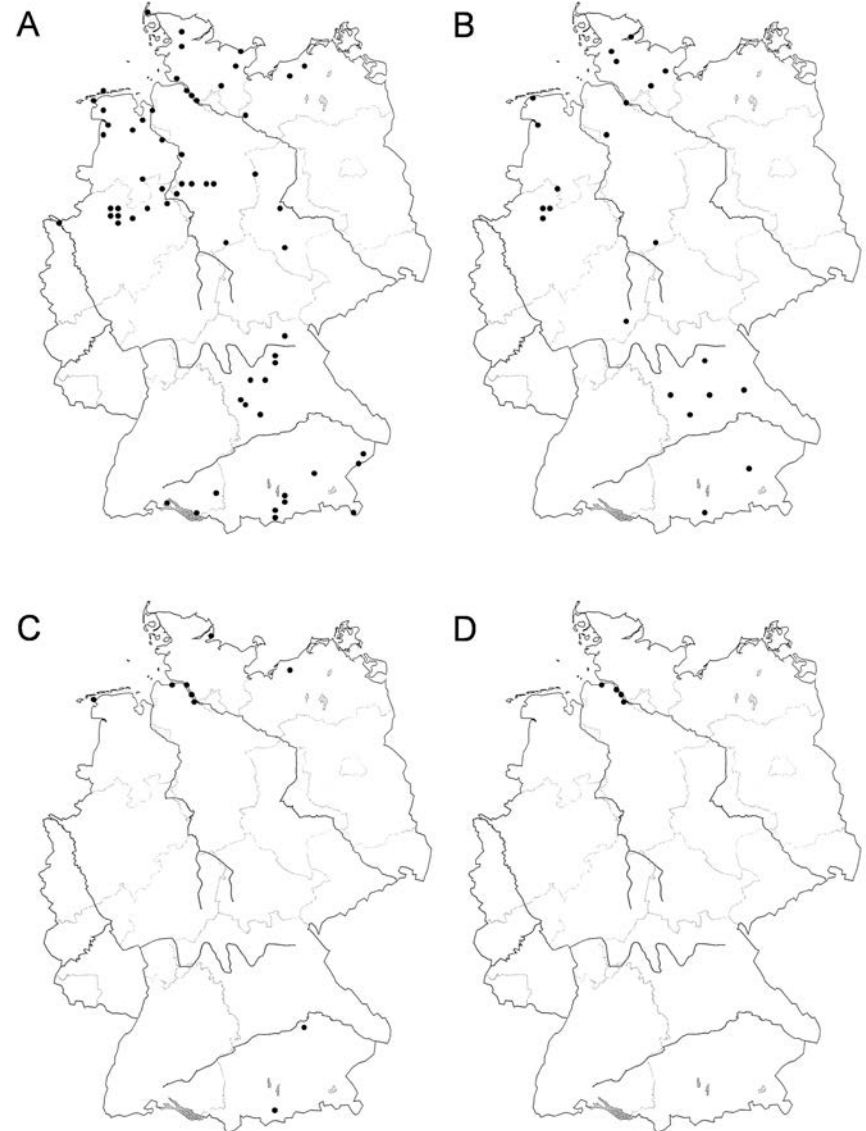
- Provision of distribution maps

A) *Hirschmanniella gracilis*

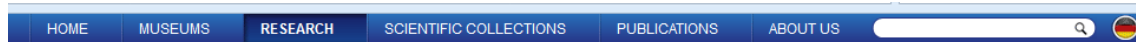
B) *H. loofi*

C) *H. behningi*

D) *H. halophilus*



# DNST - Availability of data



200 JAHRE  
SENCKENBERG  
SEIT 1817

## SENCKENBERG RESEARCH

RESEARCH FIELDS   YOUNG SCIENTISTS   INSTITUTES   LOCATIONS   MAJOR PROJECTS   EVOLUTIONARY RESEARCH AT  
SENCKENBERG   LIBRARIES   INSTITUTIONAL SEMINAR   PRIZES AND HONOURS   SCIENTIFIC MEETINGS AND CONFERENCES  
EXTERNAL SCIENTIFIC COMMITTEES   GEOPARKS   ALUMNI

[Senckenberg Research](#) > [Major projects](#) > [Major research projects](#) > [Edaphobase-GBIF databas...](#)

**edapho** **base** **GBIF Database on Soil Zoology**  
Information System for Taxonomy, Literature and Ecology



edaphobase - GBIF-Database Soil Zoology

- ▼ Project partners
- ▼ Project staff
- ▼ Investigated taxa

- Lumbricidae
- Enchytraeidae
- Nematoda
- Oribatida
- Gamasina
- Collembola
- Chilopoda
- Diplopoda
- Isopoda

