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Cover: Oil painting of Humpback Whale *Megaptera novaeangliae*. © R. Mahesh.

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COMMUNICATION

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A preliminary checklist of dragonflies and damselflies (Insecta: Odonata) of Kanyakumari District, Tamil Nadu, India

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Abstract: This study documents the Odonata diversity in Kanyakumari District, Tamil Nadu, covering forested regions, wetlands, reservoirs, and saltpans from September 2024 to January 2025. A total of 82 species were recorded, including 47 dragonflies and 35 damselflies. The highest diversity was observed at Mukkadal Dam, followed by Mambazhathurayar Reservoir and Kannimaranthoppu stream. In contrast, Puthalam Saltpan exhibited the lowest diversity likely due to high salinity levels. Forested regions supported the greatest species richness, possibly due to their relatively undisturbed, less polluted nature. This study contributes to the documentation of regional biodiversity and supports the Biological Diversity Act (2002) of India. The findings are expected to assist in local conservation efforts and provide insights into Odonata habitat preferences in Kanyakumari District.

Keywords: Anisoptera, Balamore, Coenagrionidae, endemic, Libellulidae, Puthalam saltpan, Theroor wetland, Western Ghats, wetland, Zygoptera.

Tamil: இந்த ஆய்வு தமிழ்நாட்டின் கன்னியாகுமரி மாவட்டத்தில் உள்ள வனப் பகுதிகள், ஈரநிலங்கள், நீர்த் தேக்கங்கள் மற்றும் உவர்நிலங்களில் உள்ள தும்பிகளின் பல்வகைத் தன்மையைப் பதிவு செய்கிறது. இந்த ஆய்வு செப்டம்பர் 2024 முதல் ஜனவரி 2025 வரை நடைபெற்றது. மொத்தமாக 82 இனங்கள் கண்டறியப்பட்டன. இதில் 47 தட்டான் பூச்சி இனங்களும், 35 ஊசித் தட்டான் இனங்களும் அடங்கும். இந்த ஆய்வில், முக்கடல் அணையில் அதிகமான இனப் பல்வகைத் தன்மை காணப்பட்டது. அதற்கு அடுத்ததாக மாம்பழத் துறையார் நீர்த் தேக்கம் மற்றும் கன்னிமாரத்தோப்பு ஓடைப் பகுதிகள் உள்ளன. இதற்கு மாறாக, புத்தளம் உப்பளத்தில் உப்புத்தன்மை அதிகமாக இருப்பதால், அங்கு மிகவும் குறைவான இனங்கள் மட்டுமே காணப்பட்டன. காடுகள் அதிகமாக உள்ள பகுதிகளில் உயிரினங்களின் செழுமை அதிகமாக இருந்தது. இது குறைந்த மாசு மற்றும் மனிதர் ஏற்படுத்தும் இடையூறுகள் குறைவாக இருப்பதாலாக இருக்கலாம். இந்த ஆய்வு, உள்ளூர் பல்லுயிர் பதிவுகளை மேம்படுத்துவதோடு, இந்தியாவின் உயிரியல் பல்வகைத் தன்மை சட்டம் (2002) ஆதரிக்கிறது. மேலும், இந்த கண்டுபிடிப்புகள் உள்ளூர் பாதுகாப்பு முயற்சிகளுக்கு உதவுவதோடு, தும்பிகள் எந்த வகை வாழ்விடங்களை விரும்புகின்றன என்பதை புரிந்துகொள்ளவும் உதவும் என எதிர்பார்க்கப்படுகிறது.

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INTRODUCTION

The order Odonata, encompassing dragonflies and damselflies, is primarily associated with freshwater wetlands and adjacent landscapes. It represents one of the most ancient insect lineages, with fossil evidence indicating its origin dating back to the Permian period. The term *Odonata* is derived from the Greek word *odontos*, meaning "toothed", referring to the characteristic dentition of their mandibles. It comprises hemimetabolous insects with a semi-aquatic life cycle (Corbet 1962; Stoks & Córdoba-Aguilar 2012). They rely on freshwater ecosystems for reproduction, with aquatic larval stages and terrestrial/aerial adult stages. Due to this dependence, odonates serve as key bioindicators of both aquatic and terrestrial habitats (Monteiro-Junior et al. 2014; Rocha-Ortega et al. 2019). Although freshwater ecosystems cover only 0.8% of Earth's surface and account for merely 0.01% of the global water volume (Gatti 2016), they play a crucial role in sustaining biodiversity (Previsic et al. 2014; Ivković & Plant 2015) and support over 1,00,000 species (Gatti 2016).

Globally, the order Odonata comprises 6,392 extant species distributed across 46 families (Paulson et al. 2026) and is found worldwide, except in polar regions. In India, the order is represented by 506 species and 44 subspecies belonging to 157 genera, 17 families, and three suborders (Kalkman et al. 2020; Subramanian & Babu 2024; Chandran et al. 2025). Tamil Nadu comprises 147 species, of which 55 are endemic (Subramanian & Babu 2024).

