

The Istrian cuckoo wasps (Hymenoptera, Chrysididae), with the first checklist of Croatian species

Осы-блестянки (Hymenoptera, Chrysididae) Истрии и первый каталог видов Хорватии

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Key words: biodiversity, new records, taxonomic notes, Slovenia, Italy, Europe.

Ключевые слова: биоразнообразие, новые находки, таксономические заметки, Словения, Италия, Европа.

Abstract. A checklist of Istrian and Croatian Chrysididae is presented. The Istrian Peninsula is politically shared by three countries: Croatia, Slovenia, and Italy. We provide a list of species collected in Istria, following its geographical boundaries. The list includes 101 species, belonging to 18 genera; 41 species are recorded from Istria for the first time. Fourteen species are also recorded for the first time for Croatia, and we provide the first checklist of the Croatian fauna, which currently includes 145 species and 3 subspecies belonging to 20 genera. Historical data, together with comments on the current taxonomic status of some species, are also provided.

Резюме. Приведен список 101 видов из 18 родов ос-блестянок полуострова Истрия, находящегося на территории трех стран: Хорватии, Словении и Италии. Из них 41 вид впервые указывается для фауны Истрии, а 14 видов впервые для фауны Хорватии. Впервые публикуемый список ос-блестянок Хорватии включает 145 видов и 3 подвида из 20 родов. Приводятся данные по истории изучения ос-блестянок Истрии и комментарии к текущему таксономическому статусу некоторых видов.

Introduction

The Chrysididae, commonly known as cuckoo wasps, are a cosmopolitan family and reach their greatest diversity in the Palaearctic Region. According to the most recent assessment, 118 genera, 22 of which are extinct, and 3,040 valid species have been described worldwide [Rosa, 2025]. Cuckoo wasps are parasitoids or cleptoparasites of sawflies, solitary wasps and bees, moths, and stick insects [Kimsey, Bohart, 1991].

In recent years, one of the authors (RM) initiated a research project on cuckoo wasp in southern Istria, an area that appears to be poorly known with regard to Chrysididae. To date, 58 species have been recorded from the entire Istrian peninsula, including data from

Slovenian and Italian territories [Schletterer, 1894, 1901; Dücke, 1898; Graeffe, 1895; Rosa, 2005; Jozán, 2009; Gogala, 2016]. Historically, Schletterer [1894, 1901] and Graeffe [1895] reported 33 species from Istria (at that time known as Margraviate of Istria, part of Österreichisches Küstenland, an administrative region of the Austrian Empire), while more recently, Jozán [2009] reported 31 Istrian species from the Croatian part of Istria and Gogala [2016] recorded 16 species from the Slovenian part. Additional specimens have been collected by Marek and Jiří Halada since 2002 during several visits to Istria and Croatia and reported here. Further material was found in Linsenmaier's collection in Luzern (Switzerland). Our survey has led to the discovery of 41 species not previously recorded from Istria, as well as twelve species not previously recorded from Croatia.

As several new records are presented for the first time, we also provide a checklist of the Croatian cuckoo wasps. Although numerous entomologists collected Chrysididae in Croatia during the nineteenth and twentieth centuries, the country still lacks an updated checklist, being the only one by Vogrin [1955] for the entire ex-Yugoslavia, with only a few records for the modern-day Croatia. Among neighbouring countries, only Italy [Strumia, 1995], Slovenia [Gogala, 2016] and Hungary [Mocsáry, 1882; Móczár, 1967] have detailed checklists and regional revisions of cuckoo wasps, whereas knowledge remains limited for Bosnia and Herzegovina and Serbia. Other poorly studied countries include Albania, North Macedonia, Kosovo, and several other parts of south-eastern Europe.

Numerous records and descriptions of Croatian cuckoo wasps are available in the literature; however these data are scattered across many publications [e.g. Germar, 1817; Frauefeld, 1861; Graeffe, 1895; Gasparini, 1887; Mocsáry, 1889; Bischoff, 1913; Trautmann in

Maidl, 1922; Mader, 1933, 1936, 1939; Balthasar, 1949; Vogrin, 1955; Linsenmaier, 1959, 1968, 1987, 1997; Erlandsson, 1972; Móczár, 1997, 1998, 2001; Jozán, 2009]. Linsenmaier [1959, 1968] described several new species and subspecies based on specimens collected by A. Mader on the Island of Krk.

More recently, Rosa and Soon [2014] listed 97 species and six subspecies of Chrysidae for Croatia on the Fauna Europaea website, based on both literature records and specimens preserved in museum collections [Mitroiu et al., 2015], including material preserved in the Linsenmaier collection housed in Luzern (Switzerland). Detailed data on Linsenmaier's specimens are reported here for the first time. Among Croatian regions, Dalmatia is currently the best-studied area for cuckoo wasps; nevertheless, the Croatian fauna remains far from fully documented.

Materials and methods

The studied area includes the whole of Istria (Fig. 1), a peninsula extending into the north-eastern Adriatic Sea between the Gulf of Trieste to the west and the Gulf of Kvarner to the east. The peninsula has a roughly triangular shape and covers an area of about 3,200 km². Its north-western portion lies in Italy; this is the smallest part of Istria and includes the municipalities of Muggia, San Dorligo della Valle, and Santa Croce (within the municipality of Trieste). To the south lies Slovenian Istria, which includes the coastal mu-

nicipalities of Piran (Pirano), Izola (Isola), and Koper (Capodistria), as well as the karstic municipality of Hrpelje-Kozina. The central and southern parts of the peninsula belong to Croatia and cover nearly 90 % of Istria; Croatian Istria is divided into two counties, the largest being Istria County in western Croatia. Important towns in Istria County include Pula (Pola), Poreč (Parenzo), Rovinj (Rovigno), Pazin (Pisino), Labin (Albona), Umag (Umago), Motovun (Montona), Buzet (Pinguente), and Buje (Buie). The Učka mountain ridge (Monte Maggiore) is the highest part of the Ćićarija range (Cicceria), while the main rivers are the Glinščica (Rosandra), Mirna (Quieto), Dragonja (Dragogna), and Pazinčica (Foiba).

Generic and higher classification follow Kimsey and Bohart [1991], with a few exceptions [Rosa et al., 2015]. Species identification follows Linsenmaier [1959], Rosa [2006a], and Paukkunen et al. [2015].

For the study of cuckoo wasps from Istria, we compiled published data and examined the collection of Walter Linsenmaier (Natur-Museum Luzern, Switzerland) as well as recent material collected over several years by Roman Maglić (RM) and preserved in his private collection in Pula (RMC). Additional material is deposited in the collection of the first co-author (PRC) and in Marek Halada's collection (MHC) in České Budějovice (Czech Republic).

The present work is registered in ZooBank (www.zoobank.org) under urn:lsid:zoobank.org:pub:69E903C6-3F2D-4372-AF60-EE1AB08719C1

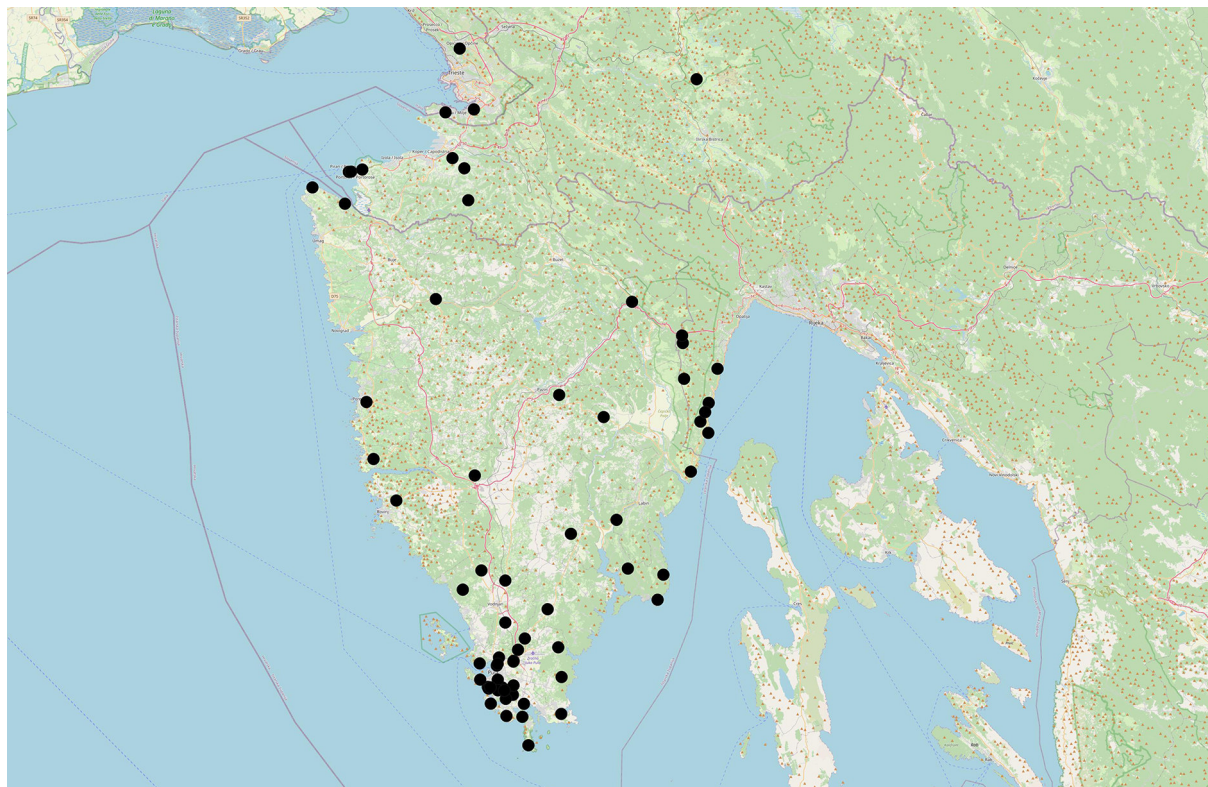


Fig. 1. Istria, including the Croatian, Slovenian and Italian parts. Black dots represent collecting sites.

