

# Barcode Spiders in the Caucasus: First Results from the CaBOL Project



FORSCHUNGS  
museum  
**KOENIG**

**Leibniz**  
Leibniz-Gemeinschaft

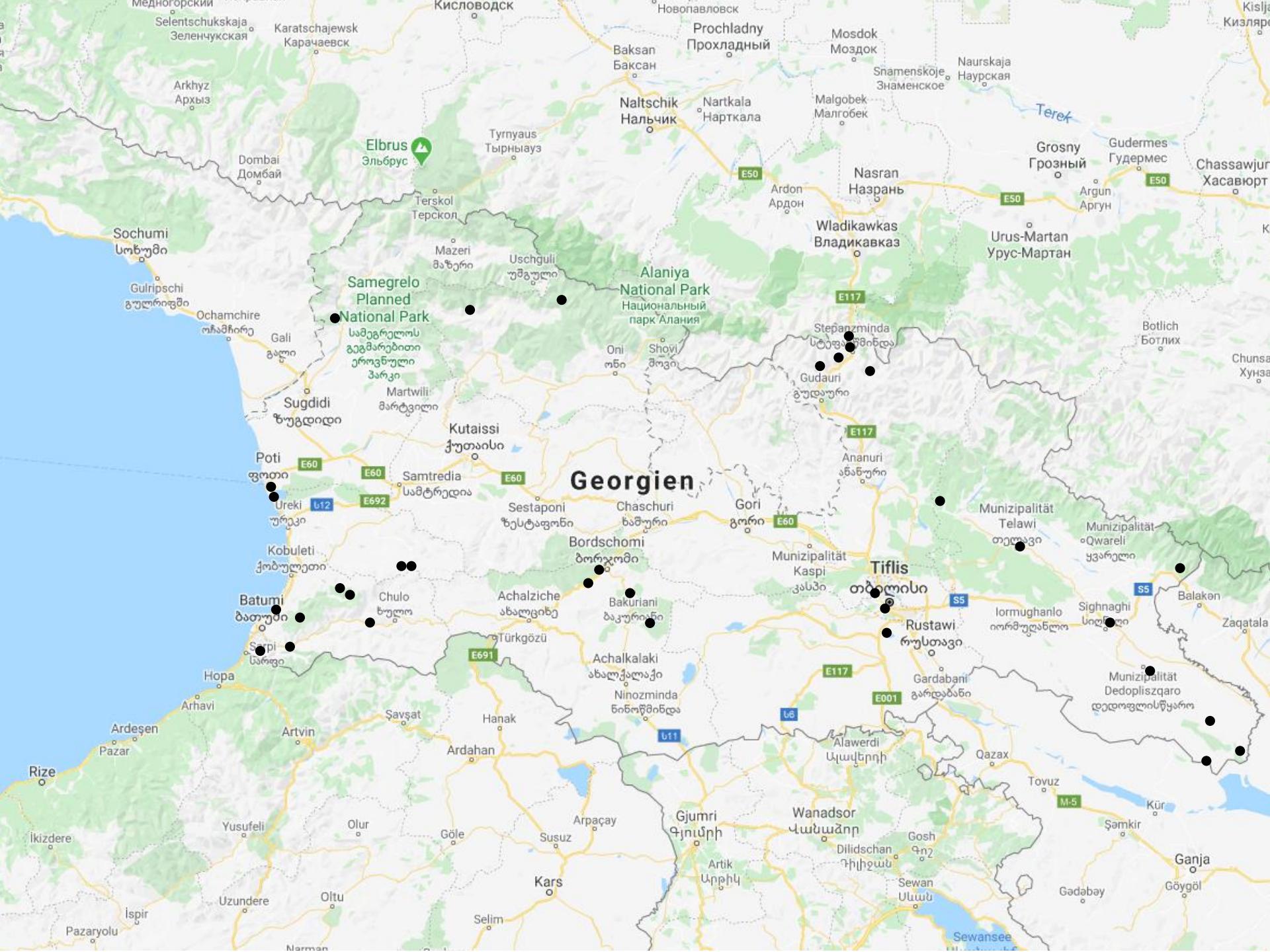
**GGBC**  
Georgian-German Biodiversity Center

**CaBOL**  
Caucasus Barcode of Life

GEFÖRDERT VOM

 Bundesministerium  
für Bildung  
und Forschung

Hajo Krammer

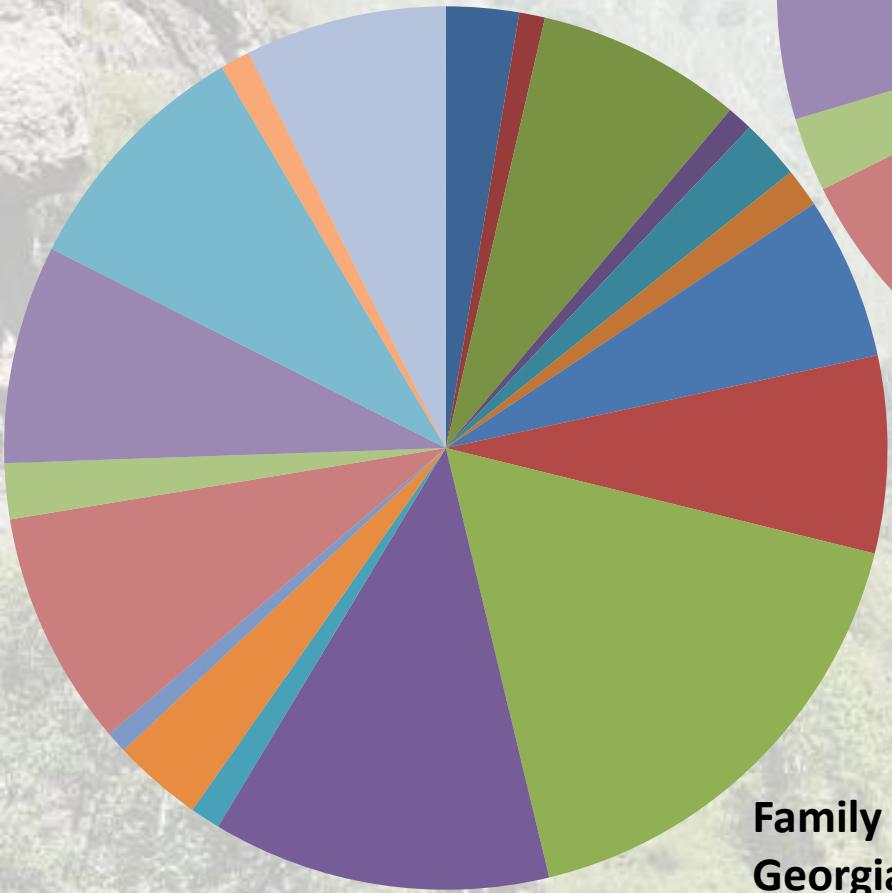


# Georgia 2009-2019

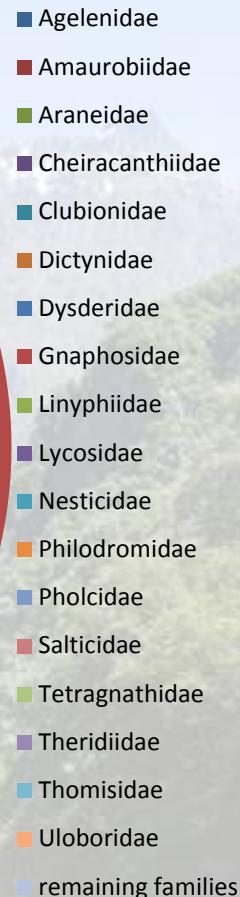
A scenic view of a mountain range with lush green slopes and rocky peaks under a clear blue sky. A dirt road or path leads towards the base of the mountains.

