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Hydraena lombardica, a new species from northern Italy (Coleoptera: Hydraenidae)

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Abstract

Hydraena (s.str.) *lombardica* sp.n. (Coleoptera: Hydraenidae), a member of the *H.* (s.str.) *rufipes* group, is described from central-northern Italy (Lombardia and Piemonte). It is most closely related to *H.* (s.str.) *andreinii* ORCHYMONT, 1934, replacing the latter geographically north of the River Po. Although the new species is found also in a small area of NW Piemonte, it can be regarded as sub-endemic to the Lombardia Region. The type locality of *H.* (s.str.) *andreinii* has been attributed to Arezzo Province (Toscana Region) in the original description (ORCHYMONT 1934) and by some subsequent authors, but actually it lies in Perugia Province (Umbria Region). *Hydraena* (s.str.) *andreinii* is recorded from the provinces of Piacenza and Rimini for the first time. A complete list of references for *H. andreinii* (including those actually referring to the new species) is presented. Photographs of the habitus, male genitalia and male metatibiae, as well as a distribution map showing all known localities of *H. andreinii* and *H. lombardica* are provided. The aedeagi and the male metatibiae of *H. alia* ORCHYMONT, 1934 and *H. intermedia* ROSENHAUER, 1847 are also depicted.

Key words: Coleoptera, Hydraenidae, *Hydraena andreinii*, taxonomy, new species, new records, bibliography, Italy, Lombardia, Piemonte.

Introduction

For a long time, *Hydraena* (s.str.) *andreinii* ORCHYMONT, 1934, a member of the *H.* (s.str.) *rufipes* group, has been regarded as wide-spread in northern and central Italy (see e.g., AUDISIO & DE BIASE 2006). Originally described from Lippiano in the Apennines (central Italy), it was recorded for the first time from northern Italy by BINAGHI (1970). While specimens from central Italy are well represented in museum collections, only very few specimens were found in localities lying north of the River Po until 2017. For instance, only two historical female specimens, collected at Milano around 1900, were deposited in the NMW. But in the last nine years, numerous additional specimens from Lombardia and Piemonte became available for study, allowing for the first time to carry out a more detailed comparison of the populations from the Alps and the Apennines. A rather quick examination of the aedeagi revealed that the specimens from the Alps represent an undescribed species, separated from the “true” *H. andreinii* by the River Po. The new species is described below.

Material and methods

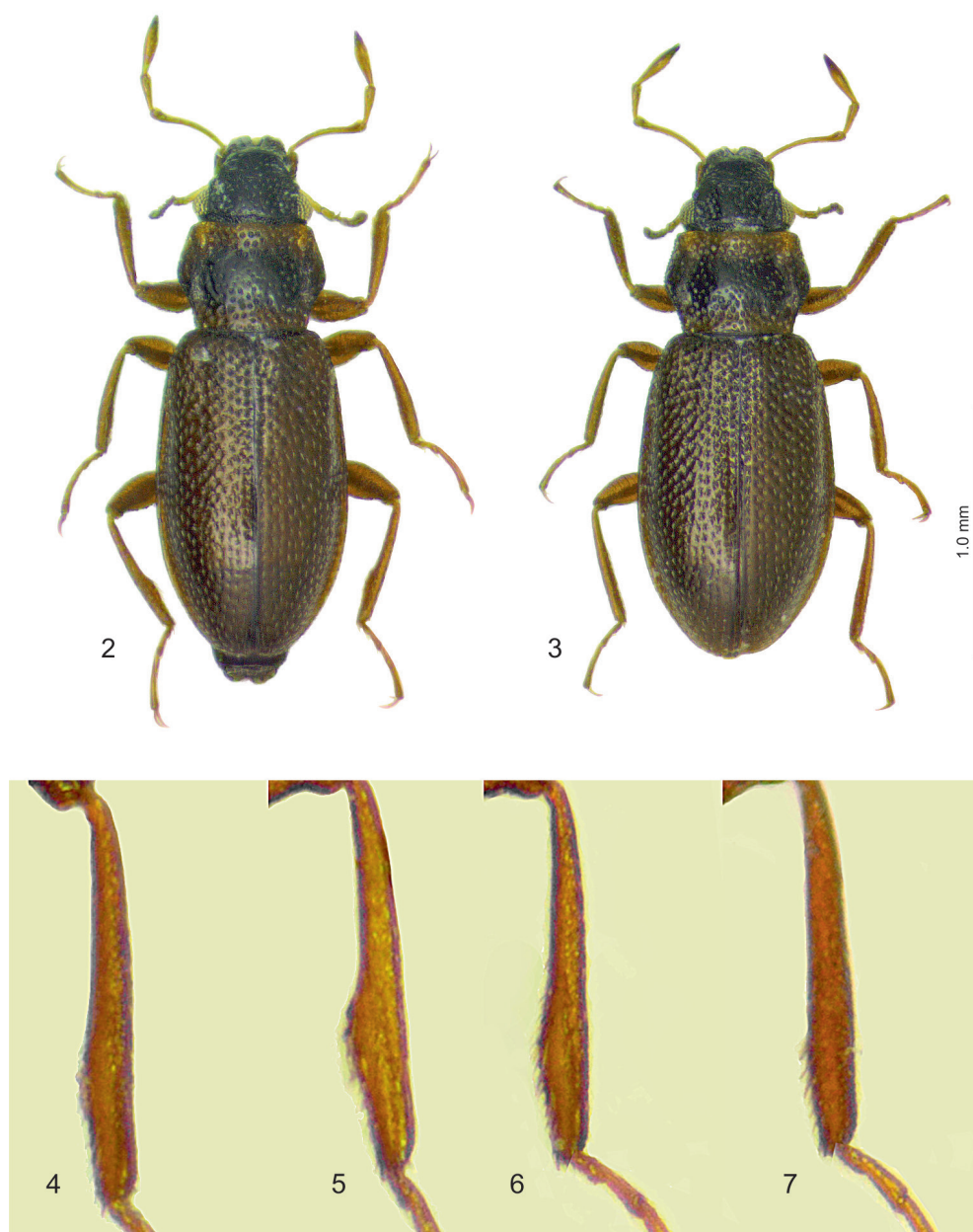
The specimens examined are deposited in the following collections:

DPE	coll. Davide Pedersoli, Esine, Brescia, Italy
IRSNB	Institut Royal de Sciences Naturelles de Belgique, Brussels, Belgium
MGB	coll. Mario Grottollo, Brescia, Italy
MTP	coll. Mario E. Toledo, Piacenza, Italy
MSNG	Natural History Museum Giacomo Doria, Genova, Italy
NMW	Naturhistorisches Museum Wien, Vienna, Austria
PMB	coll. Paolo Mazzoldi, Irma, Brescia, Italy
TLFI	coll. Manfred Kahlen, Tiroler Landesmuseum Ferdinandeum, Hall, Austria

The distribution map was created with “Microsoft Encarta Weltatlas 2001”.



Fig. 1: Habitus of *Hydraena lombardica*, holotype. Photograph by H. Schillhammer.



Figs. 2–3: Habitus of *Hydraena andreinii*, Marche, Pesaro Urbino Province: 2) male, 3) female. Photographs by M.E. Toledo.

Figs. 4–7: Hind tibiae of 4) *Hydraena lombardica* (type locality, paratype), 5) *H. andreinii* (Pennabilli, Rimini Prov.), 6) *H. alia* (Ruoti, Potenza Prov.), 7) *H. intermedia* (Miane, Treviso Prov.). Photographs by M.E. Toledo.

***Hydraena (s.str.) lombardica* sp.n.**

Hydraena andreinii ORCHYMONT, 1934: BINAGHI 1970: 559 (partim, faunistics); PIRISINU 1981: 30 (partim, faunistics, key); AUDISIO et al. 1995a: 405 ff. (partim, faunistics, zoogeography), 1995b: 6 (partim, zoogeography); AUDISIO 2002: 64 (? misidentified, faunistics); AUDISIO & DE BIASE 2006: CD-ROM (partim, faunistics); TOLEDO & GROTTULO 2019: 96 (misidentified, faunistics); CORNACCHIA & SCAGLIONI 2024: 226, 617 (? misidentified, faunistics, habitus: fig. 375).

TYPE LOCALITY (Figs. 17–18): Small stream (Torrente Bagnadore), ca. 0.5–1.0 m wide, flowing through Val Nembre, ca. 695 m a.s.l., ca. 45°45'54.5"N 10°7'8.3"E, east of the municipality of Zone, ca. 25 km NNW of Brescia, Brescia Province, Lombardia Region, northern Italy.



Figs. 8–9: Aedeagi in dorsolateral view: 8) *Hydraena lombardica* (type locality), 9) *H. andreinii* (Trabucchi, Parma Prov.). Photographs by M.E. Toledo.

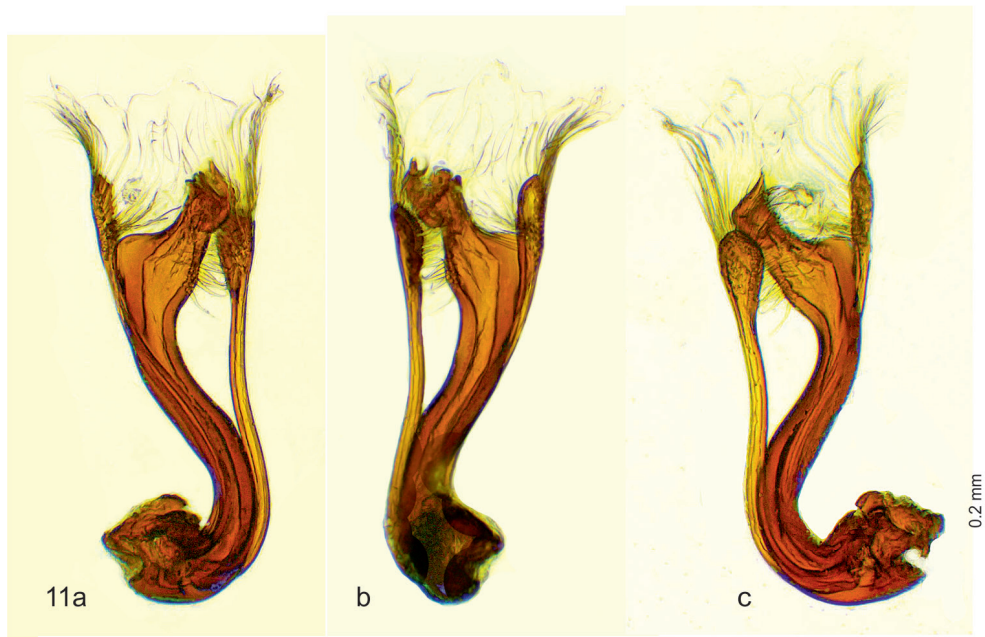
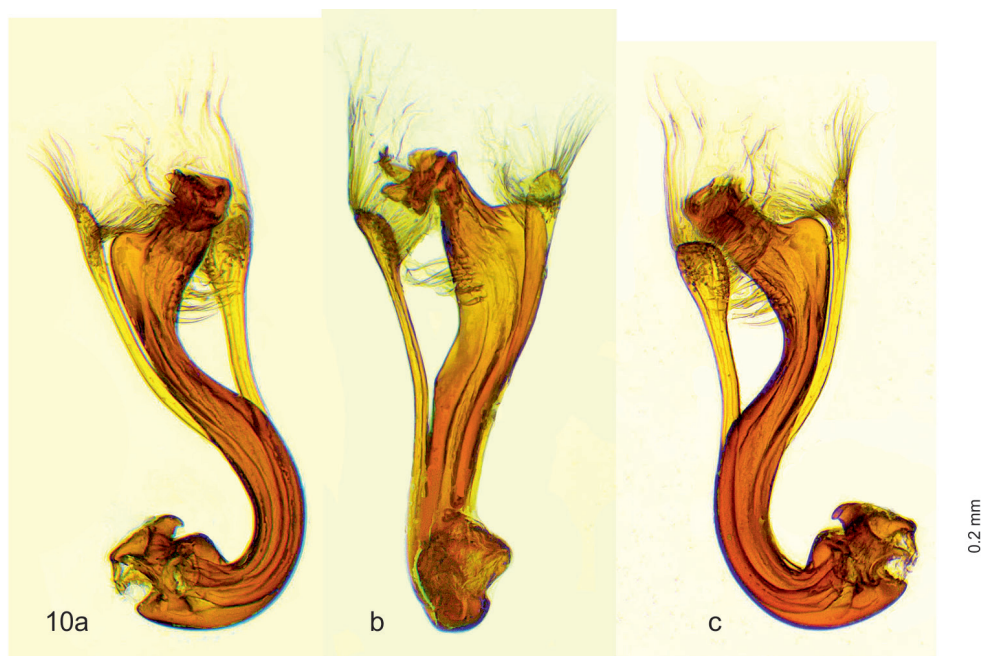