Рис. 1. Истрия, включая хорватскую, словенскую и итальянскую части. Черными точками обозначены места сбора.

List of the Chrysididae for Istria

Cleptinae

Cleptes Latreille, 1802

Cleptes aerosus Förster, 1853

Graeffe, 1895: Italy: Zaulle (Muggia), June and July [as *Cleptes abeillei* du Buysson, 1887].

Jozán, 2009: Croatia: 1♂ — Bršec (N 3 km), 19.VI.2001.

Material. Croatia: 1♀ — Kaštijun, 29.VI.2020, RM (RMC).

Cleptes moczari Linsenmaier, 1968

Material. Croatia: 2♀♀ — Pula, Vodnjan, 14.V.2020, RM (PRC), DNA voucher PRC_01099; 1♂ — idem, 15.V.2020, RM (PRC); 1♂ — idem, 17.V.2020, DNA voucher PRC_01098, RM (PRC).

Diagnosis. *Cleptes moczari* belongs to the subgenus *Holcocleptes* Móczár which is characterised by the pronotum with a transverse row of pits or foveae in front and before posterior margin and a longitudinal sulcus along mid-line. Fourteen species are currently known in this species group [Móczár, 1998] and among them only *Cleptes moczari* Linsenmaier, 1968, known from Greece, is characterised by having both sexes with the same body colour with head and mesosoma entirely metallic blue, the propodeum blackish with violet to blue reflections and the metasoma with the first two segments orange-red, the third posteriorly and the following(s) black without metallic reflections. The Croatian specimens can be distinguished from the Greek ones by: frontal sulcus incomplete, lacking medially (vs. broad and deep, completely developed from anterior ocellus to clypeal margin in *Cl. moczari*); pedicel fully metallic blue (vs. non-metallic); tibiae and tarsi black, (vs. tibiae and tarsi light brown); metapleuron with vertical striae (vs. horizontal); metasomal punctation sparser on the first tergum, even and denser on second, third and fourth tergum (vs. metasomal punctation denser). Despite the difference in some important diagnostic characters, we are not aware of the real intraspecific variability and the DNA analysis for Croatian specimens failed. Another three specimens, collected by the first author in Central Macedonia (Greece, Thessaloniki) show the same features and genital capsule leaving uncertainty whether the Croatian and Macedonian specimens may represent a separate species, or variability of the same species originally described from the Peloponnese (Corinth).

Remark. First record for Istria and Croatia. Known for Greece (Peloponnese, Central Macedonia).

Cleptes putoni du Buysson, 1887

Jozán, 2009: Croatia: 1♀ — Vela Učka, 16.VI.2009 [as *Cleptes saussurei* Mocsáry, 1889].

Cleptes scutellaris Mocsáry, 1899

Móczár, 1997: Croatia: Piran, leg. J. Heinrich.

Cleptes splendidus (Fabricius, 1794)

Material. Croatia: 1♀ — Kaštijun, 12.VI.2021, RM (RMC).

Remark. First record for Istria.

Chrysidinae

Elampini

Chrysellampus Semenov-Tian-Shanskij, 1932

Chrysellampus sculpticollis (Abeille de Perrin, 1878)

Jozán, 2009: Croatia: 1♀ — Sveta Jelena, 16.VI.2009 [as *Philoctetes sculpticollis* (Abeille de Perrin, 1878)].

Material. Croatia: 1♂ — Pula (stara plinara), 20.IV.2021, RM (RMC).

Elampus Spinola, 1806

Elampus spina (Lepeletier, 1806)

Schletterer, 1894: Croatia: 2♀♀ — env. Pula, 17 June, on *Paliurus spina-christi* Miller [as *Paliurus australis* Gaertn.].

Hedychridium Abeille de Perrin, 1878

Hedychridium jucundum Mocsáry, 1889

Material. Italy: 1♀ — Opicina, Triest, July 1934, leg. R. Meyer (NMLS). Croatia: 1♂ — Dolinka (Pula), 16.VII.2019, RM (RMC); 1♂ — Kaštijun, 14.VI.2020, 2♀, idem, 19.VI.2020; 1♀ — idem, 20.VII.2020, RM (RMC); 1♂ — Valllunga (Pula), 1.VIII.2020, RM (RMC).

Remark. First record for Istria.

Hedychridium maculisternum Arens, 2011

Material. Croatia: 1♂ — Dolinka (Pula), 29.VII.2020, RM (RMC).

Remark. First record for Istria and Croatia.

Hedychridium mediocrum Linsenmaier, 1987

Material. Croatia: 1♂ — Lobarika, 1.VII.2019, RM (RMC); 1♀ — Kaštijun, 31.VII.2019, RM (RMC); 1♀ — Vidikovac (Pula), 16.VIII.2019, RM (RMC); 1♀ — Dolinka (Pula), 14.VIII.2020, RM (RMC).

Remark. First record for Istria.

Hedychridium monochroum du Buysson, 1888

Material. Croatia: 2♂♂ — Kaštijun, 18.VII.2019, 20.VII.2019, RM (RMC); 2♀♀ — idem, 4.VIII.2019, 6.VIII.2019, RM (RMC); 1♂ — Vintijan, 15.VII.2020, RM (RMC); 1♂ — Puntizela, 19.VIII.2023, leg. P. Rosa (PRC).

Remark. First record for Istria.

Hedychridium plagiatum (Mocsáry, 1883)

Material. Croatia: 1♀ — Lobarika, 5.VI.2019, RM (RMC); 1♂, 1♀ — idem, 2.V.2021, RM (RMC).

Remark. First record for Istria.

Hedychridium roseum (Rossi, 1790)

Jozán, 2009: Croatia: 1♂ — Kanfanar, Dvigrad, 27.VI.2005.

Hedychridium rossicum Gussakovskij, 1948

Material. Croatia: 1♂, 1♀ — Monte Kope (Medulin), 6.VII.2019, 10.VII.2019, RM (RMC); 1♀ — Valsaline, 17.V.2019, RM (RMC); 1♂ — Pula (Šijanska šuma), 31.VII.2022, RM (RMC).

Remark. First record for Istria and Croatia.

Hedychrum Latreille, 1802

Hedychrum gerstaeckeri Chevrier, 1869

Jozán, 2009: Croatia: 1♀ — Sveta Jelena, 26.V.2008.

Gogala, 2016: Slovenia: 4♂♂ — Strugnano (= Strunjan), VI.1931, leg. Mader.

Material. Croatia: 2♂♂ — Ica env. (= Ika), VI.1929, leg. Mader (NMLS); 2♂♂ — Monte Kope (Medulin), 3.VII.2019, 6.VII.2019, RM (RMC).

Hedychrum longicolle Abeille de Perrin, 1877

Schletterer, 1894: Croatia: 1♂ — env. Pula, 25 May, on *Tordylium apulum* L.

Material. Croatia: 1♂ — Lobarika, 2.VII.2019, RM (RMC); 1♀ — Monte Kope (Medulin), 5.VII.2019, RM (RMC); 1♂ — Gajana, 28.VI.2020, RM (RMC); 1♂ — Sv. Foška (Vodnjan), 15.VI.2021, RM (RMC); 1♀ — Puntizela, 19.VIII.2023, leg. P. Rosa (PRC).

Hedychrum niemelai Linsenmaier, 1959

Jozán, 2009: Croatia: 1♀ — Lindar, 17.VI.2009; 3♀♀ — Ravni, 29.V.2008.

Gogala, 2016: Slovenia: 2♂♂ — Strugnano (= Strunjan), VI.1931, leg. Mader; 2♂♂, 2♀♀ — Pirano (= Piran), VI.1928, leg. Mader.

Material. Croatia: 1♂ — Valsaline (Pula), 8.V.2019, RM (RMC); 1♀ — idem, 11.V.2019, RM (RMC); 1♂ — idem, 22.V.2019, RM (RMC); 1♂ — idem, 23.V.2019, RM (RMC); 1♂ — Pomer (Medulin), 15.V.2020, RM (RMC); 1♀ — Vodnjan, 24.V.2020, RM (RMC); 2♀♀ — Monte Kope (Medulin), 27.V.2020, 28.V.2020, RM (RMC); 1♂ — Sv. Foška (Vodnjan), 1.VI.2021, RM (RMC).

