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KENYAN DRAGONFLIES: PAST, PRESENT AND FUTURE

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NATIONAL CHECKLIST

KENYAN DRAGONFLIES: PAST, PRESENT AND FUTURE

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Introduction

Dragonflies have been around for millions of years. They are among the most ancient of the winged insects. Fossil records also show that they include the largest insects to have ever lived (Kalkman et al. 2008). The name dragonfly has been accepted to include their much slender and slower cousins the damselflies. They both belong to an insect order (grouping) known as Odonata which is originally from the Greek word 'Odon' meaning tooth in reference to their incredible mandibles. They are well known by many people due to their beauty and dancing movements over waters. As a result, they have inspired many an artist and been a source of numerous myths and stories. They have been given all kinds of nicknames that range from water dancers to water guardians.

As with other colourful insects such as butterflies and beetles, dragonflies have extensively been studied and collected from nature. Many specimens now lie in Natural History Museums, as well as in personal collections. In Kenya, organised insect collections began at the beginning of the twentieth century. This followed an idea mooted around 1908 at a committee meeting of the Natural History Society to start an animal and plant collection. It was proposed by Sir Frederick Jackson who was to later become the governor of Uganda. To bring this idea to life, he donated a box of butterflies which remains at the Museum in Nairobi to date. Dragonfly collection in Kenya was pioneered by V.G.L. van Someren. However, it did not became of importance until Elliot Charles Gordon Pinhey (1910–99) became the head of Department of Entomology at the then Coryndon Museum in Nairobi now the National Museums of Kenya (M.P Clifton's personal communication). According to Willis and Samways (2011), Pinhey served as the Keeper of Entomology in the Nairobi Museum between 1949 and 1955. His historical records as well as those of Van Someren and others form part of the data within the Virtual Museum (VM) in the Animal Demography Unit (ADU), University of Cape Town (UCT). Among the various projects within the VM is OdonataMAP, whose main focus is to atlas the dragonflies and damselflies of Africa, and more so those from southern Africa (Underhill et al. 2016).

This report aims at evaluating what has been done before by various dragonfly workers in Kenya, providing the current status and making projections for future dragonfly works. It also publishes an updated checklist of the Kenyan dragonflies that includes new country records not included in any earlier versions of checklists.

How did we analyse the data (Methodology)

We analysed data in a database that is being housed and maintained by the Animal Demography Unit (ADU) of the University of Cape Town. This included both historical data (mainly from museum collections) (Odonata Data Base of Africa Clausnitzer et al. 2012, Dijkstra 2016) as well as recent data

posted by keen dragonfly observers popularly being referred to as citizen scientists (Underhill et al. 2016).

Data with point locality was used to develop coverage and distribution maps. Developed also was a detailed up-to-date checklist for Kenyan dragonfly species. We also analysed data to understand the intensity of dragonfly collections in Kenya over the years as well as to appreciate the contribution of the various citizen scientists from Kenya who have taken time to keep OdonataMAP alive.

Results and discussion

As of May 2017, **t**he database of the OdonataMAP project (including records from Odonata Database of Africa) had a total of 3376 dragonfly records from Kenya. Of these, 129 had been posted by citizen scientists while the remaining 3247 are mainly museum records. These records comprise of a total of 172 dragonfly species. These species belong to four families of what can be referred to as true dragonflies and five families belonging to damselflies (Table 1). A detailed species list with number of records for each species is given in Appendix 1.

How have dragonflies been collected before in Kenya?

Using the point locality data provided for each record, we generated a coverage map for Kenya. The map showed that dragonfly collection in Kenya has been concentrated in four areas. They are coastal forests, Taita Hills near Mt. Kilimanjaro, a cluster that includes areas around the city of Nairobi and Mt. Kenya, and the Kakamega forest to the west of the country near the border with Uganda (Figure 1).

Table 1: The dragonfly families occurring in Kenya and the number of species in each family

	Family name	Common name	No. of species
Dragonflies	Aeshinidae	Hawkers or darners	13
	Gomphidae	Clubtails	26
	Libellulidae	Perchers or skimmers	71
	Macromiidae	Cruisers	7
Damselflies	Calopterygidae	Demoiselles or jewelwings	2
	Chlorocyphidae	Jewels	5
	Coenagrionidae		36
	Lestidae	Spreadwings	7
	Platycnemididae		5

One notable thing from the coverage map developed from OdonataMAP data is that past dragonfly collections in Kenya have been concentrated in Important Bird and Biodiversity Areas (IBAs) formerly referred to Important Bird Areas. Among these IBAs are coastal forests such as the Arabuko-Sokoke, Buda, Mwaluganje, Shimba Hills forests, Taita Hills forests in southwestern Kenya, central areas of Kenya around Mt Kenya and in the Kakamega Forest near the border with Uganda (Bennun & Njoroge 2000). This sampling pattern has tended to follow the interests of the expedition sponsors and supported what many scientists have said for decades; that we are over-sampling some areas while ignoring others. This claim is further supported by Clausnitzer (1999) in which the author found that dragonfly collection in Kenya has not been undertaken uniformly, even in key areas. This may explain why there are many species with fewer than three specimens and which may not necessarily be rare.

