Old trees provide important microhabitats for arachnids, such as foliage, branches, trunk and hollows; bark cracks and cavities offer specific microclimatic and structural conditions (e.g. Wunderlich 1982, Niklai 1986). Some arachnid species live on trees throughout the year, whereas others use trees only for certain periods, mainly for overwintering (e.g. Horváth & Sznitár 2002, Horváth et al. 2004). Some facultative bark-dwelling arachnids that usually live in the canopy are found on trunks and in cavities only from late autumn to early spring, i.e. while deciduous trees are without their leaves (Szińatér & Horváth 2002, Horváth et al. 2004). Some facultative bark-dwelling arachnids that usually live in the canopy are found on trunks and in cavities only from late autumn to early spring, i.e. while deciduous trees are without their leaves (Szińatér & Horváth 2002, Horváth et al. 2004). Some facultative bark-dwelling arachnids that usually live in the canopy are found on trunks and in cavities only from late autumn to early spring, i.e. while deciduous trees are without their leaves (Szińatér & Horváth 2002, Horváth et al. 2004).

In Europe, spiders living in tree hollows have been studied sporadically (Martínez De Murguía et al. 2007, Niţu et al. 2009), but no detailed study focusing on this topic has been published yet. From Czechie, only a single study dealing specifically with spiders (and some other invertebrate groups) in tree hollows has been published so far (Růžička et al. 1991).

In contrast, pseudoscorpion occurrence in tree hollows is generally known (Beier 1963, Weygoldt 1969, Ranius 2002, Christophoryová et al. 2017b). In Europe, obligate hollow-dwelling pseudoscorpions belong mainly to the families Cheiridiidae and Chernetidae (Beier 1963). The first contribution about pseudoscorpions from tree hollows in Czechie was published by Duchač (1993a); pseudoscorpions were collected using pitfall traps installed in hollow trees in the Třeboňsko Protected Landscape Area. Štáhlavský (2001) carried out systematic research in Prague and its surroundings, where pseudoscorpions were obtained from the mould of 101 tree hollows of 16 tree species. Štáhlavský (2001) categorized the species found according to their relationship to tree hollows and defined Mundobothriopsis styriacus Beier, 1971, Dinocherlus panzeri (C.L. Koch, 1837), Allophantes widderi (C.L. Koch, 1843), and Anthrenobernes stellae Lohmander, 1939 as species with a close relationship to this microhabitat. Later several additional records of pseudoscorpions from tree hollows across the country were mentioned in further faunistic publications (Štáhlavský 2006a, 2006b, 2011, Štáhlavský & Krásky 2007, Štáhlavský & Tuf 2009, Štáhlavský & Chytíl 2013).

Various methods have been used to collect arboricolous arachnids. The most popular and effective are arboreal eclectors situated on trunks (e.g. Albrecht 1995, Blick 2011) or on branches (e.g. Koponen 2004). Pocket traps attached to the tree bark represent another effective method (e.g. Bogya et al. 1999, Horváth & Sznitár 2002, Isaia et al. 2006). Pitfall traps have been used to sample arachnids in tree hollows (e.g. Růžička et al. 1991, Ranius & Jansson 2002) and on tree trunks (e.g. Pinzon & Spence 2008, Machač & Tuf 2016). Canopy-dwelling arachnids have been also sampled by canopy fogging (e.g. Otto & Floren 2007). Sweeping and hand collecting were used as a simple method for collecting specimens from branches (Hans 1992). Flight interception traps have been developed mainly to collect flying insects, those of the window trap type being employed in particular for catching beetles in flight (e.g. Økland 1996). Flight interception traps have not been used primarily for sampling arachnids until now.

The aim of the present paper was to collect original data about spiders and pseudoscorpions of old oaks growing in a Central European floodplain on the northern margin of the Pannonian basin, obtained by pitfall traps installed in tree hollows.
Arachnids in old oaks

cavities and by flight interception traps installed near their openings. The material was collected within a study primarily focused on saproxylic beetles associated with tree hollows.