Hedychrum nobile (Scopoli, 1763)

Vogrin, 1955: Croatia: Bregi, July.

Jozán, 2009: Croatia: 1♂ — Marčana, 22.VI.2003.

Gogala, 2016: Slovenia: 1♂ — Strugnano (= Strunjan), VI.1931, leg. Mader.

Material. Croatia: 1♀ — Valsaline (Pula), 10.V.2019, RM (RMC); 1♂ — Kaštjun, 14.VI.2020, RM (RMC); 1♂ — Mornar (Pula), 14.VIII.2020, RM (RMC); 1♀ — Dolinka (Pula), 1.IX.2021, RM (RMC); 1♀ — Sv. Foška (Vodnjan), 5.VII.2021, RM (RMC); 1♂ — Vodnjan, 20.VII.2023, RM (RMC).

Holopyga Dahlbom, 1845

Holopyga amoenula Dahlbom, 1845

Material. Croatia: 1♂ — Dolinka (Pula), 7.VIII.2020, RM (RMC); 1♀ — idem, 14.VIII.2021.

Remark. First record for Istria.

Holopyga chrysonota (Förster, 1853)

Gogala, 2016: Slovenia: 1♂ — Strugnano (= Strunjan), leg. Mader.

Material. Croatia: 1♂ — Kaštjun, 21.VII.2020, RM (RMC); 1♀ — Dolinka (Pula), 15.VIII.2021, RM (RMC); 1♀ — Puntizela, 19.VIII.2023, leg. P. Rosa (PRC).

Remarks. *Holopyga ignicollis* Eversmann, 1858 (= *H. ignicollis* Dahlbom, 1854) was recently synonymized with *H. chrysonota* by Rosa et al. [2020] after type examination and in accordance with the interpretation given by Mocsáry [1889]. The first available name for *Holopyga ignicollis* sensu Linsenmaier [2016] and Gogala [2016] is *H. similis* Mocsáry, 1889, which is expected for Istria and Croatia, being recorded from neighbouring countries: Slovenia [Gogala 2016], Hungary [Móczár, 1967], Italy [Strumia, 1994], Albania, Austria, Bulgaria, Macedonia, Romania [Rosa, Soon, 2012].

Holopyga dichroica Rosa, 2025

Schletterer, 1894: Croatia: 1♀ — env. Pula, 12 June, on *Paliurus spina-christi* Miller [as *Paliurus australis* Gaertn.] [as *Holopyga gloriosa* (Fabricius, 1793)].

Graeffe, 1895: Italy: Zaule (Muggia), June, on *Mentha*; Muggia, July, on *Ferulago* [as *Halopyga* (!) *gloriosa* (Fabricius, 1793)].

Gogala, 2016: Slovenia: 1♂ — Strugnano (= Strunjan), VI.1931, leg. Mader [as *Holopyga jurinei* Chevrier, 1862].

Material. Croatia: 1♀ — Kaštjun, 20.VII.2020, RM (RMC); 1♀ — Dolinka (Pula), 15.VIII.2021, RM (RMC); 1♀ — idem, 25.VIII.2021, RM (RMC); 1♀ — idem, 2.IX.2021, RM (RMC); 1♂ — Vintijan (Medulin), 29.VI.2022, RM (RMC).

Remarks. *Holopyga gloriosa*, a name given by Schletterer [1894] and Graeffe [1895] was misidentified and the species name suppressed by ICZN [1998]. Based on body colour, *Holopyga gloriosa* by Schletterer and Graeffe could refer to other species in this genus, namely *H. austrialis* Linsenmaier, 1959, *H. dichroica* Rosa, 2025 or *H. inflammata* (Förster, 1853).

Holopyga fervida (Fabricius, 1781)

Schletterer, 1894: Croatia: 1♂ — env. Pula, 17.–20.VI. on *Paliurus spina-christi* Miller [as *Holopyga curvata* Förster, 1853].

Jozán, 2009: Croatia: 1♂ — Bršec, 25.VI.2005; 1♂ — Cavići (Zagorje), 24.VI.2005; 1♂ — Koromačno (N 3 km), 21.VI.2001.

Rosa, 2005: Croatia: 1♂ — Pola (= Pula), May 1923, leg. C. Mancini.

Material. Croatia: 1♀ — Kaštjun, 24.VI.2022, RM (RMC); 1♀ — Želiski (Barban), 26.VI.2022, on *Euphorbia* sp., RM (RMC).

Holopyga generosa (Förster, 1853)

Schletterer, 1894: Croatia: env. Pula, 8 May, on *Carduus pycnocephalus* L.; 13 June, on *Paliurus spina-christi* Miller [as *Paliurus australis* Gaertn.] [as *Holopyga amoenula* Dahlbom, 1845].

Gogala, 2016: Slovenia: 2♂♂, 1♀ — Strugnano (= Strunjan), leg. Mader.

Material. Croatia: 1♀ — Vodnjan, 4.VII.2020, RM (RMC); 1♀ — Dolinka (Pula), 8.VIII.2020, RM (RMC).

Omalus Panzer, 1801

Omalus aeneus (Fabricius, 1787)

Material. Croatia: 1♀ — Dolinka (Pula), 10.IX.2018, RM (RMC); 1♀ — idem, 5.VIII.2020, RM (RMC); 1♀ — Pula (stara plinara), 13.IV.2020, RM (RMC); 1♀ — Pula (Tivoli), 20.V.2020, RM (RMC); 1♀ — Vallelunga (Pula), 3.V.2021, RM (RMC).

Remark. First record for Istria.

Omalus biaccinctus (du Buysson, 1893)

Jozán, 2009: Croatia: 1♀ — Koromačno (E 3 km), 20.VI.2001; 1♀ — Matesi, 19.VI.2007; 1♀ — Rovinj, 16.VI.2009.

Material. Croatia: 1♀ — Valelunga (Pula), 10.VIII.2018, RM (RMC); 1♀ — Dolinka (Pula), 5.IX.2018, RM (RMC); 1♂ — idem, 3.IX.2021, RM (RMC).

Omalus puncticollis (Mocsáry, 1887)

Material. Croatia: 1♀ — Rovinj, April 1959, leg. C. v. Demelt (NMLS).

Remark. First record for Istria; specimen previously listed on Fauna Europaea for Croatia by Rosa and Soon [2012], without precise locality.

Philoctetes Abeille de Perrin, 1879

Philoctetes bogdanovii (Radoszkowski, 1877)

Material. Croatia: 1♂ — Pula, Monte Giro, 13.IV.2024, emerged from the stem of *Rubus* sp., RM (RMC).

Remark. First record for Istria.

Pseudomalus Ashmead, 1902

Pseudomalus auratus (Linnaeus, 1758)

Schletterer, 1894: Croatia: ♂♂, ♀♀, env. Pula, May–July, on *Torilis nodosa* (L.) Gaertn., *Tordylium apulum* L., *Orlaya grandiflora* (L.) Hoff., and *Paliurus spina-christi* Miller [as *Paliurus australis* Gaertn.].

Jozán, 2009: Croatia: 1♂ — Mošćenice, 26.V.2008; 3♀♀ — Sveta Jelena, 16.VI.2009.

Rosa, 2005: Croatia: 3 exx. — Valle Quieto, May 1923, leg. C. Mancini; 1 ex. — Rovigno (= Rovinj).

Material. Croatia: 1 ex. — Kanegra, July 1956, leg. C. v. Demelt (NMLS); 1♀ — Ližnjan, 23.VIII.2020, RM (RMC); 1♀ — Valsaline (Pula), 20.IV.2020, RM (RMC); 1♀ — Pula (Tivoli), 20.V.2020, RM (RMC); 1♀ — Dolinka (Pula), 13.IX.2021, RM (RMC).

Pseudomalus pusillus (Fabricius, 1804)

Jozán, 2009: Croatia: 1♂ — Mošćenička Draga, 20.VI.2003.

Pseudomalus violaceus (Scopoli, 1763)

Material. Croatia: 1♂ — env. Savudrija, June–July, leg. Demelt (NMLS).

Remark. First record for Istria; specimen previously listed on Fauna Europaea for Croatia by Rosa and Soon [2012], without precise locality.

Chrysidinae

Chrysidini

Chrysidea Bischoff, 1913

Chrysidea disclusa pumilionis Linsenmaier, 1987

Material. Croatia: 1♂ — Kanegra, July 1958, leg. C. v. Demelt (NMLS); 1♂ — Kaštijun, 13.VIII.2019, RM (RMC); 1♀ — idem, 15.VIII.2019, RM (RMC).

Remark. First record for Istria; Linsenmaier's specimen was previously listed on Fauna Europaea for Croatia by Rosa and Soon [2012], without precise locality.

Chrysidea pumila (Klug, 1845)

Vogrin, 1955: Croatia: Bregi, 17 July [as *Chrysis tarsata* Dahlbom, 1854, possible misidentification].

