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Spiders of Val Grande National Park (NW Italy) (Arachnida: Araneae): faunistic contributions and ecological insights from a protected area

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Keywords: abundance, alpine fauna, Araneae, biodiversity, elevational gradients, iNaturalist, pitfall trap, protected area, species richness, spiders.

SUMMARY

We provide an inventory of the spiders (Arachnida: Araneae) inhabiting the Val Grande National Park (NW - Italy) based on literature data, reliable iNaturalist observations and an original survey conducted between 2018 and 2019 in the frame of the "Biodiversity Monitoring Project" (BMP). In total, we report 157 species belonging to 92 genera and 25 families, including 11 new records for Piemonte and 103 new records for the Province of Verbano-Cusio-Ossola. Linyphiidae and Gnaphosidae were the most represented families, consistently with other protected areas across the Alps. Most species exhibited a Palearctic or European distribution, with a small proportion of endemics. Based on the original data gathered with standardized transects of pitfall traps we analysed species richness and abundance along the altitudinal gradient, revealing a general increasing trend with elevation. We also analyse the relationship between species composition and environmental variables using Canonical Correspondence Analysis (CCA) and revealed that species composition was significantly influenced by elevation and habitat type, highlighting clear ecological structuring along the altitudinal gradient. Beyond the faunistic contribution, we highlight the importance of faunal inventories for biodiversity conservation, particularly for lesser-known taxa like spiders, whose protection depends on accurate occurrence data within protected areas.

INTRODUCTION

Piemonte is one of the most investigated Italian regions in arachnology (Pantini & Isaia 2019, accessed 07/2025). However, due to its vast territory, diverse habitats, and to the remarkable diversity of the Italian spider fauna, significant knowledge gaps remain. Within the region, compared to other provinces, Verbano-Cusio-Ossola is particularly understudied, with only 144 recorded species out of the 746 known for the region. Most data for this Province are scattered over faunistic and taxonomic literature or come from sporadic collections included in the regional checklist of Isaia et al. (2007).

To address regional knowledge gap and monitor biodiversity over time, Gran Paradiso National Park (NW Italy) launched in 2013 the "Biodiversity Monitoring Project" (BMP) (Viterbi et al. 2013, Cerrato et al. 2015). involving several protected areas in the Western Alps, including the Val Grande National Park. In this work, we present an inventory of spider species recorded in this protected area, based on literature, reliable iNaturalist records, and original data gathered within the framework of the BMP. Moreover, we analyse patterns of taxonomic diversity along the elevational gradient within the Park. Special attention is given to faunistic aspects, highlighting new regional records and the presence of endemic and rare species.

MATERIALS AND METHODS

Study area

The Val Grande National Park, located in Piemonte (NW - Italy) within the Province of Verbano-Cusio-Ossola, was established in 1992 by the national administration (Fig. 1). Today, the park encompasses 16 municipalities in the section of Alpi Lepontine within the northwestern Italian Alps (Marazzi 2005) and covers approximately 15,000 hectares. Geologically, Val Grande National Park is characterised by metamorphic rocks, whose variety has contributed to a diverse and complex geomorphological evolution. Elevation ranges from 300 to 2,310 meters a.s.l. of Monte Togano and the most distinctive peaks, such as Pedum, Proman, Corni di Nibbio, Cima Sasso, and Cima della Laurasca, are mainly composed of amphibolites, serpentinites, and peridotites. Various Quaternary glaciations shaped the lower-elevation landforms, while moraine and alluvial deposits formed terraces that were later occupied by villages and mountain pastures. At lower elevations, vegetation is dominated by mixed broad-leaved forests, primarily chestnut trees (*Castanea sativa* Miller, 1768). At higher altitudes, beech forests prevail, especially on humid and rainy slopes. Conifers, such as Norway spruce (*Picea abies* Karsten, 1881) and silver fir (*Abies alba* Miller, 1759), are present but cover only limited areas, while larch (*Larix decidua* Miller, 1768) is rare due to the climate and historical logging. As elevation increases, forests give way to shrubs: on humid slopes, alder thickets grow alongside ferns and mosses, while rhododendrons and blueberries thrive along the more exposed ridges. At the highest elevations, alpine pastures dominate the landscape.

Data collection

To provide a comprehensive overview of the spider fauna in the study area, we used literature and original data with additional photographic reliable records from iNaturalist verified on expert base.

We obtained literature data from the updated version of the online Catalog of the Italian Spiders "Araneae.it" (Pantini and Isaia 2019, accessed 07/2025).

The original data were collected from four elevational transects located within the protected area in the frame of the BMP (Fig. 1). This biennial multitaxa survey uses linear plots, each consisting of five pitfall traps spaced 50 m apart, with an elevational interval of approximately 200 m. Table 1 shows the attributes of the four elevational transects set

within the protected area, ranging from a minimum of 700 to a maximum of 1,900 m, encompassing three elevational zonation (submontane, montane and subalpine). The original data presented in this work refers to the sampling conducted in 2018 (from 9/08 to 25/10) and 2019 (from 5/07 to 31/10). The pitfall traps were collected and replaced every two weeks, yielding a total of sixteen time series, six for 2018 and ten for 2019 (for a total amount of 2,000 pitfall traps). Each pitfall trap consisted of a plastic cup with a top diameter of 7 cm, a bottom diameter of 4.5 cm, and a depth of 8 cm. The traps were baited with approximately 50 ml of a saturated solution of white vinegar and salt, with the addition of a few drops of dish soap serving as a surfactant (Latella & Gobbi 2015). The traps were covered with bark and stones found on site. All specimens collected were examined and identified, whenever possible, to the species level using a Leica M80 stereoscopic microscope (up to 60× magnification). When necessary, male pedipalps or female vulvas were isolated in EtOH and placed in microvials in the same tube containing the specimen. In several cases, after removal the female vulvas were treated with 10% KOH prior to examination. After observation vulva were washed in acetic acid (5%) and successively stored in 70% ethanol.

Additionally, several reliable photographic records available from iNaturalist (accessible at https://www.inaturalist.org, accessed on 21/01/2025) were included. These records were filtered and verified by the authors using the photos uploaded to the platform, and only species that were unequivocally identified were accepted as valid records.

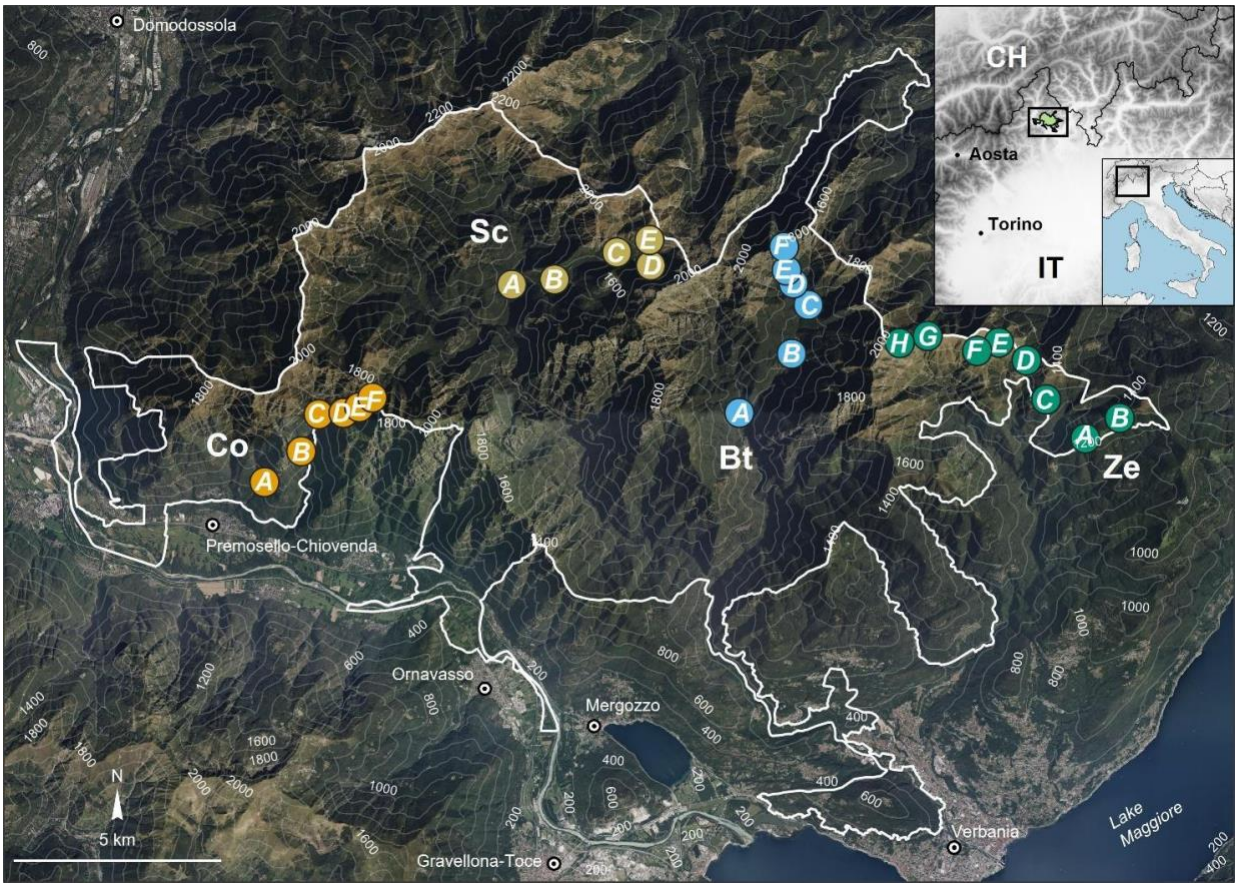

Figure 1. Map of the Val Grande National Park. The coloured dots refer to transects and the letters within to elevational plots (see Table 1).

Table 1. Sampling plots set within the "Biodiversity Monitoring Project" (Viterbi et al. 2013) in the Val Grande National Park. For each plot we indicate transect (Tran), plot name, plot code, elevation (m), elevational zonation, geographical coordinates (SR EPSG: 4326 – WGS84) and a general description of the habitat (see Fig. 1).

Tran	Plot name	Plot code	Elev (m)	Elevational zonation	Lat ° (N)	Lon ° (E)	Primary habitat
Bt (Bocchetta di Terza)	Pogallo	BtA	800	Submontane	46.028	8.491	Chestnut forest
	Alpe Preda	BtB	1000	Montane	46.041	8.507	Beech forest
	Alpe Pian di Boit	BtC	1200	Montane	46.052	8.512	Shrubland and meadow
	Alpe Terza	BtD	1400	Montane	46.056	8.507	Shrubland and meadow
	Slope towards Bocchetta Terza	BtE	1600	Subalpine	46.059	8.505	Alpine pasture
	Bocchetta di Terza	BtF	1800	Subalpine	46.064	8.504	Alpine pasture
Sc (Alpe Scaredi)	Alpe in La Piana	ScA	1000	Submontane	46.056	8.419	Beech forest
	Alpe Portaiola	ScB	1200	Montane	46.057	8.433	Beech forest
	Alpe Bohelli	ScC	1400	Montane	46.063	8.452	Beech forest
	Alpe La Balma	ScD	1600	Montane	46.060	8.463	Shrubland
	Cappella di Terza	ScE	1800	Subalpine	46.066	8.462	Alpine pasture
Co (Alpe La Colma)	Alpe Lut	CoA	700	Submontane	46.013	8.343	Chestnut forest
	Alpe La Piana	CoB	950	Submontane	46.019	8.354	Broad-leaved forest
	Alpe La Motta	CoC	1150	Montane	46.027	8.359	Broad-leaved forest
	Alpe Cortevecchio	CoD	1250	Montane	46.028	8.367	Beech forest
	Slope towards La Colma	CoE	1500	Subalpine	46.029	8.372	Alpine pasture
	Alpe La Colma	CoF	1700	Subalpine	46.031	8.376	Alpine pasture
Ze (Piè Zeda)	Pian d'Arla	ZeA	1300	Montane	46.023	8.599	Broad-leaved forest
	Pian d'Arla II	ZeB	1280	Montane	46.028	8.610	Broad-leaved forest
	Biogna	ZeC	1200	Montane	46.032	8.587	Beech forest
	Passo Folungo	ZeD	1350	Montane	46.040	8.580	Shrubland
	Pathway to Pian Vadà	ZeE	1600	Montane	46.044	8.572	Shrubland
	Pian Vadà	ZeF	1700	Subalpine	46.042	8.565	Alpine pasture
	Piè Zeda	ZeG	1800	Subalpine	46.045	8.549	Alpine pasture
	Pathway to Marona	ZeH	1900	Subalpine	46.044	8.541	Alpine pasture

Ecological analyses

We analysed patterns of taxonomic biodiversity along the elevational gradient using data collected with pitfall traps as part of the BMP. The Ze transect was excluded from the ecological analysis, as it was sampled only in 2019 and not in 2018. We explored the relationships between elevation and both species richness (S) and abundance (N). Specifically, S and N were estimated using the "BAT" R package (Cardoso et al. 2015). Before model fitting, we conducted data exploration following the protocol proposed by Zuur et al. (2010) to identify potential outliers and collinearity among covariates. Subsequently, we tested the relationships of S and N with elevation using Generalized Linear Mixed Models (GLMMs) implemented in the "glmmTMB" R package (Brooks et al. 2017). Mixed models were used to address violations of spatial independence assumptions caused by multiple measurements within the same sampling unit. Given the low number of levels, and in accordance with Zuur et al. (2009), sampling season and transect were included as fixed factors.

For each response variable (S and N), we fitted model including interaction terms between elevation and the fixed factors to assess how taxonomic patterns varied along the elevational

gradient in relation to year and transect. The model structure, in R notation, was:

$$X \sim E*Y + E*T + offset(log(n)) + (1|P)$$

where E represents the effect of elevation; Y is the year of collection (2018 and 2019); and T the transect (Bt, Sc, and Co). The term n corresponds to the number of pitfall trap replacements, used as an offset, and P is the plot, included as a random effect. The response variables, X, represent species richness (S) and abundance (N), estimated from individual pitfall traps over the course of one year. Given that the response variables are count data without negative values, we adopted either a Poisson residual distribution with a log-link function or a negative binomial residual distribution when overdispersion was observed. Specifically, a Poisson distribution was used for modeling species richness, and a negative binomial distribution for abundance. Model validation was performed using simulation-based residual diagnostics via the "DHARMa" package (Hartig 2024).

We also evaluated the relationship between species, elevation and their habitat preferences using the Canonical Correspondence Analysis (CCA) which models species distributions as a function of the combined effects of the considered variables, allowing identification of each species' ecological optimum along these integrated gradients CCA was computed with the "vegan" R package (Oksanen et al. 2017). Only species accounting for 85% of the total sample were included in the CCA. Rare species were excluded, as their presence is often influenced by chance rather than ecological relevance (Lesica & Cooper 1999; Isaia et al. 2006). We obtained habitat data from the Corine Land Cover 2018 from the European Union's Copernicus Land Monitoring Service information (2018). We used QGIS (QGIS Development Team, 2025) to calculate the percentage coverage of each land-use type within the sampling areas, following these steps: (i) drawing a 250 m radius buffer from the center of each plot; (ii) overlapping the buffer area with the Corine Land Cover dataset, performing intersections; and (iii) calculating the percentage of each land-use type. For each habitat category, we extracted and summed the areas to obtain their total extent. The categories were then classified into four main habitat types: broad-leaved forests, rocky areas, meadows, and shrublands.

RESULTS

For each species we provide details on original material (ORIGINAL DATA), previous published records (LITERATURE), distribution according to World Spider Catalog (2025) (DISTRIBUTION), chorological category (CHOROTYPE according to Vigna Taglianti et al. 1992, 1999 and Stoch & Vigna Taglianti 2005) (see Table 2) and the elevational zonation in which the species was collected (ELEVATIONAL ZONATION - for original data only). For nomenclature we referred to the latest version of the World Spider Catalog (2025). Where necessary, we add taxonomical or faunistic remarks (NOTES). Concerning original data, we provided the number and sex of the specimens, municipality and the toponym of closest locality, habitat, elevation, collecting method (if not mentioned: pitfall traps with an interval of approximately 15 days) and date of collection. The material is stored at Museum of Natural Sciences E. Caffi in Bergamo except otherwise stated (CI: Marco Isaia's collection, Department of Life Sciences and Systems Biology of the University of Turin). Species occurrence data (original data only) is available as a GBIF dataset in Darwin Core form (https://doi.org/10.15468/urd3v5).

Family **AGELENIDAE**

Coelotes mediocris Kulczynski, 1887

ORIGINAL DATA – Aurano: Pian d'Arla (ZeA), 10.X.2019, 3♂ - 25.X.2019, 3♂ -

30.IX.2019, 1♂ - 09.VII.2019, 1♀, 9♂ - 10.X.2019, 12♂ - 12.IX.2019, 13♂ - 25.X.2019, 2♂ - 27.VIII.2019, 3♂; Aurano: Pian d'Arla II (ZeB), 30.IX.2019, 2♀, 11♂; Pian Vadà (ZeF), 12.IX.2019, 1♂ - 30.IX.2019, 3♂; Malesco: Cappella di Terza (ScE), 09.IX.2019, 1♂; Miazzina: Alpe Pian di Boit (BtC), 12.IX.2018, 1♂ - 27.VIII.2018, 1♂; Premosello-Chiovenda: Alpe La Piana (CoB), 26.VII.2019, 1♀.

DISTRIBUTION – Switzerland, Italy, Ukraine (doubtful occurrence).

CHOROTYPE – SEU.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

Table 2. Chorotypes, abbreviation and relative number of species collected in the National Park of Val Grande and corresponding groups of chorotypes used in Fig. 3. All chorotypes and abbreviations follow Vigna Taglianti et al. (1992, 1999) and Stoch & Vigna Taglianti (2005).

Chorotype	Abbreviation	N° of species	Group (Fig. 3)
Asiatic-European	ASE	29	Palaearctic
Siberian-European	SIE	18	
Palaearctic	PAL	12	
Centralasiatic-European	CAE	11	
Centralasiatic-European-Mediterranean	CEM	1	
West Paleartic	WPA	1	
European-Mediterranean	EUM	1	
European	EUR	35	European
Central European	CEU	4	
South European	SEU	1	
Holarctic	OLA	14	Holarctic
W-Alpine endemic	ALPW	5	Endemic
S-Alpine endemic	ALPS	4	
W-Alpine-N-Appenninic endemic	AWNA	3	
Alpine endemic	ALP	1	
Turanic-European	TUE	11	Turanic-European-Mediterranean
Turanic-European-Mediterranean	TEM	5	
Turanic-Mediterranean	TUM	1	
Mediterranean	MED	1	Mediterranean
Introduced to Europe	-	2	Alien

Coelotes pickardi O. Pickard-Cambridge, 1873

ORIGINAL DATA – Aurano: Pathway to Marona (ZeH), 12.IX.2019, 1♂ - 26.VIII.2019, 1♂; Valle Cannobina: Piè Zeda (ZeG), 08.VIII.2019, 1♂ - 26.VIII.2019, 1♀, 5♂.

LITERATURE – Maurer 1982.

DISTRIBUTION – Italy, France.

CHOROTYPE – ALPW.

ELEVATIONAL ZONATION – subalpine.

NOTES – Endemic species (Pantini & Isaia 2019, accessed 07/2025) from western Alps, from Valle di Oropa to Val Sesia and northern to Vallese. The data within the Val Grande National Park are the easternmost records.

Coelotes rudolfi (Schenkel, 1925)

ORIGINAL DATA – Malesco: Alpe La Balma (ScD), 03.IX.2018, 6♂ - 09.X.2018, 1♂ - 11.IX.2018, 1♀, 2♂ - 14.VIII.2018, 1♂ - 24.IX.2019, 2♂ - 27.VIII.2019, 3♂; Premosello-Chiovenda: Alpe La Colma (CoF), 03.X.2018, 1♂; Slope towards La Colma (CoE), 23.VIII.2018, 1♂; Valle Cannobina: Alpe Terza

(BtD), 09.IX.2019, 1♂ - 27.VIII.2018, 1♂; Bocchetta di Terza (BtF), 09.IX.2019, 2♂ - 09.VIII.2019, 1♂ - 12.IX.2018, 3♂ - 26.IX.2018, 1♂ - 27.IX.2019, 3♂ - 27.VIII.2018, 2♀ - 27.VIII.2018, 6♂.