Material and methods

Study area

The study was carried out in the Lower Dyje (Thaya) floodplain (48°43′10″N, 16°54′27″E, 150 to 165 m a.s.l.) south to southeast of the Pohansko hunting chateau and archaeological site, which is located ca. 3 km south of the town of Bréclav (South Moravia, CZECH REPUBLIC). This area had been historically used as a wood pasture; during the last two hundred years, the more open areas were partially changed to hay meadows and the rest mostly to high forest for timber production. There is a high number of old trees, particularly pedunculate oaks (Quercus robur), both in the meadows and within smaller woods and larger forest stands, that had grown for a long time in open or semi-open conditions (Fig. 1). The study area, sampling design and sampling methods are described in detail in Schlaghamerský (2011) and Miklín et al. (2017).

Sampling design

Sampling was conducted in 2010 and 2011 (leg. J. Budka, J. Schlaghamerský). In 2010, 22 old oaks (Quercus robur) with cavities were studied. Ten (five live and five dead) were solitary trees in meadows. Twelve trees (seven live and five dead) were in close-canopy forest stands. All of the dead trees were standing. In 2011, a selection of 11 of these trees was resampled (traps remained on the same positions); only two of them were solitary trees in meadows (one dead), the rest growing in close-canopy forest (six live, three dead). Two sampling methods were used (their primary purpose was the sampling of saproxylic beetles associated with tree hollows). On each tree a flight interception trap (FIT) and a pitfall trap (PT) were installed. FITs hung near the opening of a selected cavity on a tree trunk. Cavity openings had to be at a height between 1.5 and 7 m above ground (Fig. 2a). CAVITIES WITH CONTACT TO THE GROUND OR ENTIRELY HOLLOW TREES WERE EXCLUDED. THE FIT POSITION WAS THEREFORE DETERMINED BY THE POSITION OF THE CAVITY OPENING (INTO WHICH A PITFALL TRAP WAS ALSO INSTALLED) AND ITS DISTANCE FROM THE TREE CROWN VARIED SUBSTANTIALLY – IN SOME CASES IT HUNG WITHIN THE LOWEST PART OF THE CROWN, OFTEN SUBSTANTIALLY BELOW IT (DUE TO THE PRIMARY OBJECTIVE OF THEIR INSTALLATION). FITs were of the vane type, made of two crossing sheets (50 cm × 25 cm) of transparent plastic, with a roof above and a funnel (24 cm in diameter) connected to a collecting bottle attached below. As killing and preserving agent, an aqueous 50% ethylene glycol solution with a drop of detergent was used. Inside each tree cavity a pitfall trap was buried into the wood mould with its opening (6 cm in diameter) level with the mould surface (Fig. 2b). FITs and pitfall traps were exposed simultaneously from the 21th April 2010 to 4th October 2010 and from the 5 May 2011 to 23 August 2011 with three week sampling intervals. Spiders were identified using the key of Nentwig et al. (2018). Pseudoscorpions were identified using the key by Christophoryová et al. (2011c). Nomenclature for all taxa follows the World Spider Catalog (2018) and the catalogue Pseudoscorpions of the World (Harvey 2013). The material of spiders and pseudoscorpions is deposited in the collection of the Department of Botany and Zoology at the Masaryk University in Brno.

Results

Spiders (Araneae)