- ▼ Nationwide Field Studies
- ▼ Statistical Models
- ▼ Data (Contents & Structure)
  - Informational attributes
    - Taxon data
    - Object description
    - Data of sources

## Welcome to edaphobase

– the database for distribution and ecology of soil organisms –

The soil-zoological information System **edaphobase** is a taxonomic-ecological database system, which combines existing taxonomical primary data on soil organisms from collections, scientific literature and reports etc. originating from many research institutes and persons involved in soil zoology. This data is linked at the species level to ecological background information of the species' sites of occurrence (i.e. geography, soils, habitat type, climate). The data is available to the general public via a **web application** containing a comprehensive query system, which allows the analysis and evaluation of the data for complex ecological questions of soil-zoological research and monitoring. In general, **edaphobase** makes this data comprehensively available for soil-zoological biodiversity research – a unique undertaking within Germany!

The Information system is part of the existing GBIF data structure.

In its second phase applications are developed within **edaphobase** for optimised data queries and analyses as well as tools for purposes of nature conservation, especially for evaluation of ecological requirements of soil animal species, or influence of changes in land use on soil biodiversity. To ease access to data programs for data query and evaluation are further enhanced and developed.

Here you can find information on:

- ➔ [the contents and structure of the database](#)
- ➔ [search possibilities within edaphobase](#)

funded by:



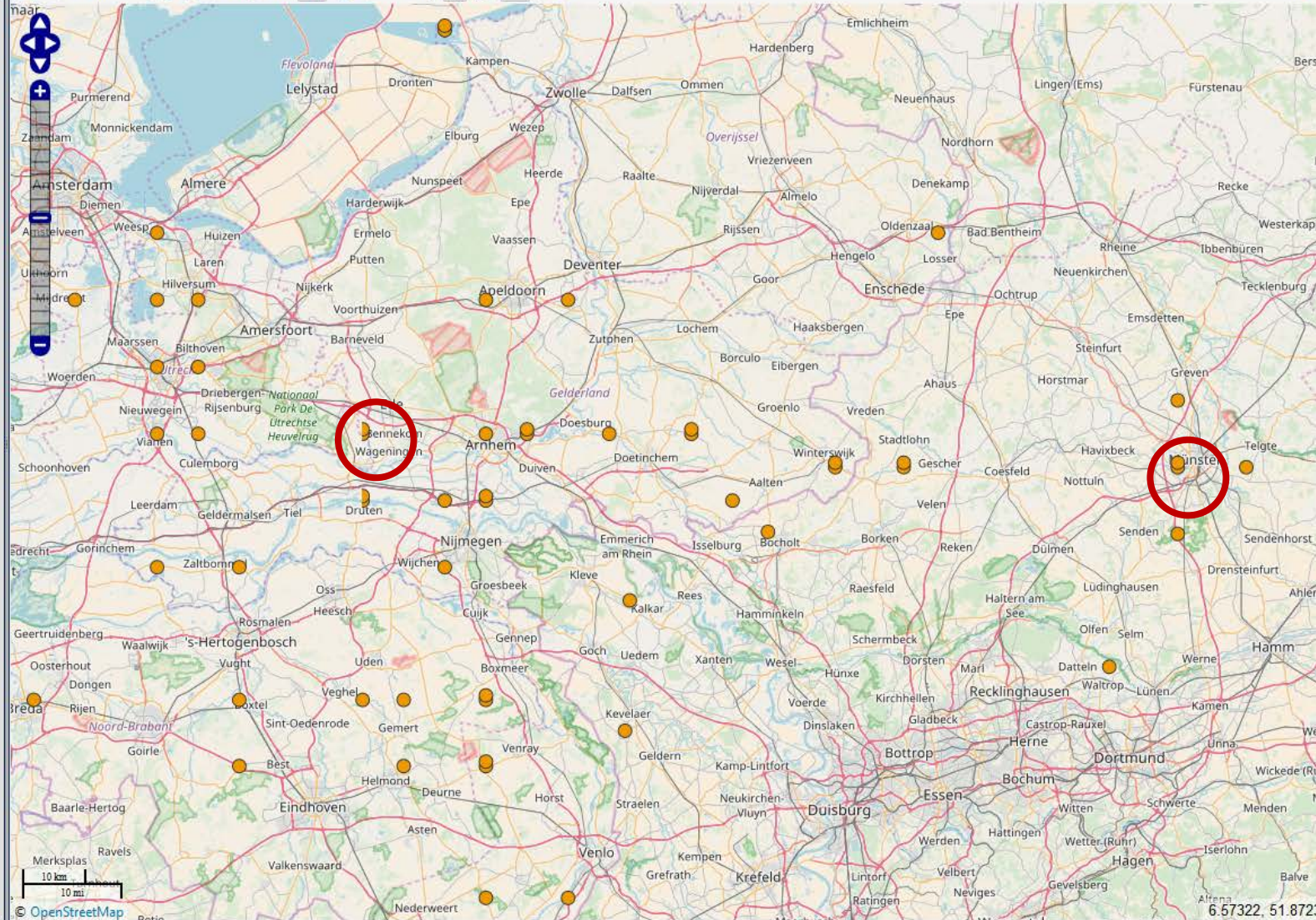
<https://portal.edaphobase.org/>

Freitext-Taxonsuche

nus (Seinhorst, 1954) Siddiqi, 1974 [Species]

Kartenansicht Tabellenansicht Datenauswahlstatistik

Zusatzkarten Fundpunkte Werkzeuge



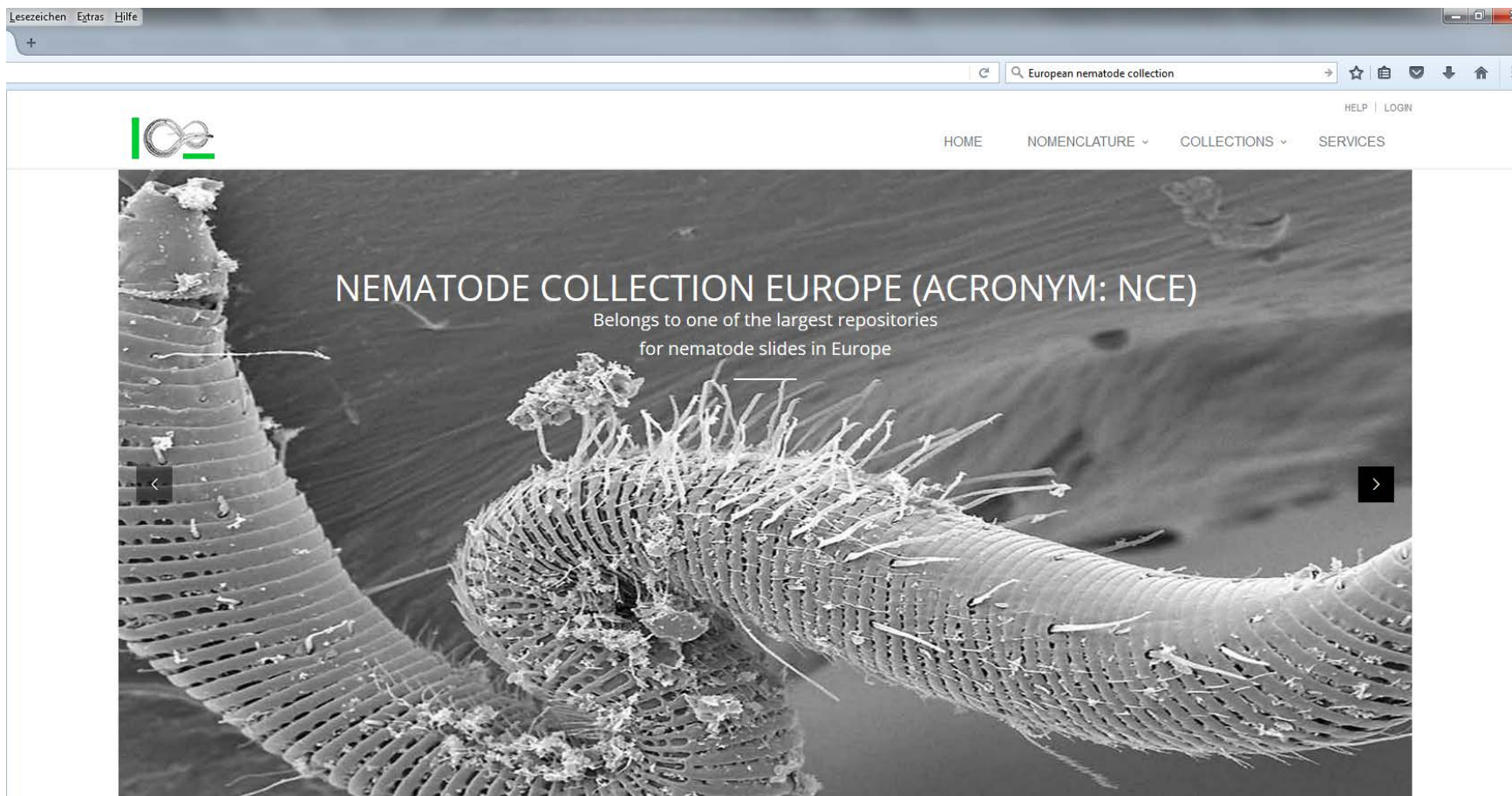
16:30:52 - Aufgrund fehlender Koordinaten können 94 Punkte nicht auf der Karte angezeigt werden.