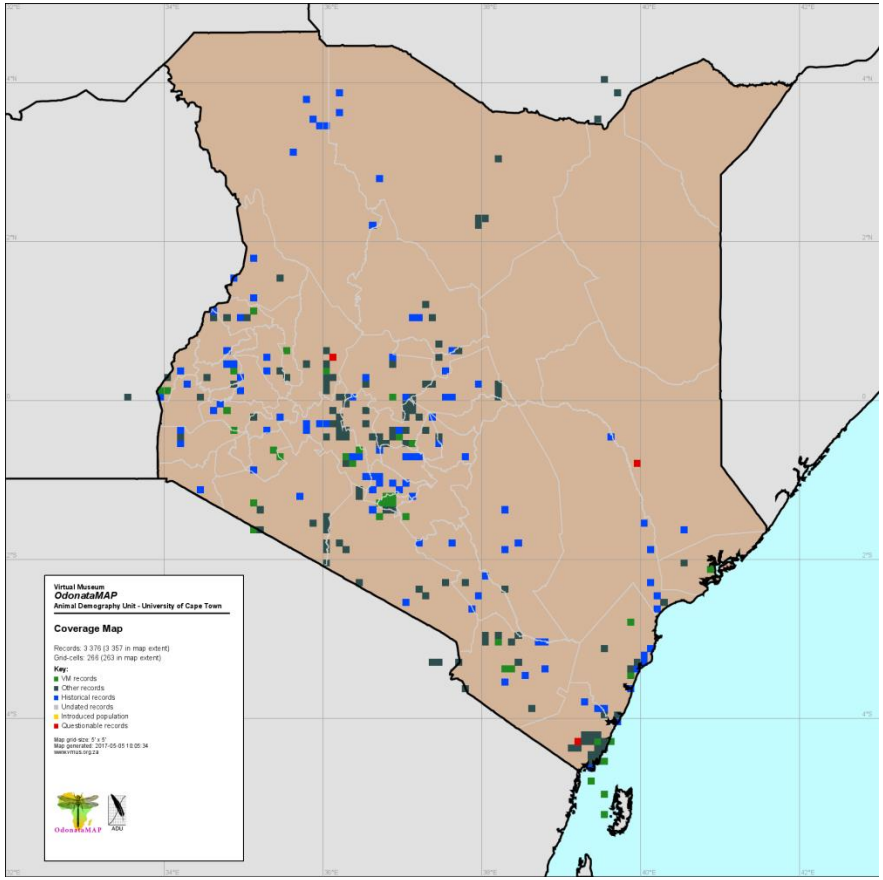

Figure 1. A coverage map showing where dragonflies sampling in Kenya has been concentrated in the past.

Another important observation from the coverage map is the fact that collections in Kenya have been along the major transportation corridors. This can be attributed to the ease of access to the various potential dragonfly hunting sites. The main corridors along which collections have been made include along the coastline from Lungalunga at the border with Tanzania to Lamu near the Somali border. Then along the main road and railway artery from coastal city of Mombasa to the Western border with Uganda and also along the road towards Mt Kenya (see Figs 2 & 3).

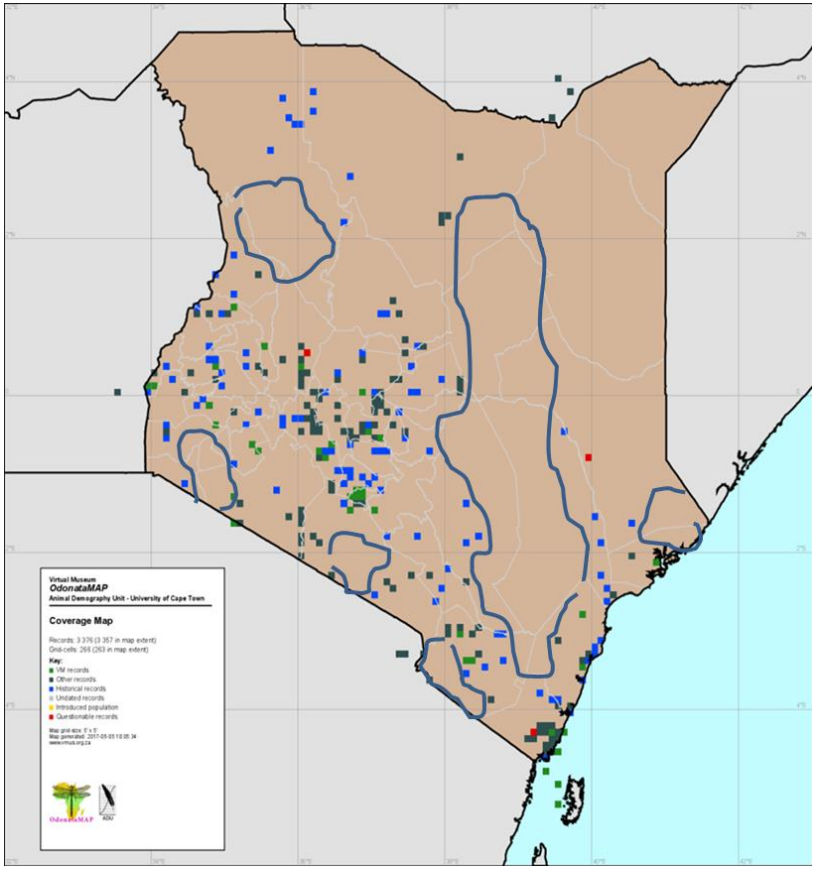

Figure 2. Dragonflies regional coverage map for Kenya, the outlined regions contain protected areas which lack biodiversity data.

Figure 3. Map of Kenya showing protected areas (green) (Source http://www.visitkenya.com)

Our data from dragonflies adds weight to the persistent claim by Kenyan scientists that the Kenya Wildlife Service (KWS), the body in change of parks and game reserves, has for a long time restricted collection of important biodiversity data within protected areas. The gaping hole in the middle of the map coverage map (Figure 2) without a single record comprises a chain of national parks and reserves (Tsavo East National Park, South Kitui National Reserve, Kora and Meru National Parks, Samburu, Shaba, Losai and Marsabit National Reserves). The same is true for the empty area north of Lamu, Amboseli National Park on the slopes of Mt. Kilimanjaro, the world famous Maasai Mara and South Turkana National Reserve near the border with Uganda.

The extreme eastern section of Kenya has no records at all. This is hardly surprising. Three major factors help explain this. This area lies within the political region formerly referred to as the Northern Frontier District and is among the remotest areas in Kenya and is therefore not easily accessible. It also lies in the arid and semi-arid region of Kenya where not many dragonfly breeding sites exist. Persistent security issues in the region have deterred all visitors to the region and little investigation of the biodiversity has been possible. It has experienced insecurity for decades starting with the Shifta War after Kenya's independence and continuing more recently with the Al Shabab threats.

