

Mezőfi et al., 2020: Beyond polyphagy and opportunism: natural prey of hunting spiders in the canopy of apple trees.

Supplemental tables

Table S1. Species composition and abundance of hunting spiders collected in the canopy of apple trees in organic apple orchards

| Taxa | All spiders collected with prey (from 2013 to 2019) | | Újfehértó, 2016/17, spiders collected with prey | | Újfehértó, 2016/17, suction sampled spiders | |
|-----------------------------------------------|-----------------------------------------------------|--------------|-------------------------------------------------|--------------|---------------------------------------------|--------------|
| | Abundance | % | Abundance | % | Abundance | % |
| Anyphaenidae | 0 | 0.0% | 0 | 0.0% | 1 | 0.3% |
| <i>Anyphaena accentuata</i> | 0 | 0.0% | 0 | 0.0% | 1 | 0.3% |
| Cheiracanthiidae | 20 | 2.3% | 3 | 0.7% | 8 | 2.6% |
| <i>Cheiracanthium</i> cf. <i>virescens</i> | 1 | 0.1% | 0 | 0.0% | 0 | 0.0% |
| <i>Cheiracanthium</i> sp. | 19 | 2.2% | 3 | 0.7% | 8 | 2.6% |
| Clubionidae | 86 | 9.8% | 57 | 12.6% | 28 | 9.2% |
| <i>Clubiona frutetorum</i> | 10 | 1.1% | 5 | 1.1% | 4 | 1.3% |
| <i>Clubiona</i> sp. | 76 | 8.7% | 52 | 11.5% | 23 | 7.5% |
| <i>Porrhoclubiona leucaspis</i> | 0 | 0.0% | 0 | 0.0% | 1 | 0.3% |
| Oxyopidae | 17 | 1.9% | 5 | 1.1% | 1 | 0.3% |
| <i>Oxyopes ramosus</i> | 14 | 1.6% | 4 | 0.9% | 0 | 0.0% |
| <i>Oxyopes</i> sp. | 3 | 0.3% | 1 | 0.2% | 1 | 0.3% |
| Philodromidae | 248 | 28.2% | 76 | 16.8% | 109 | 35.7% |
| <i>Philodromus cespitum</i> | 233 | 26.5% | 73 | 16.2% | 9 | 3.0% |
| <i>Philodromus longipalpis</i> | 4 | 0.5% | 0 | 0.0% | 0 | 0.0% |
| <i>Philodromus margaritatus</i> | 1 | 0.1% | 0 | 0.0% | 0 | 0.0% |
| <i>Philodromus rufus</i> | 3 | 0.3% | 2 | 0.4% | 0 | 0.0% |
| <i>Philodromus</i> sp. (<i>aureolus</i> gr.) | 5 | 0.6% | 0 | 0.0% | 100 | 32.8% |
| <i>Tibellus oblongus</i> | 2 | 0.2% | 1 | 0.2% | 0 | 0.0% |
| Pisauridae | 2 | 0.2% | 1 | 0.2% | 1 | 0.3% |
| <i>Pisaura mirabilis</i> | 2 | 0.2% | 1 | 0.2% | 1 | 0.3% |
| Salticidae | 363 | 41.3% | 240 | 53.1% | 105 | 34.4% |
| <i>Ballus chalybeius</i> | 0 | 0.0% | 0 | 0.0% | 1 | 0.3% |
| <i>Carrhotus xanthogramma</i> | 303 | 34.5% | 214 | 47.3% | 74 | 24.3% |
| <i>Evarcha arcuata</i> | 2 | 0.2% | 1 | 0.2% | 0 | 0.0% |
| <i>Evarcha falcata</i> | 2 | 0.2% | 1 | 0.2% | 0 | 0.0% |
| <i>Heliophanus auratus</i> | 11 | 1.3% | 3 | 0.7% | 4 | 1.3% |
| <i>Heliophanus cupreus</i> | 17 | 1.9% | 5 | 1.1% | 14 | 4.6% |
| <i>Heliophanus</i> sp. | 1 | 0.1% | 0 | 0.0% | 0 | 0.0% |
| <i>Macaroeris nidicolens</i> | 2 | 0.2% | 0 | 0.0% | 0 | 0.0% |
| <i>Marpissa muscosa</i> | 2 | 0.2% | 0 | 0.0% | 0 | 0.0% |
| <i>Pseudicius encarpatus</i> | 7 | 0.8% | 4 | 0.9% | 4 | 1.3% |
| Salticidae sp. | 0 | 0.0% | 0 | 0.0% | 1 | 0.3% |
| <i>Salticus scenicus</i> | 15 | 1.7% | 12 | 2.7% | 5 | 1.6% |
| <i>Salticus</i> sp. | 1 | 0.1% | 0 | 0.0% | 2 | 0.7% |
| Thomisidae | 142 | 16.2% | 70 | 15.5% | 52 | 17.0% |
| <i>Ebrechtella tricuspoidata</i> | 53 | 6.0% | 24 | 5.3% | 16 | 5.2% |
| <i>Misumena vatia</i> | 24 | 2.7% | 15 | 3.3% | 11 | 3.6% |
| <i>Runcinia grammica</i> | 1 | 0.1% | 0 | 0.0% | 0 | 0.0% |
| <i>Synema globosum</i> | 4 | 0.5% | 1 | 0.2% | 0 | 0.0% |
| <i>Tmarus piger</i> | 11 | 1.3% | 8 | 1.8% | 5 | 1.6% |
| <i>Xysticus acerbus</i> | 3 | 0.3% | 1 | 0.2% | 0 | 0.0% |
| <i>Xysticus cristatus</i> | 1 | 0.1% | 1 | 0.2% | 0 | 0.0% |
| <i>Xysticus kochi</i> | 8 | 0.9% | 4 | 0.9% | 0 | 0.0% |
| <i>Xysticus lanio</i> | 2 | 0.2% | 2 | 0.4% | 0 | 0.0% |
| <i>Xysticus</i> sp. | 18 | 2.1% | 7 | 1.5% | 18 | 5.9% |
| <i>Xysticus (Spiracme) striatipes</i> | 8 | 0.9% | 3 | 0.7% | 1 | 0.3% |
| <i>Xysticus ulmi</i> | 9 | 1.0% | 4 | 0.9% | 1 | 0.3% |
| Sum | 878 | 100.0% | 452 | 100.0% | 305 | 100.0% |