Chrysis Linnaeus, 1761

Chrysis albanica Trautmann, 1927

Material. Croatia: 2♂♂, 1♀ — Lobarika, 20.VII.2002, leg. M. Halada (MHC); 1♂ — Kaštijun, 5.VIII.2019, RM (RMC); 1♀ — idem, 19.VIII.2019, RM (RMC); 1♀ — idem, 23.VI.2020, RM (RMC); 1♂ — idem, 15.VII.2021, RM (RMC); 1♂ — idem, 16.VII.2021, RM (RMC); 1♀ — idem, 17.VII.2021, RM (RMC); 1♂ — Stancija Peličeti, 5.IX.2022, RM (RMC); 1♀ — idem, 20.V.2023, RM (RMC).

Remark. First record for Istria.

Chrysis analis Spinola, 1808

Jozán, 2009: Croatia: 1♀ — Brseč (N 3 km), 19.VI.2001.

Chrysis angustifrons Abeille de Perrin, 1878

Schletterer, 1894: Croatia: 2 exx. — env. Pula, 17 July, on *Tordylium apulum* L.

Material. Croatia: 1♂ — Sv. Foška (Vodnjan), 10.VI.2021, RM (RMC).

Chrysis auriceps Linsenmaier, 1959

Material. Croatia: 1♂, 1♀ — Kaštijun, 17.VIII.2019, RM (RMC); 1♂, 1♀ — idem, 21.VIII.2019, RM (RMC); 1♂, 1♀ — idem, 25.VIII.2019, RM (RMC); 1♂, 1♀ — idem, 26.VIII.2019, RM (RMC).

Remark. First record for Istria.

Chrysis bicolor Lepeletier, 1806

Material. Croatia: 1♀ — Vallelunga (Pula), 18.VIII.2018, RM (RMC).

Remark. First record for Istria.

Chrysis caeruleiventris

Abeille de Perrin, 1878

Material. Croatia: 1♀ — Medveja, July 1965, leg. Demelt (NMLS).

Remark. First record for Istria; specimen previously listed on Fauna Europaea for Croatia by Rosa and Soon [2012], without precise locality.

Chrysis cerastes Abeille de Perrin, 1877

Schletterer, 1894: Croatia: env. Pula, June, on *Paliurus spina-christi* Miller [as *Paliurus australis* Gaertn.].

Material. Croatia: 1♀ — Gornji Kamenjak (Medulin), 26.VII.2020, RM (RMC); 1♀ — idem, 9.VIII.2020, RM (RMC).

Chrysis chrysoprasina Förster, 1853

Vogrin, 1955: Croatia: Bregi, 17 July [as *Chrysis rutilans* Dahlbom].

Chrysis chrysostigma Mocsáry, 1889

Jozán, 2009: Croatia: 1♀ — Golovik, 16.VI.2009; 1♀, Lindar, 17.VI.2009 [as *Chrysis ramburi* Dahlbom, 1854].

Graeffe, 1895: Italy: Muggia, July, on Apiaceae.

Gogala, 2016: Slovenia: 2♀♀ — Piran, 1–15.VI.1963, leg. J. Heinrich; 1♂ — Portorož, 23.V–3.VI.1960; 2♀♀ — idem, 24.VII–5.VIII.1961, leg. J. Heinrich; 1♀ — idem, 28.VII.1961, leg. J. Heinrich.

Material. Croatia: 3♀♀ — Lobarika, 20.VII.2002, leg. M. Halada (MHC); 1♂, 1♀ — Umag, 10.VII.2009, leg. P. Pacholátko (MHC); 1♀ — Želiski (Barban), 15.VI.2023, RM (RMC); 1♂ — idem, 30.VI.2023, RM (RMC); 1♀ — idem, 5.VII.2023, RM (RMC).

Chrysis cingulicornis Förster, 1853

Gogala, 2016: Slovenia: 1♂, 1♀ — Portorož, 12–18.VII.1959, leg. J. Heinrich; 1♀ — idem, 23.V–3.VI.1960, leg. J. Heinrich; 1♀ — idem, 24.VII–5.VIII.1961, leg. J. Heinrich.

Material. Croatia: 2♂♂, 2♀♀ — Monte Kope (Medulin), 5.VII.2019, RM (RMC); 1♀ — Valsaline (Pula), 28.VI.2019, RM (RMC); 1♀ — Ližnjan, 25.VIII.2019, RM (RMC).

Chrysis clarinicornis Linsenmaier, 1951

Material. Croatia: 1♀ — 10 km N of Pula, 26.VIII.1996, leg. J. Halada (MHC); 1♀ — Kaštijun, 18.VIII.2020, RM (RMC); 1♀ — Pula (Marsovo polje), 17.IX.2021, RM (RMC).

Remark. First record for Istria and Croatia.

Chrysis comparata Lepeletier, 1806

Schletterer, 1894: Croatia: 2♂♂ — env. Pula, 27 June, on *Paliurus spina-christi* Miller [as *Paliurus australis* Gaertn.] [as *Chrysis chevrieri* Mocsáry, 1879].

Jozán, 2009: Croatia: 1♀, 3♂♂ — Rovinj, 16.VI.2009.

Material. Croatia: 3♂♂, 1♀ — Lobarika, 20.VII.2002, leg. M. Halada (MHC); 1♂ — Rovinj, VI.1955 (NMLS); 1♀ — Vodnjan, 29.VI.2020, RM (RMC); 2♂♂, 2♀♀ — idem, 2.VII.2020, RM (RMC); 1♂ — Vinkuran, 29.VI.2022, RM (RMC).

Chrysis comta Förster, 1853

Material. Croatia: 1♂ — Mošćenice, July 1965, leg. C. v. Demelt (NMLS); 1♂ — Lupoglav, 19.VIII.2020, RM (RMC); 1♂ — Ližnjan, 23.VIII.2020, RM (RMC); 1♂ — Stancija Peličeti, 11.IX.2023, RM (RMC).

Remark. First record for Istria; specimen previously listed on Fauna Europaea for Croatia by Rosa and Soon [2012], without precise locality.

Chrysis cylindrica Eversmann, 1858

Jozán, 2009: Croatia: 1♀ — Sveta Jelena, 4.VI.2007 [as *Chrysis viridula cylindrica* Eversmann, 1858].

Chrysis dominula Abeille de Perrin, 1877

Material. Croatia: 1♂ — Kaštijun, 15.VII.2020, RM (RMC).

Remark. First record for Istria and Croatia.

Chrysis elegans Lepeletier, 1806

Material. Croatia: 1♂ — Pula (Stoja), 17.V.2019, RM (RMC); 1♂ — idem, 1.V.2019, RM (RMC); 1♂, 1♀ — Vodnjan, 22.V.2020, RM (RMC); 1♀ — Želiski (Barban), 30.VI.2023, RM (RMC).

Remark. First record for Istria and Croatia.

Chrysis frivaldszkyi Mocsáry, 1882

Schletterer, 1894: Croatia: ♀, ♂, env. Pula, 20.V–17.VI on *Caucalis platycarpus* L. [as *Caucalis daucoides* L.] and *Paliurus spina-christi* Miller [as *Paliurus australis* Gaertn.] [as *Chrysis succincta* Linnaeus, 1767].

Material. Croatia: 2♂♂, 3♀♀ — Lobarika, 20.VII.2002, leg. M. Halada (MHC); 1♂ — Kaštijun, 18.VI.2019, RM (RMC); 1♀ — idem, 19.VI.2019, RM (RMC); 2♀♀ — idem, 1.VIII.2020, RM (RMC); 1♂ — Ližnjan, 25.VIII.2020, RM (RMC).

Chrysis germari Wesmael, 1839

Mocsáry, 1889: Istria [as *Chrysis (Gonochrysis) germari* Wesmael, 1839].

Graeffe, 1895: Slovenia: *Boršt, May, on Apiaceae* [as *Chrysis nitidula* Germar, 1817].

Jozán, 2009: Croatia: 2♀♀ — Rovinj, 16.VI.2009.

Material. Croatia: 6♂♂ — Rovinj, 16.VII.2002, leg. M. Halada (MHC); 5♂♂, 3♀♀ — Vodnjan, 18.VII.2002, leg. M. Halada (MHC); 1♀ — Lobarika, 20.VII.2002, leg. M. Halada (MHC); 1♂ — Kaštjun, 22.VII.2019, RM (RMC); 1♀ — idem, 24.VII.2019, RM (RMC); 1♀ — idem, 19.VII.2019, RM (RMC); 1♀ — idem, 1.VI.2020, RM (RMC); 1♂ — idem, 10.VI.2022, RM (RMC); 1♂ — Gornji Kamenjak (Medulin), 26.VI.2020, RM (RMC); 1♂ — idem, 28.VI.2022, RM (RMC).

Remarks. Strumia [2007] considered *Chrysis nitidula* cited by Graeffe [1895] as a homonym or synonym of *Ch. iris* Christ, 1791. *Chrysis nitidula* Fabricius, 1775 is a synonym of *Ch. iris* Christ, yet Graeffe [1895] referred to *Ch. nitidula* Germar, 1817 *nec* Fabricius, 1775 a species belonging to the *succincta* group, described on specimens collected at Fiume. Wesmael [1839] replaced the name *Ch. nitidula* Germar, *nec* Fabricius, with *Ch. germari* Wesmael, 1839. No doubt that Graeffe [1895] referred to *Chrysis germari* Wesmael because he placed this species after *Ch. succincta* in the “*Gonochrysis*” group, following Mocsáry’s [1889] interpretation.