Fig. 10: Aedeagus of *Hydraena lombardica* (type locality), a) lateral, b) ventral, and c) lateroventral view. Photographs by M.E. Toledo.

Fig. 11: Aedeagus of *Hydraena andreinii* (Trabucchi, Parma Prov.), a) dorsolateral, b) ventral, and c) lateroventral view. Photographs by M.E. Toledo.



Figs. 12–13: Aedeagi in dorsolateral view: 12) *Hydraena alia* (Ruoti, Potenza Prov.), 13) *H. intermedia* (Miane, Treviso Prov.). Photographs by M.E. Toledo.



Figs. 14–15: Aedeagi in ventral view: 14) *Hydraena alia* (Ruoti, Potenza Prov.), 15) *H. intermedia* (Miane, Treviso Prov.). Photographs by M.E. Toledo.

TYPE MATERIAL: **Holotype** ♂ (NMW): “ITALY: Lombardia Brescia Prov., Zone leg. Toledo & Grottole”, “15.IX.2017, ca. 695 m 45°45.903'N 10°7.152'E”, “NHMW-ZOO-COL-0074075”. **Paratypes**: **LOMBARDIA**: **Brescia Province**: 24 exs. (MGB: 3 exs.; MTP: 9 ♂♂, 6 ♀♀; NMW: 4 ♂♂, 2 ♀♀ [0074076–0074081]), same locality data as holotype; 4 exs. (MGB: 2 exs.; MTP: 2 ♂♂): Torrente Bagnadore, NE of Monte Marone, 45°44.885'N 10°6.246'E, ca. 400 m a.s.l., 15.IX.2017, leg. Toledo & Grottole; 7 exs. (MGB: 3 exs.; MTP: 1 ♂; NMW: 2 ♂♂, 1 ♀ [0074088–0074090]): Torrente Gandovere, Gaina, N of Monticelli Brusati, ca. 340 m a.s.l., 45°38.8517'N 10°5.6920'E, 6.IX.2018, leg. Toledo & Grottole; 1 ex. (MTP): Torrente Abbioccolo, Val Sabbia, NE of Lavenone, 45°45'14.2"N 10°25'35.4"E, ca. 470 m a.s.l., 17.VI.2017, leg. Toledo & Grottole; 1 ex. (MTP: same locality but “30.VI.2017”; 1 ♂ (NMW [0074087]): Torrente di Vaniga [right tributary of Torrente Abbioccolo], Val Sabbia, NW of Lavenone, ca. 560 m a.s.l., 45°45.706'N 10°24.977'E, 17.VI.2017, leg. Toledo & Grottole; 3 exs. (MTP: 1 ♀; NMW: 2 ♀♀ [0074085–0074086]): Torrente Reaclino, E of Barghe, ca. 400 m a.s.l., 45°40.907'N 10°25.272'E, 25.X.2017, leg. Toledo & Grottole; 1 ex. (MGB): Provaglio Val Sabbia (municipality), Cedessano, small stream (source of Torrente Reaclino), ca. 640 m a.s.l., ca. 45°41'21.8"N 10°25'58.0"E, 9.IX.2011, leg. Grottole; 1 ♀ (NMW [0074082]): Torrente Degnone, SSW of Pertica Bassa, ca. 460 m a.s.l., 45°44.529'N 10°22.890'E, 16.VI.2020, leg. Toledo & Mazzoldi; 1 ex. (MGB): Torrente Preane, S of Sabbio Chiese, ca. 320 m a.s.l., 45°37.996'N 10°25.185'E, 25.V.2019, leg. Toledo & Grottole; 2 ♀♀ (NMW [0074083–0074084]): Torrente Toscolano, Valle delle Cartiere, N of Maderno, ca. 90 m a.s.l., 45°38.833'N 10°36.309'E, 17.V.2018, leg. Toledo & Grottole; 1 ex. (DPE): Torrente Re (Torrente Valle Artogne), E of Artogne, ca. 320 m a.s.l., 45°50.782'N 10°10.166'E, 27.VIII.2023, leg. Pedersoli; **Bergamo Province**: 1 ex. (DPE): Torrente Supine, NW of Costa Volpino, ca. 670 m a.s.l., 45°50'36.97"N 10° 4'36.86"E, 5.IX.2023, leg. Pedersoli; **Milano Province**: 2 ♀♀ (NMW [0074092–0074093]): “Milano F. [? Fiume] Olona Lombardei [Lombardia]”, one of the specimens carries an additional historical label: “Hydraena angustata?”, according to BINAGHI (1970: 559), these specimens were collected in 1899, collector unknown. **PIEMONTE**: **Novara Province**: 1 ♂ (NMW): Rio Campaione, Val Sesia, NW of Cavallirio, ca. 370 m a.s.l., 45°40'10.6"N 8°23'4.1"E, 14.III.2022, leg. Kahlen; 9 ♂♂, 3 ♀♀ (NMW, TLFi), same locality data but “16.IX.2022”; **Biella Province**: 1 ♂ (NMW): Rio Osteria, E of Cossato, ca. 240 m a.s.l., 45°34'34.0"N 8°13'29.7"E, 14.IX.2022, leg. Kahlen; **Vercelli Province**: 3 ♂♂, 6 ♀♀ (NMW, TLFi): Rio Guarabione, Roasio-Curavecchia, ca. 270 m a.s.l., 45°35'44.9"N 8°16'4.4"E, 15.IX.2022, leg. Kahlen; 1 ♂, 2 ♀♀ (TLFi): Rio San Giorgio, W San Giorgio, ca. 300 m a.s.l., 45°36'34.5"N 8°15'59.8"E, 15.IX.2022, leg. Kahlen.