In the recent past, the government of Kenya has embarked on major infrastructural development especially in hitherto underdeveloped areas. One such project is The Lamu Port Southern Sudan-Ethiopia Transport Corridor (LAPSSET). This is a mega project comprising of a highway, railway, airports and an oil

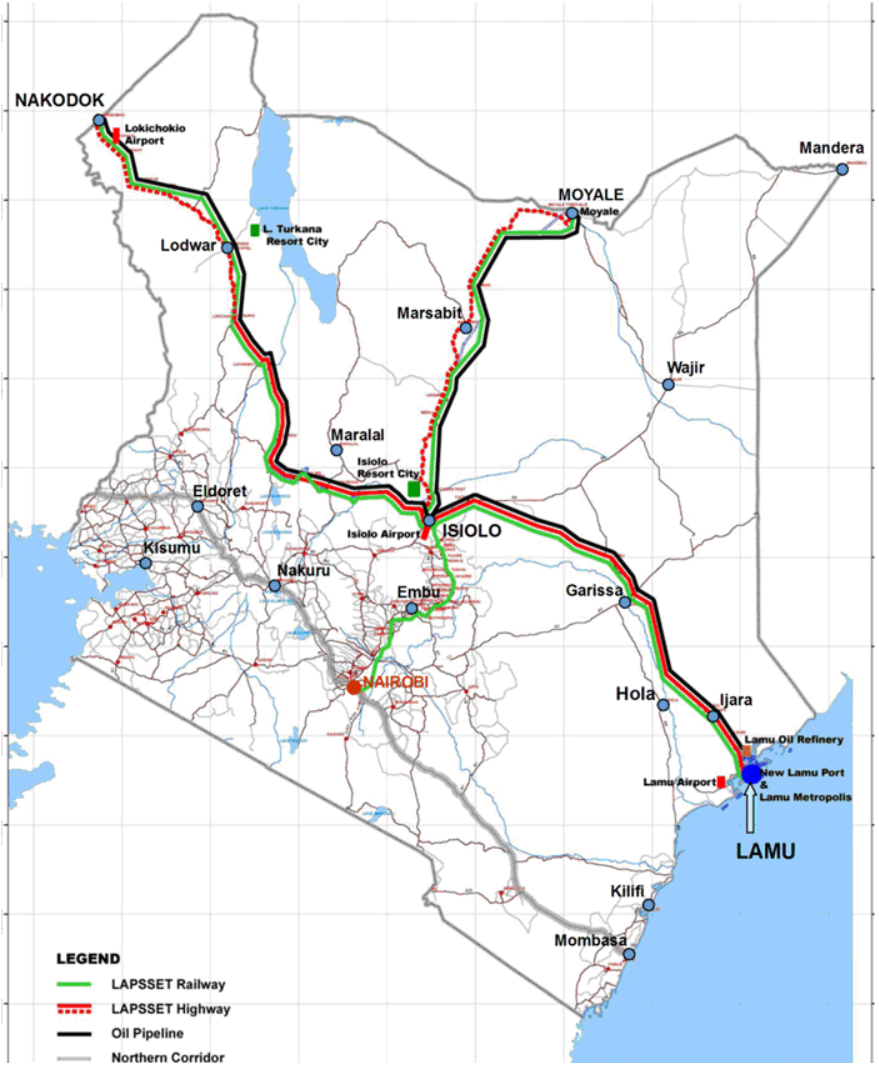

Figure 4. Map of Kenya showing new ongoing infrastructural projects that will open up areas which have previously been largely inaccessible. (Source: https://ke.boell.org)

pipeline starting from the coastal city of Lamu to South Sudan with a branch to Ethiopia (Figure 4). This development will, on completion, traverse that large portion of Kenya that currently lacks dragonfly data. With improvement in accessibility and security, it will be interesting to see how the dragonfly data and that of other taxa will change in these areas in the coming years.

The database contained in the ADU Virtual Museum shows that serious research on dragonflies appears to have started in the 1980s. However, collecting had been undertaken earlier with the specimens curated in museums in other countries. Clausnitzer & Dijkstra (2005), for instance, used some specimens collected in 1942 from Gatamaiyo Forest in Kenya but stored at the British Museum of Natural History to describe a new species; *Notogomphus maathaiae,* which is endemic to Kenya. The decade which initiated the new millennium, starting 2000, was the decade of the dragonfly in Kenya (Figure 5). This is the period when renowned dragonfly experts such as Klaas-Douwe Dijkstra and Viola Clausnitzer carried out several expeditions in Kenya. With an increasing interest in dragonflies and raising number of citizen scientists, we project that this current decade will be equally fruitful.

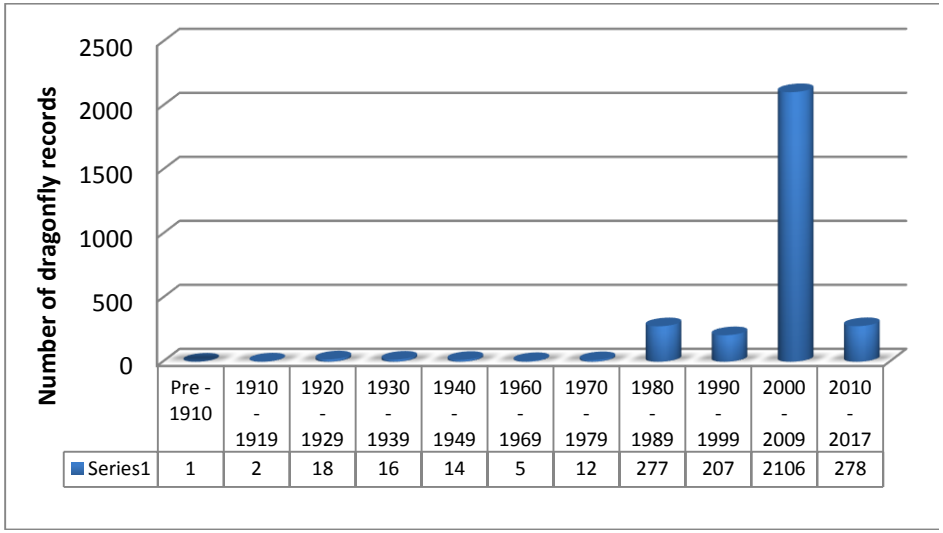

Figure 5. Records of dragonfly from Kenya within the ADU Virtual Museum of ADU; histogram shows data per decade, since 1910.