Chrysis gracillima (Förster, 1853)

Material. Croatia: 1♀ — Pula, Šijana, 9.VII.2024, RM (RMC).

Remark. First record for Istria.

Chrysis grohmanni krkiana Linsenmaier, 1959

Schletterer, 1901: Croatia: env. Pula, June, on *Orlaya grandiflora* (L.) Hoffm. [as *Chrysis grohmanni* Dahlbom, 1854].

Jozán, 2009: Croatia: 1♂ — Rovinj, 16.VI.2009 [as *Chrysis grohmanni* Dahlbom].

Material. Croatia: 1♂, 1♀ — Lupoglav, 16.VI.2019, RM (RMC); 1♂ — Kaštjun, 17.VI.2020, RM (RMC); 1♀ — Sv. Foška (Vodnjan), 20.VI.2021, RM (RMC); 1♂ — Puntžela, 19.VIII.2023, leg. P. Rosa (PRC).

Chrysis ignita (Linnaeus, 1758)

Schletterer, 1894: Croatia: 1♀ — env. Pula, 12 June, on Apiaceae.

Vogrin, 1955: Croatia: Bregi, 22 July.

Remark. Schletterer's and Vogrin's identifications are doubtful and may refer to other species in the *Chrysis ignita* group or in other species groups visiting flowers of Apiaceae.

Chrysis indigotea Dufour, Perris, 1840

Mocsáry, 1889: Croatia: Istria: Pola [= Pula] [as *Chrysis (Tetrachrysis) indigotea* Dufour, Perris, 1840].

Schletterer, 1894: Croatia: env. Pula, June, on *Paliurus spinachristi* Miller [as *Paliurus australis* Gaertn.].

Material. Croatia: 1♀ — Peroj, 17.VII.2002, leg. M. Halada (MHC); 1♀ — Vallelunga (Pula), 15.VII.2018, RM (RMC); 1♀ — Gajana, 7.VI.2020, RM (RMC).

Chrysis insperata Chevrier, 1870

Material. Croatia: 1♂ — Pula (Veruda), 28.VI.2020, RM (RMC); 1♂ — Vinkuran, 20.IV.2020, RM (RMC); 1♀ — Dolinka (Pula), 25.VIII.2021, RM (RMC); 1♀ — Raša (rijeka/fiume/river), 14.VII.2021, RM (RMC).

Remark. First record for Istria.

Chrysis interjecta du Buysson, 1895

Material. Croatia: 1♂ — Pula, 16.VIII.1998, leg. J. Halada (MHC); 1♀ — Kaštjun, 23.VIII.2020, RM (RMC); 1♂ — idem,

7.V.2020, RM (RMC); 1♂ — Vodnjan, 22.V.2020, RM (RMC); 1♂ — Dolinka (Pula), 2.IX.2021, RM (RMC).

Remark. First record for Istria and Croatia.

Chrysis iris Christ, 1791

Material. Croatia: 2♀♀ — Lupoglav, 2.VI.2019, RM (RMC).

Remark. First record for Istria and Croatia.

Chrysis jucunda Mocsáry, 1889

Gogala, 2016: Slovenia: 3♂♂, Piran, 1–15.VI.1963, leg. J. Heinrich.

Material. Croatia: 2♀♀, Lobarika, 20.VII.2002, leg. M. Halada (MHC); 1♀ — Poreč, 23.VIII.2020, RM (RMC).

Chrysis lanceolata Linsenmaier, 1959

Material. Croatia: 1♀ — Kaštjun, 8.VIII.2019, RM (RMC); 2♀♀ — idem, 22–24.VIII.2019, RM (RMC); 1♂ — Kamenjak (Medulin), 26.VI.2020, RM (RMC).

Remark. First record for Istria.

Chrysis leachii Shuckard, 1836

Graeffe, 1895: Italy: Muggia, July, on Apiaceae and Euphorbiaceae.

Chrysis longula Abeille de Perrin, 1879

Material. Croatia: 1♀ — Lupoglav, 2.VI.2019, originally identified as *Chrysis longula sublongula* Linsenmaier by P. Rosa, RM (RMC).

Remark. First record for Istria.

Chrysis maderi Linsenmaier, 1959

Jozán, 2009: Croatia: 1♂ — Brseč (N 3 km), 19.VI.2001 [as *Chrysis aestiva* Dahlbom, 1854].

Material. Croatia: 1♀ — Vodnjan, 26.VII.2023, RM (RMC).

Chrysis marginata aliunda Linsenmaier, 1959

Material. Croatia: 2♂♂ — Rovinj, 16.VII.2002, leg. M. Halada (MHC); 2♂♂ — Vodnjan, 18.VII.2002, leg. M. Halada (MHC); 1♀ — idem, 8.VII.1999, leg. J. Halada (MHC); 1♂ — Želiski, 15.VI.2022, RM (RMC); 2♀♀ — idem, 15.VI.2022, RM (RMC).

Remark. First record for Istria.

Chrysis millenaris Mocsáry, 1897

Material. Croatia: 2♀♀ — Puntžela, 19.VIII.2023, leg. P. Rosa (PRC, RMC).

Remark. First record for Istria.

Chrysis obtusidens Dufour, Perris, 1840

Gogala, 2016: Slovenia: 1♀ — Prade, 19.VI.1924, leg. Ad. Nadig.

Chrysis phryne Abeille de Perrin, 1878

Material. Croatia: 1♂, 5♀♀ — Vodnjan, 8.VII.1999, leg. J. Halada (MHC); 1♂, 1♀ — Lobarika, 20.VII.2002, leg. M. Halada (MHC); 1♂ — Dolinka (Pula), 12.VI.2019, RM (RMC); 1♂ — idem, 13.VI.2019, RM (RMC); 1♀ — Galizana, 24.VI.2021, RM (RMC).

Remark. First record for Istria.

Chrysis provenceana Linsenmaier, 1959

Material. Croatia: 1♂ — Lobarika, 20.VII.2002, leg. M. Halada (MHC).

Chrysis pulchella Spinola, 1808

Gogala, 2016: Slovenia: 1♂ — Portorož, 23.V–3.VI.1960, leg. J. Heinrich.

Chrysis ragusae De Stefani, 1888

Jozán, 2009: Croatia: 1♂ — Brseč (N 3 km), 19.VI.2001; 2♀♀, 2♂♂ — Rovinj, 16.VI.2009.

Gogala, 2016: Slovenia: 1♀ — Portorož, 23.V–3.VI.1960, leg. J. Heinrich.

Material. Croatia: 1♂ — Vodnjan, 10.V.2020, RM (RMC); 2♀♀ — idem, 13.VI.2020, RM (RMC); 1♂ — idem, 3.VII.2020, RM (RMC); 1♀ — idem, 4.VII.2020, RM (RMC).

Chrysis ruddii Shuckard, 1837

Mocsáry, 1889: Istria.

Material. Croatia: 1♀ — Mošćenice, without further data (RMC).

Chrysis rufitarsis Brullé, 1833

Material. Croatia: 1♂ — Lobarika, 20.VII.2002, leg. M. Halada (MHC); 1♀ — Valsaline (Pula), 26.VI.2019, RM (RMC); 1♀ — Dolinka (Pula), 4.VII.2021, RM (RMC).

Remark. First record for Istria.

Chrysis rutilans Olivier, 1790

Jozán, 2009: Croatia: 1♀ — Marčana, 22.VI.2003; 1♀, Sveta Jelena, 25.IV.2007 [as *Chrysis aurotecta* Abeille de Perrin, 1878].

Material. Croatia: 1♂, 2♀♀ — Rovinj, 16.VII.2002, leg. M. Halada (MHC); 4♂♂ — Vodnjan, 18.VII.2002, leg. M. Halada (MHC); 3♂♂, 5♀♀ — Lobarika, 20.VII.2002, leg. M. Halada (MHC); 1♂ — Dolinka (Pula), 3.V.2020, RM (RMC); 1♂ — Kaštijun, 5.VIII.2020, RM (RMC); 1♀ — Vodnjan, 30.VI.2020, RM (RMC); 1♂ — Stancija Peličeti, 15.V.2023, RM (RMC); 1♀ — Želiski, 15.VI.2023, RM (RMC); 1♂ — Puntizela, 19.VIII.2023, leg. P. Rosa (PRC).

Chrysis rutiliventris Abeille de Perrin, 1879

Material. Croatia: 1♀ — Mt. Maggiore (=Mala Učka), VI.1957, leg. Demelt (NMLS); 1♀ — env. Savudrija, June–July 1959, leg. C. v. Demelt (NMLS).

Remark. First record for Istria; specimens previously listed on Fauna Europaea for Croatia by Rosa and Soon [2012], without precise locality.

Chrysis scutellaris Fabricius, 1794

Schletterer, 1901: Croatia: env. Pula, May, on *Tordylium apulum* L.

Jozán, 2009: Croatia: 1♂ — Cavići (Zagorje), 24.VI.2005; 1♂ — Rovinj, 16.VI.2009.

Gogala, 2016: Slovenia: 1♂ — Portorož, June 1970, leg. F. Parré.