DIAGNOSIS: In its external characters, including shape and coloration, *Hydraena lombardica* (Figs. 1, 4, 8, 10) agrees largely with its sister species, *H. andreinii* (Figs. 2–3, 5, 9, 11). Therefore, we provide only a differential diagnosis of the most significant distinguishing characters instead of a full description.

Habitus as in Fig. 1. Body length: 1.85–2.10 mm (HT: 1.96 mm), just slightly longer than *H. andreinii* (1.78–2.03 mm) (Figs. 2–3).

As in *H. andreinii*, the mesial sides of the male metatibiae of *H. lombardica* are slightly expanded in the posterior half. However, this character is quite variable in both species, even in specimens from the same locality (compare Fig. 1 and Fig. 4), and therefore cannot be used as an unambiguous distinguishing character.

The only significant distinguishing characters are revealed by the aedeagi (Figs. 8, 10: *H. lombardica*, Figs. 9, 11: *H. andreinii*). They are morphologically constant and easy to spot:

1) The subapical setae on the laterodorsal side of the main piece are placed further proximal in *H. lombardica*. In the new species they are located at some distance from the distal lobe and clearly reach the dorsal emargination of the main piece, while in *H. andreinii* they are placed just next to the distal lobe and terminate at the beginning of the dorsal emargination. In addition, in *H. andreinii* the main piece is slightly convex in the area of these setae.

2) The right paramere of *H. lombardica* is clearly shorter than that of *H. andreinii*. It does not reach the apex of the distal lobe. The setose apical part is less extended.

There are also various specific differences in the distal lobe and the left paramere, but these are less obvious.

For comparison, the aedeagi and the male metatibiae of two closely related species, *H. alia* ORCHYMONT, 1934 (Figs. 6, 12, 14) and *H. intermedia* ROSENHAUER, 1847 (Figs. 7, 13, 15), are

also depicted. The former, distributed in the southern part of Italy, is easily distinguished from *H. andreinii* and *H. lombardica* by the double sinuous shape of the main piece (ventral view) and the very long thin appendage of the distal lobe. *Hydraena intermedia*, distributed in northeastern Italy, can be quite easily distinguished from *H. andreinii* and *H. lombardica* by the more elongate apex of the main piece and the characteristic shape of the distal lobe that resembles the head of a chamois (*Rupicapra rupicapra* (LINNAEUS, 1758)) in ventral view.

HABITAT (Figs. 17–20): *Hydraena lombardica* lives in mid to low altitude streams (ca. 100–700 m a.s.l.), with pebbly or stony substrate, sometimes with grassy banks and tree roots, where it prefers reaches with not too strong current. The specimens are mostly found among the gravel close to the stream margin. Similar habitats are also preferred by *H. andreinii*, *H. alia* and *H. intermedia*, all being closely related to *H. lombardica* (see “Discussion” below). At the type locality, where the latter was found particularly abundant, most of the specimens were collected among pebbles within a few square centimeters (Fig. 17).

At the type locality (Figs. 17–18), the following species of water beetles were collected together with *H. lombardica*: *Deronectes aubei* (MULSANT, 1843) (Dytiscidae), *Hydraena heterogyna* BEDEL, 1898, *H. lapidicola* KIESENWETTER, 1849, *H. subimpressa* REY, 1885, *H. truncata* REY, 1885 (Hydraenidae), *Anacaena globulus* (PAYKULL, 1798), *Laccobius neapolitanus* ROTTENBERG, 1874 (Hydrophilidae), *Dryops ernesti* GOZIS, 1886, *D. luridus* (ERICHSON, 1847) (Dryopidae), *Elmis aenea* (MÜLLER, 1806), *E. maugetii* LATREILLE, 1798, *Esolus angustatus* (MÜLLER, 1821), *Limnius perrisi* (DUFOR, 1843), *L. volckmari* (PANZER, 1793) (Elmidae).