Table S2. Taxonomic composition of the most abundant arboreal hunting spider groups collected in organic apple orchards

| Taxa | All spiders collected with prey (from 2013 to 2019) | | Újfehértó, 2016/17, spiders collected with prey | | Újfehértó, 2016/17, suction sampled spiders | |
|------------------------|-----------------------------------------------------|-------|-------------------------------------------------|-------|---------------------------------------------|-------|
| | Abundance | %* | Abundance | %* | Abundance | %* |
| <i>C. xanthogramma</i> | 303 | 34.5% | 214 | 47.4% | 74 | 24.3% |
| Other salticids | 60 | 6.8% | 26 | 5.8% | 31 | 10.2% |
| <i>Ph. cespitum</i> | 233 | 26.5% | 73 | 16.2% | 109 | 35.7% |
| <i>E. tricuspidata</i> | 53 | 6.0% | 24 | 5.3% | 16 | 5.3% |
| <i>Xysticus</i> spp. | 49 | 5.6% | 22 | 4.9% | 20 | 6.6% |
| <i>Clubiona</i> spp. | 86 | 9.8% | 57 | 12.6% | 28 | 9.2% |
| Sum | 784 | 89.3% | 416 | 92.0% | 278 | 91.2% |

*Relative to the whole arboreal hunting spider assemblage

Table S3. Number of hunting spiders collected monthly by spider groups

| Month/Taxa | <i>C. xanthogramma</i> | Other salticids | <i>Ph. cespitum</i> | <i>E. tricuspidata</i> | <i>Xysticus</i> spp. | <i>Clubiona</i> spp.* |
|--------------------------------------------------------|------------------------|-----------------|---------------------|------------------------|----------------------|-----------------------|
| All collected spiders with prey | | | | | | |
| April | 9 | 9 | 67 | 18 | 13 | 15 |
| May | 36 | 22 | 106 | 11 | 4 | 14 |
| June | 25 | 7 | 37 | 4 | 4 | 4 |
| July | 126 | 9 | 16 | 5 | 15 | 5 |
| August | 38 | 5 | 4 | 7 | 5 | 9 |
| September | 52 | 4 | 2 | 8 | 8 | 26 |
| October | 17 | 4 | 1 | 0 | 0 | 12 |
| Újfehértó, 2016/17, collected spiders with prey | | | | | | |
| April | 4 | 4 | 28 | 8 | 7 | 9 |
| May | 18 | 6 | 17 | 6 | 1 | 4 |
| June | 23 | 3 | 11 | 2 | 1 | 2 |
| July | 110 | 6 | 14 | 4 | 8 | 5 |
| August | 27 | 2 | 1 | 3 | 5 | 7 |
| September | 15 | 1 | 1 | 1 | 0 | 17 |
| October | 17 | 4 | 1 | 0 | 0 | 12 |
| Újfehértó, 2016/17, suction sampled spiders | | | | | | |
| April | 3 | 1 | 39 | 5 | 0 | 0 |
| May | 3 | 10 | 30 | 0 | 0 | 1 |
| June | 5 | 3 | 19 | 0 | 3 | 4 |
| July | 23 | 5 | 4 | 0 | 11 | 3 |
| August | 16 | 9 | 6 | 7 | 4 | 10 |
| September | 13 | 2 | 2 | 2 | 1 | 8 |
| October | 11 | 1 | 9 | 2 | 1 | 2 |

Two matrices were compared with Mantel test

*One record collected in March is not indicated in this Table.