DISTRIBUTION – Switzerland, Italy - Western Alps (from Alpi Lepontine to Alpi Graie).

CHOROTYPE – ALPW.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – Endemic species (Pantini & Isaia 2019, accessed 07/2025) from western Alps (from Alpi Lepontine to Alpi Graie). The data within the Val Grande National Park are the north-easternmost records.

Eratigena fuesslini (Pavesi, 1873)

ORIGINAL DATA – Cossogno: Alpe Preda (BtB), 25.VI.2019, 2♂; Premosello-Chiovenda: Alpe La Motta (CoC), 03.X.2018, 1♂ - 05.VII.2019, 3♀ - 17.X.2018, 1♂; - 22.VI.2019, 1♂ - 23.VIII.2018, 1♀; Alpe La Piana (CoB), 05.VII.2019, 1♀ - 05.VII.2019, 1♂ - 06.VI.2019, 1♀, 3♂ - 22.VI.2019, 1♂; Alpe Lut (CoA), 05.VII.2019, 1♂ - 06.VI.2019, 1♂ - 09.VIII.2018, 1♀ - 26.VII.2019, 3♀.

DISTRIBUTION – Europe, Turkey.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – submontane, montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Histopona leonardoi Bolzern, Pantini & Isaia, 2013

ORIGINAL DATA – Cossogno: Alpe Preda (BtB), 09.IX.2019, 5♂ - 09.X.2018, 1♀ - 12.IX.2018, 1♂ - 14.VIII.2018, 1♀, 2♂ - 17.X.2019, 1♀, 1♂ - 26.IX.2018, 1♂ - 27.IX.2019, 4♂ - 27.VIII.2018, 2♂ - 30.VIII.2019, 1♀, 1♂; Pogallo (BtA), 09.IX.2019, 1♂ - 12.IX.2018, 1♂ - 26.IX.2018, 1♂; Malesco: Alpe Boschelli (ScC), 03.IX.2018, 1♂; Alpe Portaiola (ScB), 03.IX.2018, 2♂ - 07.X.2019, 1♂ - 09.IX.2019, 1♂ - 11.IX.2018, 1♂ - 24.IX.2019, 4♂ - 25.IX.2018, 1♂ - 27.VIII.2019, 2♂; Miazzina: Alpe Pian di Boit (BtC), 12.IX.2018, 2♂ - 14.VIII.2018, 1♂ - 19.VII.2019, 1♀ - 26.IX.2018, 1♂; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 02.X.2019, 5♂ - 05.IX.2018, 1♂ - 11.X.2019, 1♂ - 12.IX.2019, 2♂ - 18.IX.2018, 6♂ - 23.VIII.2018, 1♀, 10♂ - 23.VIII.2019, 1♂; Alpe La Motta (CoC), 02.X.2019, 1♂ - 05.IX.2018, 5♂ - 09.VIII.2018, 10♂ - 12.IX.2019, 6♂ - 17.X.2018, 1♀ - 18.IX.2018, 2♀, 2♂ - 23.VIII.2018, 8♀ - 26.X.2019, 1♂; Slope towards La Colma (CoE), 23.VIII.2018, 1♀; Trontano: Alpe In La Piana (ScA), 03.IX.2018, 2♀, 38♂ - 09.IX.2019, 1♀, 8♂ - 09.VIII.2019, 1♂ - 11.IX.2018, 2♀;7♂ - 14.VIII.2018, 1♂ - 24.IX.2019, 1♀, 8♂ - 25.IX.2018, 1♀ - 25.IX.2018, 2♂ - 29.VII.2019, 1♀, 1♂.

DISTRIBUTION – Switzerland, Italy.

CHOROTYPE – AWNA.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

NOTES –Endemic species (Pantini & Isaia 2019, accessed 07/2025) from western Alps and northern Apennines.

Tegenaria silvestris L. Koch, 1872

ORIGINAL DATA – Aurano: Passo Folungo (ZeD), 20.VI.2019, 1♂; Pathway to Marona (ZeH), 09.VII.2019, 1♂ - 12.IX.2019, 1♂; Pathway to Pian Vadà (ZeE), 08.VI.2019, 1♀, 1♂ - 09.VII.2019, 1♀ - 24.VII.2019, 1♀ - 30.IX.2019, 1♂; Pian d'Arla II (ZeB), 08.VI.2019, 1♀ - 09.VII.2019, 2♀, 1♂ - 20.VI.2019, 1♀, 1♂ - 23.VII.2019, 1♀; Pian Vadà (ZeF), 10.X.2019, 1♀; Cossogno: Alpe Preda (BtB), 09.IX.2019, 1♀ - 11.VII.2019, 1♀ - 12.IX.2018, 1♀; Pogallo (BtA), 09.IX.2019, 1♀ - 25.VI.2019, 1♂; Malesco: Alpe Boschelli (ScC), 14.VI.2019, 2♂; Alpe La Balma (ScD), 24.IX.2019, 1♀; Alpe Portaiola (ScB), 11.IX.2018, 1♂ - 14.VI.2019, 1♂ - 17.VII.2019,

1♂ - Cappella di Terza (ScE), 24.VI.2019, 1♀; Miazzina: Alpe Pian di Boit (BtC), 09.IX.2019, 1♂; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 06.VI.2019, 1♀ - 26.VII.2019, 1♂; Alpe La Colma (CoF), 05.VIII.2019, 1♀; Alpe La Motta (CoC), 06.VI.2019, 1♂ - 22.VI.2019, 1♀, 1♂; Alpe La Piana (CoB), 09.VIII.2018, 1♀ - 11.X.2019, 1♀; Alpe Lut (CoA), 05.VII.2019, 1♂; Slope towards La Colma (CoE), 05.IX.2018, 1♂ - 22.VI.2019, 1♀, 1♂; Trontano: Alpe In La Piana (ScA), 03.IX.2018, 1♀ - 14.VI.2019, 1♀, 2♂ - 24.IX.2019, 1♀ (CI), 1♂ - 27.VI.2019, 1♀.

DISTRIBUTION – Europe.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

Textrix denticulata (Olivier, 1789)

ORIGINAL DATA – Cossogno: Pogallo (BtA), 12.VII.2019, 1♀, 1♂ - 22.VII.2019, 1♂; Premosello-Chiovenda: Alpe Lut (CoA), 26.VII.2019, 1♂.

DISTRIBUTION – Europe.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – submontane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **AMAUROBIIDAE**

Amaurobius fenestralis (Ström, 1768)

ORIGINAL DATA – Cossogno: Alpe Preda (BtB), 09.X.2018, 1♀; Malesco: Alpe Boschelli (ScC), 07.X.2019, 1♂ - 09.X.2018, 1♂ - 23.X.2018, 1♂ - 25.IX.2018, 1♂; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 03.X.2018, 1♂; Alpe La Motta (CoC), 26.X.2019, 1♀, 1♂; Valle Cannobina: Slope towards Bocchetta Terza (BtE), 17.IX.2019, 1♀.

DISTRIBUTION – Europe to Central Asia.

CHOROTYPE – CAE.

ELEVATIONAL ZONATION – montane, subalpine.

Amaurobius jugorum L. Koch, 1868

ORIGINAL DATA – Aurano: Pathway to Pian Vadà (ZeE), 08.VI.2019, 1♂; Pian Vadà (ZeF), 08.VI.2019, 2♂; Cossogno: Alpe Preda (BtB), 25.VI.2019, 1♀; Malesco: Alpe Portaiola (ScB), 24.VI.2019, 1♂; Cappella di Terza (ScE), 24.VI.2019, 1♂; Premosello-Chiovenda: Slope towards La Colma (CoE), 06.VI.2019, 1♂; Trontano: Alpe In La Piana (ScA), 23.X.2018, 1♂; Valle Cannobina: Alpe Terza (BtD), 31.X.2019, 1♂; Slope towards Bocchetta Terza (BtE), 09.X.2018, 1♀, 1♂.

DISTRIBUTION – Europe.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

Family **ARANEIDAE**

Aculepeira ceropegia (Walckenaer, 1802)

ORIGINAL DATA – Caprezzo (46.0097188387N - 8.5354001173E), 22.VIII.2021, 1♀, J. Fahr leg., photo observation, https://www.inaturalist.org/observations/92692827.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to West Siberia), Kazakhstan.

CHOROTYPE – EUR.

Araneus circe (Audouin, 1826)

ORIGINAL DATA – Premosello-Chiovenda (46.027314013N - 8.3596783876E), 06.VII.2021, 1♀, M. Piana leg., photo observation, https://www.inaturalist.org/observations/85968198.

DISTRIBUTION – Southern Europe, Egypt, Turkey, Caucasus, Iran.

CHOROTYPE – TEM.

Araneus quadratus Clerck, 1757

ORIGINAL DATA – Beura-Cardezza (46.04326N - 8.36371E), 25.VIII.2024, 1♀, Stebasa leg., photo observation, https://www.inaturalist.org/observations/238069138.

DISTRIBUTION – Europe, Turkey, Russia (Europe to Far East), Iran, Central Asia to China, Japan.

CHOROTYPE – ASE.

Argiope bruennichi (Scopoli, 1772)

ORIGINAL DATA – Trontano (46.05628N - 8.41953E), 19.VIII.2024, 1♀, Dragonfyre leg., photo observation, https://www.inaturalist.org/observations/237158924.

DISTRIBUTION – Europe, Turkey, Israel, Russia (Europe to Far East), Caucasus, Iran, Central Asia to China, Korea, Japan.

CHOROTYPE – PAL.

Family **CICURINIDAE**

Cicurina cicur (Fabricius, 1793)

ORIGINAL DATA – Aurano: Pathway to Pian Vadà (ZeE), 08.VI.2019, 1♀; Miazzina: Alpe Pian di Boit (BtC), 26.IX.2018, 1♀.

DISTRIBUTION – Europe to Central Asia.

CHOROTYPE – CAE.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **CLUBIONIDAE**

Clubiona comta C. L. Koch, 1839

ORIGINAL DATA – Premosello-Chiovenda: Slope towards La Colma (CoE), 12.IX.2019, 1♀.

DISTRIBUTION – Europe, North Africa, Turkey, Caucasus.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Clubiona diversa O. Pickard-Cambridge, 1862

ORIGINAL DATA – Aurano: Pathway to Marona (ZeH), 26.VIII.2019, 1♂; Malesco: Cappella di Terza (ScE), 17.VII.2019, 1♀; Premosello-Chiovenda: Alpe La Colma (CoF), 06.VI.2019, 1♂.

DISTRIBUTION – Europe, Caucasus, Russia (Europe to Far East), Kazakhstan, Korea, Japan.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **CYBAEIDAE**

Cybaeus intermedius Maurer, 1992

ORIGINAL DATA – Aurano: Pathway to Marona (ZeH), 08.VIII.2019, 1♂ - 24.VII.2019, 1♂; Pathway to Pian Vadà (ZeE), 09.VIII.2019, 2♂ - 24.VII.2019, 1♂ (CI); Pian Vadà (ZeF), 24.VII.2019, 1♂; Cossogno: Alpe Preda (BtB), 12.IX.2018, 1♀ - 14.VIII.2018, 1♀; Malesco: Alpe Boschelli (ScC), 03.IX.2018, 1♀ - 09.VIII.2019, 2♂ - 27.VIII.2019, 1♀ - 29.VII.2019, 3♂; Alpe Portaiola (ScB), 09.X.2018, 1♀ - 17.VII.2019, 2♀, 4♂ - 24.IX.2019, 1♀ - 29.VII.2019, 3♂; Cappella di Terza (ScE), 09.VIII.2019, 2♂ - 17.VII.2019, 1♂; Miazzina: Alpe Pian di Boit (BtC), 11.VII.2019, 1♂; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 05.IX.2018, 1♀ - 05.VIII.2019, 2♂ - 05.VIII.2019, 5♂ - 26.VII.2019, 13♂ - 26.X.2019, 1♀; Alpe La

Colma (CoF), 02.X.2019, 1♀ - 09.VIII.2018, 1♂ - 26.VII.2019, 1♀, 2♂; Alpe La Motta (CoC), 05.IX.2018, 1♀ - 05.VII.2019, 1♂ - 18.IX.2018, 1♀ - 23.VIII.2018, 1♀ - 26.VII.2019, 1♂; Slope towards La Colma (CoE), 09.VIII.2018, 1♂ - 26.VII.2019, 1♀, 5♂; Trontano: Alpe In La Piana (ScA), 03.IX.2018, 1♀ - 17.VII.2019, 1♂ - 29.VII.2019, 1♂; Valle Cannobina: Alpe Terza (BtD), 09.IX.2019, 1♀ - 11.VII.2019, 1♂ - 22.VII.2019, 1♂ - 23.X.2018, 1♀ - 27.IX.2019, 1♀ - 31.X.2019, 1♀; Bocchetta di Terza (BtF), 22.VII.2019, 1♂; Piè Zeda (ZeG), 24.VII.2019, 1♂; Slope towards Bocchetta Terza (BtE), 11.VII.2019, 2♂ - 14.VIII.2018, 1♀ - 22.VII.2019, 2♂.

DISTRIBUTION – France, Switzerland, Italy.

CHOROTYPE – AWNA.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

NOTES –Endemic species (Pantini & Isaia 2019, accessed 07/2025) from western Alps to northern Apennines.

Family **DICTYNIDAE**

Argenna patula (Simon, 1874)

ORIGINAL DATA – Premosello-Chiovenda: Alpe La Motta (CoC), 06.VI.2019, 1♂ - 22.VI.2019, 1♂.

DISTRIBUTION – Europe, Caucasus, Russia (Europe to South Siberia), Kazakhstan, Kyrgyzstan, China, Iran (doubtful occurrence).

CHOROTYPE – SIE.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **DYSDERIDAE**

Dasumia taeniifera Thorell, 1875

ORIGINAL DATA – Cossogno: Alpe Preda (BtB), 09.X.2018, 1♀ - 22.VII.2019, 1♂ - 25.VI.2019, 4♀ - 30.VIII.2019, 1♀; Pogallo (BtA), 25.VI.2019, 1♀; Malesco: Alpe Portaiola (ScB), 14.VI.2019, 2♀ - 17.VII.2019, 1♀ - 25.IX.2018, 1♀; Cappella di Terza (ScE), 24.VI.2019, 1♀; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 02.X.2019, 1♀; Alpe La Motta (CoC), 22.VI.2019, 1♂; Alpe La Piana (CoB), 22.VI.2019, 1♂; Alpe Lut (CoA), 05.VII.2019, 1♀ - 09.VIII.2018, 2♀ - 22.VI.2019, 1♀; Trontano: Alpe In La Piana (ScA), 14.VI.2019, 1♂ - 24.IX.2019, 1♀ - 24.VI.2019, 2♂ - 27.VIII.2019, 1♀.

DISTRIBUTION – France, Switzerland, Italy (from central Prealps to central and northern Apennines).

CHOROTYPE – AWNA.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola. Endemic species (Pantini & Isaia 2019, accessed 07/2025) from central Prealps to central and northern Apennines.

Harpactea hombergi (Scopoli, 1763)

ORIGINAL DATA – Premosello-Chiovenda: Alpe Cortevecchio (CoD), 05.IX.2018, 5♂; Alpe La Piana (CoB), 05.IX.2018, 1♀ - 05.VII.2019, 1♂.

DISTRIBUTION – Europe.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – submontane, montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Harpactocrates drassoides (Simon, 1882)

ORIGINAL DATA – Aurano: Pathway to Marona (ZeH), 08.VI.2019, 1♂; Pian d'Arla II (ZeB), 30.IX.2019, 1♀; Malesco: Cappella di Terza (ScE), 24.IX.2019, 1♀; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 02.X.2019, 1♀; Valle Cannobina: Alpe Terza

(BtD), 09.X.2018, 1♀ - 23.X.2018, 1♀ - 25.VI.2019, 1♂; Bocchetta di Terza (BtF), 09.X.2018, 1♀.

DISTRIBUTION – Italy, France and Switzerland.

CHOROTYPE – ALPW.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola. Endemic species (Pantini & Isaia 2019, accessed 07/2025) from western Alps (Switzerland, France, Italy).

Family **GNAPHOSIDAE**

Drassodes lapidosus (Walckenaer, 1802)

ORIGINAL DATA – Aurano: Biogna (ZeC), 09.VII.2019, 1♀, 1♂ - 27.VIII.2019, 1♀; Pathway to Marona (ZeH), 08.VIII.2019, 1♀ - 09.VII.2019, 1♂ - 27.VI.2019, 1♂; Pathway to Pian Vadà (ZeE), 08.VI.2019, 1♂ - 09.VII.2019, 1♀ - 09.VIII.2019, 1♀ - 26.VIII.2019, 1♂; Pian d'Arla (ZeA), 08.VI.2019, 1♂ - 09.VIII.2019, 5♂ - 23.VII.2019, 1♀; Pian Vadà (ZeF), 09.VIII.2019, 1♀ - 30.IX.2019, 2♀; Malesco: Alpe La Balma (ScD), 17.VII.2019, 1♀; Cappella di Terza (ScE), 09.IX.2019, 1♀ - 17.VII.2019, 1♀, 5♂; Premosello-Chiovenda: Alpe La Colma (CoF), 02.X.2019, 1♀ - 03.X.2018, 1♀ - 29.VIII.2018, 1♀; Slope towards La Colma (CoE), 26.VII.2019, 1♀; Valle Cannobina: Alpe Terza (BtD), 12.VII.2019, 1♂ - 22.VII.2019, 1♂ - 25.VI.2019, 1♂; Bocchetta di Terza (BtF), 11.VII.2019, 3♂ - 27.IX.2019, 1♀; Piè Zeda (ZeG), 09.VII.2019, 2♂ - 27.VI.2019, 1♂; Slope towards Bocchetta Terza (BtE), 09.IX.2019, 1♀ - 09.VIII.2019, 1♂ - 09.X.2018, 1♀ - 11.VII.2019, 3♂ - 25.VI.2019, 3♂.

DISTRIBUTION – Azores, Europe, Turkey, Caucasus, Russia (Europe to Far East), Israel, Iran, Central Asia, China, Korea, Japan.

CHOROTYPE – PAL.

ELEVATIONAL ZONATION – montane, subalpine.

Drassodes pubescens (Thorell, 1856)

ORIGINAL DATA – Aurano: Biogna (ZeC), 09.VII.2019, 1♂ - 23.VII.2019, 1♀; Pathway to Marona (ZeH), 09.VII.2019, 1♀ - 24.VII.2019, 1♂; Pathway to Pian Vadà (ZeE), 26.VIII.2019, 1♀; Pian d'Arla (ZeA), 08.VI.2019, 1♀ - 09.VII.2019, 1♂ - 09.VIII.2019, 2♀; Pian Vadà (ZeF), 09.VII.2019, 1♀, 3♂ - 26.VIII.2019, 2♀; Malesco: Cappella di Terza (ScE), 09.VIII.2019, 1♂ - 17.VII.2019, 1♂ - 29.VII.2019, 2♂; Miazzina: Alpe Pian di Boit (BtC), 27.VIII.2018, 1♀; Premosello-Chiovenda: Alpe La Colma (CoF), 02.X.2019, 1♀ - 23.VIII.2019, 1♀, 1♂ - 26.VII.2019, 2♂; Alpe La Motta (CoC), 22.VI.2019, 1♀; Slope towards La Colma (CoE), 23.VIII.2018, 1♀; Valle Cannobina: Alpe Terza (BtD), 12.VII.2019, 3♂; Bocchetta di Terza (BtF), 17.X.2019, 2♀; Piè Zeda (ZeG), 08.VIII.2019, 1♂ - 09.VII.2019, 4♂ - 12.IX.2019, 3♀; Slope towards Bocchetta Terza (BtE), 11.VII.2019, 2♀, 2♂ (CI), 1♂ - 22.VII.2019, 1♂.