- Collecting events:
  - 16.-27.vii.2018
  - 01.vii.-05.viii.2019
- >1400 specimens
- > 770 barcodes
- 274 species (639 known species from Georgia)
- > 30 first records
- > 30 new BINs (Barcode Index Numbers)

# Collected Families



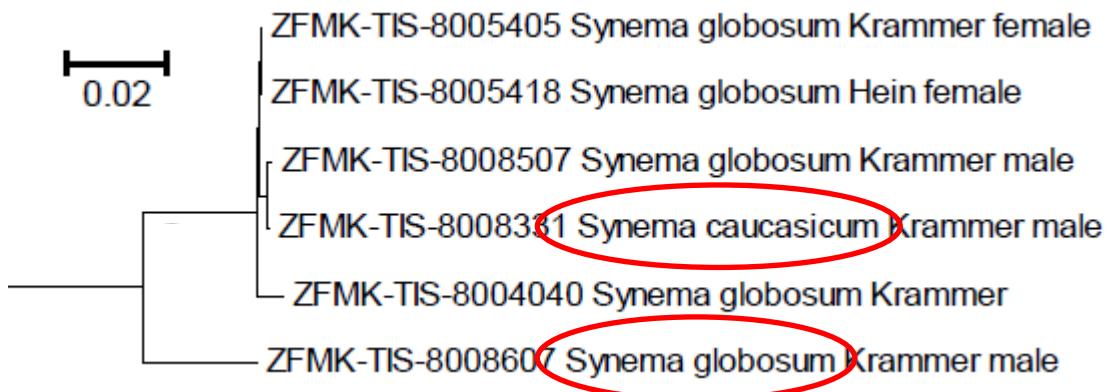
Family dispersion for  
Georgia



Anyphaenidae	Atypidae
Cybaeidae	Eresidae
Filistatidae	Liocranidae
Mimetidae	Miturgidae
Nemesiidae	Oxyopidae
Phrurolithidae	Pisauridae
Scytodidae	Segestriidae
Sparassidae	Titanoecidae
Zodariidae	35/42

Agelena labyrinthica	•	Dysdera sp. 4	•	Scutpelecopsis krausi	•	Philodromus longipalpis	•	Enoplognatha latimana
Agelena orientalis	•	Dysdera sp. 5	•	Stylocetor romanus	•	Thanatus atratus	•	Enoplognatha oelandica
Pireneitega spasskyi	•	Harpactea sp. 1	•	Tenuiphantes mengei	•	Thanatus oblongiusculus	•	Enoplognatha ovata
Tegenaria longimana	•	Harpactea sp. 2	•	Tenuiphantes tenuis	•	Thanatus vulgaris	•	Enoplognatha thoracica
Tegenaria sp.	•	Eresus lavroesiae	•	Trichoncus affinis	•	Tibellus oblongus	•	Episinus truncatus
Tegenaria chumachenkoi	•	Filistata insidiatrix	•	Agroeca maculata	•	Holocnemus pluchei	•	Heterotheridion nigrovareiegatum
Tegenaria pseudolyncea	•	Anagraphis pallens	•	Liocranoeca spasskyi	•	Hoploholcus longipes	•	Latrodectus tredecimguttatus
Amaurobius fenestratus	•	Aphantaulax trifasciata	•	Sagana sp.	•	Hoploholcus cf. longipes	•	Neottiura suaveolens
Anyphaena accentuata	•	Civizelotes caucasicus	•	Alopecosa pulverulenta	•	Pholcus alticeps	•	Paidiscura pallens
Aculepeira ceropegia	•	Drassodes lapidosus	•	Arctosa cinerea	•	Phrurolithus festivus	•	Parasteatoda lunata
Aculepeira talishia	•	Drassodes pubescens	•	Arctosa tbilisiensis	•	Dolomedes fimbriatus	•	Parasteatoda tabulata
Araneus angulatus	•	Drassyllus praeficus	•	Aulonia albimana	•	Pisaura novicia	•	Parasteatoda tepidariorum
Araneus diadematus	•	Drassyllus pusillus	•	Geolycosa charitonovi	•	Aelurillus v-insignitus	•	Phylonetia impressa
Araneus marmoreus	•	Echemus sp.	•	Geolycosa cf. charitonovi	•	Attulus ammophilus	•	Platnickina tincta
Araneus quadratus	•	Gnaphosa dolosa	•	Geolycosa dunini	•	Attulus avocator	•	Robertus arundineti
Araneus trigguttatus	•	Gnaphosa taurica	•	Hogna radiata	•	Attulus goricus	•	Robertus lividus
Arianiella alpica	•	Haplodrassus signifer	•	Hogna cf. radiata	•	Attulus penicillatus	•	Simitidion simile
Arianiella cucurbitina	•	Micaria pulicaria	•	Lycosa praegrandis	•	Carrhotus xanthogramma	•	Steatoda albomaculata
Arianiella opistographa	•	Micaria silesiaca	•	Pardosa agrestis	•	Cyrba ocellata	•	Steatoda bipunctata
Argiope bruennichi	•	Nomisia exornata	•	Pardosa amentata	•	Euophrys frontalis	•	Steatoda grossa
Argiope lobata	•	Poecilochroa variana	•	Pardosa azerifalcata	•	Evarcha arcuata	•	Steatoda paykulliana
Cyclosa conica	•	Scotophaeus cf. quadripunctatus	•	Pardosa caucasica	•	Heliophanus cupreus	•	Steatoda triangulosa
Cyrtarachne ixiooides	•	Trachyzelotes malkini	•	Pardosa italica	•	Heliophanus dubius	•	Theridion mystaceum
Hypsosinga pygmaea	•	Zelotes khostensis	•	Pardosa hortensis	•	Heliophanus flavipes	•	Theridion melanurum
Larinoides patagiatus	•	Zelotes latreillei	•	Pardosa lugubris	•	Heliophanus patagiatus	•	Theridion pinastri
Larinoides suspicax	•	Zelotes segreg	•	Pardosa morosa	•	Marpissa muscosa	•	Theridion varians
Mangora acalypha	•	Zelotes subterraneus	•	Pardosa nebulosa	•	Marpissa pomatia	•	Theridula gonygaster
Neoscona adianta	•	Agyneta rurestris	•	Pardosa paracolchica	•	Menemerus semilimbatus	•	Yaginumena maculosa
Neoscona subfuscata	•	Bathyphantes gracilis	•	Pardosa prativaga	•	Menemerus taeniatus	•	Cozyptila guseinovorum
Zilla diodia	•	Centromerus minor	•	Pardosa schenkeli	•	Myrmarachne formicaria	•	Diae dorsata
Atypus muralis	•	Ceratinella brevis	•	Pirata piraticus	•	Pellenes epularis	•	Heriaeus oblongus
Cheiracanthium mildei	•	Ceratinella scabrosa	•	Piratula hygrophila	•	Phlegra fasciata	•	Misumena vatia
Cheiracanthium montanum	•	Cinetata gradata	•	Piratula hurkai	•	Philaeus chrysops	•	Monaeses isrealiensis
Clubiona brevipes	•	Entelecara acuminata	•	Trochosa cachetiensis	•	Pseudeuophrys erratica	•	Psammitis ninnii
Clubiona caucasica	•	Erigone autumnalis	•	Trochosa ruricola	•	Pseudeuophrys lanigera	•	Runcinia grammica
Clubiona corticalis	•	Frontinella frutetorum	•	Trochosa terricola	•	Pseudicius picaceus	•	Synema globosum
Clubiona germanica	•	Gongylidiellum vivum	•	Xerolycosa nemoralis	•	Talavera aperta	•	Thomisus onustus
Clubiona neglecta	•	Hyllyphantes nigritus	•	Ero aphana	•	Talavera aequipes	•	<b>Xysticus bifasciatus</b>
Clubiona lutescens	•	Linyphia hortensis	•	Zora nemoralis	•	Scytodes thoracica	•	Xysticus cristatus
Clubiona pallidula	•	Linyphia triangularis	•	Zora manicata	•	Segestria florentina	•	Xysticus kochi
Clubiona pseudosimilis	•	Mansuphanes ovalis	•	Raveniola adjarica	•	Segestria sp.	•	Xysticus lanio
Clubiona frisia	•	Metopobactrus prominulus	•	Raveniola zaitzevi	•	Micrommata virescens	•	Xysticus pseudolanolio
Cryptoecha thaleri	•	Micrargus herbigradus	•	Carpathonesticus eriashvillii	•	Metellina mengei	•	Xysticus spasskyi
Brigittea latens	•	Microneta viaria	•	Oxyopes globifer	•	Metellina merianae	•	Xysticus gallicus
Dictyna arundinacea	•	Neriene clathrata	•	Oxyopes heterophthalmus	•	Metellina segmentata	•	Nurscia albomaculata
Dictyna ottoi	•	Neriene peltata	•	Oxyopes lineatus	•	Pachygnatha degeeri	•	Titanoeca caucasica
Dictyna uncinata	•	Neriene radiata	•	Philodromus albidus	•	Tetragnatha extensa	•	Titanoeca schineri
Lathys lehtineni	•	Oedothorax meridionalis	•	Philodromus aureolus	•	Tetragnatha montana	•	Titanoeca ukrainica
Dysdera crocata	•	Plesiophantes simplex	•	Philodromus cespitum	•	Tetragnatha pinicola	•	Uloborus walckenaerius
Dysdera cf. giliarovi	•	Pocadicnemis juncea	•	<b>Philodromus collinus</b>	•	Asagena phalerata	•	Zodarion thoni
Dysdera sp. 1	•	Poeciloneta variegata	•	Philodromus emarginatus	•	Cryptachaea riparia	•	
Dysdera sp. 2	•	Porhomma pygmaeum	•	Philodromus dispar	•	Dipoena braccata	•	
Dysdera sp. 3	•	Maculoncus obscurus	•	Philodromus fuscolimbatus	•	Dipoena melanogaster	•	