Table S4. Number of the actual and potential prey items of arboreal hunting spiders by prey groups and months

| Month/Taxa | Araneae | Coleoptera | Lepidoptera | Formicidae ^a | Other Hymenoptera | Brachycera | Nematocera | Auchenorrhyncha | Heteroptera | Sternorrhyncha ^b | Other ^c |
|-------------------------------------------------------------|---------|------------|-------------|-------------------------|-------------------|------------|------------|-----------------|-------------|-----------------------------|--------------------|
| All collected spiders - Actual prey | | | | | | | | | | | |
| April | 6 | 8 | 4 | 6 | 1 | 15 | 58 | 0 | 4 | 42 | 3 |
| May | 14 | 23 | 1 | 7 | 2 | 40 | 80 | 1 | 2 | 46 | 2 |
| June | 1 | 1 | 0 | 6 | 0 | 34 | 12 | 2 | 2 | 35 | 2 |
| July | 15 | 3 | 4 | 33 | 8 | 36 | 26 | 8 | 4 | 37 | 12 |
| August | 6 | 1 | 2 | 1 | 1 | 26 | 8 | 4 | 14 | 7 | 0 |
| September | 14 | 3 | 4 | 11 | 8 | 15 | 14 | 13 | 14 | 20 | 4 |
| October | 1 | 0 | 0 | 4 | 0 | 3 | 7 | 2 | 2 | 20 | 0 |
| Újfehértó, 2016/17, - Actual prey | | | | | | | | | | | |
| April | 2 | 5 | 2 | 3 | 1 | 4 | 26 | 0 | 0 | 24 | 1 |
| May | 3 | 10 | 0 | 6 | 1 | 18 | 13 | 1 | 0 | 7 | 1 |
| June | 0 | 1 | 0 | 3 | 0 | 12 | 8 | 0 | 0 | 24 | 0 |
| July | 10 | 1 | 3 | 26 | 8 | 32 | 25 | 7 | 2 | 30 | 10 |
| August | 5 | 1 | 2 | 0 | 1 | 19 | 6 | 4 | 4 | 5 | 0 |
| September | 2 | 0 | 2 | 2 | 4 | 6 | 8 | 4 | 4 | 4 | 0 |
| October | 1 | 0 | 0 | 3 | 0 | 2 | 6 | 2 | 2 | 20 | 0 |
| Újfehértó, 2016/17, suction sampled - Potential prey | | | | | | | | | | | |
| April | 61 | 85 | 4 | 6 | 7 | 50 | 134 | 25 | 16 | 14 | 29 |
| May | 59 | 998 | 4 | 425 | 19 | 141 | 143 | 10 | 14 | 170 | 11 |
| June | 48 | 149 | 18 | 142 | 9 | 162 | 39 | 17 | 22 | 5996 | 25 |
| July | 62 | 52 | 8 | 42 | 15 | 39 | 75 | 136 | 37 | 16 | 15 |
| August | 56 | 30 | 13 | 24 | 6 | 18 | 14 | 195 | 62 | 5 | 13 |
| September | 45 | 53 | 8 | 5 | 12 | 47 | 62 | 248 | 137 | 5 | 17 |
| October | 65 | 49 | 3 | 3 | 21 | 27 | 260 | 246 | 25 | 70 | 28 |

Two matrices were compared with Mantel test

^aOne record collected in March is not indicated in this Table.

^bTwo records collected in March is not indicated in this Table.

^cAcari, Ephemeroptera, Neuroptera, Psocoptera, Thysanoptera, Trichoptera, while in case of Potential prey, Orthoptera, Raphidioptera and Indet were also included.

Table S5. Prey items of the six most abundant arboreal hunting spider groups

| Prey/Predator | <i>C. xanthogramma</i> | Other salticids | <i>Ph. cespitum</i> | <i>E. tricuspidata</i> | <i>Xysticus</i> spp. | <i>Clubiona</i> spp. |
|-----------------------------------------------------------------|----------------------------|-----------------|---------------------|------------------------|----------------------|----------------------|
| Újfehértó, 2016-2017 | | | | | | |
| Araneae | 14 | 2 | 2 | 1 | 1 | 2 |
| Coleoptera | 6 | 1 | 1 | 2 | 5 | 0 |
| Lepidoptera | 4 | 0 | 0 | 1 | 0 | 3 |
| Formicidae | 22 | 0 | 0 | 0 | 8 | 3 |
| Other Hymenoptera | 6 | 1 | 1 | 3 | 0 | 1 |
| Brachycera | 60 | 7 | 8 | 5 | 3 | 5 |
| Nematocera | 26 | 7 | 30 | 8 | 1 | 13 |
| Auchenorrhyncha | 9 | 0 | 4 | 0 | 1 | 4 |
| Heteroptera | 6 | 0 | 1 | 0 | 3 | 2 |
| Sternorrhyncha | 53 | 8 | 22 | 4 | 0 | 24 |
| Other prey* | 8 | 0 | 4 | 0 | 0 | 0 |
| All sites and sampling dates except 2016-2017, Újfehértó | | | | | | |
| Araneae | 14 | 4 | 8 | 1 | 1 | 3 |
| Coleoptera | 5 | 1 | 0 | 1 | 8 | 0 |
| Lepidoptera | 0 | 1 | 0 | 1 | 0 | 1 |
| Formicidae | 3 | 0 | 0 | 1 | 12 | 0 |
| Other Hymenoptera | 3 | 2 | 0 | 0 | 0 | 0 |
| Brachycera | 16 | 6 | 28 | 6 | 0 | 8 |
| Nematocera | 10 | 3 | 75 | 9 | 3 | 4 |
| Auchenorrhyncha | 6 | 1 | 1 | 0 | 0 | 1 |
| Heteroptera | 9 | 4 | 3 | 6 | 2 | 1 |
| Sternorrhyncha | 17 | 11 | 42 | 4 | 1 | 11 |
| Other prey* | 6 | 1 | 3 | 0 | 0 | 0 |