DISTRIBUTION – Europe, Turkey, Israel, Caucasus, Russia (Europe to Far East), Iran, Central Asia, China, Japan.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Drassylus praeficus (L. Koch, 1866)

ORIGINAL DATA – Aurano: Biogna (ZeC), 09.VII.2019, 1♀ - 30.IX.2019, 1♀; Passo Folungo (ZeD), 27.VIII.2019, 1♀; Pathway to Pian Vadà (ZeE), 26.VIII.2019, 1♀ - 12.IX.2019, 1♀ - 26.VIII.2019, 1♀; Cossogno: Pogallo (BtA), 12.VII.2019, 1♀; Miazzina: Alpe Pian di Boit (BtC), 09.VIII.2019, 1♀ - 11.VII.2019, 2♂ - 14.VIII.2018, 2♀ -

25.VI.2019, 1♀ - 27.VIII.2018, 2♀ - 30.VIII.2019, 2♀; Premosello-Chiovenda: Alpe La Motta (CoC), 23.VIII.2018, 1♀; Trontano: Alpe In La Piana (ScA), 14.VIII.2018, 1♀ - 17.VII.2019, 1♀, 1♂ - 29.VII.2019, 3♀; Valle Cannobina: Alpe Terza (BtD), 09.VIII.2019, 1♀.

DISTRIBUTION – Europe to Central Asia.

CHOROTYPE – CAE.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Drassylus pusillus (C. L. Koch, 1833)

ORIGINAL DATA – Aurano: Biogna (ZeC), 08.VI.2019, 1♂; Passo Folungo (ZeD), 08.VI.2019, 1♂; Pathway to Pian Vadà (ZeE), 27.VI.2019, 1♂; Pian d'Arla (ZeA), 08.VI.2019, 1♂ - 20.VI.2019, 1♂; Premosello-Chiovenda: Alpe La Motta (CoC), 05.VII.2019, 1♀ - 26.VII.2019, 1♀; Alpe Lut (CoA), 06.VI.2019, 2♂; Trontano: Alpe In La Piana (ScA), 17.VII.2019, 1♂ - 24.VI.2019, 2♂.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to Far East), Iran, Central Asia, China.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – submontane, montane.

Drassylus villicus (Thorell, 1875)

ORIGINAL DATA – Premosello-Chiovenda: Alpe Lut (CoA), 22.VI.2019, 1♀.

DISTRIBUTION – Europe, Turkey, Azerbaijan.

CHOROTYPE – TUE.

ELEVATIONAL ZONATION – submontane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Gnaphosa badia (L. Koch, 1866)

ORIGINAL DATA – Malesco: Alpe La Balma (ScD), 09.VIII.2019, 1♂ - 17.VII.2019, 1♂ - 24.VI.2019, 1♂.

DISTRIBUTION – Europe to Azerbaijan.

CHOROTYPE – TUE.

ELEVATIONAL ZONATION – montane.

Gnaphosa bicolor (Hahn, 1833)

ORIGINAL DATA – Malesco: Alpe Boschelli (ScC), 17.VII.2019, 1♀, 1♂; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 23.VIII.2018, 1♀.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to West Siberia).

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Haplodrassus aenus Thaler, 1984

ORIGINAL DATA - Aurano: Passo Folungo (ZeD), 08.VI.2019, 1♀; Premosello-Chiovenda: Alpe La Colma (CoF), 06.VI.2019, 1♀, 1♂.

DISTRIBUTION – Switzerland, Austria, Italy - Alps.

CHOROTYPE – ALPS.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for Piemonte. Endemic species (Pantini & Isaia 2019, accessed 07/2025) known before this work for 4 records in Italy.

Haplodrassus signifer (C. L. Koch, 1839)

ORIGINA DATA - Aurano: Biogna (ZeC), 08.VI.2019, 1♀ - 20.VI.2019, 1♀; Passo Folungo (ZeD), 20.VI.2019, 1♂ - 24.VII.2019, 1♀; Pathway to Marona (ZeH), 08.VI.2019, 2♀, 4♂ - 27.VI.2019, 1♂; Pian d'Arla (ZeA),

20.VI.2019, 2♂; Pian Vadà (ZeF), 08.VI.2019, 1♂ - 09.VII.2019, 1♂ - 27.VI.2019, 1♀; Malesco: Alpe La Balma (ScD), 17.VII.2019, 1♀; Alpe Portaiola (ScB), 24.VI.2019, 1♂; Cappella di Terza (ScE), 14.VI.2019, 1♂; Premosello-Chiovenda: Alpe La Colma (CoF), 05.VII.2019, 1♂; Alpe La Motta (CoC), 05.VII.2019, 1♀; Valle Cannobina: Bocchetta di Terza (BtF), 11.VII.2019, 1♀ - 22.VII.2019, 1♂; Piè Zeda (ZeG), 08.VI.2019, 1♂ - 27.VI.2019, 1♂; Slope towards Bocchetta Terza (BtE), 25.VI.2019, 2♂.

DISTRIBUTION – North America, Europe, North Africa, Turkey, Caucasus, Russia (Europe to Far East), Israel, Iran, Central Asia, China, Korea.

CHOROTYPE – OLA.

ELEVATIONAL ZONATION – montane, subalpine.

Haplodrassus silvestris (Blackwall, 1833)

ORIGINAL DATA – Malesco: Cappella di Terza (ScE), 03.IX.2018, 1♀; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 22.VI.2019, 1♀ - 26.VII.2019, 1♂; Alpe La Piana (CoB), 05.VII.2019, 1♂ - 23.VIII.2019, 1♀.

DISTRIBUTION – Europe, Turkey, Caucasus.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Micaria formicaria (Sundevall, 1831)

ORIGINAL DATA – Premosello-Chiovenda: Alpe La Colma (CoF), 23.VIII.2018, 1♀.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to Far East), Iran, Kazakhstan, China.

CHOROTYPE – SIE.

ELEVATIONAL ZONATION – subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Micaria fulgens (Walckenaer, 1802)

ORIGINAL DATA – Malesco: Alpe Boschelli (ScC), 29.VII.2019, 1♂; Premosello-Chiovenda: Alpe La Motta (CoC), 22.VI.2019, 1♀.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to South Siberia), Iran, Central Asia, China.

CHOROTYPE – CAE.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Micaria pulicaria (Sundevall, 1831)

ORIGINAL DATA – Aurano: Pathway to Marona (ZeH), 08.VIII.2019, 1♂; Malesco: Cappella di Terza (ScE), 14.VI.2019, 1♀, 1♂; Valle Cannobina: Bocchetta di Terza (BtF), 11.VII.2019, 1♀; Piè Zeda (ZeG), 27.VI.2019, 1♀.

DISTRIBUTION – USA, Canada, Europe, Georgia, Russia (Europe to Far East), Kazakhstan, China, Japan, Turkey (doubtful occurrence), Iran (doubtful occurrence), Central Asia (doubtful occurrence).

CHOROTYPE – OLA.

ELEVATIONAL ZONATION – subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Poecilochroa variana (C. L. Koch, 1839)

ORIGINAL DATA – Aurano: Biogna (ZeC), 09.VII.2019, 1♂.

DISTRIBUTION – Europe to Central Asia.

CHOROTYPE – CAE.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Zelotes aeneus (Simon, 1878)

ORIGINAL DATA – Aurano: Pathway to Marona (ZeH), 12.IX.2019, 1♂; Pian Vadà (ZeF), 10.X.2019, 1♂ - 12.IX.2019, 1♂ - 24.VII.2019, 1♂ - 26.VIII.2019, 1♂ - 30.IX.2019, 1♂, 2♀; Malesco: Alpe Boschelli (ScC), 14.VIII.2018, 1♂; Alpe La Balma (ScD), 14.VIII.2018, 3♀ - 24.VI.2019, 1♂, 2♀ - 29.VII.2019, 1♂; Cappella di Terza (ScE), 03.IX.2018, 1♂ - 07.X.2019, 1♂ - 09.IX.2019, 2♀, 2♂ - 24.IX.2019, 1♂ - 27.VIII.2019, 1♀, 1♂; Premosello-Chiovenda: Alpe La Colma (CoF), 12.IX.2019, 1♂ - 23.VIII.2019, 1♀; Slope towards La Colma (CoE), 09.VIII.2018, 2♂ - 12.IX.2019, 1♂ - 23.VIII.2019, 1♂; Valle Cannobina: Bocchetta di Terza (BtF), 17.X.2019, 1♂ - 26.IX.2018, 1♀ - 27.IX.2019, 1♀ (CI), 1♂; Piè Zeda (ZeG), 19.VII.2019, 1♂ - 30.IX.2019, 1♂; Slope towards Bocchetta Terza (BtE), 31.VIII.2019, 1♂.

DISTRIBUTION – Madeira, Europe, Turkey, Azerbaijan.

CHOROTYPE – TUE.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Zelotes apricorum (L. Koch, 1876)

ORIGINAL DATA – Premosello-Chiovenda: Alpe La Motta (CoC), 26.VII.2019, 1♀; Slope towards La Colma (CoE), 22.VI.2019, 1♀; Valle Cannobina: Piè Zeda (ZeG), 10.X.2019, 1♂;

DISTRIBUTION – Europe, Turkey, Kazakhstan, Iran.

CHOROTYPE – TUE.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Zelotes devotus Grimm, 1982

ORIGINAL DATA – Malesco: Alpe La Balma (ScD), 03.IX.2018, 2♂, 2♀ - 17.VII.2019, 1♂ - 24.VI.2019, 1♀.

DISTRIBUTION – Alps (Switzerland, Austria, Italy).

CHOROTYPE – ALPS.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola. Endemic species (Pantini & Isaia 2019, accessed 07/2025) known from the Alps of Lombardia, Piemonte and Valle d'Aosta.

Zelotes electus (C. L. Koch, 1839)

ORIGINAL DATA – Aurano: Passo Folungo (ZeD), 24.VII.2019, 1♀; Pian d'Arla (ZeA), 08.VI.2019, 1♀; Cossogno: Pogallo (BtA), 12.VII.2019, 1♂; Miazzina: Alpe Pian di Boit (BtC), 12.IX.2018, 2♀ - 25.VI.2019, 2♀, 5♂ - 26.IX.2018, 1♂; Premosello-Chiovenda: Alpe La Motta (CoC), 06.VI.2019, 1♂.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to South Siberia), Kazakhstan, Iran, Turkmenistan.

CHOROTYPE – SIE.

ELEVATIONAL ZONATION – submontane, montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Zelotes erebeus (Thorell, 1871)

ORIGINAL DATA – Premosello-Chiovenda: Alpe Lut (CoA), 02.X.2019, 3♀, 3♂ - 03.X.2018, 1♀ - 05.VIII.2019, 2♂ - 09.VIII.2018, 1♂ - 26.VII.2019, 2♂, 1♀.

DISTRIBUTION – Europe, Turkey.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – submontane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Zelotes latreillei (Simon, 1878)

ORIGINAL DATA – Aurano: Biogna (ZeC), 12.IX.2019, 1♂ - 27.VIII.2019, 1♀, 1♂; Passo Folungo (ZeD), 08.VI.2019, 2♀ - 09.VII.2019, 1♀ - 11.IX.2019, 1♂ - 12.IX.2019, 1♂ - 27.VIII.2019, 1♀; Pian d'Arla (ZeA), 09.VIII.2019, 2♀ - 30.IX.2019, 1♀; Malesco: Alpe Boschelli (ScC), 24.IX.2019, 1♀; Alpe La Balma (ScD), 24.VI.2019, 1♂; Miazzina: Alpe Pian di Boit (BtC), 14.VIII.2018, 1♀; Premosello-Chiovenda: Alpe La Motta (CoC), 26.VII.2019, 1♀; Trontano: Alpe In La Piana (ScA), 09.IX.2019, 1♀, 3♂ - 09.X.2018, 1♂ - 11.IX.2018, 2♀ - 14.VI.2019, 1♀ - 27.VIII.2019, 1♀, 3♂; Valle Cannobina: Alpe Terza (BtD), 12.IX.2018, 1♂ - 27.VIII.2018, 1♂.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to South Siberia), Kazakhstan.

CHOROTYPE – SIE.

ELEVATIONAL ZONATION – submontane, montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Zelotes oblongus (C. L. Koch, 1833)

ORIGINAL DATA – Premosello-Chiovenda: Alpe Lut (CoA), 02.X.2019, 1♀, 1♂.

DISTRIBUTION – Europe, Turkey.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – submontane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Zelotes petrensis (C. L. Koch, 1839)

ORIGINAL DATA – Aurano: Passo Folungo (ZeD), 30.IX.2019, 1♂; Premosello-Chiovenda: Alpe La Motta (CoC), 02.X.2019, 1♂ - 12.IX.2019, 1♀, 1♂.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to South Siberia), Central Asia.

CHOROTYPE – CAE.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Zelotes similis (Kulczyński, 1887)

ORIGINAL DATA – Malesco: Cappella di Terza (ScE), 09.IX.2019, 2♂.

DISTRIBUTION – Italy, Central Europe to Ukraine and Turkey.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Zelotes subterraneus (C. L. Koch, 1833)

ORIGINAL DATA – Aurano: Pian d'Arla II (ZeB), 09.VIII.2019, 1♂; Malesco: Alpe Boschelli (ScC), 14.VI.2019, 1♂ - 24.IX.2019, 1♂; Cappella di Terza (ScE), 03.IX.2018, 1♀ - 14.VIII.2018, 1♂; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 05.VIII.2019, 1♀; Valle Cannobina: Alpe Terza (BtD), 27.VIII.2018, 1♂; Slope towards Bocchetta Terza (BtE), 09.VIII.2019, 1♀ - 11.VII.2019, 1♀, 1♂ - 26.VI.2019, 1♀.

DISTRIBUTION – Europe, Cyprus, Turkey, Caucasus, Russia (Europe to Far East), Central Asia, China.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – montane, subalpine.

Zelotes talpinus (L. Koch, 1872)

ORIGINAL DATA – Aurano: Pathway to Marona (ZeH), 12.IX.2019, 1♀ - 26.VIII.2019, 1♀; Pathway to Pian Vadà (ZeE), 30.IX.2019, 1♂; Malesco: Cappella di Terza (ScE), 03.IX.2018, 2♂ - 11.IX.2018, 1♂ - 24.IX.2019, 1♀ - 27.VIII.2019, 1♂; Premosello-Chiovenda: Alpe La Colma (CoF), 02.X.2019, 2♂ - 05.IX.2018, 1♂ - 06.VI.2019, 1♀ - 09.VIII.2018, 1♀ - 17.X.2018, 1♂ - 18.IX.2018, 1♂ - 23.VIII.2018, 2♂; Slope towards La Colma (CoE), 23.VIII.2019, 1♂; Valle Cannobina: Bocchetta di Terza (BtF), 25.VI.2019, 1♀ (CI) - 27.IX.2019, 2♂ - 27.VIII.2018, 1♀, 1♂; Piè Zeda (ZeG), 30.IX.2019, 1♂; Slope towards Bocchetta Terza (BtE), 27.IX.2019, 1♂ - 31.VIII.2019, 1♀.

DISTRIBUTION – Western to Central Europe, Italy.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – montane, subalpine.

Zelotes tenuis (L. Koch, 1866)

ORIGINAL DATA – Premosello-Chiovenda: Alpe Lut (CoA), 22.VI.2019, 1♂.

DISTRIBUTION – Mediterranean and Central Europe to Russia (Caucasus). Introduced to Galapagos Is., USA.

CHOROTYPE – TEM.

ELEVATIONAL ZONATION – submontane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **HAHNIIDAE**

Hahnia pusilla C. L. Koch, 1841

ORIGINAL DATA – Aurano: Passo Folungo (ZeD), 08.VI.2019, 1♂; Pathway to Pian Vadà (ZeE), 08.VI.2019, 1♂ (CI), 1♂; Pian Vadà (ZeF), 08.VI.2019, 2♂.

DISTRIBUTION – Europe, Russia (Europe, Caucasus, South Siberia).

CHOROTYPE – SIE.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **LINYPHIIDAE**

Agyneta conigera (O. Pickard-Cambridge, 1863)

ORIGINAL DATA – Malesco: Alpe La Balma (ScD), 17.VII.2019, 1♂.

DISTRIBUTION – Europe, Caucasus, Russia (Europe to Far East), Kazakhstan, Iran.

CHOROTYPE – SIE.

ELEVATIONAL ZONATION – montane.

NOTES – New record for Piemonte.

Agyneta rurestris (C. L. Koch, 1836)

ORIGINAL DATA – Aurano: Pathway to Pian Vadà (ZeE), 08.VI.2019, 1♂; Pian d'Arla (ZeA), 09.VII.2019, 1♂; Premosello-Chiovenda: Alpe La Colma (CoF), 06.VI.2019, 1♂ - 17.X.2018, 1♂.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to South Siberia), Iran, Central Asia, China, Korea.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Bolyphantes alticeps (Sundevall, 1833)

ORIGINAL DATA – Aurano: Pian Vadà (ZeF), 10.X.2019, 1♂; Malesco: Alpe La Balma (ScD), 09.X.2018, 1♀ - 11.IX.2018, 1♂; Cappella di Terza (ScE), 23.X.2018, 2♂; Premosello-

Chiovenda: Alpe La Colma (CoF), 11.X.2019, 1♂; Valle Cannobina: Piè Zeda (ZeG), 10.X.2019, 1♀, 3♂ - 26.VIII.2019, 1♀.

DISTRIBUTION – Europe, Caucasus, Russia (Europe to Far East), Central Asia, China, Japan.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – montane, subalpine.

Bolyphantes luteolus (Blackwall, 1833)

ORIGINAL DATA – Aurano: Pian Vadà (ZeF), 25.X.2019, 1♂; Malesco: Alpe La Balma (ScD), 23.X.2019, 1♂, 2♂; Valle Cannobina: Piè Zeda (ZeG), 25.X.2019, 1♀, 1♂.

DISTRIBUTION – Europe, Russia (Europe to South Siberia), China.

CHOROTYPE – SIE.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Caracladus avicula (L. Koch, 1869)

ORIGINAL DATA – Valle Cannobina: Piè Zeda (ZeG), 28.IX.2019, 2♀ (CI).

DISTRIBUTION – France, Switzerland, Germany, Austria, Italy.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – subalpine.

Centromerus incilium (L. Koch, 1881)

ORIGINAL DATA – Aurano: Passo Folungo (ZeD), 08.VI.2019, 1♀; Pathway to Pian Vadà (ZeE), 08.VI.2019, 1♀ - 10.X.2019, 1♀; Malesco: Cappella di Terza (ScE), 25.IX.2018, 1♂.

DISTRIBUTION – Europe, Russia (Europe to West Siberia).

CHOROTYPE – SIE.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for Piemonte.

Centromerus pabulator (O. Pickard-Cambridge, 1875)

ORIGINAL DATA – Malesco: Alpe La Balma (ScD), 23.X.2018, 1♂ - 25.X.2018, 2♂; Cappella di Terza (ScE), 23.X.2018, 1♂ - 23.X.2019, 1♂; Premosello-Chiovenda: Alpe La Colma (CoF), 03.X.2018, 1♂; Trontano: Alpe In La Piana (ScA), 09.X.2018, 1♀, 3♂; Valle Cannobina: Piè Zeda (ZeG), 10.X.2019, 1♂ - 30.IX.2019, 1♂.

DISTRIBUTION – Europe.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

Centromerus sellarius (Simon, 1884)

ORIGINAL DATA – Malesco: Alpe Boschelli (ScC), 24.IX.2019, 1♀; Alpe Portaiola (ScB), 11.IX.2018, 2♂ - 25.IX.2018, 1♂ - 27.VIII.2019, 1♂; Miazzina: Alpe Pian di Boit (BtC), 26.IX.2018, 1♂; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 09.VIII.2018, 1♂; 11.X.2019, 4♂; Alpe La Colma (CoF), 09.VIII.2018, 1♂ - 18.IX.2018, 2♂; Slope towards La Colma (CoE), 03.X.2018, 1♂; Trontano: Alpe In La Piana (ScA), 09.IX.2019, 1♂; Valle Cannobina: Alpe Terza (BtD), 25.VI.2019, 1♀; Bocchetta di Terza (BtF), 17.X.2019, 1♂; Slope towards Bocchetta Terza (BtE), 17.X.2019, 1♂.

DISTRIBUTION – Europe, Russia (Europe to South Siberia).

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – sun-montane, montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Centromerus serratus (O. Pickard-Cambridge, 1875)

ORIGINAL DATA – Malesco: Alpe Boschelli (ScC), 23.X.2018, 1♂; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 17.X.2018, 1♂.

DISTRIBUTION – Europe.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Centromerus subalpinus Lessert, 1907

ORIGINAL DATA – Malesco: Alpe La Balma (ScD), 25.IX.2018, 1♂.

DISTRIBUTION – Alps (France, Switzerland, Italy, Germany, Austria, Slovenia).