In the Torrente Supine (Bergamo Province, Lombardia) (Fig. 19), *Hydraena lombardica* was found together with *H. heterogyna*, *H. lapidicola* KIESENWETTER, 1849, *H. truncata* (Hydraenidae), *Anacaena globulus* (Hydrophilidae), *Elmis aenea*, *E. maugetii*, *Esolus angustatus*, *Limnius perrisi*, *L. volckmari*, *Riolus subviolaceus* (MÜLLER, 1817) (Elmidae).

In the Rio Campaione (Novara Province, Piemonte) (Fig. 20), *Pomatinus substriatus* MÜLLER, 1806 (Dryopidae) and the following species of *Hydraena* KUGELANN, 1794 were collected together with *H. lombardica*: *H. assimilis* REY, 1885, *H. heterogyna*, *H. subimpressa*, and *H. testacea* CURTIS, 1830.

Other water beetle species found together with *H. lombardica* in other paratype localities: *Gyrinus substriatus* STEPHENS, 1828, *Orectochilus villosus* (MÜLLER, 1776) (Gyrinidae), *Agabus biguttatus* (OLIVIER, 1795), *Deronectes moestus inconspectus* (LEPRIEUR, 1876), *Nectoporus sanmarkii* (SAHLBERG, 1826), *Platambus maculatus* (LINNAEUS, 1758) (Dytiscidae), *Helophorus montenegrinus* KUWERT, 1885 (Helophoridae), *Laccobius obscuratus* ROTTENBERG, 1874 (Hydrophilidae), *Hydraena larissae* JÄCH & DÍAZ, 2000, *H. minutissima* STEPHENS, 1829, *H. pygmaea* WATERHOUSE, 1833, *Ochthebius gibbosus* GERMAR, 1824, *O. granulatus* MULSANT, 1844, *O. halbherri* REITTER, 1890, *O. metallescens* ROSENHAUER, 1847 (Hydraenidae), *Dryops striatopunctatus* (HEER, 1841) (Dryopidae), *Esolus parallelepipedus* (MÜLLER, 1806), *Limnius opacus* MÜLLER, 1806 (Elmidae).

DISTRIBUTION (Fig. 16): The new species is so far known only from Italy, where it seems restricted to the Prealpine areas of Lombardia (Brescia and Bergamo provinces) and northeastern Piemonte (Novara, Biella, and Vercelli provinces) north of the River Po.

Most probably, *Hydraena lombardica* occurs also in the province of Verbano-Cusio-Ossola (northern Piemonte) and in adjacent Switzerland (Ticino).

The occurrence of *H. lombardica* in the province of Mantua (Lombardia) still needs to be confirmed. AUDISIO (2002) and CORNACCHIA & SCAGLIONI (2024) recorded *H. andreinii* from the Bosco Fontana and from Porto Mantovano just north of the municipality of Mantua. Since these localities are lying north of the Po River, it can be expected that these records refer in fact

rather to *H. lombardica* than to *H. andreinii*. Remarkably, the record from the Bosco Fontana published by AUDISIO (2002) was not included in AUDISIO & DE BIASE (2006).

In Lombardia, the distribution map shows a remarkable gap between the lakes Maggiore and Iseo, which possibly can be explained by lack of research.

ETYMOLOGY: The new species is named after the Lombardia (or Lombardy) Region of Italy, where it is regarded to be subendemic. The name is used as an adjective.

Hydraena andreinii ORCHYMONT, 1934

Hydraena andreinii ORCHYMONT 1934: 166 (original description, aedeagus: fig. 3). – BINAGHI 1958: 73 ff. (faunistics, habitat notes), 1959: 79 (faunistics); CHIESA 1959: 51 (as “*andreini*” [incorrect subsequent spelling], faunistics, key); BINAGHI 1960: 21 ff. (faunistics), 1970: 552 ff. (partim, faunistics); IENIȘTEA 1978: 304 (European checklist); PIRISINU 1981: 27, 30 (partim, faunistics, key, aedeagus: fig. 12G); BALDARI et al. 1983: 145, 150 (faunistics); CARCHINI et al. 1988: 409 (faunistics); AUDISIO & DE BIASE 1994: 286 (faunistics); AUDISIO et al. 1995a: 405 ff. (partim, faunistics, zoogeography), 1995b: 6 (partim, zoogeography); MASCAGNI & CALAMANDREI 1996: 12 (faunistics); TERZANI & MASCAGNI 1996: 89 (faunistics); HANSEN 1998: 34 (world catalogue); ROCCHI et al. 1999: 54 (faunistics); JÄCH et al. 2000: 76 (world checklist); ROCCHI & MASCAGNI 2002: 4 (faunistics); AUDISIO 2002: 64 (? misidentification of *H. lombardica*, faunistics); JÄCH 2004: 103 (Palaeartic Catalogue); ROCCHI & MASCAGNI 2005: 13 (faunistics); AUDISIO & DE BIASE 2006: CD-ROM (partim, faunistics); MAZZA et al. 2008: 54, 61 (faunistics); ROCCHI 2009: 51 (zoogeography); ROCCHI & TOLEDO 2011: 31 (faunistics); TRIZZINO et al. 2013: 198, 201, plus unpaginated online supporting information (faunistics, phylogeny, DNA-sequencing); ROCCHI & TERZANI 2013: 33, 66 (faunistics), 2014: 55 (faunistics), 2015: 86 (faunistics); CIANFERONI et al. 2014: 65 ff. (faunistics); JÄCH & SKALE 2015: 131 (Palaeartic Catalogue); ROCCHI & TERZANI 2016a: 145 (faunistics), 2016b: 92, 98 (faunistics), 2017: 95, 103 (faunistics), 2018: 106, 114 (faunistics); TOLEDO & GROTTULO 2019: 96 (misidentification of *H. lombardica*, faunistics); ROCCHI et al. 2021a: 13 (faunistics), 2021b: 113, 141 (faunistics), 2021c: 90 (faunistics); TOLEDO & MAZZOLDI 2021: 154 (faunistics); PAPI & ROCCHI 2022: 159 (faunistics); ROCCHI 2022: 69 (faunistics); TOLEDO & JÄCH 2023: 38–39 (faunistics); CORNACCHIA & SCAGLIONI 2024: 226, 617 (? misidentification of *H. lombardica*, faunistics, habitus: fig. 375).