Two matrices were compared with Mantel test

*Acari, Ephemeroptera, Neuroptera, Psocoptera, Thysanoptera, Trichoptera

Table S6. Raw data of the trophic web (Fig. 5 based on abundance data).

Taxonomic and economic composition of natural prey of hunting spider groups for all sites and years

| Prey/Predator | <i>C. xanthogramma</i> | | Other salticids | | <i>Ph. cespitum</i> | | <i>E. tricuspidata</i> | | <i>Xysticus</i> spp. | | <i>Clubiona</i> spp. | |
|-------------------|------------------------|-------|-----------------|-------|---------------------|-------|------------------------|-------|----------------------|-------|----------------------|-------|
| Acari | 0 | 0.0% | 0 | 0.0% | 3 | 1.3% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Araneae | 28 | 9.2% | 6 | 10.0% | 10 | 4.3% | 2 | 3.8% | 2 | 4.1% | 5 | 5.8% |
| Coleoptera | 11 | 3.6% | 2 | 3.3% | 1 | 0.4% | 3 | 5.7% | 13 | 26.5% | 0 | 0.0% |
| Lepidoptera | 4 | 1.3% | 1 | 1.7% | 0 | 0.0% | 2 | 3.8% | 0 | 0.0% | 4 | 4.7% |
| Formicidae | 25 | 8.3% | 0 | 0.0% | 0 | 0.0% | 1 | 1.9% | 20 | 40.8% | 3 | 3.5% |
| Other Hymenoptera | 9 | 3.0% | 3 | 5.0% | 1 | 0.4% | 3 | 5.7% | 0 | 0.0% | 1 | 1.2% |
| Brachycera | 76 | 25.1% | 13 | 21.7% | 36 | 15.5% | 11 | 20.8% | 3 | 6.1% | 13 | 15.1% |
| Nematocera | 36 | 11.9% | 10 | 16.7% | 105 | 45.1% | 17 | 32.1% | 4 | 8.2% | 17 | 19.8% |
| Auchenorrhyncha | 15 | 5.0% | 1 | 1.7% | 5 | 2.1% | 0 | 0.0% | 1 | 2.0% | 5 | 5.8% |
| Heteroptera | 15 | 5.0% | 4 | 6.7% | 4 | 1.7% | 6 | 11.3% | 5 | 10.2% | 3 | 3.5% |
| Sternorrhyncha | 70 | 23.1% | 19 | 31.7% | 64 | 27.5% | 8 | 15.1% | 1 | 2.0% | 35 | 40.7% |
| Ephemeroptera | 2 | 0.7% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Neuroptera | 4 | 1.3% | 1 | 1.7% | 3 | 1.3% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Psocoptera | 5 | 1.7% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Thysanoptera | 2 | 0.7% | 0 | 0.0% | 1 | 0.4% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Trichoptera | 1 | 0.3% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Natural enemy | 58 | 19.1% | 12 | 20.0% | 21 | 9.0% | 10 | 18.9% | 6 | 12.2% | 9 | 10.5% |
| Neutral | 149 | 49.2% | 27 | 45.0% | 143 | 61.4% | 31 | 58.5% | 31 | 63.3% | 34 | 39.5% |
| Pest | 96 | 31.7% | 21 | 35.0% | 69 | 29.6% | 12 | 22.6% | 12 | 24.5% | 43 | 50.0% |
| Sum: | 303 | 100% | 60 | 100% | 233 | 100% | 53 | 100% | 49 | 100% | 86 | 100% |