CHOROTYPE – CEU.

ELEVATIONAL ZONATION – montane.

Centromerus sylvaticus (Blackwall, 1841)

ORIGINAL DATA – Aurano: Passo Folungo (ZeD), 30.IX.2019, 1♀; Pian d'Arla II (ZeB), 25.X.2019, 1♂; Pian Vadà (ZeF), 10.X.2019, 1♂; Malesco: Alpe Boschelli (ScC), 23.X.2018, 1♂; 09.X.2018, 1♀; 14.VI.2019, 1♀; Premosello-Chiovenda: Alpe La Colma (CoF), 26.X.2019, 1♀; Alpe La Motta (CoC), 17.X.2018, 1♀; Slope towards La Colma (CoE), 17.X.2018, 1♀.

DISTRIBUTION – North America, Europe, Russia (Europe to Far East), Turkey, Caucasus, Iran, China, Korea, Japan.

CHOROTYPE – OLA.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Ceratinella brevis (Wider, 1834)

ORIGINAL DATA – Aurano: Biogna (ZeC), 20.VI.2019, 1♀; Pathway to Marona (ZeH), 08.VI.2019, 2♂; Malesco: Alpe La Balma (ScD), 14.VI.2019, 4♂ - 24.VI.2019, 1♂; Cappella di Terza (ScE), 14.VI.2019, 1♀, 4♂; Premosello-Chiovenda: Alpe La Colma (CoF), 06.VI.2019, 1♂; Alpe La Piana (CoB), 06.VI.2019, 1♂; Valle Cannobina: Bocchetta di Terza (BtF), 11.VII.2019, 1♀; Piè Zeda (ZeG), 08.VI.2019, 1♂.

DISTRIBUTION – Europe, Russia (Europe to Far East), Caucasus, Turkey, Iran, Central Asia, China, Korea, Japan.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

Diplocephalus latifrons (O. Pickard-Cambridge, 1863)

ORIGINAL DATA – Trontano: Alpe In La Piana (ScA), 03.IX.2018, 1♂.

DISTRIBUTION – Europe, Turkey, Caucasus.

CHOROTYPE – TUE.

ELEVATIONAL ZONATION – submontane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Diplostyla concolor (Wider, 1834)

ORIGINAL DATA – Malesco: Alpe Portaiola (ScB), 23.X.2019, 1♀; Miazzina: Alpe Pian di Boit (BtC), 09.IX.2019, 1♀ - 11.VII.2019, 3♀ - 14.VIII.2018, 1♂ - 25.VI.2019, 1♀ - 27.IX.2019, 1♀, 1♂ - 30.VIII.2019, 1♀, 1♂; Trontano: Alpe In La Piana (ScA), 03.IX.2018, 2♀, 2♂ - 09.IX.2019, 3♂ - 11.IX.2018, 1♂ - 17.VII.2019, 1♀, 1♂ - 23.X.2018, 1♀ - 24.IX.2019, 1♀.

DISTRIBUTION – North America, Europe, Turkey, Caucasus, Russia (Europe to Far East), Iran, Korea.

CHOROTYPE – OLA.

ELEVATIONAL ZONATION – submontane, montane.

Erigone autumnalis Emerton, 1882

ORIGINAL DATA – Aurano: Pian d'Arla (ZeA), 09.VII.2019, 1♂.

DISTRIBUTION – North and Central America. Introduced to Azores, Europe, Russia (Caucasus), United Arab Emirates, New Caledonia, Hawaii.

CHOROTYPE – INTRODUCED.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola. Species introduced to Europe (Nentwig 2025).

Erigone dentipalpis (Wider, 1834)

ORIGINAL DATA – Aurano: Biogna (ZeC), 27.VIII.2019, 1♀; Miazzina: Alpe Pian di Boit (BtC), 22.VII.2019, 2♂.

DISTRIBUTION – Azores, Europe, North Africa, Turkey, Caucasus, Russia (Europe to Far East), Kazakhstan, Iran, Central Asia, China. Introduced to Canada.

CHOROTYPE – PAL.

ELEVATIONAL ZONATION – montane.

Gonatium paradoxum (L. Koch, 1869)

ORIGINAL DATA – Valle Cannobina: Slope towards Bocchetta Terza (BtE), 23.X.2018, 1♂.

DISTRIBUTION – Europe.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – subalpine.

NOTES – New record for Piemonte.

Gonatium rubens (Blackwall, 1833)

ORIGINAL DATA – Malesco: Cappella di Terza (ScE), 23.X.2019, 1♂; Valle Cannobina: Bocchetta di Terza (BtF), 27.IX.2019, 1♂; Piè Zeda (ZeG), 10.X.2019, 1♂ (CI).

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to Far East), Kazakhstan, Central Asia, Japan.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – subalpine.

NOTES – New record for Piemonte.

Labulla thoracica (Wider, 1834)

ORIGINAL DATA – Cossogno: Alpe Preda (BtB), 23.X.2018, 1♀.

DISTRIBUTION – Europe.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – montane.

Linyphia hortensis Sundevall, 1830

ORIGINAL DATA – Trontano: Alpe In La Piana (ScA), 24.VI.2019, 1♀ (CI).

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to Far East), Kazakhstan, Iran, Central Asia.

CHOROTYPE – SIE.

ELEVATIONAL ZONATION – submontane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Linyphia triangularis (Clerck, 1757)

ORIGINAL DATA – Premosello-Chiovenda: Alpe La Piana (CoB), 12.IX.2019, 1♀.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to Far East), Iran, Kazakhstan, China. Introduced to Canada, USA.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – submontane.

Mansuphantes aridus (Thorell, 1875)

ORIGINAL DATA – Premosello-Chiovenda: Alpe La Motta (CoC), 26.X.2019, 1♂; Alpe La Piana (CoB), 11.X.2019, 1♀; Alpe Lut (CoA), 22.VI.2019, 1♀; Valle Cannobina: Alpe Terza (BtD), 09.IX.2019, 1♂.

DISTRIBUTION – Switzerland, Austria, Italy.

CHOROTYPE – ALPS.

ELEVATIONAL ZONATION – submontane, montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola. Endemic species (Pantini & Isaia 2019, accessed 07/2025) from the Alpine region.

Mermessus trilobatus (Emerton, 1882)

ORIGINAL DATA – Aurano: Biogna (ZeC), 27.VIII.2019, 1♂.

DISTRIBUTION – North America. Introduced to Azores, Europe.

CHOROTYPE – INTRODUCED.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola. Species introduced to Europe (Nentwig 2025).

Micrargus alpinus Relys & Weiss, 1997

ORIGINAL DATA – Aurano: Pathway to Pian Vadà (ZeE), 24.VII.2019, 1♀; Pian Vadà (ZeF), 08.VI.2019, 1♂ - 09.VII.2019, 1♂ - 26.VIII.2019, 1♀; Valle Cannobina: Piè Zeda (ZeG), 26.VIII.2019, 1♂ (CI).

DISTRIBUTION – Alps (Switzerland, Italy, Germany, Austria).

CHOROTYPE – ALP.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola. Endemic species (Pantini & Isaia 2019, accessed 07/2025) from Alpine region, but also collected from two localities in Calabria (southern Italy).

Micrargus apertus (O. Pickard-Cambridge, 1871)

ORIGINAL DATA – Aurano: Pian d'Arla (ZeA), 12.IX.2019, 1♀.

DISTRIBUTION – Europe, Japan.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – montane.

Microlinyphia pusilla (Sundevall, 1830)

ORIGINAL DATA – Cossogno: Pogallo (BtA), 14.VIII.2018, 1♂.

DISTRIBUTION – North America, Europe, North Africa, Turkey, Caucasus, Russia (Europe to Far East), Kazakhstan, Iran, Central Asia, China, Mongolia, Japan.

CHOROTYPE – OLA.

ELEVATIONAL ZONATION – submontane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Microneta viaria (Blackwall, 1841)

ORIGINAL DATA – Aurano: Pian d'Arla (ZeA), 08.VI.2019, 1♂; Pian d'Arla II (ZeB), 20.VI.2019, 1♂; Malesco: Alpe Boschelli (ScC), 09.X.2018, 1♂ - 14.VI.2019, 4♂ - 17.VII.2019, 1♀ - 23.X.2018, 1♂ - 24.VI.2019, 1♂ - 25.IX.2018, 1♀; Alpe Portaiola (ScB), 17.VII.2019, 1♀ - 25.IX.2018, 1♂ - 29.VII.2019, 1♀; Cappella di Terza (ScE), 09.X.2018, 1♂; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 03.X.2018, 1♂ - 05.VII.2019, 1♀, 2♂ - 06.VI.2019, 1♀ - 22.VI.2019, 2♂ - 26.X.2019, 1♂; Alpe La Piana (CoB), 26.VII.2019, 1♀; Alpe Lut (CoA), 12.IX.2019, 1♀; Trontano: Alpe In La Piana

(ScA), 03.IX.2018, 1♀ (CI) - 09.X.2018, 1♂; Valle Cannobina: Alpe Terza (BtD), 25.VI.2019, 6♂.

DISTRIBUTION – North America, Europe, Turkey, North Africa, Caucasus, Russia (Europe to Far East), Kazakhstan, Iran, Kyrgyzstan, China, Mongolia, Korea, Japan.

CHOROTYPE – OLA.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Palliduphantes pallidus (O. Pickard-Cambridge, 1871)

ORIGINAL DATA – Aurano: Biogna (ZeC), 23.VII.2019, 1♂; Pian d'Arla (ZeA), 10.X.2019, 1♂; Pian d'Arla II (ZeB), 08.VI.2019, 1♂; Malesco: Alpe La Balma (ScD), 09.X.2018, 1♂ - 24.IX.2019, 1♂ - 25.IX.2018, 1♂; Alpe Portaiola (ScB), 14.VI.2019, 1♀, 1♂; Cappella di Terza (ScE), 09.VIII.2019, 1♂; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 06.VI.2019, 2♀ - 23.VIII.2018, 1♂; Alpe La Colma (CoF), 05.VII.2019, 1♀ - 05.VII.2019, 2♂ - 22.VI.2019, 1♂ - 26.X.2019, 1♂; Alpe Lut (CoA), 06.VI.2019, 1♂ - 09.VIII.2018, 1♂; Valle Cannobina: Alpe Terza (BtD), 23.X.2018, 1♂; Bocchetta di Terza (BtF), 17.X.2019, 1♂ - 23.X.2018, 1♂; Slope towards Bocchetta Terza (BtE), 23.X.2018, 1♂ - 31.VIII.2019, 1♂.

DISTRIBUTION – Europe.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

Pelecopsis radicicola (L. Koch, 1872)

ORIGINAL DATA – Malesco: Alpe Boschelli (ScC), 09.VIII.2019, 1♀; Premosello-Chiovenda: Alpe La Colma (CoF), 22.VI.2019, 1♀, 1♂ - 23.VIII.2019, 1♀ - 26.VII.2019, 1♀; Alpe La Motta (CoC), 05.VII.2019, 1♀; Slope towards La Colma (CoE), 05.VIII.2019, 1♀.

DISTRIBUTION – Europe.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – montane, subalpine.

Peponocranium ambrosii Milano & Isaia, 2025

LITERATURE – Milano et al. (2025).

DISTRIBUTION – From Alpi Graie (Northwestern Alps) to Alpi Retiche (Central Eastern Alps) and Alpi Carniche (Eastern Alps).

CHOROTYPE – ALPS.

ELEVATIONAL ZONATION – montane.

NOTES – Endemic species (Pantini & Isaia 2019, accessed 07/2025) mostly occurs on the southern slope of the Alps across Valle d'Aosta (NW - Italy), Ticino (S-Switzerland), Lago di Garda and Trentino-Alto Adige (NE - Italy), and Tyrol (W- Austria). This literature data, included as material in the type series from Milano et al. (2025), was collected as part of this study (Aurano: Pian d'Arla (ZeA), 09.VII.2019, 1♂).

Sintula corniger (Blackwall, 1856)

ORIGINAL DATA – Aurano: Passo Folungo (ZeD), 08.VI.2019, 1♂; Pathway to Marona (ZeH), 08.VI.2019, 2♂; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 06.VI.2019, 1♂; Alpe La Motta (CoC), 06.VI.2019, 1♀; Slope towards La Colma (CoE), 06.VI.2019, 2♂.

DISTRIBUTION – Europe, Turkey, Caucasus, Iran.

CHOROTYPE – TUE.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for Piemonte.

Styloctetor compar (Westring, 1861)

ORIGINAL DATA – Aurano: Pian d'Arla (ZeA), 08.VI.2019, 1♂.

DISTRIBUTION – USA (Alaska), Canada, Europe, Russia (Europe to Far East), Kazakhstan.

CHOROTYPE – OLA.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Tapinocyba pallens (O. Pickard-Cambridge, 1873)

ORIGINAL DATA – Miazzina: Alpe Pian di Boit (BtC), 14.VIII.2018, 1♀; Valle Cannobina: Bocchetta di Terza (BtF), 11.VII.2019, 1♂.

DISTRIBUTION – Europe, Georgia, Armenia, Russia (Europe to West Siberia).

CHOROTYPE – SIE.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for Piemonte.

Tenuiphantes flavipes (Blackwall, 1854)

ORIGINAL DATA – Aurano: Passo Folungo (ZeD), 27.VIII.2019, 1♂; Pian d'Arla (ZeA), 25.X.2019, 1♂; Cossogno: Pogallo (BtA), 09.VIII.2019, 1♂; Malesco: Alpe La Balma (ScD), 23.X.2019, 1♂ - 27.VIII.2019, 1♂; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 06.VI.2019, 1♀; Alpe La Motta (CoC), 12.IX.2019, 1♂; Alpe La Piana (CoB), 05.IX.2018, 1♀; Valle Cannobina: Slope towards Bocchetta Terza (BtE), 23.X.2018, 1♂.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to South Siberia).

CHOROTYPE – SIE.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Tenuiphantes jacksoni (Schenkel, 1925)

ORIGINAL DATA – Malesco: Alpe Boschelli (ScC), 27.VIII.2019, 1♂; Alpe La Balma (ScD), 09.IX.2019, 1♂ - 25.IX.2018, 2♂; Alpe Portaiola (ScB), 24.IX.2019, 1♀; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 03.X.2018, 1♀ - 06.VI.2019, 2♂ - 22.VI.2019, 1♀; Alpe La Motta (CoC), 05.VII.2019, 1♂.

DISTRIBUTION – Alps (Switzerland, Italy), Balkans (doubtful occurrence), Turkey (doubtful occurrence).

CHOROTYPE – TUE.

ELEVATIONAL ZONATION – montane.

NOTES – A rare species from the Swiss and Italian Alps, in Italy it was known for only one record before this work.

Tenuiphantes mengei (Kulczyński, 1887)

ORIGINAL DATA – Aurano: Biogna (ZeC), 27.VIII.2019, 1♂, 2♀; Pathway to Pian Vadà (ZeE), 10.X.2019, 1♀; Pian Vadà (ZeF), 10.X.2019, 1♀; Malesco: Cappella di Terza (ScE), 23.X.2018, 1♀, 1♂; Premosello-Chiovenda: Alpe La Motta (CoC), 17.X.2018, 1♀ - 26.X.2019, 1♀.

DISTRIBUTION – Europe, Caucasus, Russia (Europe to Far East), Kazakhstan, Central Asia.

CHOROTYPE – SIE.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Tenuiphantes tenebricola (Wider, 1834)

ORIGINAL DATA – Aurano: Pathway to Marona (ZeH), 09.VII.2019, 1♂; Pian d'Arla II (ZeB), 08.VI.2019, 2♀ - 09.VII.2019, 2♀ - 09.VIII.2019, 1♀ - 12.IX.2019, 1♀ - 27.VIII.2019, 1♂ - 30.IX.2019, 2♀; Cossogno: Alpe Preda (BtB), 23.X.2018, 1♀; Malesco:

Alpe Portaiola (ScB), 17.VII.2019, 1♀ - 23.X.2019, 1♀; Cappella di Terza (ScE), 09.X.2018, 1♀; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 05.IX.2018, 1♂ - 29.VIII.2018, 1♂; Alpe La Motta (CoC), 06.VI.2019, 1♂; Alpe Lut (CoA), 23.VIII.2019, 1♀; Trontano: Alpe In La Piana (ScA), 09.IX.2019, 2♀ - 09.X.2018, 1♀ - 11.IX.2018, 1♀ - 23.X.2019, 4♂ (CI) - 25.IX.2018, 1♀, 1♂.

DISTRIBUTION – Europe, Turkey, Russia (Europe to South Siberia), China.

CHOROTYPE – SIE.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Tenuiphantes tenuis (Blackwall, 1852)

ORIGINAL DATA – Aurano: Biogna (ZeC), 12.IX.2019, 1♂; Pian d'Arla II (ZeB), 30.IX.2019, 1♀; Cossogno: Pogallo (BtA), 26.IX.2018, 1♀ - 31.X.2019, 1♀; Malesco: Alpe La Balma (ScD), 09.X.2018, 2♂ - 25.X.2018, 1♂; Alpe Portaiola (ScB), 07.X.2019, 1♀; Cappella di Terza (ScE), 03.IX.2018, 1♀; Miazzina: Alpe Pian di Boit (BtC), 09.X.2018, 1♀; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 26.X.2019, 1♀; Alpe La Colma (CoF), 17.X.2018, 1♂ - 26.X.2019, 1♂; Alpe Lut (CoA), 05.VII.2019, 1♂ - 06.VI.2019, 1♀ - 22.VI.2019, 1♂; Slope towards La Colma (CoE), 05.VIII.2019, 1♂ - 17.X.2018, 1♂; Valle Cannobina: Alpe Terza (BtD), 26.IX.2018, 1♂.

DISTRIBUTION – Macaronesia, Northern Africa, Europe, Turkey, Caucasus, Russia (Europe to South Siberia), Iran, Kazakhstan, Central Asia. Introduced to Canada, USA, Chile, Argentina, Falkland Is., New Zealand.

CHOROTYPE – PAL.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

Tiso vagans (Blackwall, 1834)

ORIGINAL DATA – Aurano: Biogna (ZeC), 08.VI.2019, 2♀, 1♂ - 09.VII.2019, 1♂; Pathway to Pian Vadà (ZeE), 24.VII.2019, 1♀; Pian d'Arla (ZeA), 08.VI.2019, 1♂; Pian Vadà (ZeF), 26.VIII.2019, 1♀.

DISTRIBUTION – Madeira, Europe, Georgia. Introduced to Canada.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – montane, subalpine.

Trichoncus sordidus Simon, 1884

ORIGINAL DATA – Premosello-Chiovenda: Alpe La Piana (CoB), 06.VI.2019, 1♂.

DISTRIBUTION – Europe.

CHOROTYPE – CEU.

ELEVATIONAL ZONATION – submontane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Trichopterna cito (O. Pickard-Cambridge, 1873)

ORIGINAL DATA – Valle Cannobina: Bocchetta di Terza (BtF), 31.X.2019, 1♀.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to South Siberia), Kazakhstan.

CHOROTYPE – SIE.

ELEVATIONAL ZONATION – subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Troglohyphantes lucifuga (Simon, 1884)

ORIGINAL DATA – Premosello-Chiovenda: Alpe Cortevecchio (CoD), 23.VIII.2018, 1♀; Slope towards La Colma (CoE), 26.X.2019, 1♂.

LITERATURE – Isaia et al. 2011.

DISTRIBUTION – France, Italy, Switzerland.

CHOROTYPE – ALPW.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – Endemic species (Pantini & Isaia 2019, accessed 07/2025) from northwestern Alps. The data within the Val Grande National Park are the easternmost distribution records.

Walckenaeria acuminata Blackwall, 1833

ORIGINAL DATA – Premosello-Chiovenda: Alpe La Colma (CoF), 23.VIII.2018, 1♀; Slope towards La Colma (CoE), 11.X.2019, 1♂; Valle Cannobina: Bocchetta di Terza (BtF), 27.IX.2019, 1♂; Piè Zeda (ZeG), 30.IX.2019, 1♂.

DISTRIBUTION – Europe, Caucasus, Iran.

CHOROTYPE – TUE.