# *Synema globosum*



## Top 20 Matches

Phylum	Class	Order	Family	Genus	Species	Subspecies	Similarity (%)	Status	Display option: Top 20
Arthropoda	Arachnida	Araneae	Thomisidae	<i>Synema</i>	<i>globosum</i>		100	Early-Release	
Arthropoda	Arachnida	Araneae	Thomisidae	<i>Synema</i>	<i>globosum</i>		100	Published	
Arthropoda	Arachnida	Araneae	Thomisidae	<i>Synema</i>	<i>globosum</i>		100	Published	
Arthropoda	Arachnida	Araneae	Thomisidae	<i>Synema</i>	<i>globosum</i>		99.23	Published	
Arthropoda	Arachnida	Araneae	Thomisidae	<i>Synema</i>	<i>globosum</i>		95.26	Published	
Arthropoda	Arachnida	Araneae	Thomisidae	<i>Synema</i>	<i>globosum</i>		95.26	Published	
Arthropoda	Arachnida	Araneae	Thomisidae	<i>Synema</i>	<i>globosum</i>		95.26	Private	
Arthropoda	Arachnida	Araneae	Thomisidae	<i>Synema</i>	<i>globosum</i>		95.26	Published	

~ 4% Split

- ZFMK-TIS-8005405 *Synema globosum* Krammer female
- ZFMK-TIS-8005418 *Synema globosum* Hein female
- ZFMK-TIS-8008507 *Synema globosum* Krammer male 
-  ZFMK-TIS-8008331 *Synema caucasicum* Krammer male 
-  ZFMK-TIS-8004040 *Synema globosum* Krammer 
- ZFMK-TIS-8008607 *Synema globosum* Krammer male 



8008507

*Synema globosum*



8008331

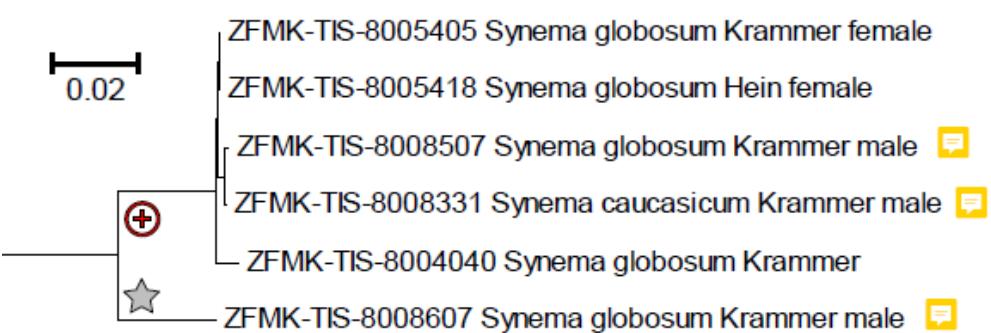
*Synema caucasicum*



8008607

*Synema cf. globosum*





8008507

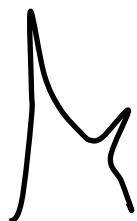
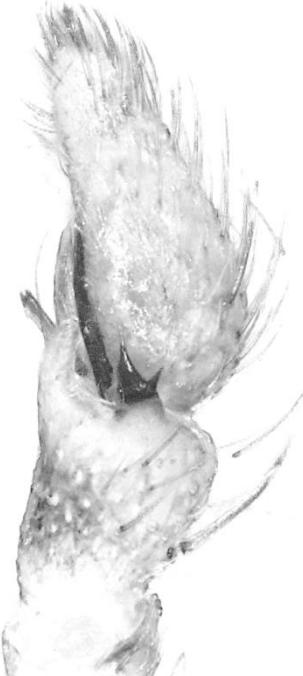
*Synema globosum*

8008331

*Synema caucasicum*

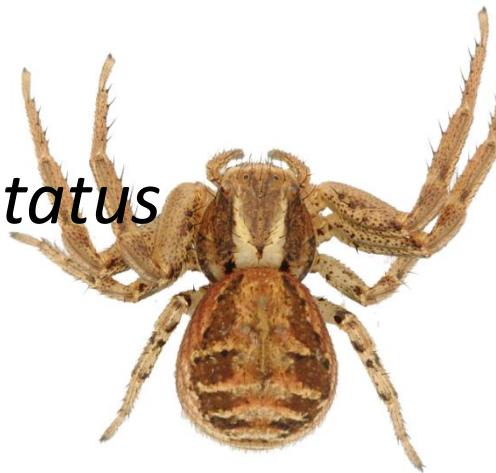
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*Synema cf. globosum*



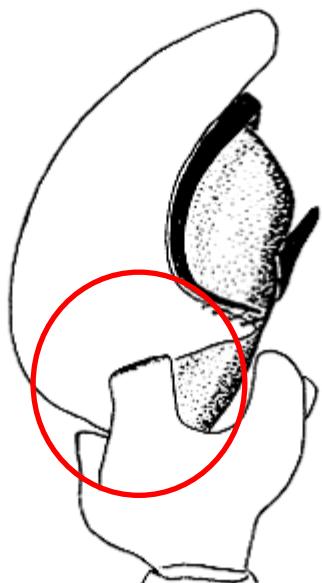
Conclusion: Either huge variation in the Retrolateral Tibiaapophysis possible and therefore questionable character for species delimitation? Or CO1 is not solving *Synema*?

# *Xysticus* *pseudolanio/ukrainicus/cristatus*



- ZFMK-TIS-8001111 *Xysticus pseudolanio* Otto male  ✓
- ZFMK-TIS-8001217 *Xysticus pseudolanio* Otto male
- ZFMK-TIS-8008118 *Xysticus cristatus* Krammer female
- ZFMK-TIS-8008008 *Xysticus cristatus* Krammer male
- ZFMK-TIS-8008046 *Xysticus cristatus* Krammer female
- ZFMK-TIS-8008394 *Xysticus cristatus* Krammer male
- ZFMK-TIS-8001079 *Xysticus luctator* Otto female
- ZFMK-TIS-8008009 *Xysticus cristatus* Krammer female
- ZFMK-TIS-8005357 *Xysticus cristatus* Krammer male
- ZFMK-TIS-8001140 *Xysticus kochi* Otto female  ✗
- ZFMK-TIS-8008087 *Xysticus cristatus* Krammer female

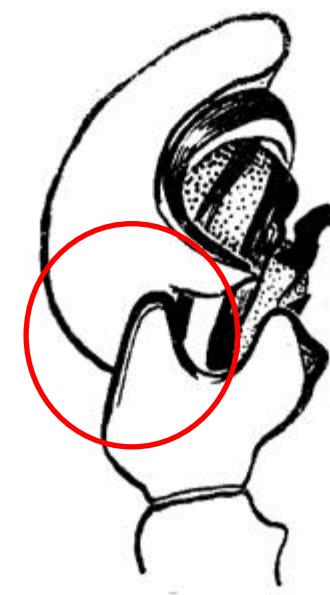
0.02



*X. pseudolanio* Wunderlich, 1995

„Beziehungen: Sie bestehen am ehesten zu *ukrainicus* UTOCHKIN 1968; bei *pseudolanio* ist aber die retrolaterale Tibia-Apophyse des Pedipalpus apical breiter.“