Material. Croatia: 1♀ — Šišana, 22.VII.2020, RM (RMC); 1♂ — Vintijan, 21.VII.2020, RM (RMC); 1♀ — Kaštijun, 14.VII.2020, RM (RMC); 1♀ — Dolinka (Pula), 15.VIII.2021, RM (RMC); 1♀ — idem, 1.IX.2021, RM (RMC); 1♀ — Želiski, 15.VI.2022, RM (RMC); 1♂ — Valtura, 25.VIII.2022, RM (RMC).

Chrysis sexdentata Christ, 1791

Schletterer, 1901: Croatia: env. Pula, 10 June, on *Paliurus spina-christi* Miller [as *Paliurus australis* Gaertn.].

Material. Croatia: 1♀ — Pula, Šijana, 10.VII.2024, RM (RMC).

Chrysis splendidula Rossi, 1790

Schletterer, 1894: Croatia: ♀, ♂ — env. Pula, 24 June, on *Paliurus spina-christi* Miller [as *Paliurus australis* Gaertn.]; 25.V, on *Tordylium apulum* L.

Graeffe, 1895: Italy: Muggia, July, on Apiaceae.

Jozán, 2009: Croatia: 1♀ — Stanišovi, 29.V.2008.

Material. Croatia: 7♂♂ — Rovinj, 16.VII.2002, leg. M. Halada (MHC); 5♂♂, 4♀♀ — Vodnjan, 18.VII.2002, leg. M. Halada (MHC); 2♂♂ — Lobarika, 20.VII.2002, leg. M. Halada (MHC); 1♀ — Valsaline (Pula), 25.VI.2019, RM (RMC); 1♀ — Donji Kamenjak (Medulin), 25.VI.2019, RM (RMC); 1♀ — Gajana, 28.VI.2019, RM (RMC); 2♂♂ — Ližnjan, 12.VII.2023, RM (RMC); 1♂ — Puntizela, 19.VIII.2023, leg. P. Rosa (PRC).

Chrysis subsinuata fallax Mocsáry, 1889

Jozán, 2009: Croatia: 1♀ — Brseč (N 3 km), 19.VI.2001.

Gogala, 2016: Slovenia: 1♂ — Strugnano (=Strunjan), VI.1931, leg. Mader.

Chrysis taczanovskii Radoszkowski, 1877

Material. Croatia: 1♀ — Pazin (cross staza), 16.VI.2019, RM (RMC).

Remark. First record for Istria and Croatia.

Chrysis valesiana Frey-Gessner, 1887

Graeffe, 1895: Italy: Muggia, July, on *Ferulago*.

Chrysis viridula Linnaeus, 1761

Schletterer, 1894: Croatia: 1♀ — env. Pula, 28 June, on *Lotus tenuis* Waldst., Kit. ex Willd [as *Lotus tenuifolius* L.]; ♂♂, 10–15.VI, on *Orlaya grandiflora* (L.) Hoffm.

Remark. Doubtful records, probably related to *Chrysis cingulicornis*.

Chrysura Dahlbom, 1845

Chrysura candens (Germar, 1817)

Jozán, 2009: Croatia: 1♀ — Rovinj, 26.V.2008.

Chrysura cuprea (Rossi, 1790)

Mocsáry, 1889: Istria [as *Chrysis (Olochrysis) cuprea* Rossi, 1790].

Schletterer, 1894: Croatia: 1♀ — env. Pula, 24 May, on *Orlaya grandiflora* (L.) Hoffm.

Jozán, 2009: Croatia: 2♀♀ — Sveta Jelena, 28.V.2008; 1♀, 1♂ — idem, 27.IV.2007; 3♀♀ — Vranja (E 5 km), 28.V.2008.

Rosa, 2005: Croatia: 2♀♀ — Valle Quieto, May 1923, leg. C. Mancini.

Material. Croatia: 1♀ — Gajana, 29.VI.2020, RM (RMC); 1♀ — Sv. Foška (Vodnjan), 8.V.2021, RM (RMC); 1♂ — Vodnjan, 13.V.2021, RM (RMC); 1♀ — Pula (Šijana), 10.VI.2021, RM (RMC).

Chrysura dichroa (Dahlbom, 1854)

Schletterer, 1894: Croatia: ♀♀, ♂♂, env. Pula, 24 May–17 June, on *Paliurus spina-christi* Miller [as *Paliurus australis* Gaertn.].

Jozán, 2009: Croatia: 1♀ — Načinovići (Zagorje), 28.V.2008; 1♀, Stanišovi, 29.V.2008.

Gogala, 2016: Slovenia: 1♂ — Portorož, VI.1970.

Material. Croatia: 1♀ — Vallelunga (Pula), 19.VI.2019, RM (RMC); 1♀ — Dolinka (Pula), 24.VI.2019, RM (RMC); 2♀♀ — Pula (Stoja), 25.V.2019, RM (RMC); 1♀ — Medulin (Monte Kope), 7.VII.2019, RM (RMC).

Chrysura filiformis (Mocsáry, 1889)

Material. Croatia: 1♀ — Kaštijun, 4.V.2020, RM (RMC); 1♂ — idem, 5.V.2020, RM (RMC); 1♀ — Vodnjan, 25.V.2020, RM (RMC).

Remark. First record for Istria.

Chrysura ignifrons (Brullé, 1833)

Graeffe, 1895: Slovenia: Boršt, May, on *Euphorbiaceae* [as *Chrysis hybrida* Lepeletier, 1806].

Jozán, 2009: Croatia: 1♂ — Rovinj, 26.V.2008 [as *Chrysura hybrida* Lepeletier, 1806].

Remark. The identification of *Chrysis hybrida* Lepeletier by Graeffe [1895] and Jozán [2009] is here considered a misidentification for *Chrysura ignifrons* which is a very common species found from Trieste [Kusdas, 1858; Grandi, 1962; Rosa, 2006b, and unpublished data related to specimens deposited in the Invrea collection in Genova] to Slovenia [Gogala, 2016].

Chrysura laevigata (Abeille de Perrin, 1879)

Rosa, 2005: Croatia: 1♀ — Valle Quieto, May 1923, leg. C. Mancini.

Material. Croatia: 1♂, 1♀ — env. Savudrija, VI–VII.1919, leg. C. v. Demelt (NMLS); 1♀ — Kaštijun, 10.IV.2020, RM (RMC); 1♀ — Kaštijun, 23.VI.2020, RM (RMC).

Chrysura lydiae allegata (Linsenmaier, 1968)

Material. 2♀♀ — Kaštijun, 19.VII.2019, RM (RMC); 1♀ — idem, 8.VIII.2019, RM (RMC); 1♀ — idem, 19.VI.2020, RM (RMC); 1♀ — Galižana, 24.VI.2019, RM (RMC).

Remark. First record for Istria and Croatia.

Chrysura radians (Harris, 1776)

Mocsáry, 1889: Istria: Pola [= Pula] [as *Chrysis* (*Olochrysis*) *pustulosa* Abeille de Perrin, 1878].

Schletterer, 1894: Croatia: 1♀ — env. Pula, June, on *Paliurus spina-christi* Miller [as *Paliurus australis* Gaertn.] [as *Chrysis pustulosa* Abeille de Perrin, 1878].

Material. Croatia: 1♂ — Vodnjan, 8.V.2020, RM (RMC).

Chrysura refulgens (Spinola, 1806)

Schletterer, 1894: Croatia: 1♂, 1♀ — env. Pula, 28 May, on *Orlaya grandiflora* (L.) Hoffm. and *Paliurus spina-christi* Miller [as *Paliurus australis* Gaertn.].

Jozán, 2009: Croatia: 1♀ — Cavići (Zagorje), 25.VI.2004; 1♀, Mošćenice, 15.VI.2009; 1♀ — Pićan, 17.VI.2009.

Material. Croatia: 1♂ — Valsaline (Pula), 8.V.2019, RM (RMC); 1♂ — idem, 9.V.2019, RM (RMC); 1♀ — Kaštijun, 6.VII.2020, RM (RMC); 1♀ — Vodnjan, 24.VI.2020, RM (RMC); 1♀ — Monte Kope (Medulin), 12.VII.2020, RM (RMC).

Chrysura rufiventris (Dahlbom, 1854)

Material. Croatia: 1♀ — Pula (Stoja), 2.VI.2019, RM (RMC); 1♀ — Pula (Valdebek), 24.VI.2020, RM (RMC); 1♀ — Pula (Šijana), 18.V.2021, RM (RMC); 1♀ — Kaštijun, 25.IV.2021, RM (RMC).

Chrysura simplex (Dahlbom, 1854)

Graeffe, 1895: Slovenia: Boršt, June, on *Euphorbiaceae*.

Chrysura trimaculata (Förster, 1853)

Graeffe, 1895: Slovenia: Boršt, April–May.

Pentachrysis Lichtenstein, 1876*Pentachrysis inaequalis* (Dahlbom, 1845)

Schletterer, 1894: Croatia: env. Pula, 25 May, on *Tordylium apulum*; ♂♂, ♀♀, on *Paliurus spina-christi* Miller [as *Paliurus australis* Gaertn.].