A total of 322 specimens representing 47 taxa from 15 families were identified (Tab. 1). FITs yielded 165 specimens belonging to 40 taxa and 14 families. None of the species captured by the FITs were particularly abundant, only some species were present in relatively high numbers: Parasteatoda lunata (Clerck, 1757) (9 specimens), Anyphaena accinentata (Walckenaer, 1802) (8), Porromma oblitum (O. P. -Cambridge, 1871) (8), Leptorchestes berolinensis (C. L. Koch, 1846) (8) and Platnickina tincta (Walckenaer, 1802) (8) (Tab. 1). FITs exclusively yielded 27 spider taxa. Most species captured by FITs were Linyphiidae with nine species and a group of species...
identified only to family level (Tab. 1). Pitfall traps placed in tree hollows yielded 157 specimens belonging to 20 taxa and 11 families (Fig. 4a). The most abundant species trapped in the tree hollows were *Tegenaria ferruginea* (Panzer, 1804) and *Midia midas* (Simon, 1884). The most species-rich family in the pitfalls traps was Linyphiidae with six species and a group of species identified only to family level. Most spiders collected in hollows are horizontal web builders. Seven spider taxa were obtained exclusively by pitfall traps. A total of 226 specimens belonging to 41 taxa were obtained from trees in forests and 96 specimens from 27 taxa from solitary trees in meadows. Twenty taxa were obtained exclusively from oak hollows situated in forests, six taxa were obtained exclusively from solitary trees in meadows. Traps installed on dead and live trees yielded 139 specimens belonging to 34 taxa and 183 specimens from 40 taxa, respectively. Seven species were obtained exclusively from dead trees. Exclusively in live trees, 13 taxa were present (Tab. 1).

**Fig. 2:** Sampling methods used during the current study. **a.** Flight interception trap (FIT) (photo J. Schlaghamerský); **b.** Pitfall trap (PT) inside a tree hollow (photo J. Budka)

**Fig. 3:** Typical hollow dwellers. **a.** *Midia midas*, body length 3.5 mm (photo R. Macek); **b.** *Larca lata*, scale bar 2 mm (photo J. Christophoryová)
Remarkable spider species

Linyphiidae

*Midia midas* (Simon, 1884) (Fig. 3a)

This species is rare and associated with ancient deciduous trees. It lives in tree hollows, where it builds small horizontal webs (Russell-Smith 2002). It is known to occur from the Iberian Peninsula to Turkey, reaching Denmark, Great Britain and Poland in the north (Nentwig et al. 2018). Within Czechia it has been found in eastern Bohemia around Pardubice (Dolanský 1998), South Bohemia (Růžička et al. 1991) and South Moravia near Lednice (Buchar & Růžička 2002, Kubcová & Schlaghamerský 2002). The species is listed in the Czech red list as endangered (Režáč et al. 2015). Its perceived rarity might be partially due to the lack of arachnological studies focusing on its habitat, although this habitat – old trees with cavities – has definitely become scarce and threatened.

Salticidae

*Leptorchestes berolinensis* (C. L. Koch, 1846)

*Leptorchestes berolinensis* is considered as a rare species, living on vegetation on sun-exposed forest edges, on rock outcrops (Buchar & Růžička 2002), as well as on sun-exposed bark of solitary trees and on wooden fences (Bryja et al. 2005, Machač & Niedobová 2015). It is known to occur widely in Europe, except North Europe and Great Britain (Nentwig et al. 2018). The species is listed in the Czech red list as vulnerable (Režáč et al. 2015).

Theridiidae

*Dipoena erythropus* (Simon, 1881)

This species is very rare, living on trees and known within Czechia only from South Moravia (Buchar & Růžička 2002), but it might have been overlooked. It lives on branches in the crowns of deciduous trees, mainly oaks. It is known to occur widely in Europe, except the northern part of Europe (Nentwig et al. 2018). Four specimens were obtained from FITs in the present study. This species is listed in the Czech red list as critically endangered (Režáč et al. 2015).

Pseudoscorpions (Pseudoscorpiones)

In total, 71 specimens belonging to six species from four families were identified (Tab. 1). More specimens were collected in pitfall traps than in FITs (Fig. 4b). The most abundant species, *Larca lata*, was found exclusively in pitfall traps. Also, all specimens of *Alochernes wiederi* were found in pitfall traps. On the other hand, *Apocheiridium ferum* (Simon, 1879) and *Dendrochernes cyrneus* (L. Koch, 1873) were collected only in FITs. *Cheirifer cancrioides* (Linnaeus, 1758) and *Chernes hahnii* (C. L. Koch, 1839) were captured in both trap types. Markedly more specimens were present in hollows in trees situated in forest stands than in those growing in meadows (Tab. 1). Remarkably, all pseudoscorpions were collected on live trees, not a single specimen on a dead one (Tab. 1).

