

AN ODONATA SURVEY OF THE MOGOL AND PALALA RIVERS IN THE WATERBERG, LIMPOPO PROVINCE

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Introduction

As part of an ongoing assessment of the biodiversity of the Waterberg 'Important Biodiversity Area' being undertaken under the umbrella of Birdlife South Africa, a survey of odonata occurring along the Mogol and Palala rivers and selected tributaries was conducted over eight days between 27 November and 4 December 2017. Seventeen dragonfly enthusiasts participated in the survey and between us 42 sites were visited and at each, an inventory was made of the odonata species present. In most cases all the dragonflies and damselflies found at each site were photographed by one or more members of each team and these photos have been submitted by the individual photographers to the Animal Demography Unit's Virtual Museum OdonataMap. A selection of these photos are included at the end of the report. No specimens were collected but in some cases individuals were caught to confirm their identity.

Weather conditions were ideal for finding dragonflies as the days were warm to hot and there was no rain or overcast weather in the time we were there. On the other hand the rivers surveyed were all at a low ebb and at some of the sites visited river flow had stopped and there were only standing pools of water to be found. Sites were visited by small teams in some instances and by the whole group in others. Usually at least half an hour, and sometimes several hours, was spent at each site searching for odonata and getting a photographic record of the species present. The rivers at our two base camps were subject to more intensive searching on successive days given that we were located there. We did not attempt to quantify numbers of individuals of each species at any site, merely recording their presence (or absence) - unfortunate, as we thus failed to pick up where, in some instances, a species (e.g. Phantom Flutterer, Southern Fingertail) occurred in abundance at one site but was only present in small numbers at another.

Two species were identified as specific targets in this survey: Rock Scarlet *Crocothemis divisa* and Granite Scarlet *Crocothemis saxicola*. Both are rock-loving species, the latter not yet recorded in South Africa and the former only twice recorded, both these occurrences from the Waterberg. Sadly no luck with either, but we did record at several sites a number of species for which there are few South African records - Southern Fingertail, Spined Fairytail (both were common in places) and four species of sprite which have restricted ranges in South Africa (Assegai, Makabusi, Catshead, Variable).

Results and discussion

Over the past decade W & M have kept lists and, wherever possible, photographic records of all odonata we've encountered in the Waterberg and these 1000+ records have been incorporated into the Odonata Database of Africa (ODA), curated by Jens Kipping. Prior to this survey our species tally for the Waterberg IBA was 86 and five more were added from this survey (White-masked Wisp, Clubbed Talontail, Corkscrew Hooktail, Lined Claspertail, Banded Skimmer) bringing the number of odonata known for the Waterberg to 91, more than that recorded, for example, in the Kruger National Park. The accompanying map shows (with red dots) the location of the sample sites superimposed on the rivers that drain the Waterberg.

The Tables accompanying this report list the species recorded at each site or site-cluster on the Palala (Table 1) and the Mogol (Table 2). In these, the families are arranged in taxonomic order and the species are listed within each family alphabetically by their scientific name. Several of the 42 visited sites that were not far apart have been combined here reducing the total to 31 site-clusters. The accompanying photographs illustrate some of these sites and also a selection of the species recorded. The photographer's name is credited on each photo.

The species recorded during this survey are all savanna species that, mostly, occur widely across Africa; none are endemic to South Africa although several of them are regionally scarce and localized, as indicated by the value allocated to them in Samways & Simaika's 2016 'Dragonfly Biotic Index' (DBI). These DBI values are

listed alongside each species in the first Table. As expected, the single most widely recorded species was the abundant and widespread Red-veined Dropwing, found at 28 of the 31 site clusters. Following it in order of abundance were Eastern Blacktail (24/31), Jaunty Dropwing (23/31), Common Tigertail (21/31) and Pantala (20/31). Eighteen other species were recorded at 10 or more sites and all but 12 species were recorded at more than one site.