TYPE LOCALITY: Lippiano [castle] (43°27'44.2"N 12°7'16.2"E), municipality of Monte Santa Maria Tiberina, northern part of Perugia Province, Umbria, central Italy.

In the original description (ORCHYMONT 1934: 168) and in the World Catalogue of Insects (HANSEN 1998: 34), the type locality was erroneously attributed to Arezzo Province (Toscana Region). The holotype was collected in September 1917, and at that time, the municipality of Monte Santa Maria Tiberina was indeed still part of Arezzo Province, but has been transferred to Perugia Province (Umbria Region) after 1927 (see: https://it.wikipedia.org/wiki/Monte_Santa_Maria_Tiberina).

TYPE MATERIAL: The holotype (by original designation) and “Plusieurs paratypes ♂ ♀ de la même provenance et de Lippiano: Alta Val Tiberina [Upper Tiber (Tevere) Valley] IX, 1932, récoltés également par M. le Dr. [Alfredo] Andreini [1870–1943]” (ORCHYMONT 1934: 168) are probably deposited in the MSNG (coll. Andreini). A total of 11 paratypes, deposited in the IRSNB, was examined by the senior author.

DISTRIBUTION (Fig. 16): *Hydraena andreinii* is endemic to Italy and has a Central-North Apennine distribution. The western limit of its range apparently does not reach the Western Alps, since it has never been found west of the province of Savona. In the very south of Marche and in the northern parts of Lazio and Abruzzo its range overlaps partly with that of *H. alia*, spread as far as Calabria (AUDISIO & DE BIASE 2006).

Hydraena andreinii is known from the following Italian regions: Abruzzo, Emilia-Romagna, Lazio, Liguria, Lombardia, Marche, Piemonte, Toscana, and Umbria. It is here recorded from the provinces of Piacenza and Rimini for the first time.

PIEMONTE: Alessandria Province: BINAGHI (1958 [in the study site “Torrente Caramagna”, p. 73, the locality “Sant’Antonio” obviously refers to the Chiesetta campestre di Sant’Antonio], 1959, 1970), AUDISIO & DE BIASE (2006).

This rather isolated locality just south of the River Po lies more or less halfway between the main ranges of *H. andreinii* and *H. lombardica* (see Fig. 16, red dot with question mark). Unfortunately, we have not been able to confirm the identity of these specimens, which were collected in 1928. They are supposed to be deposited in the Museo civico di storia naturale (Verona, Italy).

Additional material examined: 12 exs. (MTP, NMW): Ponzone (municipality), Torrente Erro, ca. 220 m a.s.l., 44°34'7.3"N 8°25'55.1"E, 31.V.2021, leg. Toledo.

LOMBARDIA: Pavia Province: BINAGHI (1960), AUDISIO & DE BIASE (2006).

LIGURIA: Genova Province: BINAGHI (1958), AUDISIO & DE BIASE (2006), ROCCHI & TERZANI (2016a).

Savona Province: BINAGHI (1958, 1959, 1970), CHIESA (1959), AUDISIO & DE BIASE (2006).

Additional material examined: 14 exs. (MTP, NMW): Sassello (municipality), Rio Ciua, ca. 2.0 km NW Sassello, 44°29.319'N 8°28.045'E, 330 m a.s.l., 31.V.2021, leg. Toledo; 8 exs. (MTP, NMW): Sassello (municipality), Lago dei Gulli at confluence of Rio Ciua and Torrente Erro, ca. 2.2 km NW Sassello, 326 m a.s.l., 31.V.2021, leg. Toledo.

Spezia Province: ROCCHI & TERZANI (2018).

EMILIA-ROMAGNA: Bologna Province: BINAGHI (1960), TERZANI & MASCAGNI (1996), AUDISIO & DE BIASE (2006), ROCCHI & TERZANI (2013).

Additional material examined: 1 ♂ (NMW): Rio Bolsenda, SW of Bologna, VI.1926, leg. Pretner.

Forlì-Cesena Province: TERZANI & MASCAGNI (1996), AUDISIO & DE BIASE (2006), ROCCHI & MASCAGNI (2005), MAZZA et al. (2008), ROCCHI & TERZANI (2015), TOLEDO & JÄCH (2023).

Additional material examined: 11 exs. (MTP, NMW): San Benedetto in Alpe (municipality), Fosso Acquacheta, 500 m a.s.l., 43°58.899'N 11°41.212'E, 3.VII.2020, leg. Toledo & Mazzoldi.

Modena Province: BINAGHI (1960), AUDISIO & DE BIASE (2006), ROCCHI & TERZANI (2013).

Parma Province: ROCCHI & TOLEDO (2011) provided the first record of *H. andreinii* for the province of Parma. Although the border between Parma and Piacenza is crossing the Torrente Stirone several times, the collecting site where the 16 specimens have been taken by Toledo and Ribera in the Torrente Stirone at Trabucchi (approximately 44°49'16.2"N 9°55'4.0"E) is undoubtedly attributable to the municipality of Salsomaggiore Terme in the province of Parma (see <https://mappe.regione.emilia-romagna.it>; accessed May 2025).

Additional material examined: 1 ex. (MTP): Medesano (municipality), Felegara, “calanchi” [badlands], I.1955, leg. Danti.