Table S7. Taxonomic composition of actual and potential prey items of arboreal hunting spiders collected in apple orchards

| Taxa | All collected spiders - Actual prey | | Újfehértó, 2016/17, - Actual prey | | Újfehértó, 2016/17, suction sampled - Potential prey | |
|-------------------|----------------------------------------|---------------|--------------------------------------|---------------|------------------------------------------------------------|---------------|
| | Abundance | % | Abundance | % | Abundance | % |
| Acari | 3 | 0.3% | 1 | 0.2% | 14 | 0.1% |
| Araneae | 57 | 6.5% | 23 | 5.1% | 396 | 3.5% |
| Coleoptera | 39 | 4.4% | 18 | 4.0% | 1416 | 12.4% |
| Lepidoptera | 15 | 1.7% | 9 | 2.0% | 58 | 0.5% |
| Formicidae | 69 | 7.9% | 44 | 9.7% | 647 | 5.7% |
| Other Hymenoptera | 20 | 2.3% | 15 | 3.3% | 89 | 0.8% |
| Brachycera | 169 | 19.2% | 93 | 20.6% | 484 | 4.2% |
| Nematocera | 205 | 23.3% | 92 | 20.4% | 727 | 6.4% |
| Auchenorrhyncha | 30 | 3.4% | 18 | 4.0% | 877 | 7.7% |
| Heteroptera | 42 | 4.8% | 12 | 2.7% | 313 | 2.7% |
| Sternorrhyncha | 209 | 23.8% | 116 | 25.7% | 6276 | 55.0% |
| Ephemeroptera | 3 | 0.3% | 2 | 0.4% | 1 | 0.0% |
| Neuroptera | 8 | 0.9% | 5 | 1.1% | 92 | 0.8% |
| Psocoptera | 5 | 0.6% | 2 | 0.4% | 15 | 0.1% |
| Thysanoptera | 3 | 0.3% | 2 | 0.4% | 2 | 0.0% |
| Trichoptera | 1 | 0.1% | 0 | 0.0% | 1 | 0.0% |
| Other* | 0 | 0.0% | 0 | 0.0% | 13 | 0.1% |
| Sum | 878 | 100.0% | 452 | 100.0% | 11421 | 100.0% |

*Orthoptera, Raphidioptera, Indet

Table S8. Taxonomic composition of actual prey items of arboreal hunting spiders collected in apple orchards – pests. All sites and years are included.

| Taxa | Abundance | % | Example |
|------------------------|------------|--------------|--------------------------------------------------------------------------------------------------|
| Auchenorrhyncha | 18 | 6.5% | |
| Cicadellidae | 2 | 0.7% | <i>Empoasca</i> sp. |
| Flatidae | 16 | 5.8% | <i>Metcalfa pruinosa</i> |
| Coleoptera | 30 | 10.8% | |
| Cerambycidae | 1 | 0.4% | <i>Pogonocherus hispidus</i> |
| Curculionidae | 29 | 10.5% | <i>Phyllobius betulinus</i> , <i>Ph. oblongus</i> , <i>Ph. virideaeris</i> , <i>Rhamphus</i> sp. |
| Heteroptera | 6 | 2.2% | |
| Tingidae | 6 | 2.2% | <i>Stephanitis pyri</i> |
| Lepidoptera | 14 | 5.1% | |
| Arctiidae | 1 | 0.4% | <i>Hyphantria cunea</i> |
| Gracillariidae | 1 | 0.4% | <i>Phyllonorycter blancardella</i> |
| Indet leaf miners | 2 | 0.7% | |
| Sesiidae | 1 | 0.4% | <i>Synanthedon myopaeformis</i> |
| Tortricidae | 9 | 3.2% | cf. <i>Recurvaria</i> sp. |
| Sternorrhyncha | 209 | 75.5% | |
| Aphididae | 198 | 71.5% | <i>Aphis pomi</i> , <i>Dysaphis devectora</i> , <i>D. plantaginea</i> |
| Psyllidae | 11 | 4.0% | <i>Cacopsylla mali</i> , <i>C. melanoneura</i> |
| Sum | 277 | 100.0% | |

Table S9. Taxonomic composition of actual prey items of arboreal hunting spiders collected in apple orchards – natural enemies. All sites and years are included.