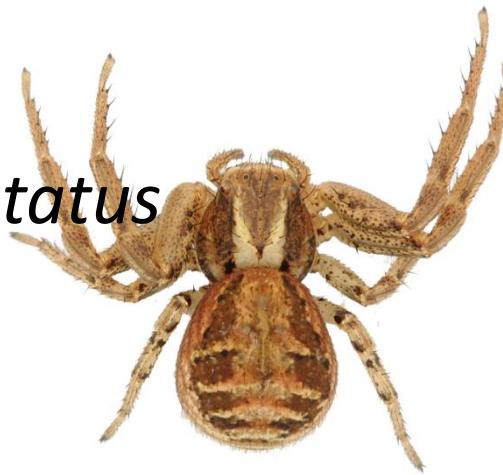
Wunderlich, 1995



*X. ukrainicus* Utochkin 1968

*Xysticus*  
*pseudolanio/ukrainicus/cristatus*

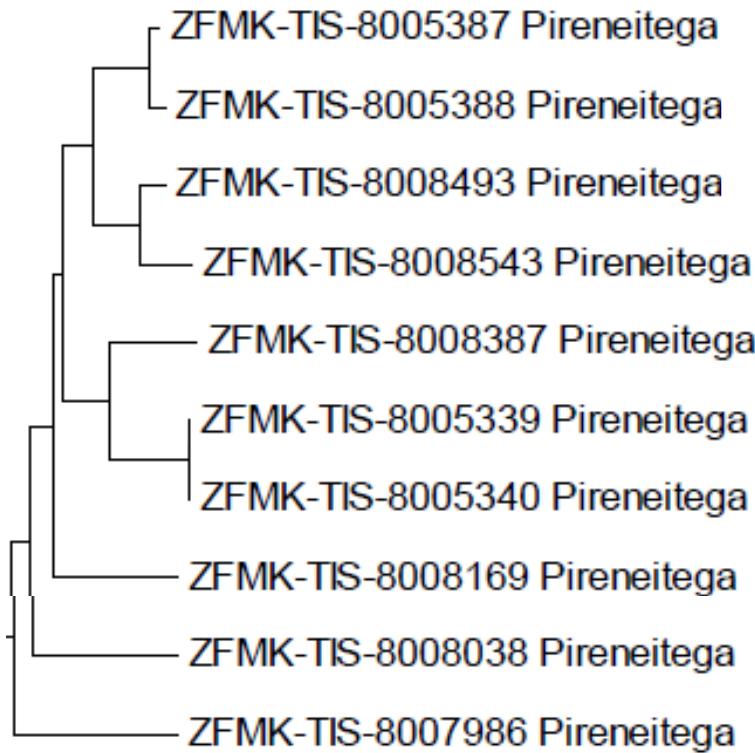
*X. ukrainicus* Utochkin 1968



*X. pseudolanio* Wunderlich, 1995



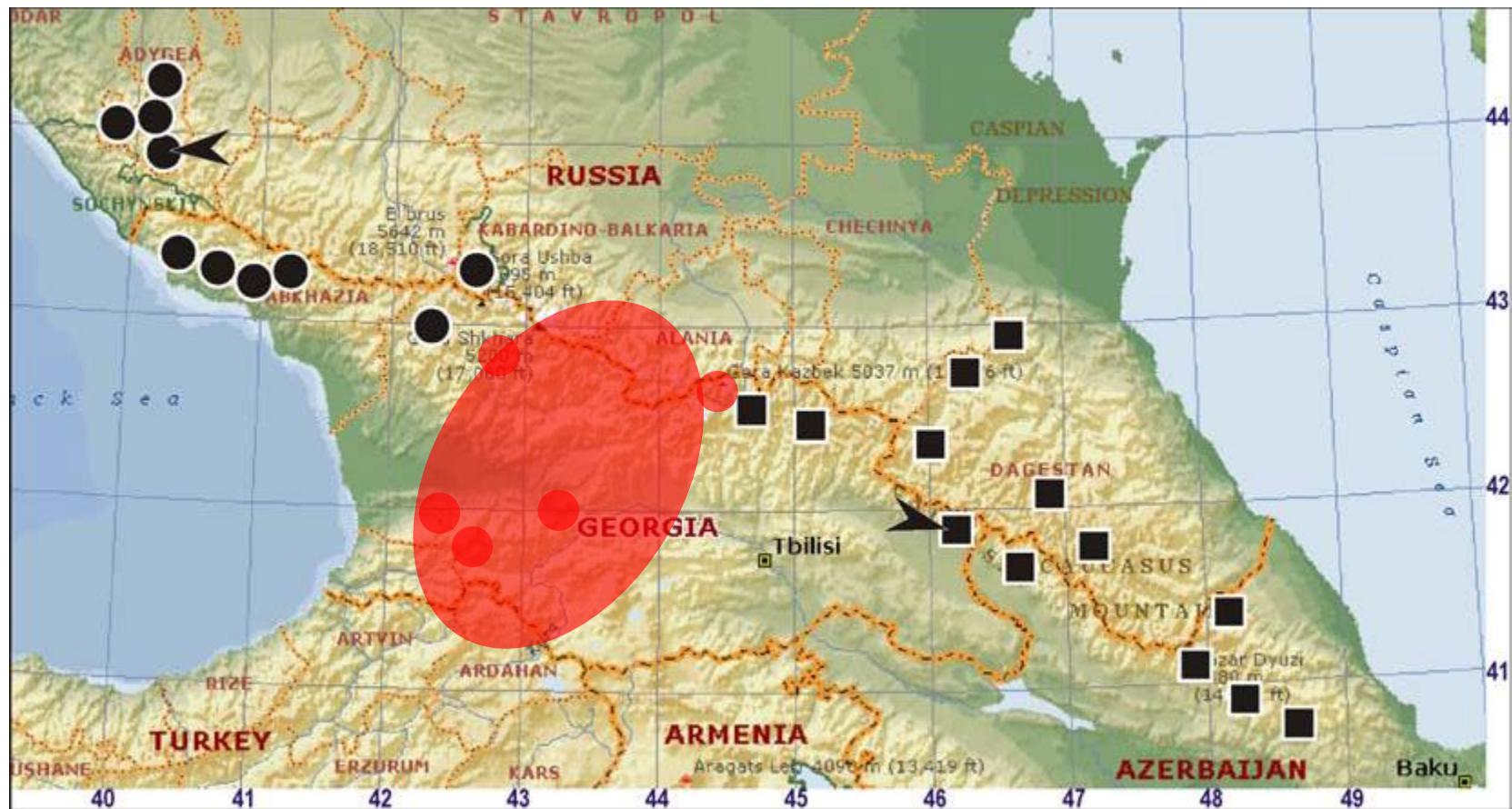
# Pireneitega



0.02



# Pireneitega

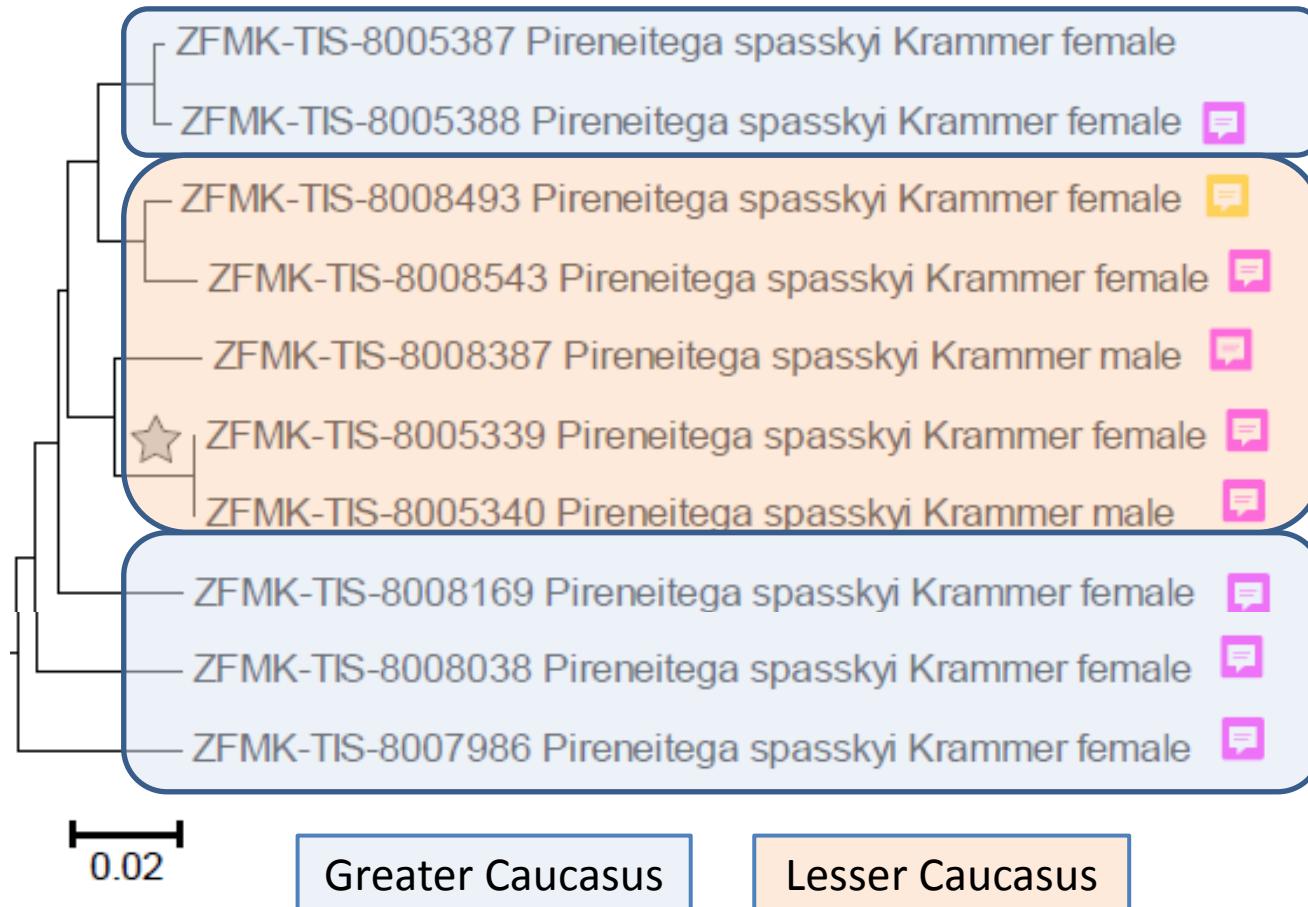


- *P. ovtchinnikovi*
