

FAUNA AQUATICA AUSTRIACA

ODONATA (Dragonflies and Damselflies)

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Quotation note

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The catalogue of Odonata with ecological notes of Janecek et al. (2002) represents a reissue of the first edition from 1995. The species inventory of this revised version has been harmonised with the current status of the species occurring in Austria listed by Holzinger et al. (2015). Ecological classifications were based on literature published since 1995 containing detailed information on distribution and ecological requirements of the relevant species (Peters 1987, Colling & Schmedtje 1996, Martens 1996, Suhling & Müller 1996, Jödicke 1997, Kuhn & Burbach 1998, Sternberg & Buchwald 1999, 2000, Heidemann & Seidenbusch 2002, Askew 2003, Chovanec et al. 2003, Schindler et al. 2003, Landmann 2005, Ruppell et al. 2005, Raab et al. 2007, Benken & Raab 2008, Wildermuth 2008, Schweighofer 2011, Holzinger & Komposch 2012, Mauersberger et al. 2013, Schultz 2013, Dijkstra & Lewington 2014, Wildermuth & Martens 2014, Boudot & Kalkman 2015, Brockhaus et al. 2015, Menke et al. 2016, Laister 2017, Ott et al. 2017).

Furthermore, regional information from Austria as well as studies dealing with the colonisation of near-pristine river stretches by dragonflies were included (Waringer 1989, Chwala & Waringer 1996, Sonntag 1999, Samwald 2004, Gros 2006, 2010, Schultz 2010, Staufer 2010, Chovanec 2014, 2015, 2016, 2017a,b, Chovanec et al. 2012, 2014a, Chovanec & Waringer 2015). Species traits defined as methodological framework for the calculation of the Dragonfly Association Index (Chovanec et al. 2014b, 2015) were also taken into account. Data on typological features of Austrian surface waters were taken from Muhar et al. (2004), Wildermuth & Küry (2009), Wimmer et al. (2012) und Wiesbauer & Denner (2013).

The assignment of valency points for species appearing in the hypopotamon was carried out on the basis of the literature published by Osborn (1906), Bayly (1972), Krüner (1992), Zessin & Königstedt (1992), Barnes (1994), Colling & Schmedtje (1996), van Helsdingen et al. (1996), Brock et al. (1997), Jödicke (1997), Corbet (1999), Sternberg & Buchwald (1999, 2000), Dierschke (1998), Witte & Groenendijk (1999), Weihrauch (2000), Heidemann & Seidenbusch (2002), Kalkman et al. (2002, 2004), Schindler (2002), Arnaboldi (2003), Beutler (2005), De Knijf et al. (2006), Krieg (2006), Burkart & Burkart (2007), Ott (2008), Jovic (2008), Boudot et al. (2009), Catling (2009), Linke (2009), Lopau (2010a, b), Winkler et al. (2009), Wolf & Kiel (2010), Balzan (2012), Mediani et al. (2012), Vidal-Abarca et al. (2013), Seehausen & Schardt (2014), Seehausen (2015) & Lambret et al. (2017).

“Litoral” within the zonal distribution was defined as an isolated standing water body. Slow-flowing sections or standing patches, particularly in the littoral areas of lowland rivers, were assigned to the respective biocoenotic region.

In the case of the distribution of saprobic valency points 44 of the 78 species were classified for the first time, the classification of nine species remained unchanged. The saprobic values of 15 species are now higher due to the changes made in this study, in the case of ten species they are lower now. The revision of the classification of the longitudinal distribution revealed the following changes: three species were classified for the first time, 12 species remained unchanged. Sixty-three species were newly classified: in the case of 53 species the valency points now reflect a stronger preference for running waters in line with a stronger expansion towards the upper rhithral sections. A large portion of those changes concerned species formerly classified as +/- limnobiote (expressed by 10 valency points for the littoral), which now show a more splitted distribution of the points. This fact reflects the increased knowledge of the ecological plasticity of odonate species. Due to this increased knowledge on the ecology of many dragonfly species, we refrained from the usage of a “+” sign indicating lacking or scarce information. The order in the Species inventory follows Wildermuth & Martens (2014).

References

- Arnaboldi, F. (2003): Observation récente de *Nehalennia speciosa* (Charpentier, 1840) en Finlande - note sur son habitat. *Martinia* 19 (3): 109-118.
- Askew, R.R. (2003): *The Dragonflies of Europe* (revised edition). Harley Books, Colchester, 308 pp.
- Balzan, M.V. (2012): Associations of dragonflies (Odonata) to habitat variables within the Maltese Islands: A spatio-temporal approach. *Journal of Insect Science*: Vol. 12 | Article 87, DOI: <http://dx.doi.org/10.1673/031.012.8701>.
- Barnes, R.S.K. (1994): *The brackish-water fauna of northwestern Europe*. Cambridge University Press.
- Bayly, I. A. E. (1972): Salinity tolerance and osmotic behaviour of animals in athalassic saline and marine hypersaline waters. *Annu. Rev. Ecol. Syst.* 1972.3: 233-268.
- Benken, T. & R. Raab (2008): Die Libellenfauna des Seewinkels am Neusiedler See: Häufigkeit, Bestandsentwicklung und Gefährdung (Odonata). *Libellula* 27 (3/4): 191-220.
- Beutler, H. (2005): Libellenfunde in einigen CORINE-Biotopgebieten Estlands (Odonata). *Libellula* 24 (1/2) 2005: 47-53.
- Boudot, J.-P. & V. J. Kalkman (2015): *Atlas of the European dragonflies and damselflies*. KNNV publishing, the Netherlands, 381 pp.
- Boudot, J.-P., V.J. Kalkman, M.A. Amorín, T. Bogdanović, A. Cordero Rivera, G. Degabriele, J.-L. Dommange, S. Ferreira, B. Garrigós, M. Jović, M. Kotarac, W. Lopau, M. Marinov, N. Mihoković, E. Riservato, B. Samraoui & W. Schneider (2009): *Atlas of the Odonata of the Mediterranean and North Africa*. *Libellula Supplement* 9: 1-256.
- Brock, V., J. Hoffmann, O. Kuhnast, W. Piper & K. Voß (1997): *Atlas der Libellen Schleswig-Holsteins*. Landesamt für Natur und Umwelt des Landes Schleswig-Holstein, 177pp.
- Brockhaus, T., H.-J. Roland, T. Benken, K.-J. Conze, A. Günther, K. G. Leipelt, M. Lohr, A. Martens, R. Mauersberger, J. Ott, F. Suhling, F. Weihrauch & C. Willigalla (Hrsg.) (2015): *Atlas der Libellen Deutschlands*. *Libellula Supplement* 14: 1-394.
- Burkart G. & W. Burkart (2007): Die Libellenfauna der Ostseeinsel Gotland (Odonata). *Libellula* 26 (1/2): 119-142.
- Catling P. M. (2009): Dragonflies (Odonata) Emerging from Brackish Pools in Saltmarshes of Gaspé, Quebec. *The Canadian Field-Naturalist* 123 (2): 176-177.
- Chovanec, A. (2014): Libellen als Indikatoren für den Erfolg von Renaturierungsmaßnahmen an Fließgewässern am Beispiel der Krems im Bereich Ansfelden/Oberaudorf. *ÖKO-L* 36/2: 17-26.
- Chovanec, A. (2015): Bewertung der Renaturierungsmaßnahmen in den Mündungsbereichen von Leitenbach und Sandbach sowie an der Aschach (Oberösterreich) aus libellenkundlicher Sicht. Studie im Auftrag des Amtes der Oberösterreichischen Landesregierung, Abt. Oberflächengewässerwirtschaft / Gewässerschutz, 73 pp.
- Chovanec, A. (2016): Libellenkundliche Untersuchungen an der restrukturierten Pram (Riedau / Zell) und an der regulierten Trattnach (Schlüßlberg) in Oberösterreich im Jahr 2016. Studie im Auftrag des Amtes der Oberösterreichischen Landesregierung / Abt. Oberflächengewässerwirtschaft, 67 pp.
- Chovanec, A. (2017a): Die Libellenfauna (Insecta: Odonata) der Klosterneuburger Donau-Au (Niederösterreich): Bewertung, Entwicklungstendenzen und Managementempfehlungen. *Wissenschaftliche Mitteilungen aus dem Niederösterreichischen Landesmuseum* 27 (in Druck).
- Chovanec, A. (2017b): Auswirkungen von Restrukturierungsmaßnahmen am Rußbach (Niederösterreich / Weinviertel) auf die Libellenfauna (Insecta: Odonata). *Wissenschaftliche Mitteilungen aus dem Niederösterreichischen Landesmuseum* 27 (in Druck).