| Taxa | Abundance | % | Example |
|--------------------|-----------|--------------|-----------------------------------------------------------------------------------------------------------|
| Acari | 2 | 1.6% | Trombidiidae sp. |
| Araneae | 57 | 44.5% | |
| Araneidae | 5 | 3.9% | <i>Cyclosa oculata</i> , <i>Mangora acalypha</i> |
| Cheiracanthiidae | 1 | 0.8% | <i>Cheiracanthium</i> sp. |
| Clubionidae | 5 | 3.9% | <i>Clubiona frutetorum</i> |
| Linyphiidae | 3 | 2.3% | <i>Erigone dentipalpis</i> , <i>Gongylidiellum murcidum</i> , <i>Porrhomma microphthalmum</i> |
| Lycosidae | 1 | 0.8% | |
| Philodromidae | 9 | 7.0% | <i>Philodromus cespitum</i> |
| Salticidae | 13 | 10.2% | <i>Carrhotus xanthogramma</i> , <i>Heliophanus auratus</i> , <i>H. cupreus</i> , <i>Salticus</i> sp. |
| Theridiidae | 5 | 3.9% | <i>Dipoena melanogaster</i> , <i>Lasaeola prona</i> , <i>Theridion</i> sp. |
| Thomisidae | 3 | 2.3% | <i>Ebrechtella tricuspida</i> , <i>Ozyptila</i> sp., <i>Xysticus</i> sp. |
| Indet | 12 | 9.4% | |
| Brachycera | 14 | 10.9% | |
| Syrphidae | 14 | 10.9% | <i>Episyrphus balteatus</i> , <i>Eupeodes corollae</i> |
| Coleoptera | 4 | 3.1% | |
| Carabidae | 1 | 0.8% | |
| Coccinellidae | 2 | 1.6% | <i>Adalia decempunctata</i> , <i>Stethorus</i> sp. |
| Staphylinidae | 1 | 0.8% | |
| Heteroptera | 26 | 20.3% | |
| Anthocoridae | 6 | 4.7% | <i>Orius</i> sp. |
| Miridae | 20 | 15.6% | <i>Agnocoris</i> sp., <i>Campylomma verbasci</i> , <i>Deraeocoris ruber</i> , <i>Pilophorus perplexus</i> |
| Neuroptera | 8 | 6.3% | Chrysopidae sp., Hemerobiidae sp. |
| Hymenoptera | 17 | 13.3% | Hymenoptera Parasitica spp. |
| Sum | 128 | 100.0% | |

Table S10. Ivlev's electivity indices based on the actual and potential prey of the arboreal hunting spider assemblage, Újfehértó, Hungary, 2016-2017. Comparison of the proportion of each prey group in the actual and potential prey based on model contrasts.

| Taxa/Economic category | Ivlev's index | P^a |
|-------------------------|---------------|--------|
| Araneae | 0.0568 | 0.7185 |
| Coleoptera | -0.5472 | 0.0003 |
| Lepidoptera | 0.4897 | 0.0765 |
| Formicidae | 0.2080 | 0.1415 |
| Other Hymenoptera | 0.4986 | 0.0914 |
| Brachycera | 0.5789 | 0.0023 |
| Nematocera | 0.4018 | 0.0246 |
| Auchenorrhyncha | -0.3143 | 0.0534 |
| Heteroptera | -0.1067 | 0.2658 |
| Sternorrhyncha | 0.0191 | 0.0814 |
| Other prey ^b | 0.0295 | 0.8313 |
| Natural enemy | 0.0908 | 0.8941 |
| Neutral | 0.4084 | 0.0017 |
| Pest | -0.3050 | 0.0023 |

^aGLMM-b contrasts

^bAcari, Ephemeroptera, Neuroptera, Psocoptera, Thysanoptera, Trichoptera

Table S11. Similarity (trophic niche overlap index) between the prey of the six hunting spider groups

| | <i>C. xanthogramma</i> | Other salticids | <i>Ph. cespitum</i> | <i>E. tricuspidata</i> | <i>Xysticus</i> spp. |
|---------------------------------------------------|------------------------|-----------------|---------------------|------------------------|----------------------|
| Niche overlap based on prey taxonomic composition | | | | | |
| Other salticids | 0.815 | * | * | * | * |
| <i>Ph. cespitum</i> | 0.612 | 0.694 | * | * | * |
| <i>E. tricuspidata</i> | 0.663 | 0.730 | 0.690 | * | * |
| <i>Xysticus</i> spp. | 0.393 | 0.321 | 0.246 | 0.379 | * |
| <i>Clubiona</i> spp. | 0.703 | 0.773 | 0.709 | 0.641 | 0.294 |
| Niche overlap based on prey size | | | | | |
| Other salticids | 0.887 | * | * | * | * |
| <i>Ph. cespitum</i> | 0.833 | 0.840 | * | * | * |
| <i>E. tricuspidata</i> | 0.883 | 0.832 | 0.858 | * | * |
| <i>Xysticus</i> spp. | 0.898 | 0.806 | 0.764 | 0.893 | * |
| <i>Clubiona</i> spp. | 0.800 | 0.861 | 0.777 | 0.725 | 0.719 |
| Overall niche overlap | | | | | |
| Other salticids | 0.851 | * | * | * | * |
| <i>Ph. cespitum</i> | 0.722 | 0.767 | * | * | * |
| <i>E. tricuspidata</i> | 0.773 | 0.781 | 0.774 | * | * |
| <i>Xysticus</i> spp. | 0.645 | 0.563 | 0.505 | 0.636 | * |
| <i>Clubiona</i> spp. | 0.751 | 0.817 | 0.743 | 0.683 | 0.506 |

0 index value means no overlap, whereas values close to 1 reflect similar resource utilization spectra. Species pairs occupying statistically different niches, as identified by null model tests, are indicated in bold (adjusted $\alpha = 0.0033$).