- *P. spasskyi*

Kovblyuk et al. 2013



# Pireneitega

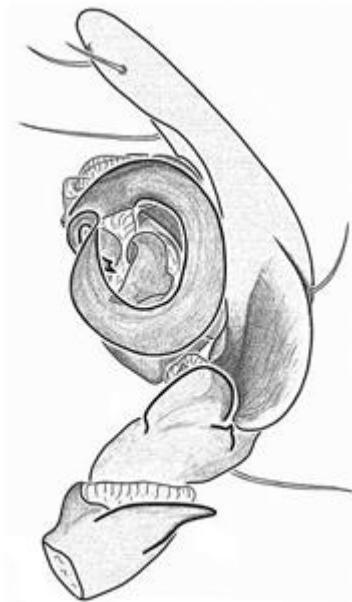




# *Pireneitega spasskyi*



*P. spasskyi* Kovblyuk et al., 2013

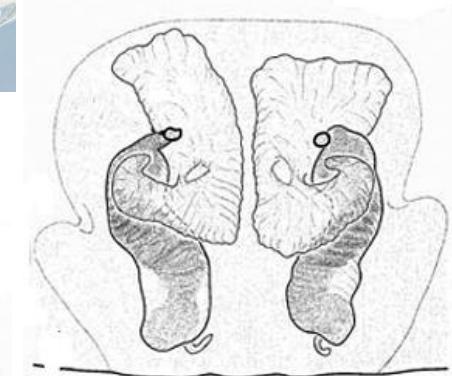
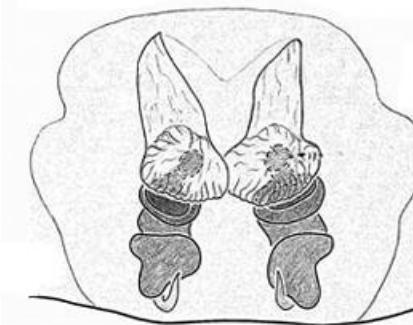
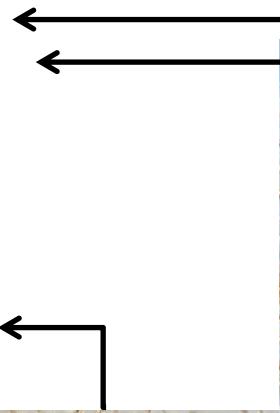


*P. ovtchinnikovi* Kovblyuk et al., 2013

# Pireneitega



Conclusion: All the same species?