Odonates, being habitat specialists, are primarily associated with primary forests, open plains, and tropical streams (Villanueva & Mohagan 2010; Koparde et al. 2014, 2015). Notably, dragonflies and damselflies exhibit differential responses to habitat modifications, with damselflies being more sensitive to microhabitat changes (Koparde 2016). Due to their ecological roles, odonates are regarded as key components of aquatic ecosystems and serve as biological indicators of environmental conditions (Clark & Samways 1996; Samways et al. 1989). Subramanian (2007) reported 178 species of odonates from the Western Ghats with 68 endemic species. Emiliyamma (2014) reported 169 species of odonates from southern Western Ghats with 66 endemic species.

Kanyakumari District, formerly part of the Travancore State before India's independence, was historically known as South Travancore District (Menon & Padmanabha 1929) and later integrated into Tamil Nadu. While historical faunal records from Travancore exist, many lack precise locality data. This study represents one of the first dedicated surveys on Odonata diversity in Kanyakumari District in nearly a century, contributing valuable insights into the region's unique Odonata assemblages.

Given the significance of regional biodiversity documentation for long-term conservation and management, a systematic study was conducted across varied habitats of Kanyakumari District, Tamil Nadu, southern India, from September 2024 to January 2025. The findings of this research are presented herein.

Study area

The present study was conducted across multiple sites in Kanyakumari District, encompassing both forested regions (natural plantation with rich canopy) (Kannimaranthoppu scrub forest elevation ranges 100–140 m, Mahendragiri Reserve Forest; Balamore Estate elevation ranges 400–480 m, with fragmented moist evergreen forest; Kothayar elevation ranges 200–250 m, with moist deciduous forest), Freshwater wetlands (Mambazhathurayar Reservoir located in Villukuri, with dry deciduous forest elevation 99 m; Mukkadal Dam built across the Vambaru River, with dry deciduous forest elevation 57 m; Thovalai Checkdam built across Thovalai Canal, elevation 53 m; Putheri lake receives water from a canal outlet of Pechiparai Dam, elevation 17 m; Periyakulam near the town of Manavalakurichi, elevation 10 m; Theroor wetland receives water from Thovalai Channel, elevation 32 m; Thirunanthikarai receives water source from Nandhiaaru River (Kodayar left bank canal), elevation 92 m, and Puthalam Saltpan receives water from the Manakkudy Estuary, elevation 8 m). Forests cover approximately 30% of the district, extending over 40,000 ha, situated between 8.076°–8.578° N and 77.100°–77.590° E. This survey aimed to assess Odonata richness across diverse habitat types, including forest streams (Kannimaranthoppu—KMT, Balamore Estate—BE, & Kothayar—KTF), reservoirs (Mambazhathurayar—MTY & Mukkadal dam—MD), selected wetlands (Thovalai Checkdam—TCD, Putheri lake—PL, Periyakulam—PK, Theroor wetland—TW, & Thirunanthikarai–TNK), and saltpans (Puthalam Saltpan–PSP) (Table 1; Figure 1; Image 1). The study was conducted from September 2024 to January 2025.

MATERIALS AND METHODS

The Odonata survey was conducted primarily during daylight hours using the line transect & visual encounter