Remarkable pseudoscorpion species

Larciidae

*Larca lata* (Hansen, 1884) (Fig. 3b)

This species appears to be rare and vulnerable and is a typical cavity dweller (Judson & Legg 1996, Ranius & Wilander 2000). It occurs only in Europe, where it has been found in 13 countries until now (Harvey 2013). Recently it was reported for the first time from Slovakia and Hungary (Chris- tophoryová et al. 2011a, Novák 2013). Within Czechia it has been found in the Třeboňsko Protected Landscape Area (South Bohemia) and in the Lower Morava Biosphere Reserve, which covers also the present study site (Ducháč 1993a, Šťáhlavský 2011, Šťáhlavský & Chytil 2013). In the Czech red list, it is listed as vulnerable (Šťáhlavský 2017).

Cheiridiidae

*Apocheiridium ferum* (Simon, 1879)

This species is distributed in Europe and has also been found in Asian Turkey, Azerbaijan and Uzbekistan (Harvey 2013). Beier (1963) reported that the species lives under tree bark, especially of fruit trees. According to Weygoldt (1966) it occurs even in the tightest spaces under bark. Ducháč (1997) reported *A. ferum* from South Moravia as new for Czechia, without providing information about its habitat. Later it was found in the same region in the village of Lednice (Šťáhlavský & Ducháč 2001) and also close-by at Valtice and Hlouchovec, in both cases under *Platanus* bark (Šťáhlavský & Chytil 2013).

Chernetidae

*Dendrochernes cyrneus* (L. Koch, 1873)

This species is distributed in Asia and Europe (Harvey 2013). It is one of the pseudoscorpions that regularly occurs in bird nests, but it has also been found under tree bark and

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**Fig. 4:** Abundance and species numbers of spiders (a) and pseudoscorpions (b) in different types of traps. Abbreviations: FIT – flight interception trap, PT – pitfall trap

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**Tab. 1:** List of taxa collected on old oaks at Pohansko; Abbreviations: FIT – flight interception traps close to cavity openings, PT – pitfall traps in hollows, for – trees in close-canopy forest, sol – solitary trees in meadows, dead – dead trees, live – live trees

<table>
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<tr>
<th>Taxa</th>
<th>FIT</th>
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<td>Enoplognatha ocvata      (Clerck, 1757)</td>
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<td>1</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Paraestatoda lunata      (Clerck, 1757)</td>
<td>9</td>
<td>2</td>
<td>8</td>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Paraestatoda simulans    (Thorell, 1875)</td>
<td>3</td>
<td>3</td>
<td>.</td>
<td>2</td>
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<tr>
<td>Platnickina tinta        (Walckenaer, 1802)</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>6</td>
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<tr>
<td>Robertus lividus         (Blackwall, 1836)</td>
<td>2</td>
<td>1</td>
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<td>1</td>
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<td></td>
</tr>
<tr>
<td>Steatoda bipunctata      (Linnaeus, 1758)</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
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<td>1</td>
</tr>
<tr>
<td>Theridion mystaceum      L. Koch, 1870</td>
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<tr>
<td>Theridion spp.</td>
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<td><strong>Thomisidae</strong></td>
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<tr>
<td>Ozyptila praticula       (C. L. Koch, 1837)</td>
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<td>5</td>
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<td><strong>PSEUDOSCORPIONS</strong></td>
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<tr>
<td><strong>Laridae</strong></td>
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<tr>
<td>Larca lata               (Hansen, 1884)</td>
<td>41</td>
<td>37</td>
<td>4</td>
<td>41</td>
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<tr>
<td><strong>Cheiridiidae</strong></td>
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<td></td>
</tr>
<tr>
<td>Apocheiridium furcifer   (Simon, 1879)</td>
<td>7</td>
<td>6</td>
<td>1</td>
<td>7</td>
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<tr>
<td><strong>Cheliferidae</strong></td>
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</tr>
<tr>
<td>Chelifer cancrivorus     (Linnaeus, 1758)</td>
<td>3</td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>10</td>
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<tr>
<td><strong>Chernetidae</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chernus bainii           (C. L. Koch, 1839)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Dendrochernes cyneus     (L. Koch, 1873)</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>Allochernes zaiwieri     (C. L. Koch, 1843)</td>
<td>8</td>
<td>8</td>
<td>8</td>
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in tree hollows, though rarely (Christophoryová et al. 2011b, Krajčovičová & Christophoryová 2014). The Lower Morava Biosphere Reserve, which covers also our present study site, represents the only area within Czechia, from where D. cyrneus has been recorded; it was found in oak litter, under tree bark and phoretic on a longhorn beetle (Ducháč 1993b; Štáhlavský & Chytil 2013). Štáhlavský (2017) listed the species as vulnerable in the Czech red list.