- Chovanec, A. & J. A. Waringer (2015): Colonization of a 3rd order stream by dragonflies (Insecta: Odonata) – a best practice example of river restoration evaluated by the Dragonfly Association Index (lower Weidenbach, eastern Austria). *Acta ZooBot Austria* 152: 89-105.
- Chovanec, A., C. Fesl & H. P. Kollar (2003): Notes on the dragonfly community of a temporary pond near Vienna, Austria (Odonata). *Opusc. zool. flumin.* 215: 1-9.
- Chovanec, A., R. Wimmer, W. Rubey, M. Schindler & J. A. Waringer (2012): Hydromorphologische Leitbilder als Grundlage für die Ableitung gewässertypspezifischer Libellengemeinschaften (Insecta: Odonata), dargestellt am Beispiel der Bewertung der restrukturierten Weidenbach-Mündungsstrecke (Marchfeld, Niederösterreich). *Wissenschaftliche Mitteilungen aus dem Niederösterreichischen Landesmuseum* 23: 83-112.
- Chovanec, A., M. Schindler & W. Rubey (2014a): Assessing the success of lowland river restoration using dragonfly assemblages (Insecta: Odonata). *Acta ZooBot Austria* 150/151: 1-16.
- Chovanec, A., J. A. Waringer, R. Wimmer & M. Schindler (2014b): Dragonfly Association Index – Bewertung der Morphologie von Fließgewässern der Bioregion Östliche Flach- und Hügelländer durch libellenkundliche Untersuchungen. Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft, Wien, 39 pp.
- Chovanec, A., M. Schindler, J. A. Waringer & R. Wimmer (2015): The Dragonfly Association Index (Insecta: Odonata) – a tool for the type-specific assessment of lowland rivers. *River Research and Applications* 31: 627-638.
- Chwala, E. & J. Waringer (1996): Association patterns and habitat selection of dragonflies (Insecta: Odonata) at different types of Danubian backwaters at Vienna, Austria. *Archiv für Hydrobiologie Suppl.* 115, Large Rivers 11: 45-60.
- Colling, M. & U. Schmedtje (1996): Ökologische Typisierung der aquatischen Makrofauna. *Informationsberichte des Bayerischen Landesamtes für Wasserwirtschaft Heft 4/96*: München, 543 pp.
- Corbet, P. (1999): *Dragonflies – Behaviour and Ecology of Odonata*. Harley Books, Colchester.
- De Knijf, G., A. Anselin, P. Goffart & M. Tailly (2006): *De Libellen (Odonata) von Belgie: verspreiding - evolutie - habitats*. Libellenwerkgroep Gomphus i.s.m. Instituut voor Natuur- en Bosonderzoek, Brussel.
- Dierschke, V. (1998): Zum Vorkommen von Libellen auf der Ostseeinsel Hiddeensee. *Libellula* 17 (3/4): 229-235.
- Dijkstra, K.-D. B. & R. Lewington (2014): *Libellen Europas. Der Bestimmungsführer*. Haupt, Bern, 320 pp.
- Gros, P. (2006): Ausbreitung der westlichen Keiljungfer *Gomphus pulchellus* Sélys, 1840 in Zentraleuropa: erster Nachweis dieser Art im Bundesland Salzburg, Österreich (Odonata: Gomphidae). *Mitteilungen aus dem Haus der Natur* 17: 118-121.
- Gros, P. (2010): Die Libellenfauna des Mandlinger Moores (Gemeindegebiet Radstadt, Salzburg): Erster inneralpiner Nachweis der Großen Moosjungfer *Leucorrhinia pectoralis* (Charpentier, 1825) aus dem Bundesland Salzburg und erste Meldung der Glänzenden Binsenjungfer *Lestes dryas* Kirby, 1890 aus dem Ennstal, Österreich (Odonata). *Mitteilungen aus dem Haus der Natur* 18: 29-34.
- Heidemann, H. & R. Seidenbusch (2002): *Die Libellenlarven Deutschlands. Die Tierwelt Deutschlands, 72. Teil*. Goecke & Evers, Keltern, 328 pp.
- Holzinger, W. E. & B. Komposch (2012): *Die Libellen Kärntens. Sonderreihe Natur Kärnten, Band 6*. Naturwissenschaftlicher Verein für Kärnten, Klagenfurt, 336 pp.
- Holzinger, W. E., A. Chovanec & J. A. Waringer (2015): Odonata (Insecta). *Biosystematics and Ecology Series No. 31. Checklisten der Fauna Österreichs, No. 8*. Verlag der Österreichischen Akademie der Wissenschaften: 27-54.