Piacenza Province: First record! The Torrente Stirone is crossing the border between Parma and Piacenza several times near but according to the “Geoportale dell’Emilia-Romagna” (<https://mappe.regione.emilia-romagna.it>; accessed May 2025) the two collecting sites listed below can be clearly allocated to the province of Piacenza.

Material examined: 1 ex. (MTP): Vernasca (municipality), Torrente Stirone E of the Oratorio di San Genesio (church), ca. 165 m a.s.l., 44°49'54"N 9°56'00"E, 25.V.2008, leg. Ribera; 4 exs. (MTP, NMW): Vernasca (municipality), Torrente Stirone SE of Vigoleno, 200 m a.s.l., 44°48'41"N 9°54'21"E, 25.V.2008, leg. Ribera.

Reggio Emilia Province: TOLEDO & MAZZOLDI (2021).

Additional material examined: 1 ex. (MTP): Canossa (municipality), Torrente Enza, Compiano d’Enza, 250 m a.s.l., 44°32'10.8"N 10°21'29.5"E, 12.VI.2016, leg. Toledo & Mazzoldi; 1 ♂ (NMW): Ligonchio (municipality), Torrente Rossendola at bridge on road from Ligonchio to Caprile, ca. 710 m a.s.l., 44°19'24.33"N 10°19'54.55"E, 1.VII.2018, leg. Toledo & Komarek; 2 ♂♂ (NMW): Villa Minozzo (municipality), Fonti di Poiano, ca. 410 m a.s.l., 30.VI.2016, 44°23'25"N 10°26'26"E, leg. Toledo & Komarek.

Rimini Province: First record!

Material examined: 4 exs. (MTP, PMB): Pennabilli (municipality), Torrente Messa SSW of Pennabilli, ca. 420 m a.s.l., 43°48'39.8"N 12°15'27.6"E, 7.VII.2020, leg. Toledo & Mazzoldi.

TOSCANA: Arezzo Province: CHIESA (1959), AUDISIO & DE BIASE (1994, 2006), ROCCHI et al. (1999), MAZZA et al. (2008), ROCCHI & TERZANI (2014, 2015, 2017), PAPI & ROCCHI (2022).

In the original description, ORCHYMONT (1934) erroneously recorded *H. andreinii* from Arezzo Province (see above, under “Type Locality”).

Additional material examined: 2 exs. (NMW): Badia Tedalda (municipality), River Marecchia and left tributary near bridge on road to Ortale, ca. 410 m a.s.l., 43°46.929'N 12°12.200'E, 6.VII.2020, leg. Toledo & Mazzoldi.

Firenze Province: BINAGHI (1960), MASCAGNI & CALAMANDREI (1996), TERZANI & MASCAGNI (1996), ROCCHI et al. (1999, 2021c), ROCCHI & MASCAGNI (2002, 2005), AUDISIO & DE BIASE (2006), ROCCHI & TERZANI (2013, 2015, 2016b), CIANFERONI et al. (2014), PAPI & ROCCHI (2022).

Additional material examined: 1 ex. (MTP): San Godenzo (municipality), Fosso Troncalosso (left tributary of Fiume Montone) at Ponte di Bocci, 760 m a.s.l., 43°56.673'N 11°39.469'E, 1.VII.2020, leg. Toledo & Mazzoldi.

Grosseto Province: BINAGHI (1970), ROCCHI et al. (1999), AUDISIO & DE BIASE (2006), ROCCHI & TERZANI (2017), ROCCHI (2022).

Additional material examined: 2 ♂♂ (NMW): “Toskana Solari”, “Collect. Hauser”; 1 ♂ (NMW): Arcidosso, 12.–14.VII.1908, leg. Solari.

Livorno Province: ROCCHI & TERZANI (2017).

Additional material examined: 5 exs. (NMW): Montecatini Val di Cecina, 4.VIII.1980, leg. Wewalka.

Lucca Province: BINAGHI (1960), AUDISIO & DE BIASE (2006).

Massa Carrara Province: BINAGHI (1970), AUDISIO & DE BIASE (2006).

Pisa Province: ROCCHI & TERZANI (2017), ROCCHI et al. (2021a).

Additional material examined: 1 ♀ (NMW): Cecina, stream “Casale”, 30.VIII.1980, leg. Wewalka; 1 ♂ (NMW): Chianni (municipality), Botro di Carbonaia o del Ghiaccione (upper course of Botro della Pietraia) ca. 3 km SSW of Chianni, ca. 166 m a.s.l., 43°27'23.8"N 10°39'20.3"E, 26.V.2008, leg. Ribera.

Pistoia Province: BINAGHI (1960), AUDISIO & DE BIASE (2006), ROCCHI & TERZANI (2013).

Prato Province: AUDISIO & DE BIASE (2006), ROCCHI & TERZANI (2013).

Siena Province: ROCCHI et al. (1999), MASCAGNI & CALAMANDREI (1996), AUDISIO & DE BIASE (2006), ROCCHI & TERZANI (2016b), ROCCHI et al. (2021a).

MARCHE: Macerata Province: BINAGHI (1958), AUDISIO & DE BIASE (2006).

Pesaro Urbino Province: ROCCHI & TERZANI (2014, 2015).

Additional material examined: 35 exs. (MTP, NMW): Mercatello sul Metauro (municipality), Fiume Metauro NW of Mercatello sul Metauro, ca. 420 m a.s.l., 43°39.243'N 12°19.517'E, 5.VII.2020, leg. Toledo & Mazzoldi.

UMBRIA: Perugia Province: ORCHYMONT (1934) – the type locality of *H. andreinii* has been erroneously attributed to Arezzo Province (Toscana Region) in the original description, for details see above, under “Type Locality”, AUDISIO & DE BIASE (2006), ROCCHI & TERZANI (2014), ROCCHI et al. (2021b).