Discussion

Most of the obtained 40 spider species represent arboreal ones (Szinétár & Horváth 2005). Only six taxa were epigeic: Amblysemus phidippus, Anyphaena acentuata, Leporectheles berolinensis and Parasteatoda lunata. Anyphaena acentuata lives during the vegetation season on tree branches, L. berolinensis and P. lunata dwell on tree trunks (Buchar & Růžička 2002). Several small linyphiid spiders were obtained from FITs, including juvenile specimens, which disperse by ballooning. The majority of the species captured by FITs live on tree trunks or branches.

Tegenaria ferruginea and Midea midas were most abundant in the pitfall traps. Both species are typical cavity dwellers (Růžička et al. 1991, Buchar & Růžička 2002). The money spider M. midas is rare and endangered in the whole of Europe (Russell-Smith 2002, Rézá et al. 2015). Another typical hollow dweller is Scotophana quadrupunctata, Linnaeus, 1758, which we obtained only from pitfall traps. The record from Pohansko represents a new locality for Czechia, but not far from its nearest known locality close to Lednice (Kubcová & Schlaghmerský 2002). All specimens were obtained from pitfall traps. The number of spider species and family composition obtained by pitfall trapping was similar to other studies from tree hollows in Spain and Romania (Martínez De Murguía et al. 2007, Nițu et al. 2009), but the species composition differed. Other remarkable spider species were the jumping spider L. berolinensis and the theridid Dipoena erythroptera, listed in the Czech red list as vulnerable and critically endangered, respectively (Rézá et al. 2015). Significantly more spiders were obtained from trees in the forest than from solitary trees in meadows. Forests have a high species pool of arbóricolous spider species (Samu et al. 2014). More species and specimens were present on live trees than on dead ones.

All of the collected pseudoscorpion species, except Cheiler cancriformis, represent typical inhabitants of tree microhabitats. C. cancriformis is considered to be cosmopolitan and synanthropic (Beier 1963), which may be related to its frequent occurrence in the nests of Hirundinidae (Turienzo et al. 2010). Nevertheless, its occurrence under tree bark and in tree cavities is also known (Mahnert 2011, Krajčovičová & Christophoryová 2014). Štáhlavský & Chytil (2013) recorded the species in tree hollows within Czechia, in the south Moravian floodplains at Lednice and Breclav. During the present study, C. cancriformis was found in both trap types. The same numbers of individuals were found in hollows of solitary trees as well as of trees situated in forest stands. Two specimens of Chernes bahnii were obtained in the present study, one in FIT one in a pitfall trap. The species shows a strong association with the microhabitat under tree bark (Štáhlavský 2001, Drogl & Lippold 2004, Krajčovičová & Christophoryová 2014). Its presence in FIT could have been caused by its upwards migration on the tree trunks or by zoophores. Krajčovičová & Christophoryová (2014) collected 11 specimens of Chernes Bahni in photoelecators installed on tree trunks which can also be related with upwards migration on the tree trunks. A surprisingly low number of Allocernes widleri was found in tree hollows in the present study. In a study conducted in Prague and its surroundings, A. widleri represented the second most abundant species found in tree hollows (Štáhlavský 2001). The species was reported in all of the subsequent faunistic papers dealing with pseudoscorpions from tree microhabitats in Czechia (Štáhlavský 2006a, 2006b, 2011, Štáhlavský & Krásný 2007, Štáhlavský & Tuf 2009, Štáhlavský & Chytil 2013). Three species Larca lata, Apocheiridium ferum and Denдрorhes berolinensis are presented as remarkable records in the current paper. Two of them, L. lata and D. cyrneus, are listed in the Czech red list as vulnerable (Štáhlavský 2017).