- Janecek, B., O. Moog & J. Waringer (2002): Odonata. In: Moog, O. (Hrsg.), Fauna Aquatica Austriaca, Lieferung 2002. Bundesministerium für Land- u. Forstwirtschaft, Umwelt und Wasserwirtschaft: Wien, 14 pp.
- Jödicke, R. (1997): Die Binsenjungfern und Winterlibellen Europas - Lestidae. Die Neue Brehm-Bücherei Band 631, Die Libellen Europas Band 3. Westarp Wissenschaften, Magdeburg, 277 pp.
- Jovic, M. (2008): Report on Adriatic Montenegro 2007 project – Odonata IDF-Report 15 (2008): 1-25.
- Kalkman, V.J., G. A. van Duinen, H. Esselink & J.T. Kuper (2002): New records of Odonata from Estonia, with notes on breeding in the Baltic Sea and on species assemblages of raised systems. Notul. odonatol. 5 (10): 120-125.
- Kalkman, V., W. Lopau & G.J. van Pelt (2004): Hitherto unpublished records of dragonflies from Turkey (Odonata). Libellula Supplement 5: 65-166.
- Krieg, H.-J. (2006): Prüfung des erweiterten Aestuar-Typie-Indexes (AeTI) in der Tideelbe als geeignete Methode für die Bewertung der Qualitätskomponente benthische Wirbellosenfauna gemäß EU-Wasserrahmenrichtlinie im Rahmen eines vorläufigen Überwachungskonzeptes (Biomonitoring) - Praxistest AeTI anhand aktueller Daten (Zoobenthos) im Untersuchungsraum Tideelbe (2005). Sonderaufgabenbereich Tideelbe - Wassergütestelle Elbe.
- Krüner, U. (1992): Der Südliche Blaupfeil, *Orthetrum brunneum* (Fonscolombe), am Linken Niederrhein. Libellula 11 (3/4): 165-170.
- Kuhn, K. & K. Burbach (1998): Libellen in Bayern. Eugen Ulmer, Stuttgart, 333 pp.
- Laister, G. (2017): Öfter mal was Neues - Saphirauge (*Erythromma lindenii*) neu für das Linzer Stadtgebiet. ÖKO-L 39/2: 23-24.
- Lambret P., S. Hilaire & R. Stoks (2017): Egg hatching phenology and success of *Lestes macrostigma* in two temporary brackish ponds. International Journal of Odonatology, 20:1, 1-12, DOI: 10.1080/13887890.2016.1269690
- Landmann, A., G. Lehmann, F. Mungenast & H. Sonntag (2005) Die Libellen Tirols. Berenkamp, Wattens, 324 pp.
- Linke, T.J. (2009): Exuvienfunde zweier Gomphiden im Brackwasserbereich des Nestos (Odonata: Gomphidae). Libellula 28 (3/4) 2009: 203-208.
- Lopau, W. (2010a): Verbreitungsatlas der Libellen in Griechenland (Odonata). Libellula Supplement 10: 5-153.
- Lopau, W. (2010b): Bisher unveröffentlichte Libellenbeobachtungen aus Griechenland IV (Odonata). Libellula Supplement: 155-260.
- Martens, A. (1996): Die Federlibellen Europas - Platycnemididae. Die Neue Brehm-Bücherei Band 626, Die Libellen Europas Band 1. Westarp Wissenschaften Magdeburg, 149 pp.
- Mauersberger, R. (1989): Odonatenfauna des Bezirkes Rostock (DDR) und Verzeichnis der bisherigen Funde (Teil 2). Entomologische Nachrichten und Berichte 33: 63-74.
- Mauersberger, R., O. Brauner, F. Petzold & M. Kruse (2013): Die Libellen des Landes Brandenburg. Naturschutz und Landschaftspflege in Brandenburg 22 (3): 1-166.
- Mediani, M., J.-P. Boudot, B. Benazzouz & T. El Bella (2012) Two dragonfly species (Insecta: Odonata) migrating at Dakhla (region of Oued Ad-Dahab Lagouira, Morocco), International Journal of Odonatology, 15 (4): 293-298.
- Menke, N., C. Göcking, N. Grönhagen, R. Joest, M. Lohr, M. Olthoff & K.-J. Conze (2016): Die Libellen Nordrhein-Westfalens. LWL-Museum für Naturkunde, Münster, 448 pp.
- Muhar, S., M. Poppe, G. Egger, S. Schmutz & A. Melcher (2004): Flusslandschaften Österreichs. Ausweisung von Flusslandschaftstypen anhand des Naturraums, der Fischfauna und der Auenvegetation. Forschungsprogramm Kulturlandschaft, Band 16. Bundesministerium für Bildung, Wissenschaft und Kultur: Wien, 181 pp.

- Osburn, R. C. (1906): Observations and Experiments on Dragonflies in Brackish Water. The American Naturalist 40, No. 474: 395-399.
- Ott, J. (2008): Die Kleine Pechlibelle – *Ischnura pumilio* (Charpentier, 1925) (Odonata: Coenagrionidae) in der Pfalz: ein Profiteur von Regenrückhaltebecken, Naturschutzgewässern und der Klimaänderung. Mainzer naturwissenschaftliches Archiv 46: 233–261.
- Ott, J., D. Frank, A. Schotthöfer & C. Willigalla (2017): Libellen in Rheinland-Pfalz beobachten und erkennen. KoNat UG, Neustadt an der Weinstraße, 308 pp.
- Peters, G. (1987): Die Edellibellen Europas - Aeshnidae. Neue Brehm-Bücherei Bd. 585. A. Ziemsen Verlag, Wittenberg Lutherstadt, 140 pp.
- Raab, R., A. Chovanec & J. Pennerstorfer (2007): Libellen Österreichs. Springer: Wien, New York, 345 pp.
- Rüppell, G., D. Hilfert-Rüppell, G. Rehfeldt & C. Schütte (2005): Die Prachtlibellen Europas. Die Neue Brehm Bücherei Band 654, Die Libellen Europas Band 4. Westarp Wissenschaften, Hohenwarsleben, 255 pp.
- Samwald, O. (2004): Die Libellenfauna eines rückgebauten Bachlaufes bei Rudersdorf im südlichen Burgenland, Österreich (Odonata). Joannea Zoologie 6: 247-256.
- Schindler, M. (2002): Multivariate Analyse der Beziehungen zwischen Libellengesellschaften (Insecta: Odonata) und Habitatstrukturen an Gewässern im Seewinkel (Burgenland). Diplomarbeit Universität Wien, 98 pp.
- Schindler, M., C. Fesl & A. Chovanec (2003): Dragonfly associations (Insecta: Odonata) in relation to habitat variables: a multivariate approach. Hydrobiologia 497: 169-180.
- Schultz, H. (2010): Libellen. In: Umweltbundesamt / Viadonau (Hrsg.): Zusammenfassende ökologische Bewertung der flussbaulichen Maßnahmen an der March. Vergleich von Ufer- und Profilgestaltungsmaßnahmen auf Basis ausgewählter Bioindikatoren. Report 256, Wien.
- Schultz, H. (2013): Die Libellenfauna am Fadenbach zwischen Orth und Eckartsau. Endbericht der Libellen-Erhebung im Auftrag der Österreichischen Bundesforste AG 2006. Nationalpark Donauauen Wissenschaftliche Reihe Heft 32/2013, 63 pp.
- Schweighofer, W. (2011): Libellen im Bezirk Melk. Kuratorium zur Herausgabe einer Bezirkskunde für den Bezirk Melk (Hrsg.), Melk, 207 pp.
- Seehausen, M. (2015): Reproduktionsnachweise von Libellen an Gewässern mit erhöhtem Salzgehalt in Südhessen. Libellen in Hessen 8: 57-66.
- Seehausen, M. & L. Schardt (2014): A small saline spring-fed pond as habitat for *Aeshna cyanea* and *Pyrrhosoma nymphula* (Odonata: Aeshnidae, Coenagrionidae). Notulae odonatologicae 8(4) 2014: 77-116.
- Sonntag, H. (1999): Schlupfbiologische Freilanduntersuchungen an Libellen unter besonderer Berücksichtigung von *Sympecma paedisca* (Brauer) (Insecta. Odonata). Diplomarbeit Universität Innsbruck, 134 pp.
- Staufer, M. (2010): Die Verbreitung der Asiatischen Keiljungfer (*Gomphus flavipes*) an Thaya und March - Endbericht. Im Auftrag des WWF Österreich, 21 pp.
- Sternberg, K. & R. Buchwald (1999): Die Libellen Baden-Württembergs. Band 1: Allgemeiner Teil, Kleinlibellen (Zygoptera). Ulmer: Stuttgart, 468 pp.
- Sternberg, K. & R. Buchwald (2000): Die Libellen Baden-Württembergs. Band 2: Großlibellen (Anisoptera), Literatur. Ulmer: Stuttgart, 712 pp.
- Suhling, F. & O. Müller (1996): Die Flussjungfern Europas - Gomphidae. Die Neue Brehm-Bücherei Band 628, Die Libellen Europas Band 2. Westarp Wissenschaften, Magdeburg, 237 pp.
- Vidal-Abarca, M.R., M.M. Sánchez-Montoya, C. Guerrero, R. Gómez, M.I. Arce, V. García-García & M.L. Suárez (2013): Effects of intermittent stream flow on macroinvertebrate