ELEVATIONAL ZONATION – subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Walckenaeria alticeps (Denis, 1952)

ORIGINAL DATA – Aurano: Passo Folungo (ZeD), 08.VI.2019, 1♀; Pathway to Marona (ZeH), 30.IX.2019, 1♀; Pathway to Pian Vadà (ZeE), 24.VII.2019, 1♀; Malesco: Cappella di Terza (ScE), 14.VI.2019, 1♀; Valle Cannobina: Piè Zeda (ZeG), 08.VI.2019, 1♀ - 26.VIII.2019, 1♀.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to Middle Siberia), Iran.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – montae, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Walckenaeria furcillata (Menge, 1869)

ORIGINAL DATA – Aurano: Passo Folungo (ZeD), 24.VII.2019, 1♀; Pathway to Marona (ZeH), 08.VI.2019, 1♀; Pathway to Pian Vadà (ZeE), 24.VII.2019, 1♀.

DISTRIBUTION – Europe, Turkey, Russia (Europe to West Siberia), Iran, Korea, Japan.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **LIOCRANIDAE**

Agroeca cuprea Menge, 1873

ORIGINAL DATA – Valle Cannobina: Alpe Terza (BtD), 23.X.2018, 1♂.

DISTRIBUTION – Europe, Caucasus, Russia (Europe to South Siberia), Iran, Central Asia.

CHOROTYPE – CAE.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Agroeca proxima (O. Pickard-Cambridge, 1871)

ORIGINAL DATA – Aurano: Pathway to Marona (ZeH), 12.IX.2019, 3♀ - 26.VIII.2019, 1♂ - 30.IX.2019, 2♂; Pathway to Pian Vadà (ZeE), 30.IX.2019, 1♂; Pian Vadà (ZeF), 26.VIII.2019, 3♂; Cossogno: Alpe Preda (BtB), 12.IX.2018, 2♂; Malesco: Alpe La Balma (ScD), 03.IX.2018, 1♀, 2♂; Cappella di Terza (ScE), 03.IX.2018, 1♀, 4♂ - 11.IX.2018, 4♂; Premosello-Chiovenda: Alpe La Colma (CoF), 05.IX.2018, 8♂ - 09.VIII.2018, 1♂ - 18.IX.2018, 1♀, 4♂ - 23.VIII.2018, 11♂; Alpe La Motta (CoC), 05.IX.2018, 1♀, 1♂ - 05.VII.2019, 2♀ - 23.VIII.2018, 1♀; Alpe La Piana (CoB), 05.VII.2019, 1♀; Slope towards La Colma (CoE), 03.X.2018, 1♂ - 05.IX.2018, 3♂ - 05.VIII.2019, 1♀ - 09.VIII.2018, 1♂ - 12.IX.2019, 1♂ - 23.VIII.2018, 1♂ -

23.VIII.2019, 1♂; Valle Cannobina: Alpe Terza (BtD), 12.IX.2018, 1♂; Bocchetta di Terza (BtF), 12.IX.2018, 1♂ - 23.X.2018, 1♀ (CI) - 27.VIII.2018, 1♂; Slope towards Bocchetta Terza (BtE), 09.X.2018, 4♀ - 12.IX.2018, 1♂ - 14.VIII.2018, 1♂ - 23.X.2018, 3♀.

DISTRIBUTION – Europe, Turkey, Russia (Europe to South Siberia).

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Liocranum rupicola (Walckenaer, 1830)

ORIGINAL DATA – Premosello-Chiovenda: Alpe Lut (CoA), 02.X.2019, 1♂ - 05.VIII.2019, 1♀ - 12.IX.2019, 1♂.

LITERATURE – Brignoli & Gaddini 1979.

DISTRIBUTION – Europe, Turkey, Armenia, Russia (Europe to West Siberia).

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – submontane.

Scotina celans (Blackwall, 1841)

ORIGINAL DATA – Premosello-Chiovenda: Alpe La Motta (CoC), 09.VIII.2018, 1♀; Alpe Lut (CoA), 05.VII.2019, 6♀ - 06.VI.2019, 3♀ - 22.VI.2019, 1♀.

DISTRIBUTION – Europe, Algeria.

CHOROTYPE – EUM.

ELEVATIONAL ZONATION – submontane, montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **LYCOSIDAE**

Alopecosa farinosa (Herman, 1879)

ORIGINAL DATA – Malesco: Cappella di Terza (ScE), 14.VI.2019, 2♂; Premosello-Chiovenda: Alpe La Colma (CoF), 06.VI.2019, 1♀, 2♂.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to Far East), Iran, Kazakhstan.

CHOROTYPE – SIE.

ELEVATIONAL ZONATION – subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Alopecosa inquilina (Clerck, 1757)

ORIGINAL DATA – Aurano: Pian d'Arla (ZeA), 25.X.2019, 1♂.

DISTRIBUTION – Europe, Russia (Europe to Far East), Kazakhstan.

CHOROTYPE – SIE.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Alopecosa pulverulenta (Clerck, 1757)

ORIGINAL DATA – Aurano: Pathway to Marona (ZeH), 09.VII.2019, 1♂; Pathway to Pian Vadà (ZeE), 08.VI.2019, 2♂; Valle Cannobina: Bocchetta di Terza (BtF), 11.VII.2019, 2♂; Slope towards Bocchetta Terza (BtE), 26.IX.2018, 1♀.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to Far East), Kazakhstan, Iran, China, Korea, Japan.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – montane, subalpine.

Alopecosa taeniata (C. L. Koch, 1835)

ORIGINAL DATA – Aurano: Biogna (ZeC), 08.VI.2019, 2♀, 2♂; Passo Folungo (ZeD), 08.VI.2019, 2♂; Pathway to Marona (ZeH),

09.VII.2019, 2♂, 4♂ - 24.VII.2019, 3♂ - 27.VI.2019, 1♀, 2♂ - 08.VI.2019, 1♀, 1♂ - 27.VI.2019, 4♂ - Pian d'Arla (ZeA), 27.VIII.2019, 2♀; Pian Vadà (ZeF), 08.VI.2019, 1♀, 2♂ - 09.VII.2019, 1♀, 3♂ - 27.VI.2019, 3♂; Malesco: Alpe La Balma (ScD), 11.IX.2018, 1♀ - 17.VII.2019, 2♂; Alpe Portaiola (ScB), 24.VI.2019, 1♀, 2♂; Cappella di Terza (ScE), 17.VII.2019, 1♀, 11♂; Miazzina: Alpe Pian di Boit (BtC), 11.VII.2019, 1♀ - 14.VIII.2018, 1♀; Premosello-Chiovenda: Alpe La Colma (CoF), 05.VII.2019, 1♂ - 06.VI.2019, 4♂ - 09.VIII.2018, 1♀ - 18.IX.2018, 1♀; Slope towards La Colma (CoE), 05.VII.2019, 2♂ - 06.VI.2019, 2♂ - 26.VII.2019, 1♀; Valle Cannobina: Bocchetta di Terza (BtF), 09.X.2018, 1♀ - 11.VII.2019, 4♀, 5♂ - 14.VIII.2018, 1♀ - 22.VII.2019, 3♂ - 25.VI.2019, 1♀, 3♂ - 27.VIII.2018, 2♀; Piè Zeda (ZeG), 08.VI.2019, 1♂ - 09.VII.2019, 2♀, 09.VII.2019, 11♂ - 19.VII.2019, 4♀ - 24.VII.2019, 1♂ - 27.VI.2019, 4♀, 7♂; Slope towards Bocchetta Terza (BtE), 11.VII.2019, 1♀ - 25.VI.2019, 1♀ - 26.VI.2019, 1♂.

DISTRIBUTION – Europe, Russia (Europe to South Siberia).

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Alopecosa trabalis (Clerck, 1757)

ORIGINAL DATA – Aurano: Biogna (ZeC), 08.VI.2019, 1♂ - 09.VII.2019, 8♂ - 20.VI.2019, 5♂ - 23.VII.2019, 1♂; Passo Folungo (ZeD), 08.VI.2019, 3♀, 1♂ - 09.VII.2019, 2♂ - 09.VIII.2019, 2♂ - 10.X.2019, 1♂ - 20.VI.2019, 4♂ - 24.VII.2019, 7♂; Pathway to Pian Vadà (ZeE), 09.VII.2019, 1♂; Pian d'Arla (ZeA), 08.VI.2019, 1♂ - 09.VII.2019, 1♀, 19♂ - 10.IX.2019, 1♀ - 10.X.2019, 1♀ - 20.VI.2019, 1♀, 11♂ - 23.VII.2019, 1♀, 4♂ - 27.VIII.2019, 1♀ - 30.IX.2019, 1♀; Cossogno: Pogallo (BtA), 25.VI.2019, 1♂; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 09.VIII.2018, 1♀; Alpe La Motta (CoC), 05.IX.2018, 1♀ - 05.VII.2019, 2♂ - 06.VI.2019, 1♂ - 17.X.2018, 1♀ - 22.VI.2019, 6♂ - 26.VII.2019, 2♂; Trontano: Alpe In La Piana (ScA), 14.VIII.2018, 1♂ - 24.VI.2019, 2♂ - 27.VIII.2019, 1♂; Valle Cannobina: Piè Zeda (ZeG), 08.VI.2019, 2♀, 2♂.

DISTRIBUTION – Europe, Turkey, Russia (Europe to South Siberia), Kazakhstan, Iran, Central Asia.

CHOROTYPE – SIE.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

Arctosa figurata (Simon, 1876)

ORIGINAL DATA – Premosello-Chiovenda: Alpe La Motta (CoC), 26.VII.2019, 1♂.

DISTRIBUTION – Europe, Caucasus.

CHOROTYPE – TUE.

ELEVATIONAL ZONATION – montane.

NOTES – New record for Piemonte.

Arctosa stigmosa (Thorell, 1875)

ORIGINAL DATA – Aurano: Biogna (ZeC), 09.VII.2019, 1♀, 1♂.

DISTRIBUTION – France and Norway to Russia (West Siberia), Turkey, Iran.

CHOROTYPE – TUE.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Aulonia albimana (Walckenaer, 1805)

ORIGINAL DATA – Cossogno: Pogallo (BtA), 25.VI.2019, 1♂; Premosello-Chiovenda: Alpe La Motta (CoC), 05.VII.2019, 1♀, 5♂ - 06.VI.2019, 6♂ - 09.VIII.2018, 1♀ - 11.X.2019, 1♀ - 22.VI.2019, 5♂ - 26.VII.2019, 1♂ - Slope towards La Colma (CoE), 05.VII.2019, 1♂ -

22.VI.2019, 1♂; Valle Cannobina: Slope towards Bocchetta Terza (BtE), 11.VII.2019, 1♂.

DISTRIBUTION – Europe, Turkey, Caucasus.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Pardosa amentata (Clerck, 1757)

ORIGINAL DATA – Malesco: Alpe La Balma (ScD), 17.VII.2019, 4♀ - 24.VI.2019, 1♂; Cappella di Terza (ScE), 17.VII.2019, 1♂.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to South Siberia), Kazakhstan (doubtful occurrence).

CHOROTYPE – SIE.

ELEVATIONAL ZONATION – montane, subalpine.

Pardosa bifasciata (C. L. Koch, 1834)

ORIGINAL DATA – Aurano: Biogna (ZeC), 08.VI.2019, 1♀ - 09.VII.2019, 1♀ - 20.VI.2019, 1♂ - 27.VIII.2019, 1♀; Valle Cannobina: Piè Zeda (ZeG), 08.VI.2019, 1♂.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to South Siberia), Kazakhstan, Nepal, China.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Pardosa blanda (C. L. Koch, 1833)

ORIGINAL DATA – Aurano: Passo Folungo (ZeD), 08.VI.2019, 1♀, 2♂ - 09.VII.2019, 1♀ - 09.VIII.2019, 1♂; Pathway to Marona (ZeH), 08.VIII.2019, 6♀, 7♂ - 09.VII.2019, 23♀, 68♂ - 24.VII.2019, 7♀, 11♂ - 26.VIII.2019, 6♀, 2♂ - 27.VI.2019, 1♀, 5♂ - 30.IX.2019, 1♀; Pathway to Pian Vadà (ZeE), 08.VI.2019, 1♂ (CI), 1♂ - 09.VII.2019, 6♀, 4♂ - 10.X.2019, 1♀ - 12.IX.2019, 2♀ - 26.VIII.2019, 1♀ - 27.VI.2019, 5♂ - 30.IX.2019, 3♀; Pian Vadà (ZeF), 08.VI.2019, 1♂, 2♂ (CI) - 09.VII.2019, 11♀, 42♂, 5♂ (CI) - 09.VIII.2019, 10♀, 1♂ - 12.IX.2019, 2♀ - 24.VII.2019, 3♀ (CI), 3♀, 3♂ (CI), 7♂ - 26.VIII.2019, 1♀ (CI), 3♀ - 27.VI.2019, 1♂ - 30.IX.2019, 1♀; Malesco: Alpe La Balma (ScD), 24.IX.2019, 1♀ - 29.VII.2019, 1♀, 1♂; Alpe Portaiola (ScB), 25.IX.2018, 1♀; Cappella di Terza (ScE), 03.IX.2018, 3♀ - 09.VIII.2019, 2♀, 2♂ - 09.X.2018, 2♀ - 14.VIII.2018, 3♀, 1♂ - 17.VII.2019, 3♀, 18♂ - 27.VIII.2019, 3♀ - 29.VII.2019, 5♀, 14♂; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 09.VIII.2018, 10♂, 5♀; Alpe La Colma (CoF), 02.X.2019, 5♀ - 03.X.2018, 1♀ - 05.IX.2018, 1♀ - 05.VII.2019, 23♀, 77♂ - 05.VIII.2019, 5♀, 2♂ - 09.VIII.2018, 22♀, 21♂ - 18.IX.2018, 6♀ - 22.VI.2019, 4♀, 8♂ - 23.VIII.2018, 11♀, 2♂ - 26.VII.2019, 14♀, 46♂; Alpe Lut (CoA), 05.VIII.2019, 1♂; Slope towards La Colma (CoE), 03.X.2018, 1♀ - 05.VII.2019, 1♀, 1♂ - 05.VIII.2019, 2♀, 2♂ - 09.VIII.2018, 1♀ - 23.VIII.2018, 1♀; Valle Cannobina: Alpe Terza (BtD), 27.VIII.2018, 2♀; Bocchetta di Terza (BtF), 09.VIII.2019, 5♀, 26♂ - 09.X.2018, 3♀ - 11.VII.2019, 11♀, 33♂ - 12.IX.2018, 3♀ - 14.VIII.2018, 5♀, 18♂ - 17.X.2019, 4♀ - 22.VII.2019, 10♀, 52♂ - 26.IX.2018, 1♀ - 27.IX.2019, 1♀ - 27.VIII.2018, 6♀, 5♂ - 31.VIII.2019, 1♀ (CI), 3♀, 2♂; Piè Zeda (ZeG), 08.VIII.2019, 1♀ (CI), 5♀, 4♂ - 09.VII.2019, 14♀, 31♂ - 10.X.2019, 1♀ - 19.VII.2019, 1♀, 9♂ - 24.VII.2019, 3♀, 13♂; Slope towards Bocchetta Terza (BtE), 09.IX.2019, 1♀ - 09.VIII.2019, 1♀ - 09.X.2018, 2♀ - 11.VII.2019, 2♀, 8♂ - 12.IX.2018, 1♀ - 14.VIII.2018, 1♀ - 22.VII.2019, 2♂ - 23.X.2018, 1♀ - 27.IX.2019, 1♀.

DISTRIBUTION – Europe, Turkey (doubtful occurrence), Georgia (doubtful occurrence), China (doubtful occurrence).

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

Pardosa ferruginea (L. Koch, 1870)

ORIGINAL DATA – Valle Cannobina: Bocchetta di Terza (BtF), 31.VIII.2019, 1♀.

DISTRIBUTION – urope, Russia (Europe to Far East), Kyrgyzstan, China, Japan.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – subalpine.

Pardosa nigra (C. L. Koch, 1834)

ORIGINAL DATA – Malesco: Alpe La Balma (ScD), 17.VII.2019, 1♂ - 24.VI.2019, 1♂.

DISTRIBUTION – Europe.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – montane.

Pardosa palustris (Linnaeus, 1758)

ORIGINAL DATA – Aurano: Biogna (ZeC), 08.VI.2019, 2♀, 5♂ - 09.VII.2019, 2♂ - 20.VI.2019, 3♀, 3♂ - 23.VII.2019, 1♀; Pian d'Arla (ZeA), 08.VI.2019, 2♂ - 23.VII.2019, 2♀; Valle Cannobina: Bocchetta di Terza (BtF), 31.X.2019, 1♀; Piè Zeda (ZeG), 26.VIII.2019, 3♀.

DISTRIBUTION – USA (Alaska), Canada, Europe, Turkey, Russia (Europe to Far East), Kazakhstan, Central Asia, China, Korea.

CHOROTYPE – OLA.

ELEVATIONAL ZONATION – montane, subalpine.

Pardosa riparia (C. L. Koch, 1833)

ORIGINAL DATA – Aurano: Biogna (ZeC), 08.VI.2019, 3♀, 25♂ - 09.VII.2019, 3♀, 5♂ - 20.VI.2019, 1♂ - 27.VIII.2019, 1♀; Passo Folungo (ZeD), 08.VI.2019, 6♂ - 09.VII.2019, 3♀ - 09.VIII.2019, 3♀, 1♂ - 10.X.2019, 2♀ - 12.IX.2019, 2♀ - 24.VII.2019, 2♀ - 25.X.2019, 1♀ - 27.VIII.2019, 1♀ - 30.IX.2019, 1♀; Pathway to Marona (ZeH), 08.VI.2019, 1♂ - 08.VIII.2019, 1♂ - 09.VII.2019, 2♀, 10♂ - 24.VII.2019, 2♂ - 25.X.2019, 1♀ - 26.VIII.2019, 1♀, 1♂ - 27.VI.2019, 6♂ - 30.IX.2019, 1♀; Pathway to Pian Vadà (ZeE), 08.VI.2019, 6♂ - 09.VII.2019, 5♀, 1♂ - 09.VIII.2019, 3♀ - 10.X.2019, 4♀ - 12.IX.2019, 3♀ - 24.VII.2019, 2♀, 5♂ - 25.X.2019, 2♀ - 26.VIII.2019, 8♀ - 27.VI.2019, 1♀, 1♂ - 30.IX.2019, 1♀; Pian d'Arla (ZeA), 08.VI.2019, 2♀, 23♂ - 09.VII.2019, 2♀, 2♂ - 09.VIII.2019, 2♀, 1♂ - 12.IX.2019, 1♀ - 20.VI.2019, 4♀, 4♂ - 23.VII.2019, 2♀ - 27.VIII.2019, 2♀ - 30.IX.2019, 1♀; Pian Vadà (ZeF), 08.VI.2019, 2♀, 6♂ - 09.VII.2019, 6♀, 11♂ - 09.VIII.2019, 12♀, 5♂ - 24.VII.2019, 3♀, 1♂ - 26.VIII.2019, 12♀ - 27.VI.2019, 1♀, 5♂ - 30.IX.2019, 4♀; Malesco: Alpe Portaiola (ScB), 27.VIII.2019, 1♂; Cappella di Terza (ScE), 03.IX.2018, 4♀ - 09.VIII.2019, 1♂ - 09.X.2018, 4♀ - 11.IX.2018, 2♀ - 14.VIII.2018, 1♀ - 17.VII.2019, 6♀, 5♂ - 23.X.2018, 1♀ - 25.IX.2018, 2♀ - 27.VIII.2019, 1♀; Miazzina: Alpe Pian di Boit (BtC), 11.VII.2019, 1♀ - 12.IX.2018, 1♀ - 22.VII.2019, 2♀ - 26.IX.2018, 1♀ - 27.VIII.2018, 1♀; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 09.VIII.2018, 2♂; Alpe La Colma (CoF), 02.X.2019, 2♀ - 05.VII.2019, 7♀, 15♂ - 05.VIII.2019, 2♀, 4♂ - 06.VI.2019, 2♂ - 09.VIII.2018, 8♀, 3♂ - 12.IX.2019, 1♀ - 18.IX.2018, 3♀ - 22.VI.2019, 2♀, 11♂ - 23.VIII.2018, 4♀, 3♂ - 26.VII.2019, 1♀, 7♂; Alpe La Motta (CoC), 05.VII.2019, 1♀, 1♂ - 06.VI.2019, 1♀, 3♂ - 12.IX.2019, 1♀ - 22.VI.2019, 3♀ - 26.VII.2019, 1♀; Alpe La Piana (CoB), 12.IX.2019, 1♀; Slope towards La Colma (CoE), 05.VIII.2019, 1♀ - 06.VI.2019, 1♂ - 09.VIII.2018, 5♂ - 18.IX.2018, 1♀ - 26.VII.2019, 6♂; Trontano: Alpe In La Piana (ScA), 14.VI.2019, 7♂ - 29.VII.2019, 1♀; Valle Cannobina: Alpe Terza (BtD), 27.VIII.2018,

2♀; Bocchetta di Terza (BtF), 22.VII.2019, 1♂; Piè Zeda (ZeG), 08.VI.2019, 4♀, 3♂ - 09.VII.2019, 2♀, 14♂ - 19.VII.2019, 1♂ - 24.VII.2019, 5♂ - 26.VIII.2019, 1♀, 1♂ - 27.VI.2019, 2♂; Slope towards Bocchetta Terza (BtE), 09.X.2018, 1♀ - 11.VII.2019, 3♀, 6♂ - 12.IX.2018, 1♀ - 14.VIII.2018, 1♀.