Table S12. **Similarity (trophic niche overlap index) between the prey of the six hunting spider groups.**

C. xanthogramma and *Ph. cespitum* were split to juveniles and adults

| | <i>C. xanthogramma</i> juveniles | <i>C. xanthogramma</i> adults | Other salticids | <i>Ph. cespitum</i> juveniles | <i>Ph. cespitum</i> adults | <i>E. tricuspidata</i> | <i>Xysticus</i> spp. |
|---------------------------------------------------|-------------------------------------|----------------------------------|-----------------|----------------------------------|-------------------------------|------------------------|----------------------|
| Niche overlap based on prey taxonomic composition | | | | | | | |
| <i>C. xanthogramma</i> adults | 0.784 | * | * | * | * | * | * |
| Other salticids | 0.801 | 0.783 | * | * | * | * | * |
| <i>Ph. cespitum</i> juveniles | 0.542 | 0.465 | 0.588 | * | * | * | * |
| <i>Ph. cespitum</i> adults | 0.737 | 0.702 | 0.804 | 0.707 | * | * | * |
| <i>E. tricuspidata</i> | 0.637 | 0.655 | 0.730 | 0.622 | 0.723 | * | * |
| <i>Xysticus</i> spp. | 0.392 | 0.382 | 0.321 | 0.216 | 0.255 | 0.379 | * |
| <i>Clubiona</i> spp. | 0.707 | 0.647 | 0.773 | 0.604 | 0.788 | 0.641 | 0.294 |
| Niche overlap based on prey size | | | | | | | |
| <i>C. xanthogramma</i> adults | 0.661 | * | * | * | * | * | * |
| Other salticids | 0.912 | 0.712 | * | * | * | * | * |
| <i>Ph. cespitum</i> juveniles | 0.825 | 0.629 | 0.814 | * | * | * | * |
| <i>Ph. cespitum</i> adults | 0.837 | 0.738 | 0.852 | 0.855 | * | * | * |
| <i>E. tricuspidata</i> | 0.806 | 0.755 | 0.832 | 0.805 | 0.929 | * | * |
| <i>Xysticus</i> spp. | 0.795 | 0.785 | 0.806 | 0.726 | 0.831 | 0.893 | * |
| <i>Clubiona</i> spp. | 0.888 | 0.598 | 0.861 | 0.786 | 0.762 | 0.725 | 0.719 |
| Overall niche overlap | | | | | | | |
| <i>C. xanthogramma</i> adults | 0.723 | * | * | * | * | * | * |
| Other salticids | 0.856 | 0.748 | * | * | * | * | * |
| <i>Ph. cespitum</i> juveniles | 0.684 | 0.547 | 0.701 | * | * | * | * |
| <i>Ph. cespitum</i> adults | 0.787 | 0.720 | 0.828 | 0.781 | * | * | * |
| <i>E. tricuspidata</i> | 0.722 | 0.705 | 0.781 | 0.714 | 0.826 | * | * |
| <i>Xysticus</i> spp. | 0.594 | 0.584 | 0.563 | 0.471 | 0.543 | 0.636 | * |
| <i>Clubiona</i> spp. | 0.798 | 0.623 | 0.817 | 0.695 | 0.775 | 0.683 | 0.506 |

0 index value means no overlap, whereas values close to 1 reflect similar resource utilization spectra.

Species pairs occupying statistically different niches, as identified by null model tests, are indicated in bold (adjusted $\alpha = 0.0018$).

Table S13. Coefficients of prey taxa vs. spider groups and the environmental predictors (fourth-corner model)

| Prey taxa / Predictors | <i>C. xanthogramma</i> | Other salticids | <i>Ph. cespitum</i> | <i>E. tricuspidata</i> | <i>Xysticus</i> spp. | <i>Clubiona</i> spp. | Spring | Summer | Fall |
|------------------------|------------------------|-----------------|---------------------|------------------------|----------------------|----------------------|--------|--------|--------|
| Araneae | 0.013 | 0.007 | 0 | -0.046 | 0 | 0 | 0.069 | 0 | 0 |
| Coleoptera | 0.030 | 0 | -0.157 | 0 | 0.265 | -0.094 | 0.321 | -0.030 | 0 |
| Lepidoptera | -0.051 | 0 | -0.095 | 0.046 | 0 | 0.087 | 0 | 0 | 0 |
| Formicidae | 0.039 | -0.113 | -0.188 | 0 | 0.303 | 0 | -0.029 | 0.121 | 0 |
| Other Hymenoptera | 0 | 0.069 | 0 | 0.089 | 0 | 0 | -0.035 | 0 | 0.095 |
| Brachycera | 0 | 0 | 0.029 | 0 | -0.052 | 0 | 0 | 0 | -0.117 |
| Nematocera | -0.058 | -0.039 | 0.115 | 0.021 | -0.031 | 0 | 0.152 | 0 | 0 |
| Auchenorrhyncha | 0 | 0 | 0.072 | -0.035 | 0 | 0.025 | -0.164 | 0 | 0.111 |
| Heteroptera | -0.030 | 0 | -0.005 | 0.076 | 0.107 | -0.012 | -0.084 | 0 | 0.012 |
| Sternorrhyncha | 0 | 0.036 | 0.093 | -0.029 | -0.136 | 0.089 | 0.046 | 0 | -0.015 |
| Other prey* | 0.044 | 0 | 0.102 | 0 | 0 | -0.032 | 0 | 0.040 | 0 |