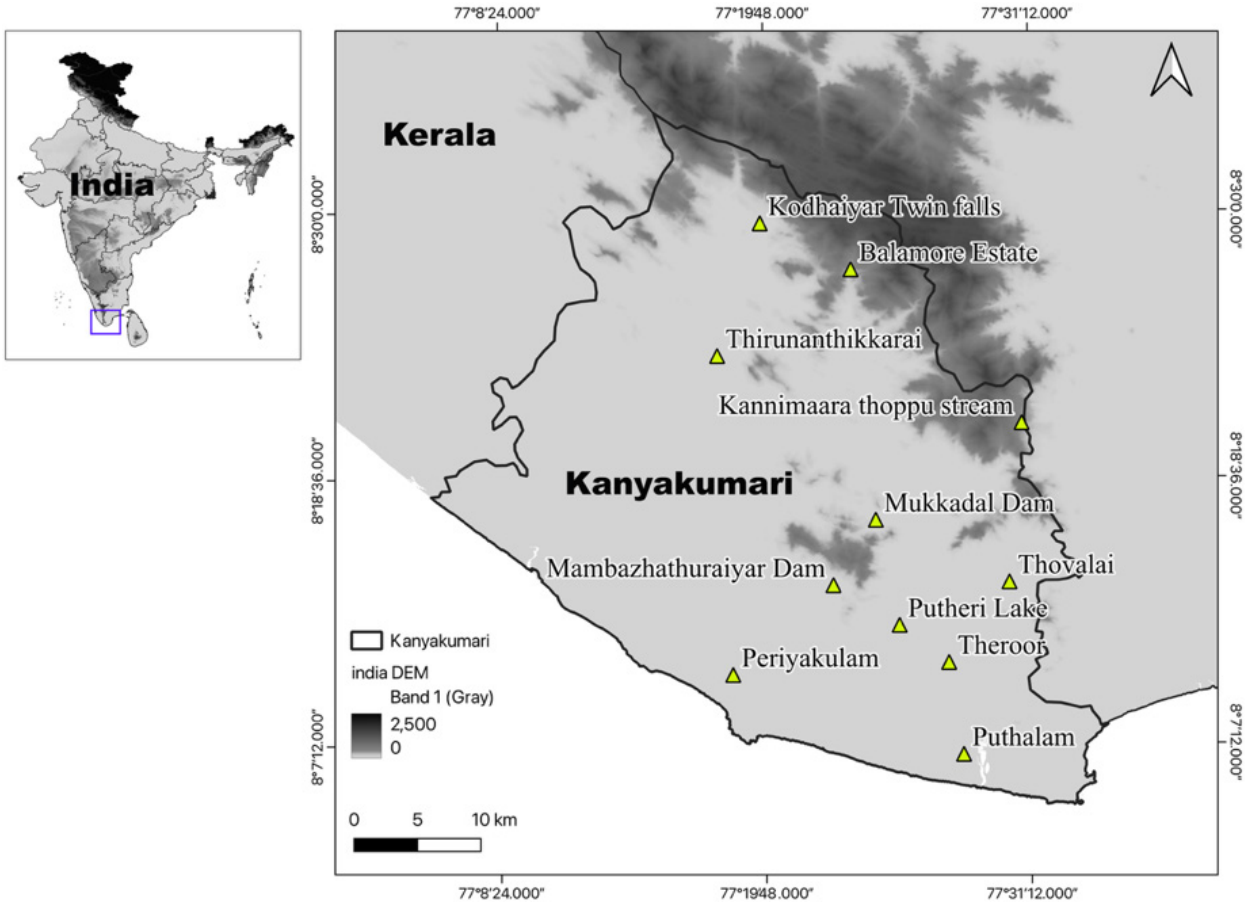

Figure 1. Map showing the study area in Kanyakumari District.

survey method, everyday from 0600 to 1000 h, from September 2024 to January 2025. The study relied predominantly on photographic documentation rather than specimen collection, due to the Tamil Nadu Forest Department's stringent regulations on faunal collection. This policy contrasts with those of the neighbouring states, Kerala and Karnataka, and has contributed to the scarcity of faunal records from this region of the Western Ghats.

Digital photographs were captured using a Nikon D7000 camera equipped with a 300 mm lens. Species identification was performed using available reference literature, including Subramanian (2009) and Kiran & Raju (2013).

RESULTS

During the study period, a total of 82 Odonata species were recorded, comprising 47 dragonfly (Anisoptera) and 35 damselfly (Zygoptera) species (Table 2, Images 2–6) belonging to 13 families and 57 genera. Of the 82 species, 18 species are endemic. Species richness varied across the surveyed locations. The highest number of species was observed at Mukkadal Dam, where 37 dragonfly species and 17 damselfly species were recorded, followed by Mambazhathurayar Reservoir with 31 dragonfly species and 13 damselfly species. The Kannimaranthoppu Stream habitat also exhibited a high number of species, with 29 dragonfly species and 15 damselfly species.

In contrast, Puthalam Saltpan, a high-salinity habitat, exhibited the lowest number of species, with 15 dragonfly species and six damselfly species, as elevated salinity levels are generally unsuitable for most Odonata species, except for a few salinity-tolerant species. Further study is required to understand the species habitat preference.

Other surveyed locations recorded moderate species richness: Kothayar Twin Falls (38 species), Periyakulam (37 species), Thirunanthikarai (35 species), Theroor Wetland (33 species), Putheri Lake (31 species), Balamore

Image 1. Study stations: A,B—Puthalam Saltpan | C—Balamore Estate | D—Thovalai Check Dam | E—Kodayar Twin Falls. © Muthukrishnan.

Table 1. List of study site across Kanyakumari District.

	Study site	Elevation (m)	Location
1	Kannimaranthoppu, Mahendragiri Reserve Forest	100–140	08.348° N, 77.514° E
2	Balamore Estate	400–480	08.458° N, 77.392° E
3	Kothayar Twin Falls	200–250	08.491° N, 77.327° E
4	Mambazhathurayar Reservoir, Villukuri	99	08.233° N, 77.378° E
5	Mukkadal Dam	57	08.280° N, 77.409° E
6	Thovalai Checkdam	53	08.235° N, 77.505° E
7	Putheri Lake	17	08.205° N, 77.426° E
8	Periyakulam, Manavalakurichi	10	08.170° N, 77.306° E
9	Theroor Wetland, Thovalai Channel	32	08.178° N, 77.461° E
10	Thirunanthikarai	92	08.397° N, 77.296° E
11	Puthalam Saltpan	8	08.112° N, 77.471° E

Estate (30 species), and Thovalai checkdam (25 species). Survey efforts at Balamore Estate were limited to three replicates, as the region falls largely within a protected area where research activities were restricted due to lack of permission and other constraints (Figure 2).