- community composition and biological traits in a naturally saline Mediterranean stream. *Journal of Arid Environments* 99: 28-40.
- Van Helsdingen, P.J., L. Willemsse & M.C.D. Speight (Hrsg.) (1996): Background information in invertebrates of the Habitats Directive and the Bern Convention Part II Mantodea, Odonata, Orthoptera and Arachnida. Nature and environment No. 80, Council of Europe Publishing.
- Waringer, J. (1989): Gewässertypisierung anhand der Libellenfauna am Beispiel der Altenwörther Donauau (Niederösterreich). *Natur und Landschaft* 64: 389-392.
- Weihrauch, F. (2000): A note on *Brachytron pratense* (Müller, 1764) from coastal Istria, NW Croatia (Anisoptera: Aeshnidae). *Exuviae* 7(1): 19-26.
- Wiesbauer, H. & M. Denner (2013): Feuchtgebiete – Natur- und Kulturgeschichte der Weinviertler Gewässer. Amt der NÖ Landesregierung / Bundesministerium für Land und Forstwirtschaft, Umwelt und Wasserwirtschaft: Wien, 133 pp.
- Wildermuth, H. & A. Martens (2014): Taschenlexikon der Libellen Europas. Quelle & Meyer, Wiebelsheim, 824 pp.
- Wildermuth, H. & D. Küry (2009): Libellen schützen, Libellen fördern. Leitfaden für die Naturschutzpraxis. Beiträge zum Naturschutz in der Schweiz 31, Basel, 88 pp.
- Wildermuth, H. (2008): Die Falkenlibellen Europas - Corduliidae. Die Neue Brehm-Bücherei Bd. 653, Die Libellen Europas Band 5, Westarp Wissenschaften, Hohenwarsleben, 512 pp.
- Wimmer, R., H. Wintersberger & G. A. Parthl (2012): Hydromorphologische Leitbilder. Fließgewässertypisierung in Österreich. Publikation in vier Bänden, Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft. https://www.bmlfuw.gv.at/wasser/wasser-oesterreich/plan_gewaesser_ngp/
- Winkler, C., A. Klinge & A. Drews (2009): Verbreitung und Gefährdung der Libellen Schleswig-Holsteins – Arbeitsatlas 2009. Kiel, 43 pp.
- Witte, R.H. & D. Groenendijk (1999): The occurrence of dragonfly larvae in the Dutch Delta in relation to salinity. *Brachytron* 3 (2): 3-10.
- Wolf, B. & E. Keil (2010): Benthic macroinvertebrates in marshland streams and their salinity preferences. *Lauterbornia* 69: 191-218.
- Zessin, W.K.G. & D.G.W. Königstedt (1992): Rote Liste der gefährdeten Libellen Mecklenburg-Vorpommerns. Umweltministerium des Landes Mecklenburg-Vorpommern, 68 pp.

Species inventory

Family Calopterygidae

Genus *Calopteryx* LEACH, 1815

Calopteryx splendens (HARRIS, 1782)

Calopteryx virgo (LINNAEUS, 1758)

Family Lestidae

Genus *Chalcolestes* KENNEDY, 1920

Chalcolestes parvidens (ARTOBOLEWSKII, 1929)

Chalcolestes viridis (VANDER LINDEN, 1825)

Genus *Lestes* LEACH, 1815

Lestes barbarus (FABRICIUS, 1798)

Lestes dryas KIRBY, 1890

Lestes macrostigma (EVERSMANN, 1836)

Lestes sponsa (HANSEMANN, 1823)

Lestes virens (CHARPENTIER, 1825)

Genus *Sympecma* BURMEISTER, 1839

Sympecma fusca (VANDER LINDEN, 1820)

Sympecma paedisca (BRAUER, 1877)

Family Coenagrionidae

Genus *Coenagrion* KIRBY, 1890

Coenagrion hastulatum (CHARPENTIER, 1825)

Coenagrion hylas (TRYBOM, 1889)

Coenagrion lunulatum (CHARPENTIER, 1840)

Coenagrion mercuriale (CHARPENTIER, 1840)

Coenagrion ornatum (SÉLYS, 1850)

Coenagrion puella (LINNAEUS, 1758)

Coenagrion pulchellum (VANDER LINDEN, 1825)

Coenagrion scitulum (RAMBUR, 1842)

Genus *Enallagma* CHARPENTIER, 1840

Enallagma cyathigerum (CHARPENTIER, 1840)

Genus *Erythromma* CHARPENTIER, 1840

Erythromma lindenii (SÉLYS, 1840)

Erythromma najas (HANSEMANN, 1823)

Erythromma viridulum (CHARPENTIER, 1840)

Genus *Ischnura* CHARPENTIER, 1840

Ischnura elegans (VANDER LINDEN, 1820)

Ischnura pumilio (CHARPENTIER, 1825)

Genus *Nehalennia* SÉLYS IN SÉLYS & HAGEN, 1850

Nehalennia speciosa (CHARPENTIER, 1840)

Genus *Pyrrhosoma* CHARPENTIER, 1840

Pyrrhosoma nymphula (SULZER, 1776)

Family Platycnemididae**Genus Platycnemis** BURMEISTER, 1839

Platycnemis pennipes (PALLAS, 1771)

Family Aeshnidae**Genus Aeshna** FABRICIUS, 1775

Aeshna affinis VANDER LINDEN, 1820

Aeshna caerulea (STRÖM, 1783)

Aeshna cyanea (MÜLLER, 1764)

Aeshna grandis (LINNAEUS, 1758)

Aeshna isoceles (MÜLLER, 1767)

Aeshna juncea (LINNAEUS, 1758)