DBI scores range between 0 (= a common species, widespread, not under threat) and 9 (= a rare, localized species, threatened) and although none are endemic, six of the species recorded lie at the upper end of the DBI scale, two with a DBI of 6 (Variable Sprite, Southern Fingertail) and four with a DBI of 5 (Assegai and Makabusi sprites, Spined Fairytail, Lined Claspertail). These are species of potential conservation concern and so it was gratifying to find that several of them occurred widely in our sample - Makabusi Sprite at 11 sites, Variable Sprite and Spined Fairytail at 8, Southern Fingertail at 6, Assegai Sprite at 4 and Lined Claspertail at 2 sites. At a national level (but not globally) five species are red-listed: Southern Fingertail, Assegai, Makabusi and Variable sprites are 'vulnerable' and Spined Fairytail is 'near-threatened'. It could be said that the Waterberg is probably the stronghold for a number of these in South Africa - Makabusi, Variable and Assegai sprites, for example, also for the two gomphids, the Southern Fingertail and Spined Fairytail.

Curiously, there are several species that at other times occur widely and commonly in the Waterberg, yet were only infrequently detected during this survey - e.g. Tropical Bluetail, Swamp Bluet, Sailing Bluet, Painted Sprite, Keyhole Glider and Nomad. And there were a few species that W & M have recorded frequently in the Waterberg in the past but were not recorded in this survey (e.g. Barbet Percher, Horned Rockdweller, Deceptive Widow). The explanation for these omissions may be related to seasonality (i.e. November-December being too early for them) or to their preferred habitats not having been adequately covered in this survey which focused on rivers and not on temporary or seasonal rain-filled wetlands. A follow-up survey later in the summer would clarify this.

Given the qualitative nature of the sampling not too much can be read into how sites and rivers compare with respect to their odonata composition and abundance. That more species were recorded in the Mogol system (n=69) than the Palala system (n=56) is probably accounted for by the larger number of sample sites in the Mogol (20 versus 11); possibly also contributing to this difference is the greater altitudinal range of the sampling points here (823 m - 1245 m above sea level) versus the Palala (1033 - 1392 m above sea-level). All five red-listed species occurred in both systems but, in relation to the respective sampling in the two rivers, we found a proportionately higher incidence of all the red-listed species in the Palala. Spined Fairytail, for example, was recorded at 6 sites in the Palala and at only 2 in the Mogol, and Makabusi Sprite was recorded at 8 sites in the Palala and at only 3 in the Mogol. If nothing else, the results provide ideas for improving sampling techniques for similar surveys of other river systems in the future.