The documented species are classified under various IUCN Red List categories, with the 'Least Concern' (LC) category comprising 42 species of dragonflies (Anisoptera) and 27 species of damselflies (Zygoptera). Additionally, one dragonfly *Heliogomphus promelas* is categorized as 'Near Threatened' (NT), while one damselfly *Protosticta sanguinostigma* falls under the 'Vulnerable' (VU) category. Furthermore, eight species (*Gynacantha dravida*, *Macrogomphus wynaadicus*, *Hylaeothemis apicalis* and *Idionyx travancorensis* dragonflies and *Caconeura ramburi*, *Caconeura risi*, *Esme mudiensis* and *Protosticta rufostigma* damselflies) are classified as 'Data Deficient' (DD), while two damselflies

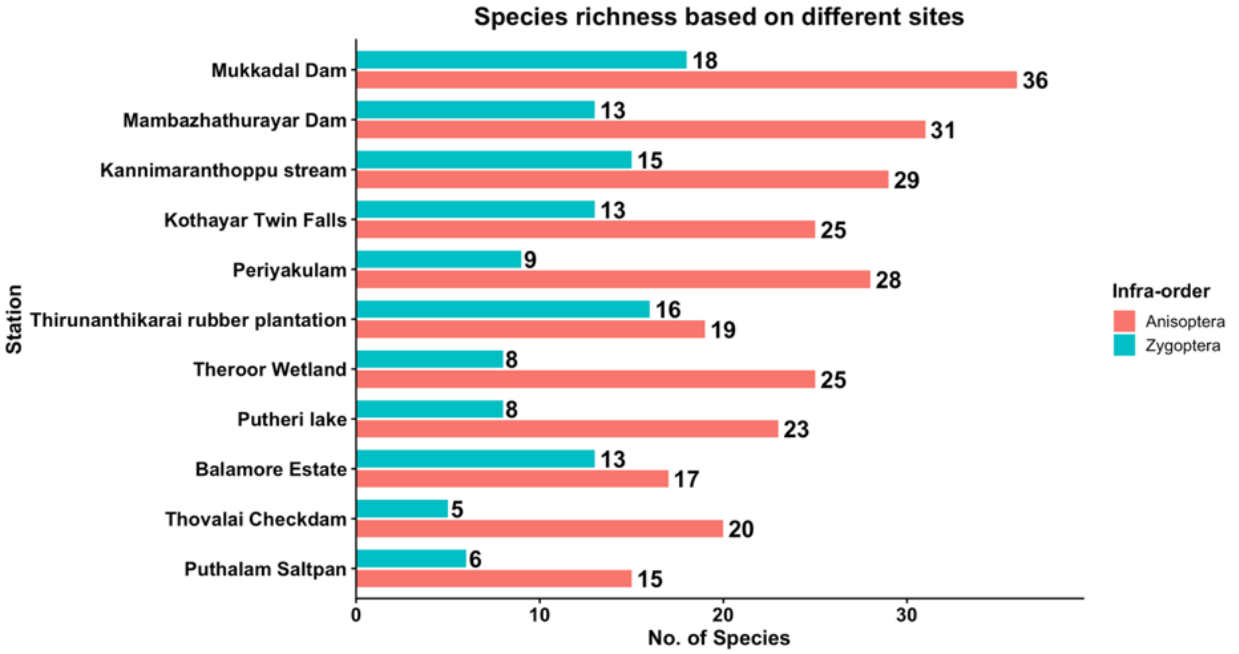

Figure 2. Site-wise Odonata species richness in Kanyakumari District.

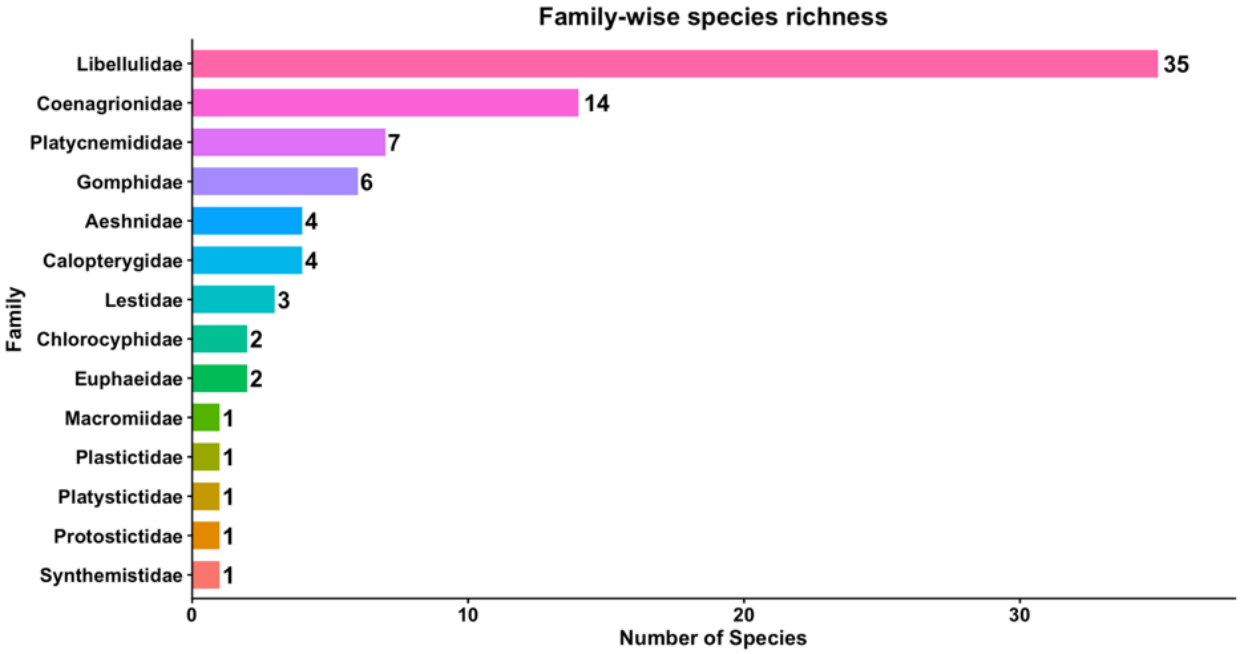

Figure 3. Family-wise species richness.