Common dragonfly species in Kenya

11 species of dragonfly and damselfly had more than 50 records from Kenya in the database (Table 2). These are likely to be the most common species in the country, and therefore the most frequently encountered by collectors and observers.

Table 2. The most frequently recorded dragonfly species in Kenya. The number of records comes from the ADU Virtual Museum

	Species name	Common name	No. of records
Dragonflies	*Crocothemis erythraea*	Broad Scarlet	95
	Crocothemis sanguinolenta	Little Scarlet	53
	Nesciothemis farinosa	Eastern Blacktail	80
	Orthetrum chrysostigma	Epaulet Skimmer	65
	Orthetrum julia	Julia Skimmer	84
	Palpopleura lucia	Lucia Widow	65
	Pantala flavescens	Wandering Glider	95
	Trithemis annulata	Violet Dropwing	75
	Trithemis arteriosa	Red-veined Dropwing	76
	Zygonyx natalensis	Blue Cascader	62
	Zygonyx torridus	Ringed Cascader	61
Damselflies	*Ceriagrion kordofanicum*	Little Orange Citril	62
	Ellatoneura glauca	Common Threadtail	67
	Peudagrion kersteni	Powder-faced Sprite	57
	Phaon iridipennis	Glistening Demoiselle	63
	Platycypha caligata	Dancing Jewel	72

The distribution maps for the most common and wide-spread species of dragonfly (Figure 6) and damselfly (Figure 7) are all remarkably similar. They follow essentially the same pattern as the overall coverage map (Figure 1), which is largely based on the IBAs and the transport corridors.

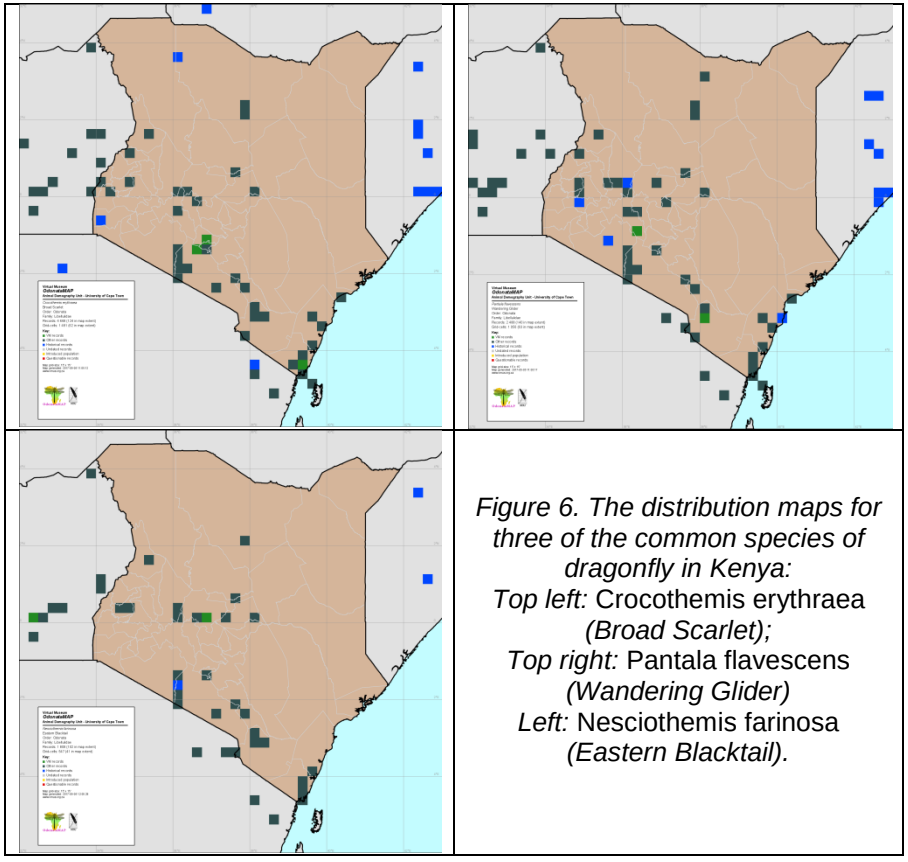

Figure 6. The distribution maps for three of the common species of dragonfly in Kenya:
Top left: Crocothemis erythraea *(Broad Scarlet);*
Top right: Pantala flavescens *(Wandering Glider)*
Left: Nesciothemis farinosa *(Eastern Blacktail).*