In conclusion, looking at the obtained data, one has to bear in mind that whereas the pitfall traps collected specimens living in tree hollows or actively visiting them, the trapping of spiders and pseudoscorpions in free-hanging FITs was a rather accidental process. Both groups do not fly, though some passive air-born transport does occur (ballooning and zoophores) (Decae 1987, Christophoryová et al. 2017a). However, other non-flying invertebrates have also been obtained from FITs (own unpublished observation). In the present case one has to assume that many individuals falling down from the canopy, possibly taken by wind, ended up in the traps despite the trap roofs (meant to prevent flooding by rainwater and accumulation of debris in the trap funnel). We also observed spiders building their webs between the panes or between pane and roof.

Acknowledgements

Jana Christophoryová and Katárina Krajčovičová, working on the pseudoscorpion part of the paper, were financially supported by VEGA 1/0191/15. The Forests of the Czech Republic, state enterprise, kindly allowed us to access our study area using their roads in the Southok Game Preserve. Stanislav Nemeš, David Hauck and Jiří Procházka helped with field work. We would like to thank František Štáhlavský and one anonymous reviewer for their valuable comments and corrections that improved the paper.

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Electronic Appendix (pdf format): Supplementary file with detailed collection data of each specimen.
Supplementary file

Spiders

Agelenidae

Tegenaria ferruginea (Panzera, 1804)
Material examined: PT (21.IV.–17.V.2010): three dead trees in forest, 3 ♂♂, 2 ♀♀; five live trees in forest, 4 ♂♂, 1 ♂Ju.; four dead solitary trees, 2 ♂♂, 1 ♀, 2 ♀Ju.; four live solitary trees, 6 ♂♂, 5 ♀♀. PT (17.V.–3.VI.2010): two dead trees in forest, 2 ♂♂, 1 ♀; one live tree in forest, 1 ♂; two dead solitary trees, 1 ♂, 2 ♀Ju. PT (3.VI.–28.VI.2010): one dead tree in forest, 1 ♂; one live tree in forest, 1 ♀; two dead solitary trees, 1 ♂, 1 ♀; two dead solitary trees, 1 ♂, 1 ♀; one live solitary tree, 1 ♂, 1 ♀; one live solitary tree, 2 ♂♂, 2 ♀♀. PT (16.VII.–6.VIII.2010): one live tree in forest, 1 ♂. PT (16.VII.–6.VIII.2010): one dead tree in forest, 1 ♂. PT (4.X.–19.X.2010): one dead tree in forest, 1 ♀Ju.; one live solitary tree, 1 ♀Ju. PT (5.V.–2.VI.2011): two live trees in forest, 2 ♂♂, 2 ♀♀, 1 Ju. PT (2.VI.–20.VI.2011): one dead tree in forest, 1 ♂; two dead solitary trees, 1 ♂, 1 ♀. PT (28.VI.–16.VII.2010): two dead trees in forest, 1 ♂, 1 ♀; two dead solitary trees, 1 ♂, 1 ♀; one live solitary tree, 1 ♂, 1 ♀; one live solitary tree, 2 ♂♂, 1 ♀. PT (28.VI.–16.VII.2010): one dead tree in forest, 1 ♂. PT (17.V.–3.VI.2010): one live tree in forest, 1 ♂. PT (8.VIII.–23.VIII.2010): one dead tree in forest, 1 ♂.