Vestalis submontana and *Indolestes gracilis davenporti* and one dragonfly *Merogomphus tamaracherriensis* remain 'Not Evaluated' (NE) (Table 2). Platycnemididae and Gomphidae have the highest number of DD and NE species, respectively, on the IUCN Red List.

Libellulidae is the most species-rich family, comprising 35 species, followed by Coenagrionoidea with 14 species, and Platycnemididae with seven species, which are considered moderate in terms of species-rich families. Several families, including Macromiidae, Platystictidae, Protostictidae, and Synthemistidae, are represented by one species each. The distribution of species richness

Table 2. A checklist of dragonflies and damselflies of Kanyakumari District, Tamil Nadu.
IUCN—International Union for Conservation of Nature | LC—Least Concern | DD—Data Deficient | NT—Near Threatened | VU—Vulnerable | NE—Not Evaluated | BE—Balamore Estate | KMT—Kannimaranthoppu | KTF—Kothayar Twin Falls | MTY—Mambazhathurayar Reservoir | MD—Mukkadal Dam | PK—Periyakulam | PS—Puthalam Saltpan | PL— utheri Lake | TW—Theroor Wetland | TNK—Thirunanthikarai | TCD—Thovalai Check Dam | "✓"— Presence | "—"—Absence. * Endemic Taxa.

	Scientific name	Common name	IUCN Red List status	BE	KMT	KTF	MTY	MD	PK	PS	PL	TW	TNK	TCD
	Suborder Anisoptera Selys, 1854													
	Family: Aeshnidae Leach, 1815													
1	*Anax guttatus* (Burmeister, 1839)	Lesser Green Emperor	LC	-	—	—	—	—	✓	✓	✓	✓	—	—
2	*Anax immaculifrons* Rambur, 1842	Magnificient Emperor	LC	✓	—	✓	—	✓	—	—	—	—	—	✓
3	*Anax indicus* Lieftinck, 1942	Elephant Emperor	LC	—	✓	—	✓	✓	✓	✓	—	✓	—	—
4	*Gynacantha dravida* Lieftinck, 1960	Indian Duskhawker	DD	—	—	—	✓	✓	—	—	—	—	✓	—
	Family: Gomphidae Rambur, 1842													
5	*Heliogomphus promelas* (Selys, 1873)*	Indian Lyrtail	NT	—	—	✓	—	—	—	—	—	—	—	—
6	*Ictinogomphus rapax* (Rambur, 1842)	Indian Common Clubtail	LC	✓	✓	✓	✓	✓	✓	—	—	✓	✓	—
7	*Macrogomphus wynaadicus* Fraser, 1924*	Wyanad Bowtail	DD	✓	—	—	—	—	—	—	—	—	—	—
8	*Merogomphus tamaracherriensis* Fraser, 1931*	Malabar Long-legged Clubtail	NE	—	—	✓	—	—	—	—	—	—	—	—
9	*Microgomphus souteri* Fraser, 1924*	Pygmy Clubtail	LC	—	—	✓	—	✓	—	—	—	—	—	—
10	*Paragomphus lineatus* (Selys, 1850)	Lined Hooktail	LC	—	✓	✓	✓	✓	—	—	—	—	—	—
	Family: Libellulidae Leach, 1815													
11	*Acisoma panorpoides* Rambur, 1842	Trumpet-Tail	LC	—	✓	—	✓	✓	✓	—	✓	✓	—	✓
12	*Aethriamanta brevipennis* (Rambur, 1842)	Scarlet Marsh Hawk	LC	—	—	—	✓	—	✓	—	✓	—	—	✓
13	*Brachydiplax chalybea* Brauer, 1868	Rufous-backed Marsh Hawk	LC	—	✓	—	✓	✓	✓	—	✓	—	—	—
14	*Brachydiplax sobrina* (Rambur, 1842)	Little Blue Marsh Hawk	LC	—	—	—	✓	✓	✓	—	✓	✓	—	✓
15	*Brachythemis contaminata* (Fabricius, 1793)	Ditch Jewel	LC	—	✓	—	✓	✓	✓	✓	✓	✓	✓	✓
16	*Bradinopyga geminata* (Rambur, 1842)	Granite Ghost	LC	✓	✓	✓	✓	—	—	—	—	—	—	✓
17	*Cratilla lineata* (Brauer, 1878)	Emerald-Banded Skimmer	LC	✓	—	✓	—	—	—	—	—	—	—	—
18	*Crocothemis servilia* (Drury, 1770)	Scarlet Skimmer	LC	—	✓	—	✓	✓	✓	✓	✓	✓	—	—
19	*Diplacodes trivialis* (Rambur, 1842)	Blue Ground Skimmer	LC	—	—	—	✓	✓	✓	✓	✓	✓	—	—
20	*Hydrobasileus croceus* (Brauer, 1867)	Amber-winged Marsh Glider	LC	—	✓	✓	✓	✓	✓	—	✓	✓	—	—
21	*Hylaeothemis apicalis* Fraser, 1926*	Blue Hawklet	DD	✓	—	✓	—	—	—	—	—	—	—	—
22	*Indothemis carnatica* (Fabricius, 1798)	Light-tipped Demon	LC	—	✓	—	—	—	—	—	—	—	—	—