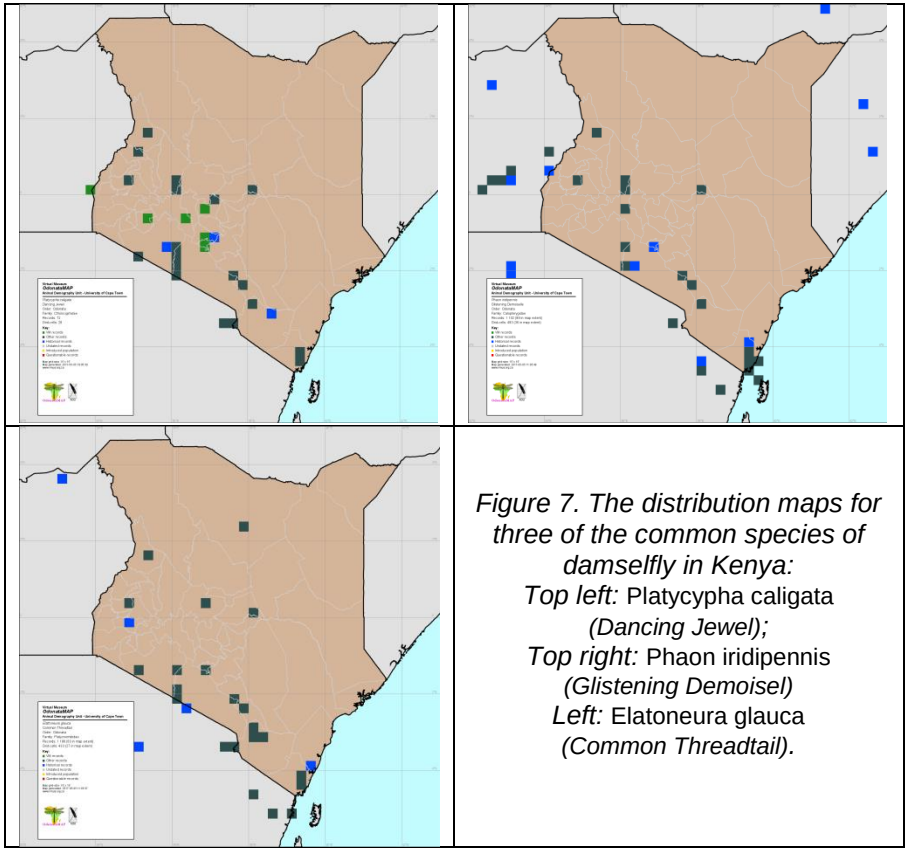

Figure 7. The distribution maps for three of the common species of damselfly in Kenya:
Top left: Platycypha caligata *(Dancing Jewel);*
Top right: Phaon iridipennis *(Glistening Demoisel)*
Left: Elatoneura glauca *(Common Threadtail).*

Rare Kenyan dragonfly species

Sixteen species are considered rare (Table 3). These species are defined as rare because they are each represented by only one or two records. However, in reality, they may not be rare; with further data, it is possible that we will find that they were under-sampled. This list is thus provisional.

Table 3. Rare species of dragonflies in Kenya

	Family	Species name	Common name
Dam-sel-flies	Coenagrionidae	*Africallagma subtile*	Fragile Bluet
	Coenagrionidae	*Agriocnemis pinhey*	Pinhey's Wisp
	Coenagrionidae	*Ceriagrion varians*	Orange-red Citril
	Coenagrionidae	*Ischnura abyssinica*	Ethiopian Bluetail
	Coenagrionidae	*Teinobasis alluaudi*	Indian Ocean Fineliner
	Lestidae	*Lestes ictericus*	Tawny Spreadwing
	Platycnemididae	*Copera nyansana*	Eastern Featherleg
Drag-on-flies	Aeshnidae	*Gynacantha bullata*	Black-kneed Duskhawker
	Gomphidae	*Microgomphus nyassicus*	Eastern Scissortail
	Gomphidae	*Microgomphus schoutedeni*	Congo Scissortail
	Gomphidae	*Neurogomphus featheri*	Striped Siphontail
	Gomphidae	*Onychogomphus styx*	Northern Dark Claspertail
	Libellulidae	*Atoconeura biordinata*	Common Highlander
	Libellulidae	*Brachythemis wilsoni*	Swamp Groundling
	Libellulidae	*Bradinopyga strachani*	Red Rockdweller
	Libellulidae	*Diplacodes deminuta*	Little Percher
	Libellulidae	*Hadrothemis camarensis*	Saddled Jungleskimmer
	Libellulidae	*Orthetrum icteromelas*	Spectacled Skimmer
	Libellulidae	*Orthetrum microstigma*	Farmbush Skimmer
	Libellulidae	*Orthetrum monardi*	Woodland Skimmer
	Libellulidae	*Rhyothemis fenestrina*	Skylight Flutterer
	Libellulidae	*Thermochoria jeanneli*	Clear-winged Piedface
	Libellulidae	*Trithemis Hecate*	Silhouette Dropwing
	Libellulidae	*Trithemis imitate*	Northern Fluttering Dropwing
	Libellulidae	*Trithetrum navasi*	Fiery Darter
	Macromiidae	*Phyllomacromia africana*	Sahel Cruiser

Dragonfly species endemic to Kenya

As with other taxa of plants and animals, there are dragonfly species which have, by 2017, only been recorded from Kenya. There are two endemics, both montane species: *Notogomphus maathaiae*, a dragonfly (Clausnitzer & Dijkstra 2005) and a damselfly *Platycypha amboniensis* (Clausnitzer et al. 2011) (Figure 8). Specimens of the dragonfly nicknamed Maathai's Longleg are from Mt Elgon, Marioshoni Forest in the Mau escarpment and Gatamaiyo Forest in the Kikuyu escarpment (Figure 9a). It was given this common name because it is a true forest species and was discovered in 2005, the same year the Kenyan woman Wangari Maathai was awarded the Nobel prize. Conservation of forests was close to her heart. The Kenya Jewel, the common name for the damselfly, has been recorded from Eastern Aberdares and Western slopes of Mt Kenya (Figure 9b).

Figure 8. Kenya Jewel Platycypha amboniensis*. Photo: K-DB Dijkstra. ADDO (African Dragonflies and Damselflies Online). http://addo.adu.org.za/ [2017-04-27].*

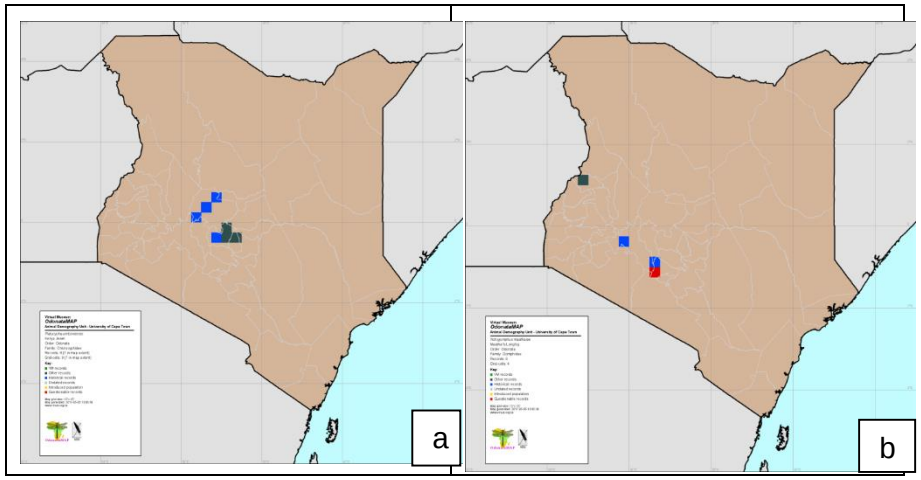

Figure 9: The distributions of two Odonata which are endemic to Kenya: Platycypha amboniensis *Kenya Jewel (left) and* Notogomphus maathaiae *Maathai's Longleg (right).*