DISTRIBUTION – Europe, Turkey, Russia (Europe to Far East), Central Asia, Japan.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Pardosa saltans Töpfer-Hofmann, 2000

ORIGINAL DATA – Aurano: Biogna (ZeC), 08.VI.2019, 1♀; Passo Folungo (ZeD), 20.VI.2019, 1♀, 7♂; Pian d'Arla (ZeA), 08.VI.2019, 5♀, 10♂ - 12.IX.2019, 1♀ - 20.VI.2019, 5♂ - 27.VIII.2019, 4♀ - 30.IX.2019, 1♀; Pian d'Arla II (ZeB), 08.VI.2019, 1♂; Cossogno: Alpe Preda (BtB), 12.IX.2018, 1♀; Pogallo (BtA), 09.IX.2019, 2♀ - 12.IX.2018, 1♀ - 27.IX.2019, 3♀; Malesco: Alpe Boschelli (ScC), 09.VIII.2019, 2♀ - 11.IX.2018, 1♀ - 14.VI.2019, 6♀, 42♂ - 14.VIII.2018, 2♀ - 17.VII.2019, 1♀, 2♂ - 24.VI.2019, 1♀, 17♂ - 25.IX.2018, 1♀ - 29.VII.2019, 1♀; Alpe La Balma (ScD), 03.IX.2018, 7♀ - 11.IX.2018, 2♀ - 14.VIII.2018, 7♀ - 17.VII.2019, 3♂ - 24.VI.2019, 2♂ - 29.VII.2019, 1♀; Alpe Portaiola (ScB), 03.IX.2018, 2♀ - 09.VIII.2019, 1♀ - 17.VII.2019, 1♂; Cappella di Terza (ScE), 14.VIII.2018, 1♀ - 27.VIII.2019, 1♀; Miazzina: Alpe Pian di Boit (BtC), 09.VIII.2019, 4♀ - 09.X.2018, 1♀ - 12.IX.2018, 2♀ - 14.VIII.2018, 19♀ - 23.X.2018, 1♀ - 26.IX.2018, 1♀ - 27.IX.2019, 3♀ - 27.VIII.2018, 9♀ - 30.VIII.2019, 2♀; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 02.X.2019, 1♀ - 05.VII.2019, 1♀ - 06.VI.2019, 9♂ - 09.VIII.2018, 8♀ - 23.VIII.2019, 1♀; Alpe La Colma (CoF), 26.VII.2019, 2♂ - 29.VIII.2018, 1♀; Alpe La Motta (CoC), 02.X.2019, 1♀ - 03.X.2018, 1♀ - 05.IX.2018, 2♀ - 05.VII.2019, 5♀ - 05.VIII.2019, 1♀ - 06.VI.2019, 13♂ - 09.VIII.2018, 2♀ - 12.IX.2019, 2♀ - 17.X.2018, 1♀ - 18.IX.2018, 1♀ - 22.VI.2019, 7♂ - 23.VIII.2018, 3♀ - 26.VII.2019, 4♀, 2♂; Alpe La Piana (CoB), 03.X.2018, 3♀ - 05.VII.2019, 4♀, 25♂ - 05.VIII.2019, 3♀ - 06.VI.2019, 3♀, 23♂ - 09.VIII.2018, 14♀ - 17.X.2018, 1♀ - 18.IX.2018, 1♀ - 22.VI.2019, 11♂ - 23.VIII.2019, 1♀ - 26.VII.2019, 2♀, 1♂; Alpe Lut (CoA), 05.VII.2019, 7♀ - 05.VIII.2019, 1♀ - 06.VI.2019, 7♀, 1♂ - 09.VIII.2018, 2♀ - 22.VI.2019, 1♂ - 26.VII.2019, 4♀; Slope towards La Colma (CoE), 05.VIII.2019, 1♀ - 18.IX.2018, 1♀; Trontano: Alpe In La Piana (ScA), 09.IX.2019, 1♀ - 14.VI.2019, 1♀ (CI), 4♀, 4♂ - 14.VIII.2018, 3♀ - 17.VII.2019, 8♀, 2♂ (CI), 2♂ - 24.VI.2019, 4♀, 8♂ - 27.VIII.2019, 7♀ - 29.VII.2019, 2♀; Valle Cannobina: Alpe Terza (BtD), 11.VII.2019, 1♂ - 12.IX.2018, 1♀ - 12.VII.2019, 2♀ - 25.VI.2019, 3♂ - 27.VIII.2018, 2♀ - 31.VIII.2019, 1♀ (CI); Bocchetta di Terza (BtF), 11.VII.2019, 7♀, 24♂; Slope towards Bocchetta Terza (BtE), 09.VIII.2019, 1♀ - 26.IX.2018, 1♀ - 27.IX.2019, 1♀.

DISTRIBUTION – Europe, Turkey, Georgia.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Pardosa sordidata (Thorell, 1875)

ORIGINAL DATA – Valle Cannobina: Piè Zeda (ZeG), 24.VII.2019, 1♀, 1♂ - 26.VIII.2019, 1♀ - 27.VI.2019, 1♂.

DISTRIBUTION – Europe.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – subalpine.

NOTES – New record for Piemonte.

Trochosa hispanica Simon, 1870

ORIGINAL DATA – Aurano: Pian Vadà (ZeF), 08.VI.2019, 1♂; Cossogno: Pogallo (BtA), 12.VII.2019, 1♀, 1♂; Premosello-Chiovenda: Alpe La Motta (CoC), 26.VII.2019, 1♂; Alpe La Piana (CoB), 06.VI.2019, 1♂ - 22.VI.2019, 1♂; Alpe Lut (CoA), 02.X.2019, 1♂ - 09.VIII.2018, 1♀; Trontano: Alpe In La Piana (ScA), 27.VIII.2019, 1♀.

DISTRIBUTION – Mediterranean to Central Asia, Iran.

CHOROTYPE – TUM.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

Trochosa sp.

ORIGINAL DATA – Aurano: Biogna (ZeC), 27.VIII.2019, 1♀ - 30.IX.2019, 1♀; Passo Folungo (ZeD), 08.VI.2019, 1♀ - 09.VIII.2019, 1♀ - 23.VII.2019, 1♀ - 30.IX.2019, 1♀; Pathway to Pian Vadà (ZeE), 30.IX.2019, 2♀; Pian d'Arla (ZeA), 09.VII.2019, 1♀ - 09.VIII.2019, 1♀ - 12.IX.2019, 1♀ - 23.VII.2019, 1♀; Pian Vadà (ZeF), 24.VII.2019, 1♀; Malesco: Alpe Portaiola (ScB), 25.IX.2018, 2♀; Miazzina: Alpe Pian di Boit (BtC), 09.IX.2019, 1♀ - 12.IX.2018, 1♀ - 27.IX.2019, 1♀ - 27.VIII.2018, 1♀; Premosello-Chiovenda: Alpe La Colma (CoF), 06.VI.2019, 3♀; Alpe La Motta (CoC), 02.X.2019, 1♀ - 05.IX.2018, 1♀ - 05.VIII.2019, 1♀; Alpe Lut (CoA), 05.VII.2019, 1♀ - 26.VII.2019, 2♀; Slope towards La Colma (CoE), 06.VI.2019, 1♀ - 09.VIII.2018, 1♀; Trontano: Alpe In La Piana (ScA), 03.IX.2018, 1♀ - 09.IX.2019, 1♀.

NOTES – Female specimens, not identifiable at the species level, presumably *T. hispanica* or *T. terricola*.

Trochosa terricola Thorell, 1856

ORIGINAL DATA – Aurano: Pathway to Marona (ZeH), 27.VI.2019, 1♂; Pathway to Pian Vadà (ZeE), 08.VI.2019, 3♂; Pian d'Arla (ZeA), 08.VI.2019, 1♂ - 30.IX.2019, 1♂; Pian Vadà (ZeF), 08.VI.2019, 3♂; Malesco: Cappella di Terza (ScE), 14.VI.2019, 4♂; Premosello-Chiovenda: Alpe La Colma (CoF), 06.VI.2019, 4♂ - 22.VI.2019, 3♂; Slope towards La Colma (CoE), 06.VI.2019, 1♂; Valle Cannobina: Piè Zeda (ZeG), 08.VI.2019, 3♂.

DISTRIBUTION – North America, Europe, Turkey, Caucasus, Russia (Europe to Far East), Kazakhstan, Iran, Central Asia, China, Japan.

CHOROTYPE – OLA.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Xerolycosa nemoralis (Westring, 1861)

ORIGINAL DATA – Miazzina: Alpe Pian di Boit (BtC), 14.VIII.2018, 1♀ - 25.VI.2019, 1♀, 2♂; Valle Cannobina: Slope towards Bocchetta Terza (BtE), 11.VII.2019, 1♂ - 22.VII.2019, 1♀.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to Far East), Kazakhstan, Central Asia, China, Korea, Japan.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **MIMETIDAE**

Ero furcata (Villers, 1789)

ORIGINAL DATA – Malesco: Alpe La Balma (ScD), 23.X.2018, 1♀.

DISTRIBUTION – Azores, Europe, Turkey, Caucasus, Russia (Europe to Far East), Turkmenistan, Japan.

CHOROTYPE – PAL.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **MITURGIDAE**

Zora nemoralis (Blackwall, 1861)

ORIGINAL DATA – Aurano: Passo Folungo (ZeD), 30.IX.2019, 1♀; Pathway to Marona (ZeH), 08.VI.2019, 1♀, 1♂ - 09.VII.2019, 1♂; Pathway to Pian Vadà (ZeE), 09.VII.2019, 2♂ - 12.IX.2019, 1♀; Pian d'Arla (ZeA), 20.VI.2019, 1♂; Pian Vadà (ZeF), 09.VII.2019, 1♂ - 26.VIII.2019, 1♀; Premosello-Chiovenda: Alpe Cortevecchio (CoD), 05.VII.2019, 5♂ - 26.VII.2019, 1♂; Alpe La Colma (CoF), 05.VII.2019, 1♀ - 22.VI.2019, 1♀; Alpe La Piana (CoB), 22.VI.2019, 1♂; Alpe Lut (CoA), 22.VI.2019, 1♂ - 23.VIII.2019, 1♀; Slope towards La Colma (CoE), 17.X.2018, 1♀ - 22.VI.2019, 1♀; Valle Cannobina: Alpe Terza (BtD), 11.VII.2019, 1♂ - 27.VIII.2018, 1♀; Slope towards Bocchetta Terza (BtE), 11.VII.2019, 1♀, 2♂ - 22.VII.2019, 1♀.

DISTRIBUTION – Europe, Caucasus, Russia (Europe to South Siberia, Kamchatka), Kazakhstan, Iran, Turkmenistan, Mongolia, China, Korea, Japan.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Zora spinimana (Sundevall, 1833)

ORIGINAL DATA – Aurano: Pathway to Pian Vadà (ZeE), 08.VI.2019, 1♀ - 24.VII.2019, 1♂; Pian Vadà (ZeF), 08.VI.2019, 1♀; Malesco: Cappella di Terza (ScE), 17.VII.2019, 1♂; Miazzina: Alpe Pian di Boit (BtC), 14.VIII.2018, 1♀; Premosello-Chiovenda: Alpe Lut (CoA), 05.VIII.2019, 1♀; Valle Cannobina: Slope towards Bocchetta Terza (BtE), 11.VII.2019, 1♂.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to Far East), Central Asia, China, Japan. Introduced to USA.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **PHILODROMIDAE**

Thanatus striatus C. L. Koch, 1845

ORIGINAL DATA – Aurano: Pathway to Pian Vadà (ZeE), 09.VIII.2019, 1♀; Valle Cannobina: Bocchetta di Terza (BtF), 31.VIII.2019, 1♀.

DISTRIBUTION – North America, Europe, Turkey, Russia (Europe to Far East), Kazakhstan, Central Asia.

CHOROTYPE – OLA.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **PHRUROLITHIDAE**

Phrurolithus festivus (C. L. Koch, 1835)

ORIGINAL DATA – Aurano: Biogna (ZeC), 23.VII.2019, 1♀; Pathway to Pian Vadà (ZeE), 26.VIII.2019, 1♀; Pian Vadà (ZeF), 08.VI.2019, 1♀; Cossogno: Pogallo (BtA), 11.VII.2019, 1♂; Premosello-Chiovenda: Alpe La Motta (CoC), 05.VII.2019, 1♀ - 12.IX.2019, 1♀ - 23.VIII.2019, 1♀; Alpe La Piana (CoB), 05.VII.2019, 3♂ - 06.VI.2019, 2♀, 3♂; Premosello-Chiovenda: Alpe Lut (CoA), 05.VII.2019, 3♂ - 26.VII.2019, 1♂; Trontano: Alpe In La Piana (ScA), 09.IX.2019, 1♀.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to Far East), Kazakhstan, Iran, China, Korea, Japan. Introduced to Canada.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

Phrurolithus minimus C. L. Koch, 1839

ORIGINAL DATA – Aurano: Pathway to Pian Vadà (ZeE), 08.VI.2019, 1♀, 2♂ - 24.VII.2019, 1♂; Pian Vadà (ZeF), 08.VI.2019, 1♂; Premosello-Chiovenda: Alpe La Colma (CoF), 05.VII.2019, 1♂.

DISTRIBUTION – Europe.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **PISAURIDAE**

Pisaura mirabilis (Clerck, 1757)

ORIGINAL DATA – Premosello-Chiovenda: Alpe La Motta (CoC), 26.VII.2019, 1♀.

DISTRIBUTION – Europe, Turkey, Middle East, Caucasus, Russia (Europe to Middle Siberia), Central Asia, China.

CHOROTYPE – PAL.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **SALTICIDAE**

Asianellus festivus (C. L. Koch, 1834)

ORIGINAL DATA – Aurano: Pian d'Arla (ZeA), 23.VII.2019, 1♂.

DISTRIBUTION – Europe, Caucasus, Russia (Europe to Far East), Kazakhstan, China, Korea, Japan.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Euophrys frontalis (Walckenaer, 1802)

ORIGINAL DATA – Premosello-Chiovenda: Alpe La Colma (CoF), 06.VI.2019, 1♀ - 12.IX.2019, 1♂; Alpe La Motta (CoC), 05.VII.2019, 1♀; Slope towards La Colma (CoE), 26.VII.2019, 1♀; Valle Cannobina: Slope towards Bocchetta Terza (BtE), 11.VII.2019, 2♀ (CI), 2♂.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to Far East), Kazakhstan, Iran, Central Asia, China, Korea, Japan.

CHOROTYPE – PAL.

ELEVATIONAL ZONATION – montane, subalpine.

Heliophanus cupreus (Walckenaer, 1802)

ORIGINAL DATA – Aurano: Passo Folungo (ZeD), 09.VIII.2019, 1♀; Premosello-Chiovenda: Alpe La Motta (CoC), 06.VI.2019, 1♂.

DISTRIBUTION – Europe, North Africa, Turkey, Caucasus, Russia (Europe to West Siberia), Iran, Afghanistan,China.

CHOROTYPE – PAL.

ELEVATIONAL ZONATION – montane.

Philaeus chrysops (Poda, 1761)

ORIGINAL DATA – Santa Maria Maggiore (46.0730624597N - 8.418192789E), 22.VI.2020, 1♂, P. Beretta leg., photo observation,

https://www.inaturalist.org/observations/50712259.

DISTRIBUTION – Europe (not Scandinavia), North Africa to Middle East, Turkey, Caucasus, Russia (Europe to Far East), Iran, Kazakhstan, Central Asia, Afghanistan, China, Mongolia, Korea.

CHOROTYPE – CEM.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Phlegra fasciata (Hahn, 1826)

ORIGINAL DATA – Aurano: Biogna (ZeC), 23.VII.2019, 1♀; Premosello-Chiovenda: Alpe La Colma (CoF), 26.VII.2019, 1♀; Alpe La Motta (CoC), 09.VIII.2018, 1♂; Valle Cannobina: Slope towards Bocchetta Terza (BtE), 31.VIII.2019, 1♀.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to Far East), Kazakhstan, Central Asia, Iran, Afghanistan, India, China, Mongolia, Korea, Japan.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Saitis barbipes (Simon, 1868)

ORIGINAL DATA – Premosello-Chiovenda: Alpe Cortevecchio (CoD), 05.IX.2018, 1♀ - 05.VII.2019, 1♀ - 06.VI.2019, 4♂ - 22.VI.2019, 2♀ - 23.VIII.2018, 3♀; Alpe La Motta (CoC), 12.IX.2019, 2♀; Alpe La Piana (CoB), 22.VI.2019, 1♂; Alpe Lut (CoA), 02.X.2019, 1♀ - 03.X.2018, 5♀, 3♂ - 05.IX.2018, 2♀ - 05.VII.2019, 1♀ - 06.VI.2019, 1♀ - 09.VIII.2018, 2♀ - 12.IX.2019, 1♀ - 17.X.2018, 1♂ - 18.IX.2018, 2♀, 1♂ - 22.VI.2019, 2♀ - 26.VII.2019, 1♀, 1♂.

DISTRIBUTION – Northern Africa, Ivory Coast, southern Europe to Turkey. Introduced to Belgium, Netherlands, Germany.

CHOROTYPE – MED.

ELEVATIONAL ZONATION – submontane, montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Salticus scenicus (Clerck, 1757)

ORIGINAL DATA – Premosello-Chiovenda (46.02893N - 8.37097E), 01.VII.2024, 1♀, M. Piana leg., photo observation, https://www.inaturalist.org/observations/226432670.

DISTRIBUTION – North America, Europe, Russia (Europe to Far East), Caucasus, Kazakhstan, Iran.

CHOROTYPE – OLA.

Talavera aequipes (O. Pickard-Cambridge, 1871)

ORIGINAL DATA – Miazzina: Alpe Pian di Boit (BtC), 09.VIII.2019, 1♀; Premosello-Chiovenda: Alpe La Motta (CoC), 06.VI.2019, 1♀; Slope towards La Colma (CoE), 26.VII.2019, 1♀.

DISTRIBUTION – Europe, Turkey, Israel, Caucasus, Iran, Russia (Europe) to Central Asia, China, Japan.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – smontane, ub-Alpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Talavera inopinata Wunderlich, 1993

ORIGINAL DATA – Malesco: Alpe La Balma (ScD), 17.VII.2019, 1♀; Valle Cannobina: Bocchetta di Terza (BtF), 11.VII.2019, 1♀.

DISTRIBUTION – France, Luxembourg, Switzerland, Germany, Austria, Italy.

CHOROTYPE – CEU.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **SPARASSIDAE**

Micrommata virescens (Clerck, 1757)

ORIGINAL DATA – Premosello-Chiovenda (46.0220516041N - 8.3385670558E), 03.VII.2019, 1♂, S. Breitbart leg., photo observation, https://www.inaturalist.org/observations/28166833.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to Far East), Iran, Central Asia, China, Korea, Japan.

CHOROTYPE – ASE.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **TETRAGNATHIDAE**

Meta menardi (Latreille, 1804)

ORIGINAL DATA – Malesco (46.0717724748N - 8.4501291811E), 20.VI.2023, 1♀, M. Cazzola leg., photo observation, https://www.inaturalist.org/observations/168660494.

DISTRIBUTION – Europe, Turkey, Iran.

CHOROTYPE – TEM.