OK

# DNST - Availability of data



## NCE – Nematode Collection Europe



### Introduction

Nematode Collection Europe (acronym: NCE) belongs to one of the largest repositories for nematode slides in Europe. It includes a searchable type specimens collection and nomenclatorial database. These types are mostly used for scientific taxonomical studies and available upon request. The nomenclatorial database can be searched via the search button.



# DNST - Availability of data



NCE: approx. 800 type slides from Germany

Hiife

html?id=Heterodera betae Wouts, Rumpenhorst %26 Sturhan, 2001. European nematode collection

HELP | LOGIN

HOME NOMENCLATURE ▾ COLLECTIONS ▾ SERVICES

### SEARCH DE TYPE

Type (part of) the DNST number ('DNST\_1' or 'DNST\_6') or the scientific name...

#### ALL DE TYPES

- Hemicyclophora sturhani Loof, 1984.
- Heterodera amygdali Kirjanova & Ivanova, 1975.
- Heterodera aucklandica Wouts & Sturhan, 1995.
- Heterodera australis Subbotin, Sturhan, Rumpenhorst & Moens, 2002.
- [Heterodera betae Wouts, Rumpenhorst & Sturhan, 2001.](#)
- Heterodera cardiolata Kirjanova & Ivanova, 1969.
- Heterodera ciceri Vovlas, Greco & di Vito, 1986.
- Heterodera circae Subbotin & Sturhan, 2004.

#### Heterodera betae Wouts, Rumpenhorst & Sturhan, 2001.

##### Slides DE

Id	Juveniles	Females	Males	Country	Status	Comments
DNST_42_69_1		1		DE	Paratype	
DNST_42_69_2				DE	Paratype	6 cyst cones
DNST_42_69_3				DE	Paratype	10 cyst cones
DNST_42_69_4	23			DE	Paratype	
DNST_42_69_5	21			DE	Paratype	
DNST_42_69_6	13			DE	Paratype	

# DNST - Life collections at JKI



<i>Bursaphelenchus</i> spp.	49
<i>Ditylenchus destructor</i>	3
<i>Ditylenchus dipsaci</i>	4
<i>Globodera pallida</i>	105
<i>G. rostochiensis</i>	65
<i>Heterodera schachtii</i>	10
<i>Pratylenchus crenatus</i>	2
<i>P. neglectus</i>	8
<i>P. penetrans</i>	6
<i>P. thornei</i>	6

Life collections are used for research purpose and as such not considered permanent.

# DNST - Life collections at JKI



B. abietinus	B. fraudulentus	B. paraparvispicularis
B. abruptus	B. fuchsi	B. pinasteri
B. africanus	B. fungivorus	B. platzeri
B. anamurius	B. gerberae	B. poligraphi
B. andrassyi	B. gillanii	B. populi
B. antoniae	B. hellenicus	B. rainulfi
B. Arthuri	B. hildegardae	B. seani
B. braaschae	B. hofmanni	B. sexdentati
B. burgermeisteri	B. hylobianum	B. sinensis
B. chengi	B. luxuriosae	B. singaporensis
B. conicaudatus	B. macromucronatus	B. thailandae
B. corneolus taiwanensis	B. mucronatus mucronatus	B. tryphophloeii
B. corneolus corneolu (syn. B. curvicaudatus)	B. mucronatus kolymensis	B. tusciae
B. doui	B. obeche	B. vallesianus
B. eggersi	B. paracorneolus	B. willibaldi
B. eremus	B. parafricanus	B. xylophilus
	B. paraluxuriosae	

# Contact persons at JKI



Matthias Daub

*Heterodera schachtii*

Johannes Hallmann

*Pratylenchus*

Björn Hoppe

*Bursaphelenchus*

Stephan König

*Ditylenchus, Globodera*

Thank you for your attention!