Acknowledgements

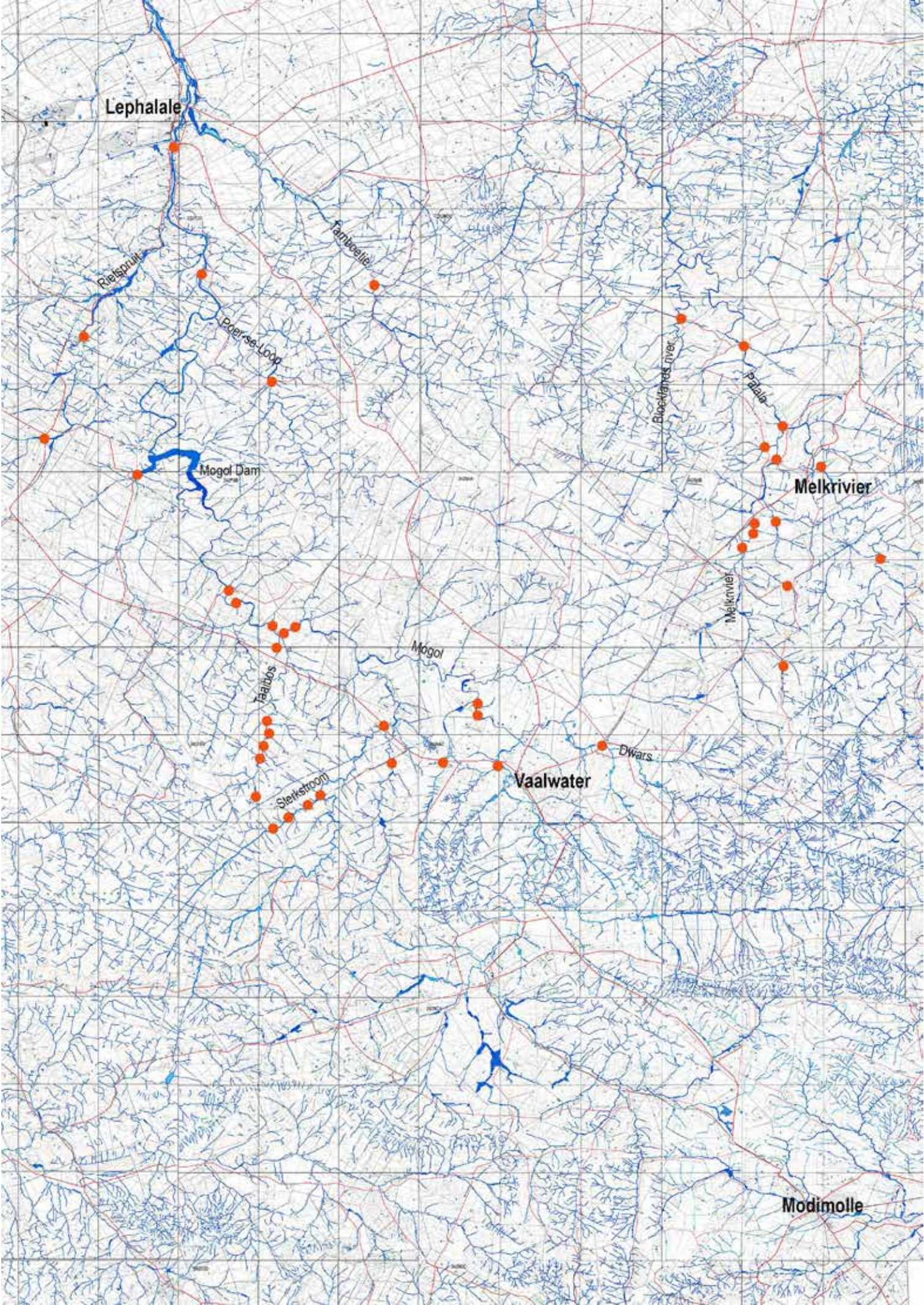
It is a pleasure to acknowledge the help of the volunteers who came from far and wide and contributed freely their time, effort and photographs to making this survey a success: Helena Coetzee (Gauteng), Dries & Joey de Vries (Witbank), Ben & Corrie du Toit (Cape Town), Riëtte Griesel (Bethulie), Lappies Labuschagne (Gauteng: he assembled the team and made the accommodation arrangements), Altha Liebenberg (Daniel-skuil), Alan & Lynne Manson (Howick), Niall Perrins (Gauteng), Neels & Antoinette Snyman (Witbank), Sharon Stanton (Cape Town), John Wilkinson (Tshipise). We also thank Clive Walker and Ken Maud for facilitating access to sites and the landowners and managers of properties where we were given access to survey: the management of Welgevonden Nature Reserve, in particular Jonathan Swart; the management of Lapalala Wilderness, in particular Herman Müller; Francois van der Merwe of Olifantsbeen, Andre Burger of Witwater Game Reserve, Sam van Coller of Lindani Game Reserve, Craig & Trish Pidduck of Hillsong, Bertus Abrams of Caledonia.

Reference

Samways, M J & J P Simaika 2016. Manual of Freshwater assessment for South Africa: Dragonfly Biotic Index. SANBI: *Suricata* 2.