	Scientific name	Common name	IUCN Red List status	BE	KMT	KTF	MTY	MD	PK	PS	PL	TW	TNK	TCD
23	*Lathrecista asiatica* (Fabricius, 1798)	Asiatic Blood-Tail	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
24	*Macrodiplax cora* (Brauer, 1867)	Estuarine Skimmer	LC	–	–	–	–	✓	✓	✓	✓	✓	–	–
25	*Neurothemis tullia* (Drury, 1773)	Pied Paddy Skimmer	LC	–	✓	–	✓	✓	✓	–	✓	✓	✓	–
26	*Onychothemis testacea* Laidlaw, 1902	River Hawker	LC	–	–	✓	–	✓	–	–	–	–	✓	–
27	*Orthetrum chrysis* (Selys, 1891)	Brown-Backed Marsh Hawk	LC	–	✓	✓	–	✓	–	–	–	–	✓	✓
28	*Orthetrum glaucum* (Brauer, 1865)	Blue Marsh Hawk	LC	✓	✓	✓	✓	✓	–	–	–	–	✓	–
29	*Orthetrum luzonicum* (Brauer, 1868)	Tri-coloured Marsh Hawk	LC	–	✓	✓	✓	✓	✓	–	–	–	✓	✓
30	*Orthetrum pruinosum* (Burmeister, 1839)	Crimson-tailed Marsh	LC	–	✓	✓	✓	✓	–	–	–	–	✓	✓
31	*Orthetrum sabina* (Drury, 1770)	Green Marsh Hawk	LC	–	✓	–	✓	✓	✓	✓	✓	✓	✓	✓
32	*Pantala flavescens* (Fabricius, 1798)	Wandering Glider	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
33	*Potamarcha congener* (Rambur, 1842)	Yellow-tailed Ashy Skimmer	LC	–	✓	✓	✓	✓	✓	–	–	✓	–	✓
34	*Rhodothemis rufa* (Rambur, 1842)	Rufous Marsh Glider	LC	–	–	–	✓	✓	✓	–	✓	✓	–	–
35	*Rhyothemis variegata* (Linnaeus, 1763)	Common Picturewing	LC	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
36	*Tetrathemis platyptera* Selys, 1878	Pygmy Skimmer	LC	–	–	✓	–	–	–	–	–	–	–	–
37	*Tholymis tillarga* (Fabricius, 1798)	Coral-tailed Cloudwing	LC	–	✓	–	✓	✓	✓	–	✓	✓	✓	–
38	*Tramea basilaris* (Palisot de Beauvois, 1805)	Red Marsh Trotter	LC	✓	✓	–	–	✓	✓	✓	✓	✓	–	✓
39	*Tramea limbata* (Desjardins, 1832)	Black Marsh Trotter	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40	*Trithemis aurora* (Burmeister, 1839)	Crimson Marsh Glider	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
41	*Trithemis festiva* (Rambur, 1842)	Black Stream Glider	LC	✓	✓	✓	✓	✓	–	–	–	–	✓	✓
42	*Trithemis pallidinervis* (Kirby, 1889)	Long-legged Marsh Glider	LC	–	✓	–	✓	✓	✓	✓	✓	✓	–	✓
43	*Urothemis signata* (Rambur, 1842)	Greater Crimson Glider	LC	✓	✓	–	✓	✓	✓	✓	✓	✓	–	✓
44	*Zygonyx iris* Selys, 1869	Emerald Cascader	LC	✓	✓	✓	–	✓	–	–	–	–	✓	–
45	*Zyxomma petiolatum* Rambur, 1842	Long-tailed Dusk Darter	LC	–	–	–	✓	✓	✓	–	✓	✓	–	–
	Family: Macromiidae Needham, 1903													
46	*Epophthalmia vittata* Burmeister, 1839	Common Torrent Hawk	LC	✓	✓	✓	✓	✓	✓	–	–	✓	✓	–
	Family: Synthemistidae Tillyard, 1911													
47	*Idionyx travancorensis* Fraser, 1931	-	DD	✓	–	–	–	–	–	–	–	–	–	–
	Zygoptera Selys, 1854													
	Family: Chlorocyphidae Cowley, 1937													