Metellina mengei (Blackwall, 1869)

ORIGINAL DATA – Malesco: Alpe La Balma (ScD), 24.VI.2019, 1♀.

DISTRIBUTION – Europe to Caucasus, Iran, Russia (Europe to Altai).

CHOROTYPE – CAE.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Metellina segmentata (Clerck, 1757)

ORIGINAL DATA – Trontano: Alpe In La Piana (ScA), 09.IX.2019, 1♀.

DISTRIBUTION – Europe, Turkey, Israel, Caucasus, Russia (Europe to South Siberia), Kazakhstan, Iran, China, Japan. Introduced to Canada.

CHOROTYPE – PAL.

ELEVATIONAL ZONATION – submontane.

Pachygnatha degeeri Sundevall, 1830

ORIGINAL DATA – Aurano: Biogna (ZeC), 08.VI.2019, 1♀; - 12.IX.2019, 1♀ - 27.VIII.2019, 1♂; Trontano: Alpe In La Piana (ScA), 09.IX.2019, 1♀, 1♂ - 14.VI.2019, 1♀ - 17.VII.2019, 1♀ - 23.X.2019, 1♂ - 27.VIII.2019, 2♀.

DISTRIBUTION – Azores, Europe, Turkey, Caucasus, Russia (Europe to Far East), Iran, Central Asia, China.

CHOROTYPE – PAL.

ELEVATIONAL ZONATION – submontane, montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **THERIDIIDAE**

Asagena phalerata (Panzer, 1801)

ORIGINAL DATA – Aurano: Biogna (ZeC), 09.VII.2019, 2♂ - 09.VIII.2019, 1♀.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to Far East), Kazakhstan, Iran, Central Asia, China, Korea.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – montane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Crustulina guttata (Wider, 1834)

ORIGINAL DATA – Premosello-Chiovenda: Alpe La Piana (CoB), 05.IX.2018, 1♀; Alpe Lut (CoA), 05.VIII.2019, 1♂ - 06.VI.2019, 1♂.

LITERATURE – Knoflach 1994.

DISTRIBUTION – Canary Is., Europe, Caucasus, Russia (Europe to South Siberia), Kazakhstan, Iran, Central Asia, China, Korea, Japan.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – submontane.

Enoplognatha latimana Hippa & Oksala, 1982

ORIGINAL DATA – Premosello-Chiovenda: Alpe La Piana (CoB), 26.VII.2019, 1♀.

DISTRIBUTION – Europe, North Africa, Turkey, Caucasus, Russia (Europe) to Central Asia, Iran. Introduced to Canada.

CHOROTYPE – WPA.

ELEVATIONAL ZONATION – submontane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Episinus maculipes Cavanna, 1876

ORIGINAL DATA – Premosello-Chiovenda: Alpe Lut (CoA), 03.X.2018, 1♀.

DISTRIBUTION – Europe, Algeria, Turkey, Caucasus.

CHOROTYPE – TEM.

ELEVATIONAL ZONATION – submontane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Episinus truncatus Latreille, 1809

ORIGINAL DATA – Aurano: Passo Folungo (ZeD), 27.VIII.2019, 1♀; Cossogno: Pogallo (BtA), 11.VII.2019, 1♂; Premosello-Chiovenda: Alpe La Colma (CoF), 23.VIII.2018, 1♂; Alpe La Piana (CoB), 09.VIII.2018, 1♂; Alpe Lut (CoA), 05.IX.2018, 1♀ - 05.VIII.2019, 2♀, 1♂ - 12.IX.2019, 4♀, 1♂ - 23.VIII.2019, 5♀, 2♂; Slope towards La Colma (CoE), 23.VIII.2018, 1♀; Valle Cannobina: Alpe Terza (BtD), 27.VIII.2018, 1♀.

DISTRIBUTION – Europe, Turkey, Caucasus, Iran.

CHOROTYPE – TEM.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Euryopis flavomaculata (C. L. Koch, 1836)

ORIGINAL DATA – Aurano: Pathway to Pian Vadà (ZeE), 09.VII.2019, 1♂ - 27.VI.2019, 1♂; Pian Vadà (ZeF), 09.VII.2019, 1♂; Malesco: Alpe Boschelli (ScC), 14.VI.2019, 1♂; Premosello-Chiovenda: Alpe La Piana (CoB), 06.VI.2019, 1♂ - 22.VI.2019, 1♂.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to Far East), Kazakhstan, Central Asia, China, Japan.

CHOROTYPE – ASE.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

Robertus lividus (Blackwall, 1836)

ORIGINAL DATA – Premosello-Chiovenda: Alpe La Motta (CoC), 03.X.2018, 1♂; Alpe Lut (CoA), 06.VI.2019, 1♂.

DISTRIBUTION – USA (Alaska), Europe, Caucasus, Russia (Europe to Far East), Iran.

CHOROTYPE – OLA.

ELEVATIONAL ZONATION – submontane, montane.

Family **THOMISIDAE**

Cozyptila blackwalli (Simon, 1875)

ORIGINAL DATA – Premosello-Chiovenda: Alpe La Piana (CoB), 22.VI.2019, 1♂.

DISTRIBUTION – Europe.

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – submontane.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Misumena vatia (Clerck, 1757)

ORIGINAL DATA – Cavandone (45.9450615446N - 8.5162451273E), 17.V.2022, 1♀, S. Zappa leg., photo observation, https://www.inaturalist.org/observations/117429107.

DISTRIBUTION – North America, Europe, Turkey, Caucasus, Russia (Europe to Far East), Kazakhstan, Iran, Central Asia, China, Korea, Japan.

CHOROTYPE – OLA.

Ozyptila atomaria (Panzer, 1801)

ORIGINAL DATA – Cossogno: Alpe Preda (BtB), 12.IX.2018, 1♂; Pogallo (BtA), 22.VII.2019, 1♀; Premosello-Chiovenda: Alpe La Motta (CoC), 09.VIII.2018, 1♀; Valle Cannobina: Slope towards Bocchetta Terza (BtE), 09.VIII.2019, 1♀.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to Far East), Kazakhstan, Iran, Central Asia, China, Korea, Japan.

CHOROTYPE – PAL.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Ozyptila secreta Thaler, 1987

ORIGINAL DATA – Cossogno: Pogallo (BtA), 25.VI.2019, 1♂.

DISTRIBUTION – Switzerland, Italy.

CHOROTYPE – ALPW.

ELEVATIONAL ZONATION – submontane.

NOTES – New record for Piemonte. Endemic species (Pantini & Isaia 2019, accessed 07/2025) known from 13 localities between Trentino-Alto Adige and Valle d'Aosta.

Psammitis ninnii (Thorell, 1872)

ORIGINAL DATA – Aurano: Biogna (ZeC), 23.VII.2019, 1♀, 2♂; Pathway to Pian Vadà (ZeE), 08.VI.2019, 1♂; Pian Vadà (ZeF), 09.VII.2019, 1♀ - 26.VIII.2019, 1♀; Premosello-Chiovenda: Alpe La Motta (CoC), 09.VIII.2018, 1♂.

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to South Siberia), Central Asia.

CHOROTYPE – CAE.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Thomisus onustus Walckenaer, 1805

ORIGINAL DATA – Premosello-Chiovenda (46.00875N - 8.35191E), 29.VII.2024, 1♀, L. Migliore leg., photo observation, https://www.inaturalist.org/observations/232587885.

DISTRIBUTION – Selvagens Is., Europe, North Africa, Turkey, Caucasus, Russia (Europe to South Siberia), Israel, Central Asia, Iran, China, Korea, Japan.

CHOROTYPE – PAL.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Xysticus bifasciatus C. L. Koch, 1837

ORIGINAL DATA – Valle Cannobina: Alpe Terza (BtD), 25.VI.2019, 1♂ (CI).

DISTRIBUTION – Europe, Turkey, Caucasus, Russia (Europe to South Siberia), Kazakhstan, Central Asia, China.

CHOROTYPE – CAE.

ELEVATIONAL ZONATION – montane.

NOTES – New record for Piemonte.

Xysticus desidiosus Simon, 1875

ORIGINAL DATA – Valle Cannobina: Bocchetta di Terza (BtF), 27.IX.2019, 1♂.

DISTRIBUTION – Europe.

CHOROTYPE – CEU.

ELEVATIONAL ZONATION – subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Xysticus erraticus (Blackwall, 1834)

ORIGINAL DATA – Aurano: Biogna (ZeC), 20.VI.2019, 1♂; Pathway to Pian Vadà (ZeE), 27.VI.2019, 1♂; Valle Cannobina: Piè Zeda (ZeG), 24.VII.2019, 1♂; Slope towards Bocchetta Terza (BtE), 11.VII.2019, 1♂.

DISTRIBUTION – Europe, Turkey, Caucasus (Russia).

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Xysticus gallicus Simon, 1875

ORIGINAL DATA – Aurano: Biogna (ZeC), 08.VI.2019, 1♂; Pathway to Pian Vadà (ZeE), 08.VI.2019, 1♂; Malesco: Alpe Portaiola (ScB), 25.IX.2018, 2♀; Cappella di Terza (ScE), 14.VI.2019, 1♂ - 17.VII.2019, 1♂; Premosello-Chiovenda: Alpe La Colma (CoF), 06.VI.2019, 2♀, 6♂ - 18.IX.2018, 1♀; 22.VI.2019, 3♂; Slope towards La Colma (CoE), 05.VII.2019, 1♀, 1♂; Valle Cannobina: Alpe Terza (BtD), 12.IX.2018, 1♀; Bocchetta di Terza (BtF), 11.VII.2019, 1♂ - 14.VIII.2018, 1♀; Piè Zeda (ZeG), 27.VI.2019, 1♂; Slope towards Bocchetta Terza (BtE), 26.IX.2018, 1♀.

DISTRIBUTION – Europe, Turkey, Caucasus, Iran.

CHOROTYPE – TUE.

ELEVATIONAL ZONATION – montane, subalpine.

Xysticus kochi Thorell, 1872

ORIGINAL DATA – Aurano: Pathway to Marona (ZeH), 24.VII.2019, 1♀; Pian Vadà (ZeF), 10.X.2019, 1♀; Trontano: Alpe In La Piana (ScA), 14.VI.2019, 2♂.

DISTRIBUTION – Europe, Mediterranean to Central Asia.

CHOROTYPE – CAE.

ELEVATIONAL ZONATION – submontane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **ZODARIIDAE**

Zodarion italicum (Canestrini, 1868)

ORIGINAL DATA – Malesco: Alpe Boschelli (ScC), 24.IX.2019, 1♂; Premosello-Chiovenda: Alpe La Colma (CoF), 29.VIII.2018, 1♂, 3♀; Alpe La Motta (CoC), 05.VII.2019, 2♀, 4♂ - 06.VI.2019, 1♀ - 12.IX.2019, 1♀ - 22.VI.2019, 3♀ - 26.VII.2019, 4♀, 1♂; Alpe La Piana (CoB),

06.VI.2019, 1♂ - 09.VIII.2018, 1♂ - 21.X.2019, 1♂ - 22.VI.2019, 1♂ - 26.VII.2019, 2♀; Premosello-Chiovenda: Alpe Lut (CoA), 03.X.2018, 1♀ - 05.IX.2018, 1♂ - 06.VI.2019, 2♂ - 26.VII.2019, 1♀; Slope towards La Colma (CoE), 06.VI.2019, 1♂; Trontano: Alpe In La Piana (ScA), 09.IX.2019, 1♀ - 24.VI.2019, 1♂.

DISTRIBUTION – Europe, Russia (Caucasus).

CHOROTYPE – EUR.

ELEVATIONAL ZONATION – submontane, montane, subalpine.

NOTES – New record for the Province of Verbano-Cusio-Ossola.

Family **ZOROPSIDAE**

Zoropsis spinimana (Dufour, 1820)

ORIGINAL DATA – Colloro (46.01063N - 8.32570E), 22.VIII.2024, 1♀, G. Movalli leg., photo observation, https://www.inaturalist.org/observations/237186645.

DISTRIBUTION – Europe, North Africa, Turkey, Caucasus, Russia (Europe to Far East), Central Asia, China, Japan. Introduced to USA, Azores.

CHOROTYPE – ASE.

NOTES– New record for the Province of Verbano-Cusio-Ossola.

RESULTS AND GENERAL CONSIDERATIONS

This work provides the first inventory of the spider species of the Val Grande National Park, recording the presence of 157 species belonging to 92 genera and 25 families. Literature data listed 5 species previously known for the study area, scattered in 5 papers published between 1979 and 2025 (Table 3). Four literature-documented species were confirmed in our pitfall trap samples: *Liocranum rupicola* (Walckenaer, 1830), *Coelotes pickardi* O. Pickard-Cambridge, 1873, *Crustulina guttata* (Wider, 1834), and *Troglohyphantes lucifuga* (Simon, 1884). Material of *Peponocranium ambrosii* Milano & Isaia, 2025 collected during this study belongs to the type series of this species, as documented in the recent description of the species. Original data yielded 5,483 specimens in total, with 3,715 adults (68%) captured by pitfall traps and 10 individuals recorded through photographic observations.

Based on data issued from the Catalog of Italian Spiders "Araneae.it" (Pantini & Isaia 2019, accessed 07/2025) our work counts 11 new records for Piemonte and 103 new records for the Province of Verbano-Cusio-Ossola Province, bringing the total number of known species for the Region from 746 to 757 and from 144 to 247 for the Province. The spider fauna of the study area represents more than 9% of the total Italian spider fauna and includes a fifth of the species currently known in Piemonte.

The most diverse families in terms of species were Linyphiidae (45 species) and Gnaphosidae (26) followed by Lycosidae (20 species) and Thomisidae (11) (Fig. 2). The same family composition is recorded for other Alpine protected areas (Isaia et al. 2015, Pantini et al. 2020, Petri et al. 2021, Petri et al. 2022, Tolve et al. in press).

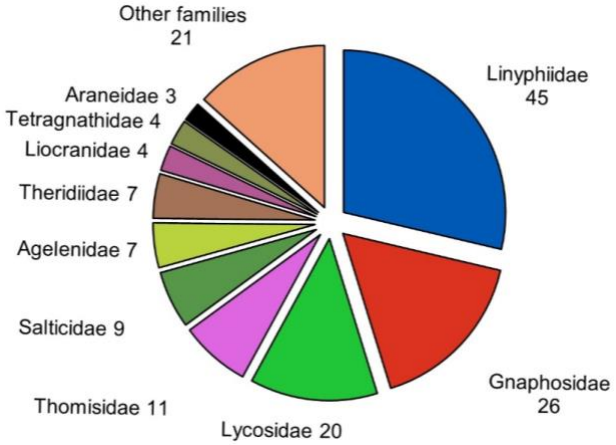

Figure 2. Species richness by family in the Val Grande National Park (n=157), the numbers correspond to the number of species per family.

Table 3. List of the publications (Literature) referring to the spider species previously recorded for the study area, total number of records for each publication (Recorded species) and number of new records therein (New records).

Literature	Recorded species	New records
Brignoli & Gaddini 1979	1	1
Maurer 1982	1	1
Knoflach 1994	1	1
Isaia et al. 2011	1	1
Milano et al. 2025	1	1
Total from literature	5	**5**
This work	157	**152**
Total		**157**

The most sampled species were common and widespread Alpine species such as *Pardosa blanda* (C. L. Koch, 1833), *Pardosa saltans* Töpfer-Hofmann, 2000, *Pardosa riparia* (C. L. Koch, 1833), *Histopona leonardoi* Bolzern, Pantini & Isaia, 2013, *Alopecosa taeniata* (C. L. Koch, 1835) and *Alopecosa trabalis* (Clerck, 1757) respectively with 911, 464, 438, 181, 121 and 101 specimens.

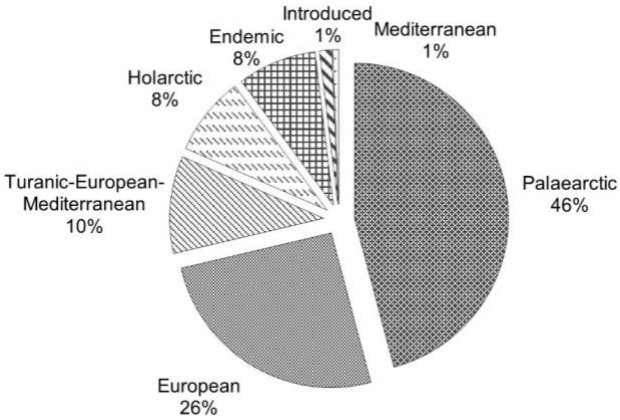

Figure 3. Species distribution in the Val Grande National Park (n=157). Groups of main chorotypes according to Table 2.

Photo observations from iNaturalist revealed the presence of 10 species belonging to 13 genera and 6 families i.e. Araneidae (3 species), Salticidae (2 species), Thomisidae (2 species) and Sparassidae, Tetragnathidae and Zoropsidae (1 species each). The species identified and validated through iNaturalist are all very common and undoubtedly recognisable based on general habitus alone, although we are aware that genitalia examination would be necessary for definitive confirmation.

Regarding chorotypes, around half species (46%) showed a Palaearctic distribution, followed by European (26%), Turanic-European-Mediterranean (10%) and Holartic (8%). Endemic species accounted for 8% of the total diversity, while Mediterranean and introduced species represented the remaining 2% (1% each) (Fig. 3; Table 2). None of the endemic species collected in the Park are strictly Italian endemics, i.e., confined within the Italian administrative boundaries. Compared to other Alpine protected areas, the percentage of endemic species in Val Grande National Park is lower than in Orsiera Rocciavrè (e.g., 11%, Tolve et al. in press) but comparable to others (e.g., 9% in Alpi Marittime, Isaia et al. 2015; and 8% in Stelvio National Park; Pantini et al. 2020). Overall, we acknowledge, that the spider species richness recorded in our study area is likely underestimated, primarily due to the lack of sampling in vegetation layers such as shrubs and trees. Additionally, the exclusive use of pitfall traps may led to an overrepresentation of endemic species, as incorporating sampling from vegetation strata would likely reveal a greater number of widely distributed species (Tolve et al. in press).

Among the thirteen endemic species, it is worth to mention *Histopona leonardoi* Bolzern, Pantini & Isaia, 2013 and *Troglohyphantes*

lucifuga (Simon, 1884) and the recently described species i.e. *Peponocranium ambrosii* Milano & Isaia, 2025, whose type series includes material collected in the frame of this study. *Histopona leonardoi* is an Agelenidae that mostly inhabits forests, high Alpine pastures and caves entrances in the Swiss and Italian Alps (Bolzern et al. 2013). *Troglohyphantes lucifuga* is a Linyphiidae generally found in caves or similar superficial subterranean habitat in the North-West Alpine district of France, Italy and Switzerland (Isaia et al. 2017). *Peponocranium ambrosii* is an Alpine Linyphiidae occurring in montane habitats from Alpi Graie (Northwestern Alps) to Alpi Retiche (Central Eastern Alps) and Alpi Carniche (Eastern Alps) mainly in alpine pastures and dry meadows with prevalent southern aspect (Milano et al. 2025). Other remarkable species are *Ozyptila secreta* Thaler, 1987, *Zelotes devotus* Grimm, 1982, *Mansuphantes aridus* (Thorell, 1875), and *Micrargus alpinus* Relys & Weiss, 1997. *O. secreta* is an endemic species of Thomisidae known from the southern Alps of Italy and Switzerland, where it inhabits rocky heathlands and xerothermic localities. Meanwhile, *Zelotes devotus* (Gnaphosidae), *Mansuphantes aridus* and *Micrargus alpinus* (Linyphiidae) have a restricted Alpine distribution.

We also recorded 2 alien species, introduced in Europe and established from North America (Nentwig 2025) i.e. *Erigone autumnalis* Emerton, 1882 and *Mermessus trilobatus* (Emerton, 1882), widespread in the Alpine region.

Original data from standardized experimental design allowed us to explore ecological patterns of diversity across different transects and along the local elevational gradient. In terms of species assemblage each transect is characterized by a high distinctiveness. Indeed from 13.2% to 22.5% of the species are uniquely found at a single transect and 26.4% of the species is shared overall (Fig. 4). A similar pattern was observed with the same sampling design in the Orsiera Rocciavrè Natural Park (Tolve et al. in press) where diversity across transects was comparable, reaching up 15.4% of the species hosted by a single transect. Such high local diversity possibly reflects the high diversification at the microhabitat level of the Alpine habitat, making biodiversity inventories in this context particularly challenging.