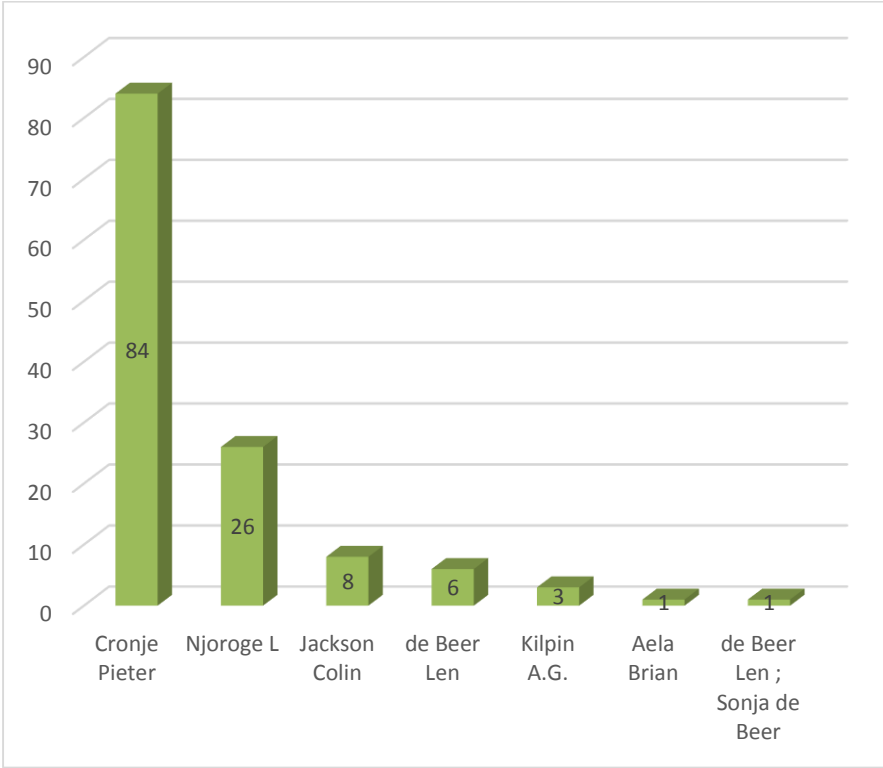

Figure 10. Number of records for Kenya uploaded into the OdonataMAP section of the ADU Virtual Museum for each citizen scientist

Contribution of citizen scientists

Since its inception in 2010, the OdonataMap section of the ADU Virtual Museum (http://vmus.adu.org.za) has received submissions from Kenya, with seven contributors contributing 129 records (Figure 10). Of these, 53 are identified and confirmed by experts while 76 remain unidentified. A sample of these contributions is presented in Figures 11, 12 and 13.

The number of records is expected to increase rapidly as more people become aware of OdonataMap and the significance of its contribution to biodiversity monitoring.

OdonataMAP-22567

OdonataMAP-22299

OdonataMAP-22343

Figure 11. Trithemis arteriosa *from Sheldrick Falls, Shimba Falls National Park (top-left,)* Urothemis assignata *from United Nations grounds Nairobi (top-right) and* Diplacodes luminans *(left) photographed at Karura Forest, Nairobi Kenya. All records by Pieter Cronje.*

OdonataMAP-13646

OdonataMAP-14857

OdonataMAP-10395

Figure 12. Lestes tridens *(top-left) from Arabuko-Sokoke and* Anax ephippiger *from Ngulia Safari Lodge in Tsavo West National Park (top-right), both by Colin Jackson.* Nesciothemis farionosa (*left) from Ol Pejeta Conservancy, Nanyuki, by A.G. Kilpin.*

OdonataMAP-29993

OdonataMAP-30016

OdonataMAP-23277

Figure 13. Stenocypha tenuis *(top-left) and* Allocnemis pauli *(top-right) both from Kakamega Forest, photographed by Laban Njoroge. Immature male of* Platycypha *sp (left) from Speke's Camp, Masai Mara Game Reserve, by Len de Beer.*

Relevance of this work

One major importance of this paper is that it has identified glaring gaps in the sampling of not only dragonflies, but also that of other taxa. This is because, in Kenya, collecting expeditions are more often than not multi-taxon. They are rarely designed to target a single group but usually involve all taxa; both plants and animals. This pattern in coverage (Figure 1) will therefore be seen to describe that of other animals and of plants as well. This is effectively a gap analysis for collecting for biodiversity surveys in Kenya. Figures 1 and 2 can therefore be used to develop priority areas which in turn will inform the collections in Kenya where the priority gaps are moving forward. This 'discovery' further confirms the position of dragonflies as a keystone or umbrella taxon which can be relied on to inform the study of other species. With more people taking up citizen science, we anticipate that coverage map for Kenya will improve dramatically in the future.

This report provides an up-to-date checklist of the Kenya dragonfly species. Some species such as *Phyllomacromia africana* (Sahel Cruiser) are being included in the Kenyan checklist for the first time. The development of comprehensive national species lists for Odonata (and all other taxa) is the top priority need for their conservation at country-level. The next level of priority is a knowledge of the distribution of each species. This is important especially for conservation and species Red Listing purposes. One of the criteria of classifying species that are at a risk of extinction requires a good understanding of their distribution. Species with restricted ranges are generally at a much higher extinction risk (SANBI 2010). Some dragonfly

species in Kenya were Red Listed by Clausnitzer et al. (2011) and some were indicated as data deficient. This report will therefore serve as a first step in providing this missing data to assist in the Red Listing of more species.