*Acari, Ephemeroptera, Neuroptera, Psocoptera, Thysanoptera, Trichoptera

Coefficients (in absolute value) ≥ 0.03 are highlighted in red (positive associations) or in blue (negative associations).

Table S14. Trophic niche widths (Levins' B), predator-prey size data and niche widths with respect to size (s^2) for different life stages of *C. xanthogramma* and *Ph. cespitum*

| | <i>C. xanthogramma</i> juveniles | <i>C. xanthogramma</i> adults | <i>Ph. cespitum</i> juveniles | <i>Ph. cespitum</i> adults |
|--------------------------------------|-------------------------------------|----------------------------------|----------------------------------|-------------------------------|
| B | 5.851 | 6.762 | 2.509 | 4.322 |
| Spider prosoma width (mm), mean (SD) | 1.48 (0.30) | 2.48 (0.23) | 1.24 (0.24) | 1.87 (0.30) |
| Prey thorax width (mm), mean (SD) | 0.97 (0.51) | 1.52 (0.69) | 0.81 (0.52) | 1.09 (0.65) |
| Thorax-prosoma ratio, mean (SD) | 0.65 (0.27) | 0.61 (0.28) | 0.64 (0.38) | 0.58 (0.33) |
| s^2 absolute predator size | 0.09 A | 0.05 A | 0.06 a | 0.09 b |
| s^2 absolute prey size | 0.26 A | 0.46 B | 0.23 a | 0.40 b |
| s^2 prey-predator size ratio | 0.07 A | 0.08 A | 0.15 a | 0.11 a |

Different capital letters indicate significant differences in *C. xanthogramma* and different lowercase letters indicate significant differences in *Ph. cespitum* at $P < 0.05$ level.

Table S15. Natural prey of juveniles and adults (subadults + adults) of *Carrhotus xanthogramma* and *Philodromus cespitum*

| | <i>Carrhotus xanthogramma</i> | | | | <i>Philodromus cespitum</i> | | | |
|-------------------|-------------------------------|--------|-----------|--------|-----------------------------|--------|-----------|--------|
| | Abundance | | % | | Abundance | | % | |
| | Juveniles | Adults | Juveniles | Adults | Juveniles | Adults | Juveniles | Adults |
| Acari | 0 | 0 | 0.0% | 0.0% | 1 | 2 | 0.8% | 2.0% |
| Araneae | 17 | 11 | 9.2% | 9.6% | 5 | 5 | 3.8% | 5.1% |
| Coleoptera | 1 | 10 | 0.5% | 8.8% | 1 | 0 | 0.8% | 0.0% |
| Lepidoptera | 3 | 1 | 1.6% | 0.9% | 0 | 0 | 0.0% | 0.0% |
| Formicidae | 22 | 2 | 11.9% | 1.8% | 0 | 0 | 0.0% | 0.0% |
| Other Hymenoptera | 4 | 4 | 2.2% | 3.5% | 0 | 1 | 0.0% | 1.0% |
| Brachycera | 48 | 28 | 25.9% | 24.6% | 13 | 23 | 9.8% | 23.5% |
| Nematocera | 25 | 10 | 13.5% | 8.8% | 75 | 28 | 56.4% | 28.6% |
| Auchenorrhyncha | 4 | 11 | 2.2% | 9.6% | 0 | 5 | 0.0% | 5.1% |
| Heteroptera | 8 | 6 | 4.3% | 5.3% | 1 | 3 | 0.8% | 3.1% |
| Sternorrhyncha | 45 | 25 | 24.3% | 21.9% | 35 | 29 | 26.3% | 29.6% |
| Ephemeroptera | 2 | 0 | 1.1% | 0.0% | 0 | 0 | 0.0% | 0.0% |
| Neuroptera | 2 | 2 | 1.1% | 1.8% | 1 | 2 | 0.8% | 2.0% |
| Psocoptera | 2 | 3 | 1.1% | 2.6% | 0 | 0 | 0.0% | 0.0% |
| Thysanoptera | 2 | 0 | 1.1% | 0.0% | 1 | 0 | 0.8% | 0.0% |
| Trichoptera | 0 | 1 | 0.0% | 0.9% | 0 | 0 | 0.0% | 0.0% |
| Sum: | 185 | 114 | 100.0% | 100.0% | 133 | 98 | 100.0% | 100.0% |