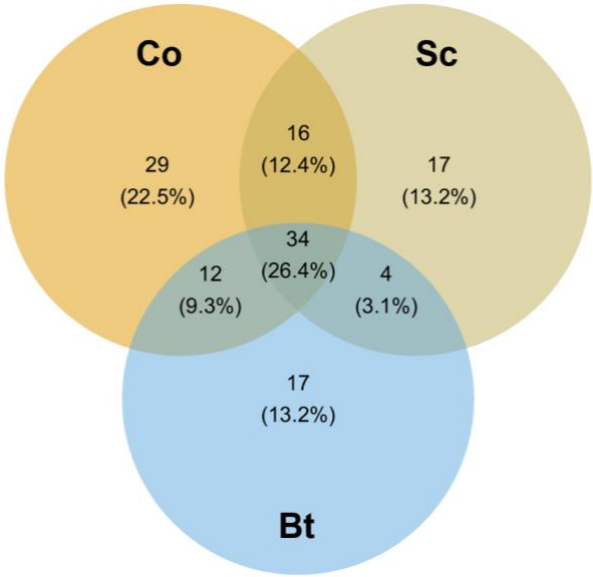

Figure 4. Venn diagram with the number and percentage of species collected in pitfall traps in each transect (n= 129). (Except Ze transect due to a single-year survey). Pale brown color: Co; Grey color: Sc; Blue color: Bt.

The ecological analysis of species richness (Fig. 5 and Table 4) along the elevational gradient revealed a significant positive relationship with elevation, ranging from 800 to 1,800 m. Moreover, species richness was significantly higher in 2019 compared to 2018, with transect Co exhibiting greater richness relative to other transects. Importantly, the interactions between elevation and year, as well as between elevation and transect, were not statistically significant for species richness, indicating that the pattern of species richness along the elevational gradient is consistent across years and transects. Studies on elevational gradients on spider species richness in the Alps have shown comparable trends along elevation. For instance, sampling spiders from 600 to 2,600 m in similar habitats (Tolve et al. in press)

showed how species richness tends to increase with elevation, peaking at 1,800-1,900 m and then decreasing, following a hump-shaped pattern. Similar patterns were observed in the Alps by Fontana et al. (2020) and by Gilgado et al. (2022). These studies also parallel findings in Arctic regions, unravelling analogous trends but keeping in count the effect of latitude (Bowden & Buddle 2010, Måsviken et al. 2023). The studies conducted in the Alps suggest that spider species richness in the Alpine region consistently peaks around 1,800-1,900 m. At this elevation, the ecotonal overlap between the already species-rich montane and subalpine zones likely increases environmental heterogeneity and fosters the coexistence of species from both communities, resulting in elevated overall species richness. Potentially optimal climatic conditions and low disturbance may also contribute, although these factors would require dedicated data to be confirmed.

Abundance patterns (Fig. 6 and Table 5) mirrored those observed for species richness, generally increasing with elevation and being higher in 2019 and at transect Co. The interactions between elevation and year, and between elevation and transects Bt and Co, were not statistically significant, indicating consistent abundance–elevation slopes across these factors. In contrast, the interaction between elevation and transect Sc was significant, with a flatter or even negative relationship in 2018, suggesting transect-specific variation likely driven by local or contingent factors not captured in the available data.

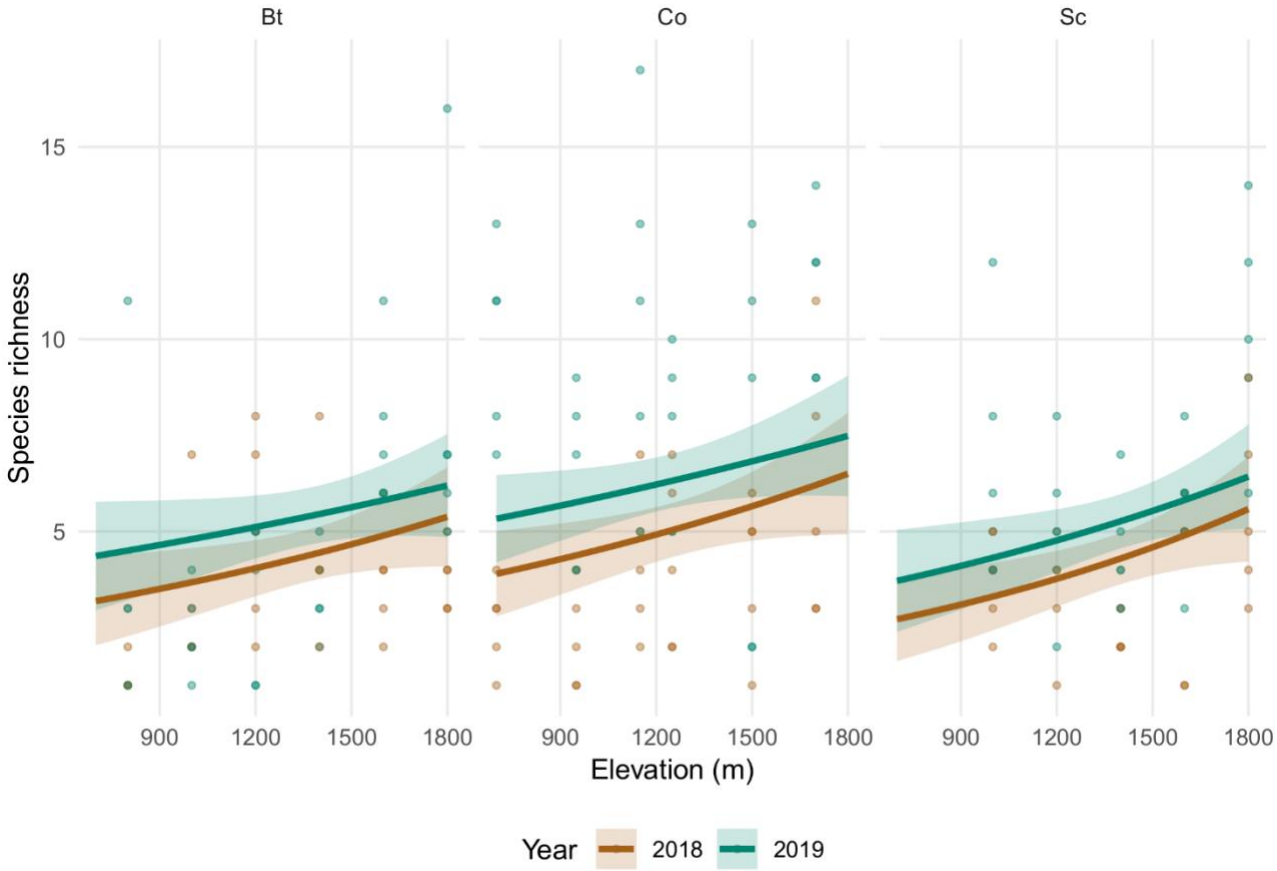

Figure 5. Elevational gradients of species richness (S), as predicted by the Generalized Linear Mixed Model (GLMM) with a Poisson distribution (see Ecological Analysis in the Methods section for further details). Predicted values are shown for each year (2018 and 2019) and for each transect (Bt, Co, Sc). Colours correspond to the different years.

Table 4. Summary of the Generalized Linear Mixed Model (GLMM) fitted with a Poisson distribution, evaluating the effects of elevation, year, and transect on species richness (S), including their interactions (elevation × year and elevation × transect). The model includes an offset for sampling effort (number of pitfall trap replacement) and a random effect for Plot. Statistically significant p-values ($p < 0.05$) are shown with *.

Fixed Effects	Estimate	Std. Error	z value	p-value
(Intercept)	-0.1701	0.0817	-2.081	0.037*
Elevation	0.1573	0.0783	2.009	0.044*
Year2019	0.2183	0.0719	3.035	0.002**
TranCo	0.1944	0.0854	2.278	0.023*
TranSc	-0.0518	0.0976	-0.531	0.596
Elevation:Year2019	-0.0518	0.0703	-0.737	0.461
Elevation:TranCo	-0.0035	0.0823	-0.042	0.966
Elevation:TranSc	0.0592	0.0971	0.610	0.542

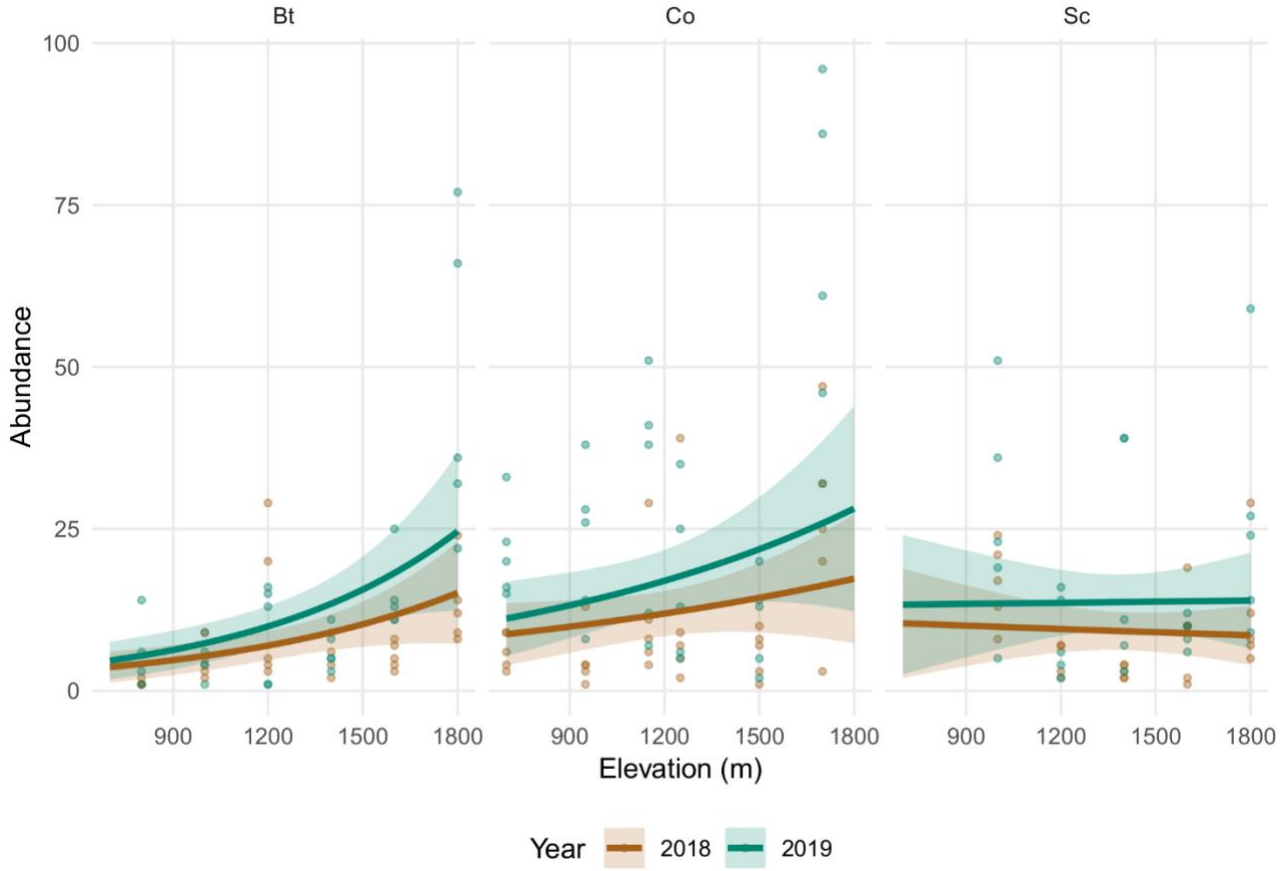

Figure 6. Elevational gradients of abundance (N), as predicted by the Generalized Linear Mixed Model (GLMM) with a negative binomial distribution (see Ecological Analysis in the Methods section for further details). Predicted values are shown for each year (2018 and 2019) and for each transect (Bt, Co, Sc). Colours correspond to the different years.

Table 5. Summary of the Generalized Linear Mixed Model (GLMM) fitted with a negative binomial distribution, evaluating the effects of elevation, year, and transect on abundance (N), including their interactions (elevation × year and elevation × transect). The model includes an offset for sampling effort (number of pitfall trap replacement) and a random effect for Plot. Statistically significant p-values ($p < 0.05$) are shown with *.

Fixed Effects	Estimate	Std. Error	z value	p-value
(Intercept)	0.4606	0.1539	2.993	0.0028**
Elevation	0.427	0.1525	2.801	0.0051**
Year2019	0.3768	0.0949	3.973	7.1e-05***
TranCo	0.4654	0.2028	2.295	0.0217*
TranSc	0.1585	0.2159	0.734	0.4628
Elevation:Year2019	0.0729	0.0934	0.780	0.4352
Elevation:TranCo	-0.2216	0.1956	-1.133	0.2572
Elevation:TranSc	-0.4859	0.2245	-2.165	0.0304*

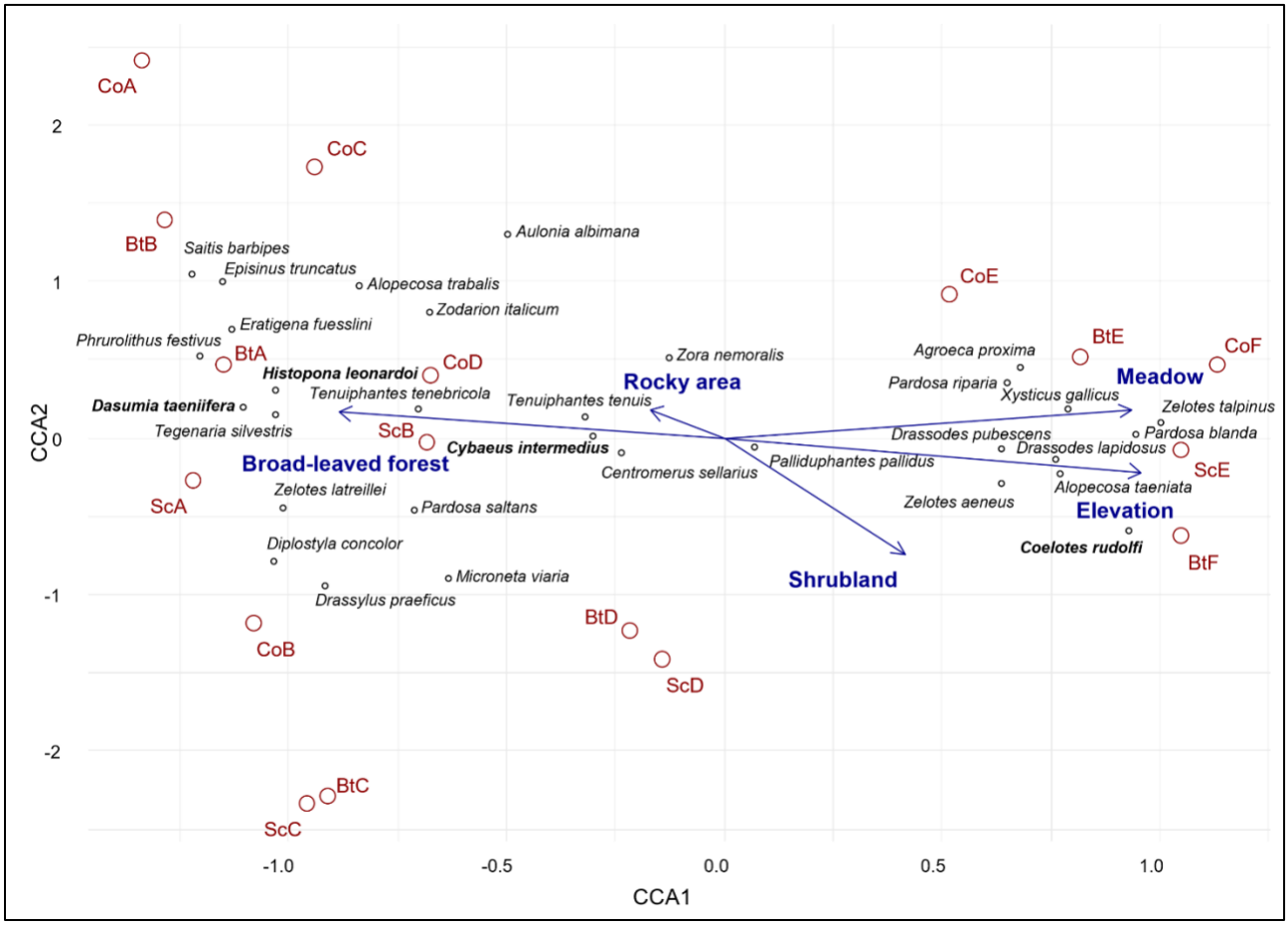

Figure 7. Canonical Correspondence Analysis (CCA) showing the relationship between spider species (black dots) and environmental variables (blue arrows) within the study plot (red circles). Axes 1 and 2 explain around 61% and 16% of the total variance, respectively (see Tab. 6 and Tab. 7 for further details). The displayed species represent 85% of the total sample (31 out of 129 species), with endemic species indicated in bold.

Table 6. Summary of the first five constrained axes from the Canonical Correspondence Analysis (CCA). Reported are eigenvalues, percentage of variance explained by each axis, and cumulative variance explained by the axes. The first two axes together explain 77.4% of the variance in the constrained species-environment relationship.

Axis	Eigenvalue	Variance explained (%)	Cumulative variance explained (%)
1	0.6912	60.98	60.98
2	0.1861	16.42	77.40
3	0.1187	10.47	87.87
4	0.092	8.11	95.99
5	0.0455	4.01	100.00

Table 7. Results of the permutation test assessing the significance of individual environmental variables in the Canonical Correspondence Analysis (CCA) model explaining species composition. F statistics and p-values are reported. Significant effects ($p < 0.05$) are highlighted with *. Elevation was the only variable showing a significant influence on species composition.

Variable	F-value	p-value
Elevation	6.372	0.001*
Broad leaved forest	1.1119	0.569
Rocky area	0.7278	0.840
Meadow	2.0603	0.112
Shrubland	0.9357	0.595

The CCA ordination (Fig. 7) explained approximately 77% of the variance in species-environment relationships. The first axis, which accounts for the majority of this variation (60.98%), was strongly correlated with elevation, as confirmed by the significant effect detected in the permutation test. This axis generally reflects a gradient from closed forest environments at lower elevations to open meadow habitats at higher elevations, and species distributions align well with this pattern. Specifically, forest-dwelling species are associated with lower values on Axis 1, corresponding to lower elevations and closed-canopy habitats, while species typical of pasture and higher elevation environments are found at higher Axis 1 values. The species appearing along this gradient correspond rather closely to their known ecological preferences, with for example the endemics Histopona leonardoi Bolzern, Pantini & Isaia, 2013 and Dasumia taeniifera Thorell, 1875 occurring in forest a lower mid elevation and Coelotes rudolfi (Schenkel, 1925) showing preference for pastures at higher elevation. Axis 2 explains an additional 16.42% of the variance and represents secondary environmental gradients that may reflect other habitat characteristics or microhabitat variability not captured by elevation alone. Although habitat variables such as broad-leaved forests, meadows, shrublands, and rocky areas did not show significant effects individually, their combined influence may contribute to the variation explained by Axis 2 (see Tables 6 and 7 for details on the CCA results). Therefore, while elevation is the main driver structuring species composition, the second axis suggests the presence of additional environmental factors shaping community assembly at a finer scale. These findings are consistent with previous research indicating that structural habitat complexity and microclimatic factors influence spider diversity in Alpine ecosystems (Gobbi et al. 2006). Nevertheless, the remaining unexplained variance suggests that additional factors—such as exposure, prey availability, disturbance, or land-use history—may also play a role in shaping community structure.

This work adds to recent faunistic studies on spiders in the Italian territory (Isaia et al. 2015; Fusco et al. 2024; Nicolosi et al. 2024; Tolve et al. 2024; Tolve et al. in press), enhancing the overall knowledge of the Italian araneofauna. Faunal data remains a cornerstone for studying and protecting biodiversity. For lesser-known taxa with limited institutional protection, such as spiders, conducting faunal inventories is crucial, particularly in protected areas. Spider conservation largery relies on protected areas (Milano et al. 2021; Mammola et al. 2020), and without fundamental occurrence knowledge within them, implementing effective conservation measures remains critical.

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