There is increasing demand for biodiversity information in Kenya especially from the Natural History collections mainly for conservation purposes. One notable and recent request for data is by The Kenya Water Towers Agency; a government agency mandated with the conservation of the major water towers in Kenya. Without readily available data, and up-to-date data, such as available within the ADU Virtual Museum, it becomes difficult to attend to such requests. Therefore, great potential exists to utilize this genre of information in guiding conservation policies as well as in advocacy. For example, we plan to use the information in this paper to petition the Kenya Wildlife Service to facilitate collection of biodiversity data within protected areas. This will be for their own advantage, that of the nation and of science and research.

It is a truism that we cannot conserve what we do not know. This paper aims to provide a useful baseline of information and a foundation on which future knowledge related to the Odonata can be built. To demonstrate this, the database has a record of *Pseudagrion spernatum*; a damselfly collected in 1942 from the River Burguret which flows from Mt. Kenya. A trip to the same river in 2012 encountered this species again, demonstrating that it has not disappeared.

Importantly, this paper opens a new chapter of collaboration between the University of Cape Town and the National Museums of Kenya.

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Our sincere gratitude goes to the Vice Chancellor of University of Cape town for the support from his budget which enabled LN to be an All Africa House Fellow from March to June 2017. The Animal Demography Unit of the Department of Biological Sciences hosted LN's visit. He is grateful to Professor Chuma Himonga, the warden of All Africa House, and all her staff for their generosity and their tireless efforts to create a home away from home. The Director of the National Museums of Kenya supported this initiative by allowing LN the opportunity to take up this fellowship. The paper makes use of the Odonata Data Base of Africa (Clausnitzer et al. 2012, Dijkstra 2016), which is hosted at the Animal Demography Unit of the University of Cape Town. This paper is the first to be produced for the project funded by the JRS Biodiversity Foundation entitled *Atlas and phenology of dragonflies and damselflies in South Africa* (see http://jrsbiodiversity.org/grants/university-cape-town/)

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Appendix 1

Checklist of the Odonata of Kenya

This checklist includes all records of dragonflies and damselflies with Kenya as the country of occurrence within the OdonataMAP section of the ADU Virtual Museum database. The number of records for each species within the database is provided. The information was downloaded on 3 May 2017.

This appendix can be regarded as a provisional list of the Odonata of Kenya.

Species	Common name	No. of records
Anax ephippiger	Vagrant Emperor	23
Anax imperator	Blue Emperor	43
Anax speratus	(Eastern) Orange Emperor	57
Anax tristis	Black Emperor	21
Gynacantha bullata	Black-kneed Duskhawker	2
Gynacantha manderica	Little Duskhawker	6
Gynacantha usambarica	Eastern Duskhawker	13
Gynacantha villosa	Brown Duskhawker	15
Pinheyschna meruensis	Meru Hawker	4
Pinheyschna rileyi	Bullseye Hawker	9
Zosteraeschna ellioti	Highland Hawker	27
Zosteraeschna usambarica	Forest Hawker	4
Phaon iridipennis	Glistening Demoiselle	63
Umma saphirina	Sapphire Sparklewing	12
Chlorocypha curta	Blue-tipped Jewel	10
Platycypha amboniensis	Kenya Jewel	8
Platycypha caligata	Dancing Jewel	72
Platycypha lacustris	Forest Jewel	15
Stenocypha tenuis	Slender Jewel	7
Africallagma elongatum	Elongate Bluet	23
Africallagma glaucum	Swamp Bluet	10
Africallagma pseudelongatum	Spotted Bluet	13
Africallagma subtile	Fragile Bluet	2
Agriocnemis exilis	Little Wisp	15
Agriocnemis gratiosa	Gracious Wisp	6
Agriocnemis inversa	Highland Wisp	8
Agriocnemis pinheyi	Pinhey's Wisp	1
Agriocnemis sania	Nile Wisp	5
Azuragrion nigridorsum	Sailing Bluet	29
Ceriagrion glabrum	Common Citril	62
Ceriagrion kordofanicum	Little Orange Citril	9
Ceriagrion suave	Suave Citril	15
Ceriagrion varians	Orange-red Citril	1
Coryphagrion grandis	East Coast Giant	20
Ischnura abyssinica	Ethiopian Bluetail	1
Ischnura senegalensis	Tropical Bluetail	38
Proischnura subfurcata	Fork-tailed Bluet	27
Pseudagrion bicoerulans	Giant Sprite	48
Pseudagrion commoniae	Black Sprite	30
Pseudagrion gamblesi	Great Sprite	9
Pseudagrion glaucescens	Blue-green Sprite	3
Pseudagrion hageni	Painted Sprite	25
Pseudagrion hamoni	Swarthy Sprite	11