Aeshna mixta LATREILLE, 1805

Aeshna subarctica WALKER, 1908

Aeshna viridis EVERSMANN, 1836

Genus Anax LEACH, 1815

Anax ephippiger (BURMEISTER, 1839)

Anax imperator LEACH, 1815

Anax parthenope (SÉLYS, 1839)

Genus Brachytron EVANS, 1845

Brachytron pratense (MÜLLER, 1764)

Family Gomphidae**Genus Gomphus** LEACH, 1815

Gomphus flavipes (CHARPENTIER, 1825)

Gomphus pulchellus SÉLYS, 1840

Gomphus vulgatissimus (LINNAEUS, 1758)

Genus Onychogomphus SÉLYS, 1854

Onychogomphus forcipatus (LINNAEUS, 1758)

Genus Ophiogomphus SÉLYS, 1854

Ophiogomphus cecilia (GEOFFROY IN FOURCROY, 1785)

Family Cordulegastridae**Genus Cordulegaster** LEACH, 1815

Cordulegaster bidentata SÉLYS, 1843

Cordulegaster boltonii (DONOVAN, 1807)

Cordulegaster heros THEISCHINGER, 1979

Family Corduliidae**Genus Cordulia** LEACH, 1815

Cordulia aenea (LINNAEUS, 1758)

Genus Epithea BURMEISTER, 1839

Epithea bimaculata (CHARPENTIER, 1825)

Genus Somatochlora SÉLYS, 1871*Somatochlora alpestris* (SÉLYS, 1840)*Somatochlora arctica* (ZETTERSTEDT, 1840)*Somatochlora flavomaculata* (VANDER LINDEN, 1825)*Somatochlora meridionalis* NIELSEN, 1935*Somatochlora metallica* (VANDER LINDEN, 1825)**Family Libellulidae****Genus Crocothemis** BRAUER, 1868*Crocothemis erythraea* (BRULLÉ, 1832)**Genus Leucorrhinia** BRITTINGER, 1850*Leucorrhinia albifrons* (BURMEISTER, 1839)*Leucorrhinia caudalis* (CHARPENTIER, 1840)*Leucorrhinia dubia* (VANDER LINDEN, 1825)*Leucorrhinia pectoralis* (CHARPENTIER, 1825)*Leucorrhinia rubicunda* (LINNAEUS, 1758)**Genus Libellula** LINNAEUS, 1758*Libellula depressa* LINNAEUS, 1758*Libellula fulva* MÜLLER, 1764*Libellula quadrimaculata* LINNAEUS, 1758**Genus Orthetrum** NEWMAN, 1833*Orthetrum albistylum* (SÉLYS, 1848)*Orthetrum brunneum* (FONSCOLOMBE, 1837)*Orthetrum cancellatum* (LINNAEUS, 1758)*Orthetrum coerulescens* (FABRICIUS, 1798)**Genus Sympetrum** NEWMAN, 1833*Sympetrum danae* (SULZER, 1776)*Sympetrum depressiusculum* (SÉLYS, 1841)*Sympetrum flaveolum* (LINNAEUS, 1758)*Sympetrum fonscolombii* (SÉLYS, 1840)*Sympetrum meridionale* (SÉLYS, 1841)*Sympetrum pedemontanum* (MÜLLER IN ALLIONI, 1766)*Sympetrum sanguineum* (MÜLLER, 1764)*Sympetrum striolatum* (CHARPENTIER, 1840)*Sympetrum vulgatum* (LINNAEUS, 1758)

Saprobic valencies

| | x | o | ß | a | p | W | SI |
|--------------------------------|---|---|---|---|---|---|-----|
| Aeshna | | | | | | | |
| <i>Aeshna affinis</i> | - | - | 7 | 3 | - | 4 | 2,3 |
| <i>Aeshna caerulea</i> | - | 8 | 2 | - | - | 4 | 1,2 |
| <i>Aeshna cyanea</i> | - | 1 | 6 | 2 | 1 | 2 | 2,3 |
| <i>Aeshna grandis</i> | - | 1 | 6 | 3 | - | 3 | 2,2 |
| <i>Aeshna isoceles</i> | - | 1 | 6 | 3 | - | 3 | 2,2 |
| <i>Aeshna juncea</i> | - | 7 | 3 | - | - | 4 | 1,3 |
| <i>Aeshna mixta</i> | - | - | 7 | 3 | - | 4 | 2,3 |
| <i>Aeshna subarctica</i> | - | 7 | 3 | - | - | 4 | 1,3 |
| <i>Aeshna viridis</i> | - | - | 7 | 3 | - | 4 | 2,3 |
| Anax | | | | | | | |
| <i>Anax ephippiger</i> | - | - | 6 | 4 | - | 3 | 2,4 |
| <i>Anax imperator</i> | - | 2 | 6 | 2 | - | 3 | 2,0 |
| <i>Anax parthenope</i> | - | 2 | 6 | 2 | - | 3 | 2,0 |
| Brachytron | | | | | | | |
| <i>Brachytron pratense</i> | - | - | 6 | 4 | - | 3 | 2,4 |
| Calopteryx | | | | | | | |
| <i>Calopteryx splendens</i> | - | 1 | 6 | 3 | - | 3 | 2,2 |
| <i>Calopteryx virgo</i> | - | 4 | 6 | - | - | 3 | 1,6 |
| Chalcolestes | | | | | | | |
| <i>Chalcolestes parvidens</i> | - | 1 | 6 | 3 | - | 3 | 2,2 |
| <i>Chalcolestes viridis</i> | - | 1 | 6 | 3 | - | 3 | 2,2 |
| Coenagrion | | | | | | | |
| <i>Coenagrion hastulatum</i> | - | 2 | 7 | 1 | - | 3 | 1,9 |
| <i>Coenagrion hylas</i> | - | 7 | 3 | - | - | 4 | 1,3 |
| <i>Coenagrion lunulatum</i> | - | 4 | 5 | 1 | - | 2 | 1,7 |
| <i>Coenagrion mercuriale</i> | 1 | 3 | 4 | 2 | - | 1 | 1,7 |
| <i>Coenagrion ornatum</i> | - | 1 | 7 | 2 | - | 3 | 2,1 |
| <i>Coenagrion puella</i> | - | 1 | 7 | 2 | - | 3 | 2,1 |
| <i>Coenagrion pulchellum</i> | - | - | 7 | 3 | - | 4 | 2,3 |
| <i>Coenagrion scitulum</i> | - | - | 7 | 3 | - | 4 | 2,3 |
| Cordulegaster | | | | | | | |
| <i>Cordulegaster bidentata</i> | 2 | 7 | 1 | - | - | 3 | 0,9 |
| <i>Cordulegaster boltonii</i> | - | 5 | 5 | - | - | 3 | 1,5 |
| <i>Cordulegaster heros</i> | - | 5 | 5 | - | - | 3 | 1,5 |
| Cordulia | | | | | | | |
| <i>Cordulia aenea</i> | - | 2 | 6 | 2 | - | 3 | 2,0 |
| Crocothemis | | | | | | | |
| <i>Crocothemis erythraea</i> | - | - | 7 | 3 | - | 4 | 2,3 |
| Enallagma | | | | | | | |
| <i>Enallagma cyathigerum</i> | - | 2 | 5 | 3 | - | 2 | 2,1 |
| Epithea | | | | | | | |
| <i>Epithea bimaculata</i> | - | - | 3 | 7 | - | 4 | 2,7 |
| Erythromma | | | | | | | |
| <i>Erythromma lindenii</i> | - | 2 | 6 | 2 | - | 3 | 2,0 |
| <i>Erythromma najas</i> | - | 1 | 6 | 3 | - | 3 | 2,2 |