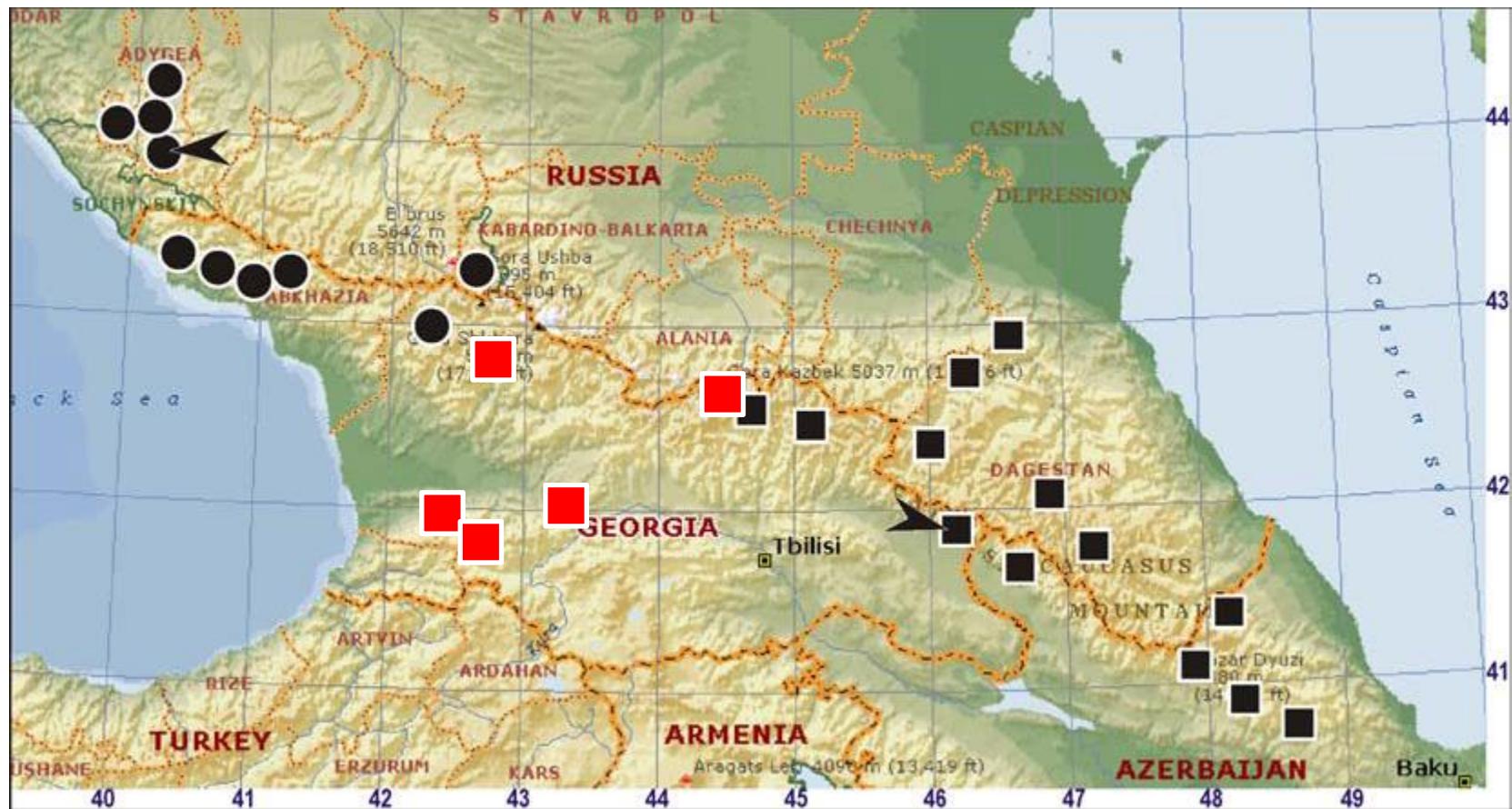


*P. ovtchinnikovi* Kovblyuk et al., 2013

*P. spasskyi* Kovblyuk et al., 2013



# Pireneitega



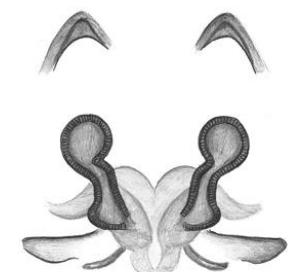
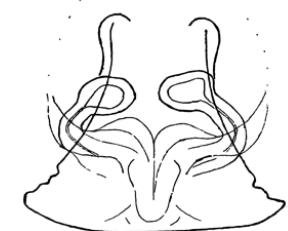
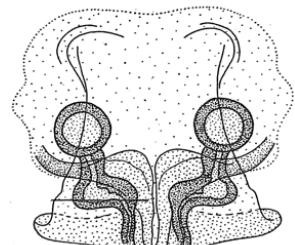
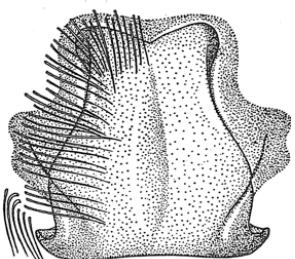
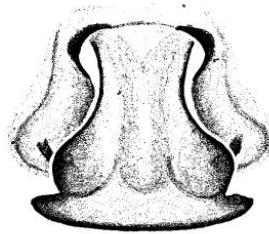
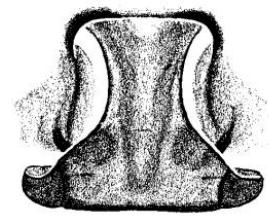
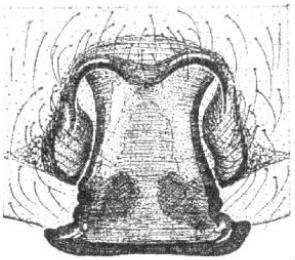
- *P. ovtchinnikovi*
- *P. spasskyi*

Kovblyuk et al. 2013

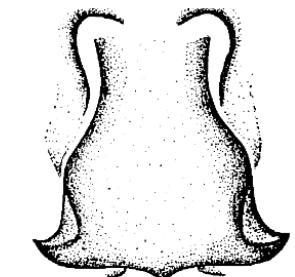
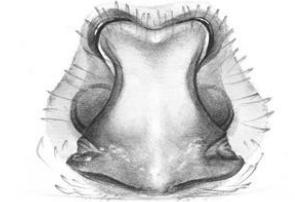
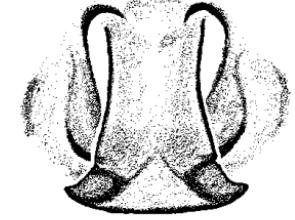
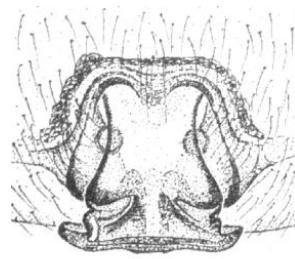
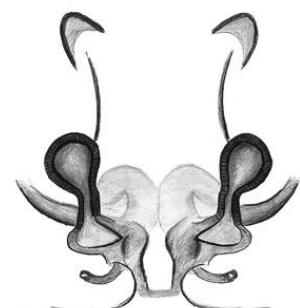
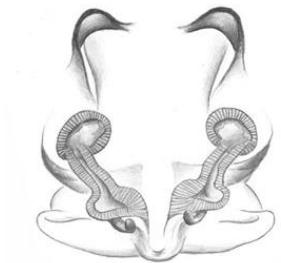
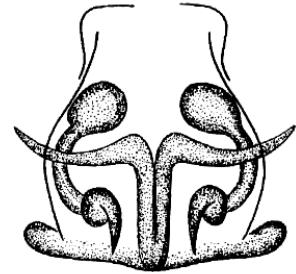
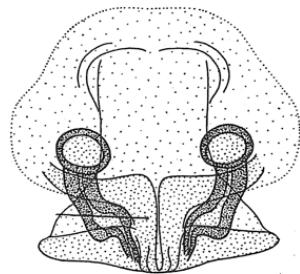


Pardosa

*Pardosa agrestis*



*Pardosa monticola*



ZFMK-TIS-8008014 *Pardosa colchica* Krammer female  
ZFMK-TIS-8008015 *Pardosa colchica* Krammer female  
ZFMK-TIS-8008072 *Pardosa agrestis* Krammer female  
ZFMK-TIS-8008082 *Pardosa agrestis* Krammer male  
ZFMK-TIS-8008093 *Pardosa agrestis* Krammer female  
ZFMK-TIS-8008112 *Pardosa agrestis* Krammer female  
ZFMK-TIS-8008122 *Pardosa agrestis* Krammer female  
ZFMK-TIS-8008050 *Pardosa colchica* Krammer female  
ZFMK-TIS-8008051 *Pardosa colchica* Krammer female  
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ZFMK-TIS-8008025 *Pardosa agrestis* Krammer female  
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ZFMK-TIS-8008053 *Pardosa monticola* Krammer female  
ZFMK-TIS-8005373 *Pardosa albatula* Krammer female  
ZFMK-TIS-8005434 *Pardosa blanda* Hein female  
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ZFMK-TIS-8008152 *Pardosa monticola* Krammer female  
ZFMK-TIS-8005350 *Pardosa plumipes* Krammer female  
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ZFMK-TIS-8008495 *Pardosa monticola* Krammer female  
ZFMK-TIS-8005435 *Pardosa torrentum* Hein female  
ZFMK-TIS-8008150 *Pardosa monticola* Krammer male  
ZFMK-TIS-8008012 *Pardosa monticola* Krammer male  
ZFMK-TIS-8007997 *Pardosa agrestis* Krammer female  
ZFMK-TIS-8008123 *Pardosa monticola* Krammer female  
ZFMK-TIS-8005433 *Pardosa plumipes* Hein male  
ZFMK-TIS-8005343 *Pardosa monticola* Krammer female  
ZFMK-TIS-8005344 *Pardosa buchari* Krammer female

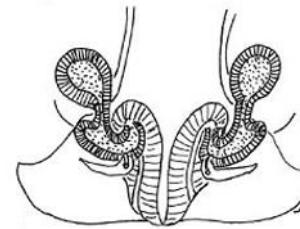
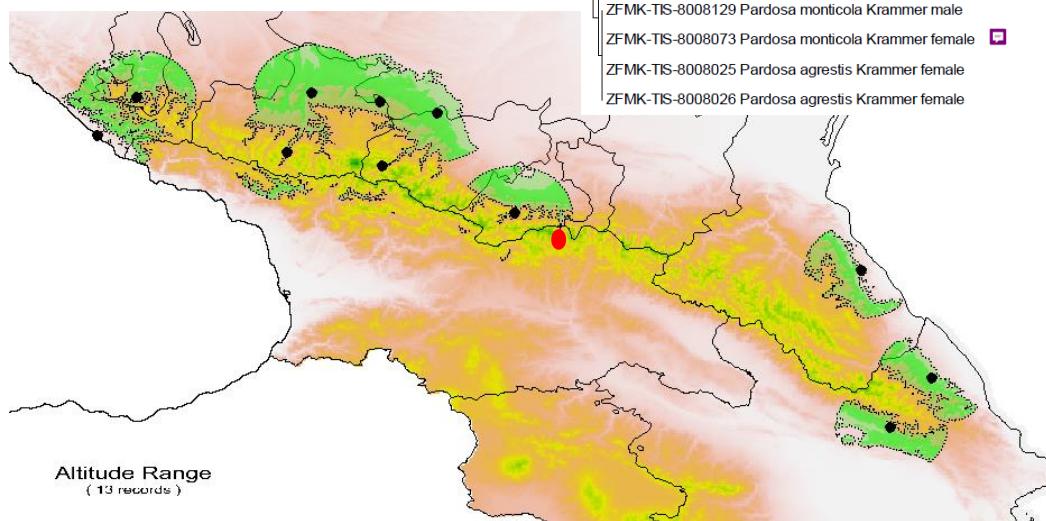
# 8008014

- *Pardosa* <1%

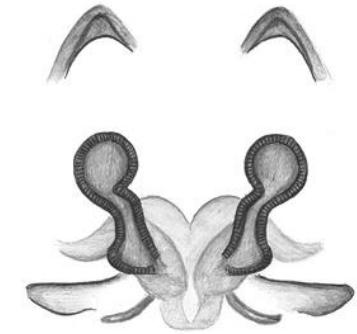
- *agrestis*
- *pontica*
- *mirzakhniae*
- *monticola*
- *torrentum*
- *plumipes*
- *ovtchinnikovi*
- *agricola*
- *purbeckensis*