	Scientific name	Common name	IUCN Red List status	BE	KMT	KTF	MTY	MD	PK	PS	PL	TW	TNK	TCD
48	*Heliocypha bisignata* (Hagen in Selys, 1853)*	Stream Ruby	LC	✓	✓	✓	✓	✓	–	–	–	–	✓	–
49	*Libellago indica* (Fraser, 1928)*	Southern Heliodor	LC	–	–	–	✓	✓	–	–	–	–	✓	–
	Family: Calopterygidae Selys, 1850													
50	*Neurobasis chinensis* (Linnaeus, 1758)	Stream Glory	LC	✓	✓	✓	–	–	–	–	–	–	✓	–
51	*Vestalis apicalis* Selys, 1873	Black-tipped Forest Glory	LC	✓	✓	✓	✓	✓	–	–	–	–	✓	–
52	*Vestalis gracilis* (Rambur, 1842)	Clear-winged Forest Glory	LC	✓	✓	✓	✓	✓	–	–	–	–	✓	–
53	*Vestalis submontana* Fraser, 1934*	Montane Forest Glory	NE	–	–	✓	–	–	–	–	–	–	–	–
	Family: Coenagrionidae Kirby, 1890													
54	*Aciagrion approximans* (Selys, 1876)	Indian Violet Dartlet	LC	✓	–	–	–	–	–	–	–	–	–	–
55	*Agriocnemis pygmaea* (Rambur, 1842)	Pygmy Dartlet	LC	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓
56	*Agriocnemis splendidissima* Laidlaw, 1919	Splendid Dartlet	LC	–	–	–	–	✓	–	–	–	–	–	–
57	*Ceriagrion cerinorubellum* (Brauer, 1865)	Orange-tailed Marsh Dart	LC	–	–	–	–	–	✓	–	–	–	–	–
58	*Ceriagrion coromandelianum* (Fabricius, 1798)	Coromandel Marsh Dart	LC	–	✓	–	✓	✓	✓	–	✓	✓	✓	✓
59	*Ischnura rubilio* Selys, 1876	Western Golden Dartlet	LC	–	✓	–	–	–	–	✓	✓	–	–	–
60	*Ischnura senegalensis* (Rambur, 1842)	Senegal Golden Dartlet	LC	–	✓	–	✓	✓	✓	✓	✓	✓	–	✓
61	*Paracercion malayanum* (Selys, 1876)	Malayan Lily-Squatter	LC	–	–	–	–	–	✓	✓	✓	✓	–	–
62	*Pseudagrion decorum* (Rambur, 1842)	Three-lined Sprite	LC	–	✓	–	–	–	✓	–	–	–	–	–
63	*Pseudagrion indicum* Fraser, 1924*	Yellow-striped Sprite	LC	–	–	–	–	✓	–	–	–	–	–	–
64	*Pseudagrion microcephalum* (Rambur, 1842)	Blue Sprite	LC	–	✓	–	✓	✓	✓	✓	✓	✓	✓	–
65	*Pseudagrion rubriceps* Selys, 1876	Saffron-faced Blue Sprite	LC	–	✓	–	✓	✓	✓	–	✓	✓	✓	✓
	Family: Euphaeidae Yakobson & Bainchi, 1905													
66	*Dysphaea ethela* Fraser, 1924*	Black Torrent Dart	LC	✓	–	✓	–	✓	–	–	–	–	–	–
67	*Euphaea fraseri* (Laidlaw, 1920*)	Malabar Torrent Dart	LC	✓	✓	✓	✓	✓	–	–	–	–	✓	–
	Family: Lestidae Calvert, 1907													
68	*Indolestes gracilis davenporti* Fraser, 1930*	Davenport's False Spreadwing	NE	✓	–	–	–	–	–	–	–	–	–	–
69	*Lestes concinnus* Hagen in Selys, 1862	Dusky Spreadwing	LC	–	✓	–	–	–	–	–	–	–	–	–
70	*Lestes elatus* Hagen in Selys, 1862	Emerald Spreadwing	LC	–	–	–	–	✓	–	✓	–	✓	–	✓
71	*Lestes praemorsus* Hagen in Selys, 1862	Scalloped Spreadwing	LC	–	–	–	✓	✓	–	–	–	–	–	–
	Family: Coenagrionoidea Kirby, 1890													

	Scientific name	Common name	IUCN Red List status	BE	KMT	KTF	MTY	MD	PK	PS	PL	TW	TNK	TCD
72	*Agriocnemis pieris* Laidlaw, 1919	Indian White Dartlet	LC	—	—	—	—	—	—	—	—	—	✓	—
	Family: Platycnemididae Yakobson & Bainchi, 1907													
73	*Copera marginipes* (Rambur, 1842)	Yellow Bush Dart	LC	—	✓	✓	✓	✓	✓	—	✓	✓	✓	—
74	*Caconeura ramburi* (Fraser, 1922)*	Indian Blue Bambootail	DD	—	✓	—	—	—	—	—	—	—	—	—
75	*Caconeura risi* (Fraser, 1922)*	Wayanad Bambootail	DD	✓	—	✓	—	—	—	—	—	—	✓	—
76	*Copera vittata* Selys, 1863	Blue Bush Dart	LC	—	—	—	—	—	—	—	—	—	✓	—
77	*Esme mudiensis* Fraser, 1931*	Travancore Bambootail	DD	✓	—	✓	—	—	—	—	—	—	—	—
78	*Prodasineura verticalis* (Selys, 1860)	Red-striped Black Threadtail	LC	✓	✓	✓	✓	✓	—	—	—	—	✓	—
79	*Onychargia atrocyana* (Selys, 1865)	Black Marsh Dart	LC	—	—	—	—	✓	—	—	—	—	—	—
	Family: Platystictidae Kennedy, 1920													
80	*Protosticta gravelyi* Laidlaw, 1915*	Pied Shadow Damsel	LC	✓	—	✓	—	—	—	—	—	—	✓	—
81	*Protosticta rufostigma* Kimmins, 1958*	-	DD	✓	—	—	—	—	—	—	—	—	—	—
82	*Protosticta sanguinostigma* Fraser, 1922*	Red Spot Reedtail	VU	—	—	✓	—	—	—	—	—	—	—	—

among these families reflects differential patterns of abundance and taxonomic representation within the Odonata order across Kanyakumari District (Figure 3).