| | x | o | β | a | p | W | SI |
|-----------------------------------|---|---|---|---|---|---|-----|
| <i>Erythromma viridulum</i> | - | - | 7 | 3 | - | 4 | 2,3 |
| Gomphus | | | | | | | |
| <i>Gomphus flavipes</i> | - | - | 7 | 3 | - | 4 | 2,3 |
| <i>Gomphus pulchellus</i> | - | 1 | 6 | 3 | - | 3 | 2,2 |
| <i>Gomphus vulgatissimus</i> | - | 2 | 7 | 1 | - | 3 | 1,9 |
| Ischnura | | | | | | | |
| <i>Ischnura elegans</i> | - | 1 | 6 | 3 | - | 3 | 2,2 |
| <i>Ischnura pumilio</i> | - | 1 | 7 | 2 | - | 3 | 2,1 |
| Lestes | | | | | | | |
| <i>Lestes barbarus</i> | - | - | 7 | 3 | - | 4 | 2,3 |
| <i>Lestes dryas</i> | - | - | 7 | 3 | - | 4 | 2,3 |
| <i>Lestes macrostigma</i> | - | - | 7 | 3 | - | 4 | 2,3 |
| <i>Lestes sponsa</i> | - | - | 5 | 5 | - | 3 | 2,5 |
| <i>Lestes virens</i> | - | 1 | 5 | 4 | - | 2 | 2,3 |
| Leucorrhinia | | | | | | | |
| <i>Leucorrhinia albifrons</i> | - | 6 | 4 | - | - | 3 | 1,4 |
| <i>Leucorrhinia caudalis</i> | - | 1 | 7 | 2 | - | 3 | 2,1 |
| <i>Leucorrhinia dubia</i> | - | 6 | 4 | - | - | 3 | 1,4 |
| <i>Leucorrhinia pectoralis</i> | - | 1 | 7 | 2 | - | 3 | 2,1 |
| <i>Leucorrhinia rubicunda</i> | - | 6 | 4 | - | - | 3 | 1,4 |
| Libellula | | | | | | | |
| <i>Libellula depressa</i> | - | 1 | 7 | 2 | - | 3 | 2,1 |
| <i>Libellula fulva</i> | - | 4 | 5 | 1 | - | 2 | 1,7 |
| <i>Libellula quadrimaculata</i> | - | 1 | 6 | 3 | - | 3 | 2,2 |
| Nehalennia | | | | | | | |
| <i>Nehalennia speciosa</i> | - | 5 | 5 | - | - | 3 | 1,5 |
| Onychogomphus | | | | | | | |
| <i>Onychogomphus forcipatus</i> | - | 4 | 6 | - | - | 3 | 1,6 |
| Ophiogomphus | | | | | | | |
| <i>Ophiogomphus cecilia</i> | - | 3 | 6 | 1 | - | 3 | 1,8 |
| Orthetrum | | | | | | | |
| <i>Orthetrum albistylum</i> | - | 2 | 6 | 2 | - | 3 | 2,0 |
| <i>Orthetrum brunneum</i> | - | 4 | 5 | 1 | - | 2 | 1,7 |
| <i>Orthetrum cancellatum</i> | - | 2 | 6 | 2 | - | 3 | 2,0 |
| <i>Orthetrum coerulescens</i> | - | 3 | 5 | 2 | - | 2 | 1,9 |
| Platycnemis | | | | | | | |
| <i>Platycnemis pennipes</i> | - | 2 | 7 | 1 | - | 3 | 1,9 |
| Pyrrhosoma | | | | | | | |
| <i>Pyrrhosoma nymphula</i> | - | 3 | 5 | 2 | - | 2 | 1,9 |
| Somatochlora | | | | | | | |
| <i>Somatochlora alpestris</i> | 1 | 8 | 1 | - | - | 4 | 1,0 |
| <i>Somatochlora arctica</i> | - | 8 | 2 | - | - | 4 | 1,2 |
| <i>Somatochlora flavomaculata</i> | - | 1 | 7 | 2 | - | 3 | 2,1 |
| <i>Somatochlora meridionalis</i> | 1 | 5 | 4 | - | - | 2 | 1,3 |
| <i>Somatochlora metallica</i> | - | 3 | 5 | 2 | - | 2 | 1,9 |
| Sympecma | | | | | | | |
| <i>Sympecma fusca</i> | - | - | 8 | 2 | - | 4 | 2,2 |
| <i>Sympecma paedisca</i> | - | 1 | 7 | 2 | - | 3 | 2,1 |

| | x | o | ß | a | p | W | SI |
|----------------------------------|---|---|---|---|---|---|-----|
| Sympetrum | | | | | | | |
| <i>Sympetrum danae</i> | - | 4 | 5 | 1 | - | 2 | 1,7 |
| <i>Sympetrum depressiusculum</i> | - | - | 8 | 2 | - | 4 | 2,2 |
| <i>Sympetrum flaveolum</i> | - | - | 7 | 3 | - | 4 | 2,3 |
| <i>Sympetrum fonscolombii</i> | - | 1 | 7 | 2 | - | 3 | 2,1 |
| <i>Sympetrum meridionale</i> | - | - | 7 | 3 | - | 4 | 2,3 |
| <i>Sympetrum pedemontanum</i> | - | 1 | 6 | 3 | - | 3 | 2,2 |
| <i>Sympetrum sanguineum</i> | - | - | 7 | 3 | - | 4 | 2,3 |
| <i>Sympetrum striolatum</i> | - | 2 | 7 | 1 | - | 3 | 1,9 |
| <i>Sympetrum vulgatum</i> | - | 1 | 7 | 2 | - | 3 | 2,1 |