0.02

- ZFMK-TIS-8008014 Pardosa colchica Krammer female □
- ZFMK-TIS-8008015 Pardosa colchica Krammer female □
- ZFMK-TIS-8008072 Pardosa agrestis Krammer female □
- ZFMK-TIS-8008092 Pardosa agrestis Krammer male
- ZFMK-TIS-8008093 Pardosa agrestis Krammer female
- ZFMK-TIS-8008112 Pardosa agrestis Krammer female
- ZFMK-TIS-8008122 Pardosa agrestis Krammer female
- ZFMK-TIS-8008050 Pardosa colchica Krammer female □
- ZFMK-TIS-8008051 Pardosa colchica Krammer female □
- ZFMK-TIS-8008366 Pardosa monticola Krammer female □
- ZFMK-TIS-8005379 Pardosa agrestis Krammer female
- ZFMK-TIS-8008571 Pardosa agrestis Krammer female
- ZFMK-TIS-8008135 Pardosa monticola Krammer female □
- ZFMK-TIS-8005371 Pardosa monticola Krammer female
- ZFMK-TIS-8005378 Pardosa agrestis Krammer male
- ZFMK-TIS-8008365 Pardosa monticola Krammer male
- ZFMK-TIS-8005372 Pardosa monticola Krammer female
- ZFMK-TIS-8008124 Pardosa monticola Krammer female □
- ZFMK-TIS-8008130 Pardosa monticola Krammer female
- ZFMK-TIS-8008094 Pardosa monticola Krammer female
- ZFMK-TIS-8008129 Pardosa monticola Krammer male
- ZFMK-TIS-8008073 Pardosa monticola Krammer female
- ZFMK-TIS-8008025 Pardosa agrestis Krammer female
- ZFMK-TIS-8008026 Pardosa agrestis Krammer female



*P. paracolchica* Zyuzin & Logunov, 2000



*P. agrestis* (Løvbrekke. unpubl.)



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# *Pardosa*

## cf. *agrestis*

- ZFMK-TIS-8008014 Pardosa colchica Krammer female [comment]
- ZFMK-TIS-8008015 Pardosa colchica Krammer female [comment]
- ZFMK-TIS-8008072 Pardosa agrestis Krammer female [comment]
- ZFMK-TIS-8008092 Pardosa agrestis Krammer male
- ZFMK-TIS-8008093 Pardosa agrestis Krammer female
- ZFMK-TIS-8008112 Pardosa agrestis Krammer female
- ZFMK-TIS-8008122 Pardosa agrestis Krammer female
- ZFMK-TIS-8008050 Pardosa colchica Krammer female [comment]
- ZFMK-TIS-8008051 Pardosa colchica Krammer female [comment]
- ZFMK-TIS-8008366 Pardosa monticola Krammer female [comment]
- ZFMK-TIS-8005379 Pardosa agrestis Krammer female
- ZFMK-TIS-8008571 Pardosa agrestis Krammer female
- ZFMK-TIS-8008135 Pardosa monticola Krammer female [comment]
- ZFMK-TIS-8005371 Pardosa monticola Krammer female
- ZFMK-TIS-8005378 Pardosa agrestis Krammer male
- ZFMK-TIS-8008365 Pardosa monticola Krammer male
- ZFMK-TIS-8005372 Pardosa monticola Krammer female
- ZFMK-TIS-8008124 Pardosa monticola Krammer female [comment]
- ZFMK-TIS-8008130 Pardosa monticola Krammer female [comment]
- ZFMK-TIS-8008094 Pardosa monticola Krammer female [comment]
- ZFMK-TIS-8008129 Pardosa monticola Krammer male
- ZFMK-TIS-8008073 Pardosa monticola Krammer female [comment]
- ZFMK-TIS-8008025 Pardosa agrestis Krammer female
- ZFMK-TIS-8008026 Pardosa agrestis Krammer female

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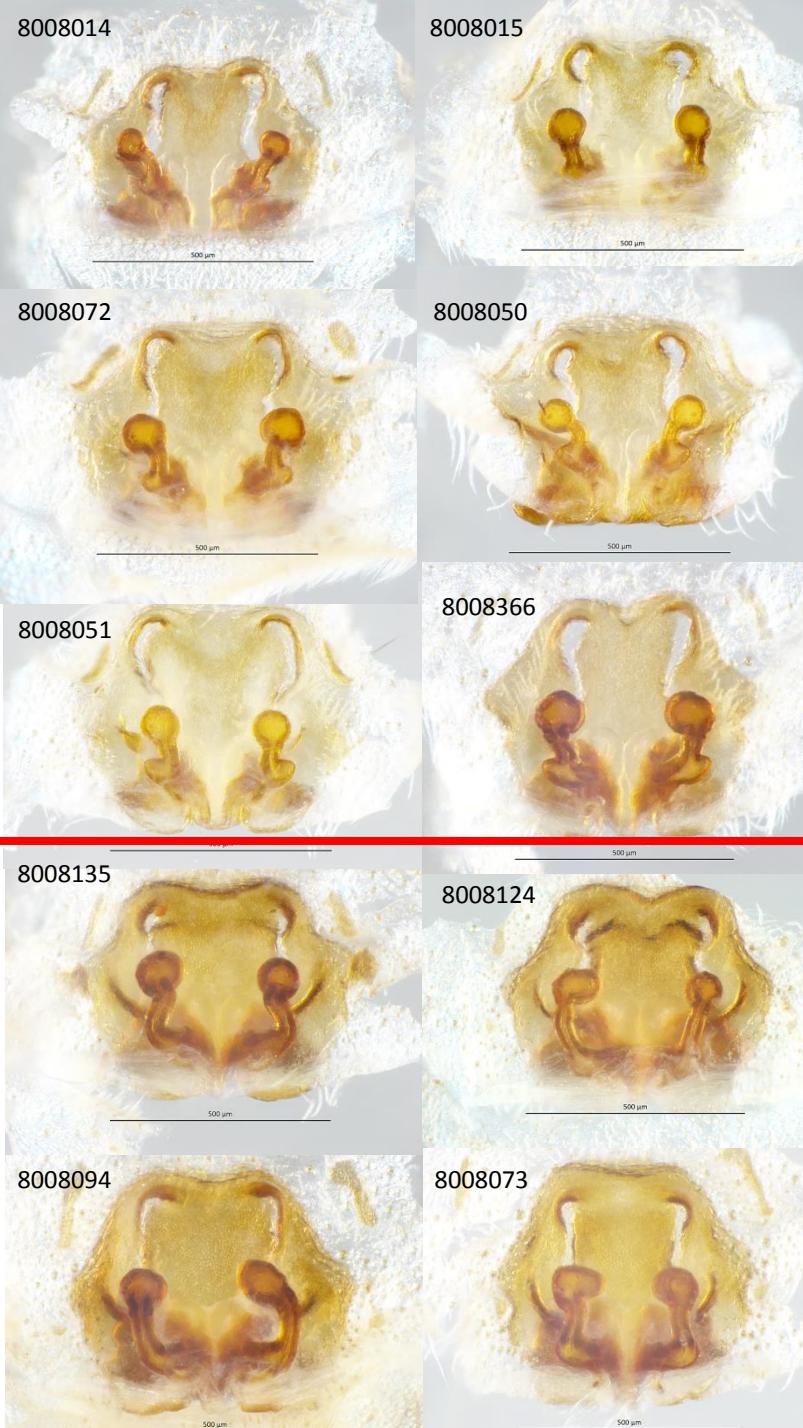
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# *Pardosa*

## cf. *agrestis*

- ZFMK-TIS-8008014 Pardosa colchica Krammer female
- ZFMK-TIS-8008015 Pardosa colchica Krammer female
- ZFMK-TIS-8008072 Pardosa agrestis Krammer female
- ZFMK-TIS-8008092 Pardosa agrestis Krammer male
- ZFMK-TIS-8008093 Pardosa agrestis Krammer female
- ZFMK-TIS-8008112 Pardosa agrestis Krammer female
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- ZFMK-TIS-8008050 Pardosa colchica Krammer female
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- ZFMK-TIS-8008571 Pardosa agrestis Krammer female
- ZFMK-TIS-8008135 Pardosa monticola Krammer female
- ZFMK-TIS-8005371 Pardosa monticola Krammer female
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- ZFMK-TIS-8008124 Pardosa monticola Krammer female
- ZFMK-TIS-8008130 Pardosa monticola Krammer female
- ZFMK-TIS-8008094 Pardosa monticola Krammer female
- ZFMK-TIS-8008129 Pardosa monticola Krammer male
- ZFMK-TIS-8008073 Pardosa monticola Krammer female
- ZFMK-TIS-8008025 Pardosa agrestis Krammer female
- ZFMK-TIS-8008026 Pardosa agrestis Krammer female