Pseudagrion kersteni	Powder-faced Sprite	57
Pseudagrion kibalense	Forest Sprite	5
Pseudagrion lindicum	Eastern Blue Sprite	10
Pseudagrion massaicum	Masai Sprite	35
Pseudagrion niloticum	Nile Sprite	22
Pseudagrion nubicum	Bluetail Sprite	7
Pseudagrion salisburyense	Slate Sprite	14
Pseudagrion sjoestedti	Variable Sprite	6
Pseudagrion spernatum	Upland Sprite	43
Pseudagrion sublacteum	Cherry-eye Sprite	37
Pseudagrion torridum	Wing-tailed Sprite	5
Teinobasis alluaudi	Indian Ocean Fineliner	1
Crenigomphus hartmanni	Clubbed Talontail	28
Crenigomphus renei	Western Talontail	3
Gomphidia quarrei	Southern Fingertail	21
Ictinogomphus ferox	Common Tigertail	58
Lestinogomphus angustus	Spined Fairytail	7
Mastigogomphus pinheyi	Eastern Snorkeltail	4
Microgomphus nyassicus	Eastern Scissortail	2
Microgomphus schoutedeni	Congo Scissortail	2
Neurogomphus featheri	Striped Siphontail	2
Notogomphus dorsalis	Little Longleg	7
Notogomphus kilimandjaricus	Rusty-tipped Longleg	10
Notogomphus lecythus	Northern Longleg	5
Notogomphus leroyi	Clubbed Longleg	10
Notogomphus lujai	Albertine Longleg	5
Notogomphus maathaiae	Maathai's Longleg	6
Onychogomphus nigrotibialis	Intermediate Claspertail	8
Onychogomphus styx	Northern Dark Claspertail	2
Paragomphus alluaudi	Highland Hooktail	9
Paragomphus cognatus	Rock Hooktail	7
Paragomphus elpidius	Corkscrew Hooktail	22
Paragomphus genei	Common Hooktail	46
Paragomphus magnus	Great Hooktail	12
Paragomphus pumilio	Dwarf Hooktail	8
Paragomphus sabicus	Flapper Hooktail	7
Paragomphus viridior	Green-fronted Hooktail	13
Phyllogomphus selysi	Bold Leaftail	13
Lestes dissimulans	Cryptic Spreadwing	6
Lestes ictericus	Tawny Spreadwing	2
Lestes pallidus	Pallid Spreadwing	8
Lestes plagiatus	Highland Spreadwing	12
Lestes tridens	Spotted Spreadwing	12
Lestes uncifer	Sickle Spreadwing	7
Lestes virgatus	Smoky Spreadwing	7
Acisoma variegatum	Slender Pintail	10
Aethriamanta rezia	Pygmy Basker	6
Atoconeura biordinata	Common Highlander	1
Atoconeura eudoxia	Fishtail Highlander	4
Atoconeura kenya	Kenyan Highlander	32
Brachythemis impartita	Northern Banded Groundling	3
Brachythemis lacustris	Red Groundling	25
Brachythemis leucosticta	Southern Banded Groundling	62
Brachythemis wilsoni	Swamp Groundling	1
Bradinopyga cornuta	Horned Rockdweller	7
Bradinopyga strachani	Red Rockdweller	1

Chalcostephia flavifrons	Inspector	4
Crocothemis erythraea	Broad Scarlet	95
Crocothemis sanguinolenta	Little Scarlet	53
Diplacodes deminuta	Little Percher	1
Diplacodes lefebvrii	Black Percher	46
Diplacodes luminans	Barbet Percher	16
Hadrothemis camarensis	Saddled Jungleskimmer	2
Hadrothemis scabrifrons	Ruddy Jungleskimmer	18
Hemistigma albipunctum	African Piedspot	5
Micromacromia camerunica	Stream Micmac	4
Nesciothemis farinosa	Eastern Blacktail	80
Notiothemis jonesi	Eastern Forestwatcher	7
Notiothemis robertsi	Western Forestwatcher	7
Olpogastra lugubris	Bottletail	12
Orthetrum abbotti	Little Skimmer	12
Orthetrum brachiale	Banded Skimmer	10
Orthetrum caffrum	Two-striped Skimmer	25
Orthetrum camerunense	One-striped Skimmer	8
Orthetrum chrysostigma	Epaulet Skimmer	65
Orthetrum guineense	Guinea Skimmer	4
Orthetrum hintzi	Dark-shouldered Skimmer	11
Orthetrum icteromelas	Spectacled Skimmer	1
Orthetrum julia	Julia Skimmer	84
Orthetrum machadoi	Highland Skimmer	13
Orthetrum microstigma	Farmbush Skimmer	2
Orthetrum monardi	Woodland Skimmer	1
Orthetrum stemmale	Bold Skimmer	41
Orthetrum trinacria	Long Skimmer	35

Palpopleura deceptor	Deceptive Widow	26
Palpopleura jucunda	Yellow-veined Widow	12
Palpopleura lucia	Lucia Widow	65
Palpopleura portia	Portia Widow	39
Pantala flavescens	Wandering Glider	95
Rhyothemis fenestrina	Skylight Flutterer	1
Rhyothemis semihyalina	Phantom Flutterer	19
Sympetrum fonscolombii	Red-veined Darter or Nomad	7
Tetrathemis corduliformis	Club-tailed Elf	4
Tetrathemis polleni	Black-splashed Elf	26
Thermochoria jeanneli	Clear-winged Piedface	2
Tholymis tillarga	Twister	21
Tramea basilaris	Keyhole Glider	26
Tramea limbata	Ferruginous Glider	19
Trithemis aconita	Halfshade Dropwing	9
Trithemis annulata	Violet Dropwing	75
Trithemis arteriosa	Red-veined Dropwing	76
Trithemis bifida	Shadow Dropwing	3
Trithemis donaldsoni	Denim Dropwing	12
Trithemis dorsalis	Highland Dropwing	7
Trithemis furva	Navy Dropwing	34
Trithemis hecate	Silhouette Dropwing	1
Trithemis imitata	Northern Fluttering Dropwing	2
Trithemis kirbyi	Orange-winged Dropwing	47
Trithemis pluvialis	Russet Dropwing	16
Trithemis stictica	Jaunty Dropwing	24
Trithemis werneri	Elegant Dropwing	9
Trithetrum navasi	Fiery Darter	1

Urothemis assignata	Red Basker	33
Urothemis edwardsii	Blue Basker	21
Zygonoides fuelleborni	Southern Riverking	11
Zygonyx natalensis	Blue Cascader	62
Zygonyx torridus	Ringed Cascader	61
Phyllomacromia africana	Sahel Cruiser	1
Phyllomacromia contumax	Two-banded Cruiser	10
Phyllomacromia kimminsi	Crescent-faced Cruiser	3
Phyllomacromia monoceros	Sable Cruiser	5
Phyllomacromia pallidinervis	Pale-veined Cruiser	11
Phyllomacromia picta	Darting Cruiser	20
Phyllomacromia sylvatica	Forest Cruiser	8
Allocnemis abbotti	Eastern Yellowwing	8
Allocnemis pauli	Orange-tipped Yellowwing	7
Copera nyansana	Eastern Featherleg	1
Elattoneura glauca	Common Threadtail	67
Mesocnemis singularis	Common (Forest/Savanna) Riverjack	19