Longitudinal distribution

| | EUC | HYC | ER | MR | HR | EP | MP | HP | LIT | PRO |
|--------------------------------|-----|-----|----|----|----|----|----|----|-----|-----|
| Aeshna | | | | | | | | | | |
| <i>Aeshna affinis</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |
| <i>Aeshna caerulea</i> | - | - | - | - | - | - | - | - | 10 | - |
| <i>Aeshna cyanea</i> | - | - | - | - | - | 1 | 1 | 1 | 7 | - |
| <i>Aeshna grandis</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |
| <i>Aeshna isoceles</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |
| <i>Aeshna juncea</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |
| <i>Aeshna mixta</i> | - | - | - | - | - | 1 | 1 | 1 | 7 | - |
| <i>Aeshna subarctica</i> | - | - | - | - | - | - | - | - | 10 | - |
| <i>Aeshna viridis</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |
| Anax | | | | | | | | | | |
| <i>Anax ephippiger</i> | - | - | - | - | - | 1 | 1 | 1 | 7 | - |
| <i>Anax imperator</i> | - | - | - | - | 1 | 1 | 1 | 1 | 6 | - |
| <i>Anax parthenope</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |
| Brachytron | | | | | | | | | | |
| <i>Brachytron pratense</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |
| Calopteryx | | | | | | | | | | |
| <i>Calopteryx splendens</i> | - | - | - | - | 1 | 4 | 3 | 1 | 1 | - |
| <i>Calopteryx virgo</i> | - | - | - | 2 | 6 | 2 | - | - | - | - |
| Chalcolestes | | | | | | | | | | |
| <i>Chalcolestes parvidens</i> | - | - | - | - | 1 | 1 | 2 | 1 | 5 | - |
| <i>Chalcolestes viridis</i> | - | - | - | - | 1 | 1 | 1 | 1 | 6 | - |
| Coenagrion | | | | | | | | | | |
| <i>Coenagrion hastulatum</i> | - | - | - | - | - | - | - | - | 10 | - |
| <i>Coenagrion hylas</i> | 1 | 1 | 1 | - | - | - | - | - | 7 | - |
| <i>Coenagrion lunulatum</i> | - | - | - | - | - | - | - | - | 10 | - |
| <i>Coenagrion mercuriale</i> | 1 | 1 | 2 | 2 | 2 | 2 | - | - | - | - |
| <i>Coenagrion ornatum</i> | - | 1 | - | 2 | 3 | 4 | - | - | - | - |
| <i>Coenagrion puella</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |
| <i>Coenagrion pulchellum</i> | - | - | - | - | - | 1 | 1 | 1 | 7 | - |
| <i>Coenagrion scitulum</i> | - | - | - | - | - | 1 | 1 | 1 | 7 | - |
| Cordulegaster | | | | | | | | | | |
| <i>Cordulegaster bidentata</i> | 2 | 3 | 3 | 2 | - | - | - | - | - | - |
| <i>Cordulegaster boltonii</i> | 1 | 2 | 3 | 2 | 2 | - | - | - | - | - |
| <i>Cordulegaster heros</i> | - | 1 | 3 | 3 | 3 | - | - | - | - | - |
| Cordulia | | | | | | | | | | |
| <i>Cordulia aenea</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |
| Crocothemis | | | | | | | | | | |
| <i>Crocothemis erythraea</i> | - | - | - | - | - | 1 | 1 | 1 | 7 | - |
| Enallagma | | | | | | | | | | |
| <i>Enallagma cyathigerum</i> | - | - | - | - | - | 1 | 1 | 1 | 7 | - |
| Epithea | | | | | | | | | | |
| <i>Epithea bimaculata</i> | - | - | - | - | - | - | - | 1 | 9 | - |
| Erythromma | | | | | | | | | | |
| <i>Erythromma lindenii</i> | - | - | - | - | - | 2 | 3 | 1 | 4 | - |
| <i>Erythromma najas</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |

| | EUC | HYC | ER | MR | HR | EP | MP | HP | LIT | PRO |
|-----------------------------------|-----|-----|----|----|----|----|----|----|-----|-----|
| <i>Erythromma viridulum</i> | - | - | - | - | - | 1 | 2 | 1 | 6 | - |
| Gomphus | | | | | | | | | | |
| <i>Gomphus flavipes</i> | - | - | - | - | - | 3 | 6 | 1 | - | - |
| <i>Gomphus pulchellus</i> | - | - | - | - | - | 1 | 2 | - | 7 | - |
| <i>Gomphus vulgatissimus</i> | - | - | - | - | 2 | 5 | 1 | 1 | 1 | - |
| Ischnura | | | | | | | | | | |
| <i>Ischnura elegans</i> | - | - | - | - | 1 | 2 | 2 | 1 | 4 | - |
| <i>Ischnura pumilio</i> | - | - | - | - | - | 1 | 1 | 1 | 7 | - |
| Lestes | | | | | | | | | | |
| <i>Lestes barbarus</i> | - | - | - | - | - | - | - | 1 | 9 | - |
| <i>Lestes dryas</i> | - | - | - | - | - | - | - | 1 | 9 | - |
| <i>Lestes macrostigma</i> | - | - | - | - | - | - | - | 2 | 8 | - |
| <i>Lestes sponsa</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |
| <i>Lestes virens</i> | - | - | - | - | - | - | - | 1 | 9 | - |
| Leucorrhinia | | | | | | | | | | |
| <i>Leucorrhinia albifrons</i> | - | - | - | - | - | - | - | - | 10 | - |
| <i>Leucorrhinia caudalis</i> | - | - | - | - | - | - | - | - | 10 | - |
| <i>Leucorrhinia dubia</i> | - | - | - | - | - | - | - | - | 10 | - |
| <i>Leucorrhinia pectoralis</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |
| <i>Leucorrhinia rubicunda</i> | - | - | - | - | - | - | - | - | 10 | - |
| Libellula | | | | | | | | | | |
| <i>Libellula depressa</i> | - | - | - | - | - | 1 | 1 | 1 | 7 | - |
| <i>Libellula fulva</i> | - | - | - | - | - | 2 | 2 | 1 | 5 | - |
| <i>Libellula quadrimaculata</i> | - | - | - | - | - | 1 | 1 | 1 | 7 | - |
| Nehalennia | | | | | | | | | | |
| <i>Nehalennia speciosa</i> | - | - | - | - | - | - | - | 1 | 9 | - |
| Onychogomphus | | | | | | | | | | |
| <i>Onychogomphus forcipatus</i> | - | - | - | 2 | 3 | 3 | - | 1 | 1 | - |
| Ophiogomphus | | | | | | | | | | |
| <i>Ophiogomphus cecilia</i> | - | - | - | 1 | 2 | 5 | 2 | - | - | - |
| Orthetrum | | | | | | | | | | |
| <i>Orthetrum albistylum</i> | - | - | - | - | - | 1 | 1 | 1 | 7 | - |
| <i>Orthetrum brunneum</i> | 1 | 1 | - | 1 | 1 | 1 | 1 | 1 | 3 | - |
| <i>Orthetrum cancellatum</i> | - | - | - | - | - | 1 | 1 | 1 | 7 | - |
| <i>Orthetrum coerulescens</i> | 2 | 1 | 1 | 1 | 1 | 1 | - | 1 | 2 | - |
| Platynemis | | | | | | | | | | |
| <i>Platynemis pennipes</i> | - | - | - | - | 1 | 2 | 4 | - | 3 | - |
| Pyrrhosoma | | | | | | | | | | |
| <i>Pyrrhosoma nymphula</i> | - | 1 | - | 1 | 1 | 1 | 1 | 1 | 4 | - |
| Somatochlora | | | | | | | | | | |
| <i>Somatochlora alpestris</i> | 1 | 1 | - | - | - | - | - | - | 8 | - |
| <i>Somatochlora arctica</i> | 1 | - | - | - | - | - | - | - | 9 | - |
| <i>Somatochlora flavomaculata</i> | - | - | - | - | - | - | 2 | - | 8 | - |
| <i>Somatochlora meridionalis</i> | - | 1 | - | 1 | 2 | 3 | 2 | - | 1 | - |
| <i>Somatochlora metallica</i> | - | - | - | - | - | - | 2 | 1 | 7 | - |
| Sympecma | | | | | | | | | | |
| <i>Sympecma fusca</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |
| <i>Sympecma paedisca</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |

| | EUC | HYC | ER | MR | HR | EP | MP | HP | LIT | PRO |
|----------------------------------|-----|-----|----|----|----|----|----|----|-----|-----|
| Sympetrum | | | | | | | | | | |
| <i>Sympetrum danae</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |
| <i>Sympetrum depressiusculum</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |
| <i>Sympetrum flaveolum</i> | - | - | - | - | - | - | - | 1 | 9 | - |
| <i>Sympetrum fonscolombii</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |
| <i>Sympetrum meridionale</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |
| <i>Sympetrum pedemontanum</i> | - | - | - | - | - | 1 | 1 | 1 | 7 | - |
| <i>Sympetrum sanguineum</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |
| <i>Sympetrum striolatum</i> | - | - | - | - | - | 1 | 1 | 1 | 7 | - |
| <i>Sympetrum vulgatum</i> | - | - | - | - | - | - | 1 | 1 | 8 | - |

| Functional feeding guilds | | | | | | | | | | |
|----------------------------------|-----|-----|------|------|-----|-----|-----|-----|-----|-----|
| | SHR | GRA | AFIL | PFIL | DET | MIN | XYL | PRE | PAR | OTH |
| Aeshna | | | | | | | | | | |
| <i>Aeshna affinis</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Aeshna caerulea</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Aeshna cyanea</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Aeshna grandis</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Aeshna isoceles</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Aeshna juncea</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Aeshna mixta</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Aeshna subarctica</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Aeshna viridis</i> | - | - | - | - | - | - | - | 10 | - | - |
| Anax | | | | | | | | | | |
| <i>Anax ephippiger</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Anax imperator</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Anax parthenope</i> | - | - | - | - | - | - | - | 10 | - | - |
| Brachytron | | | | | | | | | | |
| <i>Brachytron pratense</i> | - | - | - | - | - | - | - | 10 | - | - |
| Calopteryx | | | | | | | | | | |
| <i>Calopteryx splendens</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Calopteryx virgo</i> | - | - | - | - | - | - | - | 10 | - | - |
| Chalcolestes | | | | | | | | | | |
| <i>Chalcolestes parvidens</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Chalcolestes viridis</i> | - | - | - | - | - | - | - | 10 | - | - |
| Coenagrion | | | | | | | | | | |
| <i>Coenagrion hastulatum</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Coenagrion hylas</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Coenagrion lunulatum</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Coenagrion mercuriale</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Coenagrion ornatum</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Coenagrion puella</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Coenagrion pulchellum</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Coenagrion scitulum</i> | - | - | - | - | - | - | - | 10 | - | - |
| Cordulegaster | | | | | | | | | | |
| <i>Cordulegaster bidentata</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Cordulegaster boltonii</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Cordulegaster heros</i> | - | - | - | - | - | - | - | 10 | - | - |
| Cordulia | | | | | | | | | | |
| <i>Cordulia aenea</i> | - | - | - | - | - | - | - | 10 | - | - |
| Crocothemis | | | | | | | | | | |
| <i>Crocothemis erythraea</i> | - | - | - | - | - | - | - | 10 | - | - |
| Enallagma | | | | | | | | | | |
| <i>Enallagma cyathigerum</i> | - | - | - | - | - | - | - | 10 | - | - |
| Epithea | | | | | | | | | | |
| <i>Epithea bimaculata</i> | - | - | - | - | - | - | - | 10 | - | - |
| Erythromma | | | | | | | | | | |
| <i>Erythromma lindenii</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Erythromma najas</i> | - | - | - | - | - | - | - | 10 | - | - |

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| <i>Erythromma viridulum</i> | - | - | - | - | - | - | - | 10 | - | - |
| Gomphus | | | | | | | | | | |
| <i>Gomphus flavipes</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Gomphus pulchellus</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Gomphus vulgatissimus</i> | - | - | - | - | - | - | - | 10 | - | - |
| Ischnura | | | | | | | | | | |
| <i>Ischnura elegans</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Ischnura pumilio</i> | - | - | - | - | - | - | - | 10 | - | - |
| Lestes | | | | | | | | | | |
| <i>Lestes barbarus</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Lestes dryas</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Lestes macrostigma</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Lestes sponsa</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Lestes virens</i> | - | - | - | - | - | - | - | 10 | - | - |
| Leucorrhinia | | | | | | | | | | |
| <i>Leucorrhinia albifrons</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Leucorrhinia caudalis</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Leucorrhinia dubia</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Leucorrhinia pectoralis</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Leucorrhinia rubicunda</i> | - | - | - | - | - | - | - | 10 | - | - |
| Libellula | | | | | | | | | | |
| <i>Libellula depressa</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Libellula fulva</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Libellula quadrimaculata</i> | - | - | - | - | - | - | - | 10 | - | - |
| Nehalennia | | | | | | | | | | |
| <i>Nehalennia speciosa</i> | - | - | - | - | - | - | - | 10 | - | - |
| Onychogomphus | | | | | | | | | | |
| <i>Onychogomphus forcipatus</i> | - | - | - | - | - | - | - | 10 | - | - |
| Ophiogomphus | | | | | | | | | | |
| <i>Ophiogomphus cecilia</i> | - | - | - | - | - | - | - | 10 | - | - |
| Orthetrum | | | | | | | | | | |
| <i>Orthetrum albistylum</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Orthetrum brunneum</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Orthetrum cancellatum</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Orthetrum coerulescens</i> | - | - | - | - | - | - | - | 10 | - | - |
| Platycnemis | | | | | | | | | | |
| <i>Platycnemis pennipes</i> | - | - | - | - | - | - | - | 10 | - | - |
| Pyrrhosoma | | | | | | | | | | |
| <i>Pyrrhosoma nymphula</i> | - | - | - | - | - | - | - | 10 | - | - |
| Somatochlora | | | | | | | | | | |
| <i>Somatochlora alpestris</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Somatochlora arctica</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Somatochlora flavomaculata</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Somatochlora meridionalis</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Somatochlora metallica</i> | - | - | - | - | - | - | - | 10 | - | - |
| Sympecma | | | | | | | | | | |
| <i>Sympecma fusca</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Sympecma paedisca</i> | - | - | - | - | - | - | - | 10 | - | - |

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| Sympetrum | | | | | | | | | | |
| <i>Sympetrum danae</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Sympetrum depressiusculum</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Sympetrum flaveolum</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Sympetrum fonscolombii</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Sympetrum meridionale</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Sympetrum pedemontanum</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Sympetrum sanguineum</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Sympetrum striolatum</i> | - | - | - | - | - | - | - | 10 | - | - |
| <i>Sympetrum vulgatum</i> | - | - | - | - | - | - | - | 10 | - | - |