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# *Pardosa* cf. *agrestis*

- ZFMK-TIS-8008014 Pardosa colchica Krammer female [comment]
- ZFMK-TIS-8008015 Pardosa colchica Krammer female [comment]
- ZFMK-TIS-8008072 Pardosa agrestis Krammer female [comment]
- ZFMK-TIS-8008092 Pardosa agrestis Krammer male
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- ZFMK-TIS-8008122 Pardosa agrestis Krammer female
- ZFMK-TIS-8008050 Pardosa colchica Krammer female [comment]
- ZFMK-TIS-8008051 Pardosa colchica Krammer female [comment]
- ZFMK-TIS-8008366 Pardosa monticola Krammer female [comment]
- ZFMK-TIS-8005379 Pardosa agrestis Krammer female
- ZFMK-TIS-8008571 Pardosa agrestis Krammer female

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- ZFMK-TIS-8008135 Pardosa monticola Krammer female [comment]
- ZFMK-TIS-8005371 Pardosa monticola Krammer female
- ZFMK-TIS-8005378 Pardosa agrestis Krammer male
- ZFMK-TIS-8008365 Pardosa monticola Krammer male
- ZFMK-TIS-8005372 Pardosa monticola Krammer female
- ZFMK-TIS-8008124 Pardosa monticola Krammer female [comment]
- ZFMK-TIS-8008130 Pardosa monticola Krammer female [comment]
- ZFMK-TIS-8008094 Pardosa monticola Krammer female [comment]
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- ZFMK-TIS-8008073 Pardosa monticola Krammer female [comment]
- ZFMK-TIS-8008025 Pardosa agrestis Krammer female
- ZFMK-TIS-8008026 Pardosa agrestis Krammer female

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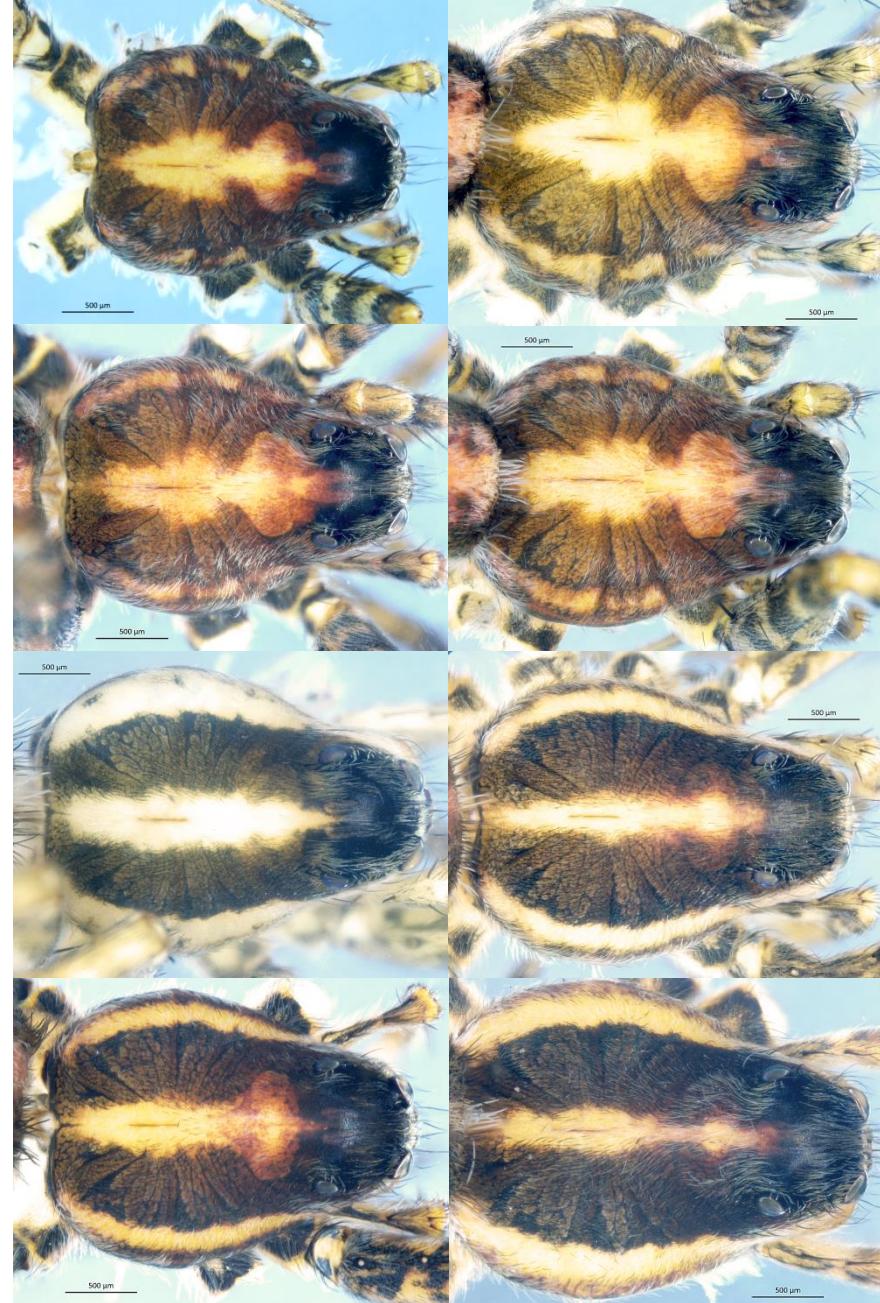


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# Pardosa cf. agrestis

- ZFMK-TIS-8008014 Pardosa colchica Krammer female [comment]
- ZFMK-TIS-8008015 Pardosa colchica Krammer female [comment]
- ZFMK-TIS-8008072 Pardosa agrestis Krammer female [comment]
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- ZFMK-TIS-8008050 Pardosa colchica Krammer female [comment]
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- ZFMK-TIS-8005372 Pardosa monticola Krammer female
- ZFMK-TIS-8008124 Pardosa monticola Krammer female [comment]
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- ZFMK-TIS-8008129 Pardosa monticola Krammer male
- ZFMK-TIS-8008073 Pardosa monticola Krammer female [comment]
- ZFMK-TIS-8008025 Pardosa agrestis Krammer female
- ZFMK-TIS-8008026 Pardosa agrestis Krammer female



*Pardosa paracolchica* ?

- ZFMK-TIS-8008014 Pardosa colchica Krammer female
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- ZFMK-TIS-8008025 Pardosa agrestis Krammer female
- ZFMK-TIS-8008026 Pardosa agrestis Krammer female

- ZFMK-TIS-8008053 Pardosa monticola Krammer female
- ZFMK-TIS-8005373 Pardosa albatula Krammer female
- ZFMK-TIS-8005434 Pardosa blanda Hein female
- ZFMK-TIS-8008013 Pardosa monticola Krammer female
- ZFMK-TIS-8008398 Pardosa monticola Krammer female

- ZFMK-TIS-8008152 Pardosa monticola Krammer female
- ZFMK-TIS-8005350 Pardosa plumipes Krammer female
- ZFMK-TIS-8008052 Pardosa monticola Krammer male
- ZFMK-TIS-8007998 Pardosa agrestis Krammer female
- ZFMK-TIS-8008495 Pardosa monticola Krammer female
- ZFMK-TIS-8005435 Pardosa tomentum Hein female
- ZFMK-TIS-8008150 Pardosa monticola Krammer male
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- ZFMK-TIS-8007997 Pardosa agrestis Krammer female
- ZFMK-TIS-8008123 Pardosa monticola Krammer female
- ZFMK-TIS-8005433 Pardosa plumipes Hein male
- ZFMK-TIS-8005343 Pardosa monticola Krammer female
- ZFMK-TIS-8005344 Pardosa buchari Krammer female

*Pardosa agrestis*

*Pardosa mixta* ?

*Pardosa albatula* ?

*Pardosa monticola*

*Pardosa buchari*

# Thank you for your attention!





# References

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