Terni Province: BINAGHI (1959), AUDISIO & DE BIASE (2006), ROCCHI et al. (2021b).

LAZIO: Roma Capitale: BINAGHI (1970), CARCHINI et al. (1988: staz. V), AUDISIO & DE BIASE (2006).

Viterbo Province: CHIESA (1959), CARCHINI et al. (1988: staz. II, staz. VII), AUDISIO & DE BIASE (2006).

Additional material examined: 3 exs. (NMW): Fiume Olpeta, before flowing into Fiume Fiora, ca. 100 m a.s.l., 42°31'24.6"N 11°36'44.1"E, 2.VIII.1990, leg. Jäger; 2 exs. (NMW), same locality data but “13.VIII.1991”; Acquapendente, Fiume Paglia, 31.III.1991.

ABRUZZO: Teramo Province: BALDARI et al. (1983), AUDISIO & DE BIASE (2006).

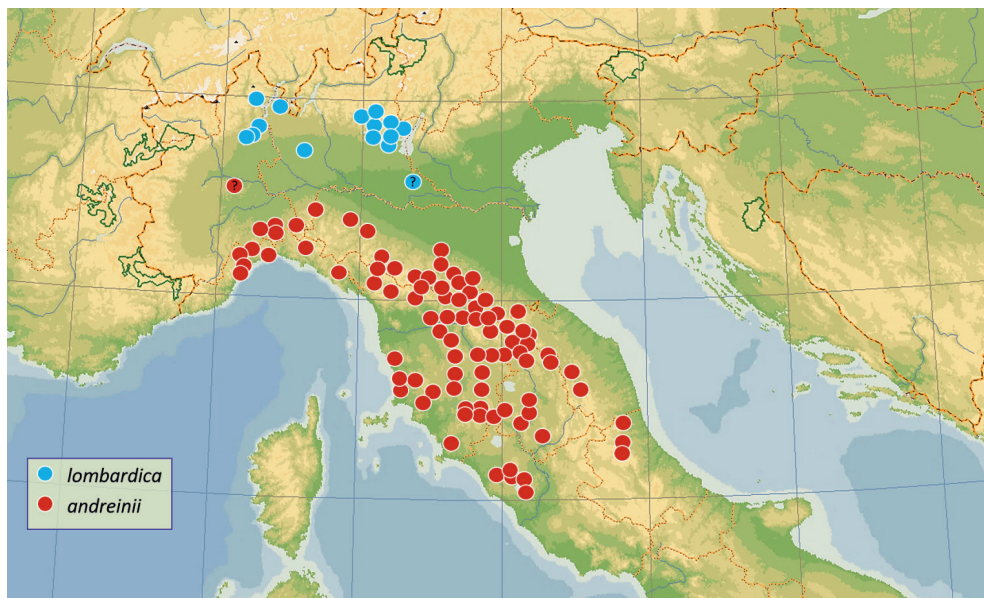


Fig. 16: Geographical distribution of *Hydraena lombardica* and *H. andreinii*.



Fig. 17: Type locality of *Hydraena lombardica* (closeup view), Torrente Bagnadore, Brescia Province, Lombardia Region, northern Italy. Photograph by M.E. Toledo.



Fig. 18: Type locality of *Hydraena lombardica* (overview), Torrente Bagnadore, Brescia Province, Lombardia Region, northern Italy. Photograph by M.E. Toledo.



Fig. 19: Habitat of *Hydraena lombardica*, Torrente Supine, Costa Volpino, Bergamo Province, Lombardia Region, northern Italy. Photograph by D. Pedersoli.

Fig. 20: Habitat of *Hydraena lombardica*, Rio Campaione, Val Sesia, NW of Cavallirio, Novara Province, Piemonte Region, northern Italy. Photograph by M. Kahlen.

Discussion

Including *Hydraena lombardica*, there are currently eight species of the *H. rufipes* group known from Italy: *H. alia*, *H. andreinii*, *H. angulosa* MULSANT, 1844, *H. chiesai* JANSSENS, 1965 (= *H. angustata* sensu auct., see JÄCH et al. (2025)), *H. intermedia*, *H. rufipennis* BOSCA BERGA, 1932, and *H. subirregularis* PIC, 1918.

All these species, except *H. lombardica*, have already been sequenced (I. Ribera, pers. comm. 2019). *Hydraena alia*, *H. andreinii*, *H. chiesai* and *H. intermedia* form a monophyletic clade (the *H. intermedia* clade) within the *H. rufipes* group, while *H. angulosa*, *H. rufipennis* and *H. subirregularis* are only distantly related to the *H. intermedia* clade. It can be assumed that *H. lombardica*, due to its close phylogenetic relationships with *H. andreinii*, also belongs to the *H. intermedia* clade and is sister to *H. andreinii*.

Three of the species of this clade, *H. lombardica*, *H. intermedia*, and *H. chiesai*, occur exclusively north of the Po River. They are distributed successively from west to east, and their ranges do not overlap, while the remaining two species, *H. alia* and *H. andreinii*, occur solely south of the Po River, and their ranges are partly overlapping.

Based on molecular data (I. Ribera, pers. comm. 2019), *H. andreinii* is sister to *H. intermedia* + (*H. alia* + *H. chiesai*).

While no specimen of *H. lombardica* has been sequenced so far, DNA sequences of its sister, *H. andreinii*, are available (see TRIZZINO et al. 2013). The single specimen sequenced (voucher number: MNCN-AI873) was collected in a small stream (Torrente Caramagna) near Prasco (Alessandria, Piemonte).

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