Anyphaenidae

Anyphaena accentuata (Walckenaer, 1830)

Araneidae

Araneus triguttatus (Fabricius, 1775)

Araneus sp.

Clubionidae

Clubiona comta C. L. Koch, 1839

Clubiona pallidula (Clerck, 1757)

Clubiona sp.

Dictynidae

Cicurina cier (Fabricius, 1793)

Dictyna uncinata Thorell, 1856

Latbys buniitis (Blackwall, 1855)

Nigma flavescens (Walckenaer, 1830)

Dysderidae

Harpacea rubicunda (C. L. Koch, 1838)

Gnaphosidae

Drassodes sp.

Sotophaeus quadripectatus (Linnaeus, 1758)

Linyphiidae

Araeoncus humilis (Blackwall, 1841)

Diplocephalus picinus (Blackwall, 1841)

Dractesica socialis (Sundevall, 1833)
**Erigone atra** (Blackwall, 1833)

**Hypomma cornutum** (Blackwall, 1833)

**Leptophyes minutus** (Blackwall, 1833)

**Linyphia triangularis** (Clerck, 1757)

**Linyphiidae gen. spp.**

**Midia midas** (Simon, 1884)

**Neriene montana** (Clerck, 1757)

**Pelecopsis mengei** (Simon, 1884)

**Porrhomma oblitum** (O. P.-Cambridge, 1871)

**Trematocephalus cristatus** (Wider, 1834)

**Liocranidae**

**Agroeca brunnea** (Blackwall, 1833)

**Lycosidae**

**Parasite**

**Trochosa robusta** (Simon, 1876)

**Philodromidae**

**Philodromus albidus** Kulczyński, 1911

**Philodromus sp.**

**Salticidae**

**Ballus chalybeius** (Walckenaer, 1802)
Material examined: FIT (5.V.–2.VI.2011): one dead tree in forest, 1 ♀.

**Leptorchestes borolinensis** (C. L. Koch, 1846)

**Salticus zebratus** (C. L. Koch, 1837)
Material examined: PT (21.IV.–17.V.2010): one dead tree in forest, 1 ♀; one live tree in forest, 2 ♀♂; one dead solitary tree, 1 ♀. FIT (20.VI.–11.VII.2011): three live trees in forest, 3 ♀♀.

**Tetragnathidae**

**Metellina segmentata** (Clerck, 1757)

**Tetragnatha pinicola** L. Koch, 1870
Theridiidae

*Dipona erythropus* (Simon, 1881)

*Enoplognatha osata* (Clerck, 1757)

*Parasteatoda lunata* (Clerck, 1757)

*Parasteatoda simulans* (Thorell, 1875)
Material examined: FIT (20.VI.–11.VI.2011): two dead trees in forest, 2 ♀♀; one live tree in forest, 1 ♀.

*Platnickina tincta* (Walckenaer, 1802)

*Robertus lividus* (Blackwall, 1836)
Material examined: FIT (3.VI.–28.VI.2010): one live tree in forest, 1 ♂; one dead solitary tree, 1 ♂.

*Steatoda bipunctata* (Linnaeus, 1758)

*Theridion mystaceum* L. Koch, 1870

*Theridion spp.*

Thomisidae

*Ozyptila praticola* (C. L. Koch, 1837)

Pseudoscorpiones

Laridae

*Larca lata* (Hansen, 1884)

Cheiridiidae

*Apocheiridium ferum* (Simon, 1879)

Cheliferidae

*Chelifer cancroides* (Linnaeus, 1758)

Chernetidae

*Chernes habnii* (C. L. Koch, 1839)

Dendroceres cyrneus* (L. Koch, 1873)

*Allocheres woideri* (C. L. Koch, 1843)