DISCUSSION

The study on Odonata in Kanyakumari District recorded 82 species, representing about 55.78% of Tamil Nadu's total (147 species). It notably documented 18 endemic species, making up 32.73% of the state's known endemics (Subramanian & Babu 2024). The findings, with 47 dragonflies and 35 damselflies, surpass other regional surveys, such as the Madurai District (28 species), the Mettur Dam region in Salem (40 species), Coimbatore (69 species), and the Vellore District (30–37 species) (Muhil & Pramod 2017; Ganeswari & Rajendran 2025) establishing Kanyakumari as a biodiversity hotspot. This richness is attributed to its proximity to the Western Ghats, a global biodiversity hotspot with 176 Odonata species, 68 of which are endemic (Subramanian 2008; Subramanian et al. 2009).

The variation in species richness across the study sites highlights the importance of habitat heterogeneity. High diversity at Mukkadal Dam and Kannimaranthoppu Stream aligns with previous studies showing that forest streams and permanent water bodies support high Odonata species richness (Muhil & Pramod 2017). These environments offer stable conditions and complex microhabitats crucial for larval development and adult territoriality (Subramanian 2005; Vignesh & Manivannan 2021). In contrast, the low species count at Puthalam Saltpan indicates Odonata's sensitivity to high salinity, reinforcing their role as bioindicators of environmental health and water quality (Kunte 2000; Tiple 2020).

Taxonomically the Libellulidae family, with 35 species, dominates Odonata assemblages in Tamil Nadu and India (Koli et al. 2015; Tiple 2020; Ganeswari & Rajendran 2025) attributed to their shorter life cycles, adopt to a wide range of habitat (Gentry et al. 1975; Samways 1989), high dispersal capacity, and habitat adaptability (Ganeswari & Rajendran 2025). Similarly, Coenagrionidae, the second most speciose group with 14 species, also shows a similar prevalence, reflecting their tolerance for diverse wetland types and preference for areas with emergent vegetation.

The odonates documented from Kanyakumari District conservation profile features several species with specialized requirements. Most are classified as LC, but the VU damselfly *Protosticta sanguinostigma* and NT dragonfly *Heliogomphus promelas* highlight

Image 2. A—*Anax immaculifrons* | B—*Acisoma panorpoides* | C—*Microgomphus souteri* | D—*Aethriamanta brevipennis* | E—*Cratilla lineata* | F—*Paragomphus lineatus* | G—*Tholymis tillarga* | H—*Tramea basilaris*. © Muthukrishnan & Shibu.

Image 3. A—*Anax indicus* | B—*Hydrobasileus croceus* | C—*Ictinogomphus rapax* | D—*Rhodothemis rufa* | E—*Urothemis signata* | F—*Brachydiplax sobrina* | G—*Lathrecista Asiatica* | H—*Bradinopyga geminata*. © Muthukrishnan & Shibu.

Image 4. A—*Aciagrion approximans* | B—*Dysphaea ethela* | C—*Onychargia atrocyana* | D—*Lestes concinnus* | E—*Paracercion malayanum* | F—*Protosticta rufostigma*. © Muthukrishnan & Shibu.

the region's ecological importance (Muhil & Pramod 2017). *Protosticta sanguinostigma* thrives in specialized forest habitats, which face threats from fragmentation and land-use changes (Paray & Mir 2023; Samanta et al. 2023). Additionally, many species are categorized as DD or NE, reflecting a wider issue in Indian odonatology regarding limited taxonomic and distributional data. Members of the Gomphidae family are fast-moving insects, with some being crepuscular and many considered rare, making them difficult to detect during surveys (Tiple & Koparde 2015).

The study examined various aquatic habitats in the district but did not include forest areas, particularly within the Kanyakumari Wildlife Sanctuary. Challenges at Balamore Estate, due to its protected status, hindered a comprehensive biodiversity census. The findings highlight the need for strict protection of Kanyakumari's freshwater resources, as urbanization (Sánchez-Bayo & Wyckhuys 2019), pollution (Tiple et al. 2013; Tiple & Koparde 2015), and wetland loss threaten Odonata

Image 5. A—*Heliocypha bisignata* | B—*Lestes praemorsus* | C—*Ischnura rubilio* | D—*Protosticta sanguinostigma* | E—*Pseudagrion indicum* | F—*Caconeura ramburi*. © Muthukrishnan & Shibu.

species, emphasizing the importance of conserving both common and endangered taxa.

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