Jozán, 2009: Croatia: 2♀♀ — Golovik, 26.V.2008; 1♀ — idem, 15.VI.2009.

Material. Croatia: 1♂ — Rovinj, 16.VII.2002, leg. M. Halada (MHC); 2♂♂ — Peroj, 17.VII.2002, leg. M. Halada (MHC); 2♂♂ — Vodnjan, 18.VII.2002, leg. M. Halada (MHC); 1♂ — Lobarika, 20.VII.2002, leg. M. Halada (MHC); 1♂ — Kanegra, July 1956, leg. C. v. Demelt (NMLS); 1♀ — Kaštijun, 7.VIII.2019, RM (RMC); 1♂ — Ližnjan, 9.VIII.2019, RM (RMC); 1♀ — Pula (Mornar), 23.VI.2022, RM (RMC); 1♂ — Stancija Peličeti, 8.IX.2023, on *Foeniculum vulgare*, RM (RMC); 1♀ — Vodnjan, 1.VI.2023, RM (RMC).

Remarks. After Pauli et al. [2019] and Linsenmaier's classification [1959, 1999] based on morphology, we consider members of the *inaequalis* group belonging to the genus *Pentachrysis*.

Pseudochrysis Semenov, 1891*Pseudochrysis uniformis* (Dahlbom, 1854)

Jozán, 2009: Croatia: 1♂ — Cavići (Zagorje), 24.VI.2005; 1♀ — Vranja (E 5 km), 28.VI.2008 [as *Pseudospinolia uniformis* (Dahlbom, 1854)].

Material. Croatia: 1♀ — Pula (Veli vrh), 1.VII.2019, RM (RMC); 1♀ — Lobarika, 2.VII.2019, RM (RMC); 1♀ — Kaštijun, 24.VI.2020, RM (RMC); 1♂ — Sveti Kirin, 15.VI.2023, RM (RMC); 1♂ — Umag, 10.VII.2009, leg. P. Pacholátko (MHC).

Spinolia Dahlbom, 1845*Spinolia dallatorreana* (Mocsáry, 1896)

Gogala, 2016: Slovenia: 1♂ — Piran, 1–15.VI.1963, leg. J. Heinrich.

Spintharina Semenov, 1892*Spintharina versicolor* (Spinola, 1808)

Graeffe, 1895: Italy: Muggia, June–July, on *Ferulago*.

Jozán, 2009: Croatia: 1♂ — Koromačno (E 3 km), 20.VI.2001.

Material. Croatia: 1♂ — Vodnjan, 18.VII.2002, leg. M. Halada (MHC); 2♂♂ — Lobarika, 20.VII.2002, leg. M. Halada (MHC); 1♀ — idem, 22.V.2019, RM (RMC); 1♀ — Kaštijun, 20.VII.2020, RM (RMC); 1♂ — Sv. Foška, 10.VI.2021, RM (RMC).

Stilbum Spinola, 1806*Stilbum calens* (Fabricius, 1781)

Schletterer, 1894: Croatia: 1♀ — env. Pula, 24 May, on *Orlaya grandiflora* (L.) Hoffm. [as *Stilbum cyanurum* var. *calens*].

Vogrin, 1955: Croatia: Poreč.

Material. Croatia: 1♂ — Kanegra, July 1958, leg. C. v. Demelt (NMLS).

Stilbum cyanurum (Forster, 1771)

Schletterer, 1894: Croatia: 1♂ — env. Pula, 12 May [as *Stilbum nobile* (Sulzer, 1776)].

Jozán, 2009: Croatia: 1♀ — Sveta Jelena, 20.VI.2003; 1♀ — Vr-sar, 26.VI.2004.

Material. Croatia: 1♀ — Donji Kamenjak (Medulin), 14.VI.2020, RM (RMC); 1♂ — Dolinka (Pula), 19.VIII.2020, RM (RMC); 1♂ — Gajana, 28.VI.2020, RM (RMC); 1♀ — Vodnjan, 23.VIII.2020, RM (RMC).

Trichrysis Lichtenstein, 1876*Trichrysis cyanea* (Linnaeus, 1758)

Material. Croatia: 1♀ — Mt. Maggiore (=Mala Učka), VI.1957, leg. C. v. Demelt (NMLS); 1♂ — Kanegra, July 1958, leg. C. v. Demelt (NMLS); 1♀ — Vallerlunga (Pula), 9.VI.2019, RM (RMC); 1♀ — Pula (Šijana), 6.V.2021, RM (RMC); 1♂, 1♀ — Lobarika, 3.X.2023, RM (RMC).

Remark. First record for Istria.

Updated checklist of the Croatian species

The Croatian Fauna currently includes 145 species and three subspecies. Four subspecies listed by Rosa and Soon [2012] are here not separate from the nominal form: *Chrysis cingulicornis dalmatina* Linsenmaier, 1959; *Ch. germari fulminans* Linsenmaier, 1959; *Ch. phryne burgenlandia* Linsenmaier, 1968; *Stilbum calens zimmermanni* Linsenmaier, 1959. New records for Istria are marked with (*) and new record for Croatia are marked with (**):

Cleptinae*Cleptes* Latreille, 1802

Cleptes aerosus Förster, 1853

Cleptes moczari Linsenmaier, 1968*. **

Cleptes nitidulus Fabricius, 1793

Cleptes putoni du Buysson, 1887
Cleptes scutellaris Mocsáry, 1899
Cleptes semiauratus (Linnaeus, 1761)
Cleptes splendidus (Fabricius, 1794)*
Cleptes striatipleuris Rosa, Forshage, Paukkunen, Soon,
 2015

Chrysidinae
 Elampini

Colpopygia Semenov-Tian-Shanskij, 1954

Colpopygia flavipes (Eversmann, 1858)

Chrysellampus Semenov-Tian-Shanskij, 1932

Chrysellampus sculpticollis (Abeille de Perrin, 1878)

Elampus Spinola, 1806

Elampus bidens (Förster, 1853)
Elampus constrictus (Förster, 1853)
Elampus foveatus (Mocsáry, 1914)**
Elampus panzeri (Fabricius, 1804)
Elampus pyrosomus (Förster, 1853)
Elampus sanzii Gogorza, 1887**
Elampus spina (Lepeletier, 1806)

Hedychridium Abeille de Perrin, 1878

Hedychridium ardens (Coquebert, 1801)
Hedychridium coriaceum (Dahlbom, 1801)
Hedychridium cupratum (Dahlbom, 1801)
Hedychridium elegantulum peloponnense Linsenmaier,
 1968
Hedychridium infans Abeille de Perrin, 1879
Hedychridium jucundum (Mocsáry, 1889)*
Hedychridium maculisternum Arens 2011*
Hedychridium mediocrum Linsenmaier, 1987*,**
Hedychridium monochroum du Buysson, 1888*
Hedychridium plagiatum (Mocsáry, 1883)*
Hedychridium roseum (Rossi, 1790)
Hedychridium rossicum Gussakovskij, 1948*,**
Hedychridium sculpturatum (Abeille de Perrin, 1877)
Hedychridium verhoefi Linsenmaier, 1959

Hedychrum Latreille, 1802

Hedychrum chalybaeum Dahlbom, 1854
Hedychrum gerstaeckeri Chevrier, 1869
Hedychrum longicollis Abeille de Perrin, 1877
Hedychrum niemelai Linsenmaier, 1959
Hedychrum nobile (Scopoli, 1763)
Hedychrum rutilans Dahlbom, 1854
Hedychrum virens Dahlbom, 1854

Holopyga Dahlbom, 1845

Holopyga amoenula amoenula Dahlbom, 1845*
Holopyga amoenula occidenta Linsenmaier, 1959
Holopyga chrysonota (Förster, 1853)
Holopyga dichroica Rosa, 2025
Holopyga fervida (Fabricius, 1781)
Holopyga generosa (Förster, 1853)
Holopyga inflammata (Förster, 1853)

Omalus Panzer, 1801

Omalus aeneus (Fabricius, 1787)*
Omalus biaccinctus (du Buysson, 1893)
Omalus puncticollis (Mocsáry, 1887)*

Philoctetes Abeille de Perrin, 1879

Philoctetes bidentulus (Lepeletier, 1806)
Philoctetes bogdanovii (Radoszkowski, 1877)*
Philoctetes punctulatus (Dahlbom, 1831)
Philoctetes truncatus (Dahlbom, 1831)

Pseudomalus Ashmead, 1902

Pseudomalus auratus (Linnaeus, 1758)
Pseudomalus cupratus (Mocsáry, 1889)
Pseudomalus pusillus (Fabricius, 1804)
Pseudomalus triangulifer (Abeille de Perrin, 1877)
Pseudomalus violaceus (Scopoli, 1763)*

Chrysidinae

Chrysidini

Chrysidea Bischoff, 1913

Chrysidea disclusa disclusa (Linsenmaier, 1959)
Chrysidea disclusa pumilionis (Linsenmaier, 1987)*
Chrysidea pumila (Klug, 1845)

Chrysis Linnaeus, 1761

Chrysis albanica Trautmann, 1927*
Chrysis analis Spinola, 1808
Chrysis angustifrons Abeille de Perrin, 1878
Chrysis angustula Schenck, 1856
Chrysis auriceps Linsenmaier, 1959*
Chrysis bicolor Lepeletier, 1806*
Chrysis caeruleiventris Abeille de Perrin, 1878*
Chrysis cerastes Abeille de Perrin, 1877
Chrysis chrysoprasina Förster, 1853
Chrysis chrysostigma Mocsáry, 1889
Chrysis cingulicornis Förster, 1853
Chrysis clarinicornis Linsenmaier, 1951*,**
Chrysis comparata Lepeletier, 1806
Chrysis comta Förster, 1853*
Chrysis cylindrica Eversmann, 1858
Chrysis dominula Abeille de Perrin, 1877*,**
Chrysis elegans Lepeletier, 1806*
Chrysis fasciata Olivier, 1790
Chrysis frivaldszkyi Mocsáry, 1882
Chrysis fulgida Linnaeus, 1761
Chrysis germari Wesmael, 1839
Chrysis gracillima (Förster, 1853)*
Chrysis gribodoi Abeille de Perrin, 1877
Chrysis grohmanni krkiana Linsenmaier, 1959
Chrysis ignita ignita (Linnaeus, 1758)
Chrysis ignita bischoffi Linsenmaier, 1959
Chrysis indigotea Dufour, Perris, 1840
Chrysis insperata Chevrier, 1870*
Chrysis interjecta du Buysson, 1895*,**
Chrysis iris Christ, 1791*
Chrysis jucunda Mocsáry, 1889
Chrysis lanceolata Linsenmaier, 1959*
Chrysis leachii Shuckard, 1837
Chrysis longula Abeille de Perrin, 1879*
Chrysis maderi Linsenmaier, 1959
Chrysis marginata aliunda Linsenmaier, 1959*
Chrysis millenaris Mocsáry, 1897*
Chrysis phryne Abeille de Perrin, 1878*
Chrysis provenceana Linsenmaier, 1959*,**
Chrysis pulchella Spinola, 1808
Chrysis ragusae De Stefani, 1888
Chrysis ruddii Shuckard, 1837
Chrysis rufitarsis Brullé, 1833*

Chrysis rutilans Olivier, 1790
Chrysis rutiliventris Abeille de Perrin, 1879*
Chrysis schencki Linsenmaier, 1968
Chrysis sculpturata Mocsáry, 1912**
Chrysis scutellaris Fabricius, 1794
Chrysis sexdentata Christ, 1791
Chrysis simplonica Linsenmaier, 1951
Chrysis soror Dahlbom, 1854
Chrysis splendidula Rossi, 1790
Chrysis subcoriacea Linsenmaier, 1959
Chrysis subsinuata fallax Mocsáry, 1889
Chrysis succincta Linnaeus, 1767
Chrysis valesiana Frey-Gessner, 1887
Chrysis taczanovskii Radoszkowski, 1877*. **
Chrysis varidens eva Balthasar, 1949
Chrysis viridula Linnaeus, 1761
Chrysis zonata Dahlbom, 1854

***Chrysura* Dahlbom, 1845**

Chrysura austriaca (Fabricius, 1801)
Chrysura candens (Germar, 1817)
Chrysura cuprea (Rossi, 1790)
Chrysura dichroa (Dahlbom, 1854)
Chrysura filiformis (Mocsáry, 1889)*
Chrysura hirsuta (Gerstaecker, 1869)
Chrysura hybrida (Lepelletier, 1806)
Chrysura ignifrons (Brullé, 1833)
Chrysura judith (Balthasar, 1953)
Chrysura laevigata (Abeille de Perrin, 1879)
Chrysura lydiae allegata (Linsenmaier, 1968)*. **
Chrysura purpureifrons (Abeille de Perrin, 1878)
Chrysura radians (Harris, 1776)
Chrysura refulgens (Spinola, 1808)
Chrysura rufiventris (Dahlbom, 1854)*. **
Chrysura simplex (Dahlbom, 1854)
Chrysura trimaculata (Dahlbom, 1854)

***Pentachrysis* Lichtenstein, 1876**

Pentachrysis inaequalis (Dahlbom, 1845)

***Praestochrysis* Linsenmaier, 1959**

Praestochrysis megerlei (Dahlbom, 1854)

***Pseudochrysis* Semenov, 1891**

Pseudochrysis aureicollis (Abeille de Perrin, 1878)
Pseudochrysis neglecta (Shuckard, 1836) **
Pseudochrysis uniformis (Dahlbom, 1854)

***Spintharina* Semenov, 1892**

Spintharina cuprata (Dahlbom, 1845)
Spintharina versicolor (Spinola, 1808)

***Stilbum* Semenov, 1891**

Stilbum calens (Fabricius, 1781)
Stilbum cyanurum (Forster, 1771)

***Trichrysis* Lichtenstein, 1876**

Trichrysis cyanea (Linnaeus, 1758)*

***Parnopes* Latreille, 1796**

Parnopes grandior (Pallas, 1771)

Additional new records for the Croatian fauna

The following two species were recorded by Marek Halada in Croatia. They were checked and resulted as new records

for the Croatian fauna. They are here reported, although not collected in Istria, as the other species reported in this article, because relevant for the Croatian checklist of the species.

***Elampus foveatus* (Mocsáry, 1914)**

Material. Croatia: 2♂♂ — Rab, Lopar, 20.VIII.2010, leg. M. Halada (MHC); 8♂♂, 1♀ — idem, 20.VII.2011; 5♂♂, 2♀♀ — idem, 17.VIII.2025.

***Chrysis sculpturata* Mocsáry, 1912**

Material. Croatia: 2♂♂, 1♀ — 30 km SE of Knin, 25.V.2005, leg. M. Halada (MHC); 1♂, 3♀♀ — Gornji Muc, VI.2018, leg. B. Kokan (MHC).

Discussion

A total of 101 species belonging to 18 genera of Chrysididae are reported from Istria, and 145 species and three subspecies belonging to 20 genera from Croatia. Croatian species of the genera *Colpopyga* Semenov-Tian-Shanskij, 1954, *Praestochrysis* Linsenmaier, 1959, and *Parnopes* Latreille, 1796, which have not yet been found in Istria, are nevertheless expected to occur in the region. Moreover, six species have been recorded from the Slovenian part of Istria but not yet from Croatia (*Chrysis obtusidens*, *Ch. pulchella*, *Ch. valesiana*, *Chrysura simplex*, *Ch. trimaculata* and *Spinolia dal-latorreana*).

Although the total number of Istrian species is somehow comparable to that of Slovenian fauna (84 species), it is still likely underestimated due to limited and incomplete sampling. For example, we did not include species collected in Trieste (Italy) and other bordering municipalities, as they are not geographically included in Istria *sensu stricto*. However, species recorded from this area are expected to occur in Istria, at least for its northern part. Based on several articles focused on the fauna of Trieste [Graeffe, 1895; Ducke, 1901; Kudas, 1958], and other works [Móczár, 2000; Rosa, 2005, 2006a, 2006b; Strumia, 2007; Pavesi, Rosa, 2013] we expect the following species in Istria: *Philoctetes punctulatus* (Dahlbom, 1854); *Chrysura austriaca* (Fabricius, 1801); *Cleptes triestensis* [possibly recorded as *Cleptes nigriventris* by Kudas (1958)].

Based on historical literature data from Istria prior to 1900, 35 species were recorded, of which 29 have been recently recollected (83 %). Of the six species not recently collected, their absence may be simply explained by sampling bias in four species, related to their ecology, phenology or rarity known in collections (*Chrysura simplex*, *Ch. trimaculata*, and *Elampus spina*), while the apparent absence of the widespread *Chrysis leachii* may again be due to sampling bias in the North of Istria. One case may represent a misidentification (*Chrysis viridula*).

On the other hand, *Chrysis chrysoprasina* Förster, recorded by Vogrin [1955], who provided only the day and month but not the year of collection, could potentially be regionally extinct. This assumption is based on Italian records compiled by the first author. This species was formerly widespread in northern Italy, from Piedmont to Lombardy and Trentino-Alto Adige,

ranging from lowland areas such as Pavia (70 m a.s.l.) to Brunico (850 m). However, it has not been recorded in the 20th century in Piedmont and Lombardy, while the most recent records from Trentino-Alto Adige date back to 1930 (Bolzano, Gries, Appiano, San Michele, Brunico). Despite repeated surveys in these historical localities in Piedmont and Trentino-Alto Adige, the species has not been rediscovered. This is notable, as it is one of the larger chrysidids and relatively easy to detect in the field, frequently visiting flowers of *Daucus carota* and other Apiaceae. The decline of this species is likely linked to intensive agriculture and land-use change, as most of the surveyed sites have been converted into intensively managed agricultural areas or vineyards, resulting in a reduction of suitable nesting sites and host availability. Although now very rare, the species is still locally present in central Spain, southern France, Wallis (Switzerland), and from southeastern Europe to Central Asia.

A similar pattern of decline has been observed in *Euchroeus purpuratus* (Fabricius, 1787) in northern Italy, with a broader decrease also noted across Europe. This species was recorded by Vogrin [1955] for Serbia, and it may also have occurred in Croatia.

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Поступила в редакцию 4.5.2026