[illegible]

1			1-4	5-8	9-12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		
2			FarmStay on Mogol river	Welgevonden – Sterkstroom	Welgevonden – Taalbos	Welgevonden – Leopard Dam	Hermanusdoorns- Mogol bridge	vanderMerwe dam – Mogol river	Mokolo NR – W end of dam	Sterkfontein on Rietspruit	Waterval on Mogol river	Mogol river below Lephalale	Bergfontein on Mogol river	Vyeboomfontein on Poer-se-Loop	Caledonia on Tamboespruit	Olifantsbeen on Mogol River	Olifantsbeen at old pumphouse	Leeuwater on Frikke-se-Loop	Sterkstroom at Sterkstroom bridge	Sanddrif at Dwaars River bridge	Shambala PGR entrance dam	Sandrivier old Mogol River bridge	MOGOL DRAINAGE	
3			Species recorded per site																					
4			34	31	36	25	29	14	3	2	16	18	7	7	24	23	19	13	2	22	8	5	69	
5	DAMSELFLIES, suborder ZYGOPTERA																							
6	Calopterygidae DEMOISELLES		Phaon iridipennis	Glistening Demoiselle	Glinsterjuffertjie	1	1	1		1						1							5	
8	Chlorocyphidae JEWELS		Platycypha caligata	Dancing Jewel	Dansende Juweeltjie	1	1	1		1				1				1		1			7	
11			Lestes pallidus	Pallid Spreadwing	Bleekspanvlerkie			1															1	
12			Lestes plagiatus	Highland Spreadwing	Gewone Spanvlerkie	1	1	1	1	1					1	1		1			1	1	1	11
14			Lestes virgatus	Smoky Spreadwing	Rookspanvlerkie			1															1	
16	Platycnemididae THREADTAILS, RIVERJACKS		Elatoneura glauca	Common Threadtail	Gewone Draadstertjie	1	1	1		1			1			1		1					7	
18			Mesocnemis singularis	Savanna Riverjack	Vlakterivierjuffer	1	1	1		1						1	1	1					7	
20	Coenagrionidae CITRILS, SPRITES, etc		Africallagma glaucum	Swamp Bluet	Vleibloutjie																			
22			Agriocnemis falcifera	White-masked Wisp	Witmaskersoetjie																			
23			Agriocnemis pinheyi	Pinhey's Wisp	Pinheyses Soetjie																			
25			Azuragrion nigridorsum	Sailing Bluet	Swartstertbloutjie													1					1	
27			Ceragrion glabrum	Common Citril	Gewone Ajjander				1				1			1	1					1	5	
29			Ischnura senegalensis	Tropical Bluetail	Hemelstertjie					1											1		3	
31			Pseudagrion assegaai	Assegai Sprite	Assegaigesie	1																	1	
32			Pseudagrion coeleste	Catshead Sprite	Broodruggesie	1											1	1					3	
33			Pseudagrion hageni	Painted Sprite	Blanketselgesie			1															1	
34			Pseudagrion hamoni	Swarthy Sprite	Donkergesie	1	1	1	1				1			1	1				1	1	9	
35			Pseudagrion kersteni	Powder-faced Sprite	Poeiergesiggie	1	1	1	1		1						1		1		1		9	
36			Pseudagrion makabusiense	Makabusi Sprite	Makabusigesie			1	1										1				3	
37			Pseudagrion massaicum	Masai Sprite	Masaigesie			1									1	1				1	4	
38			Pseudagrion salisburyense	Slate Sprite	Leiblougiesie	1	1	1		1					1		1				1		7	
39			Pseudagrion sjoestedti	Variable Sprite	Verneukertjie			1							1								4	
40			Pseudagrion sublaetum	Cherry-eye Sprite	Kersie-oog Gesie	1								1									2	
41			Pseudagrion sudanicum	Blue-sided Sprite	Blousygesie	1										1	1						3	
45			Anax ephippiger	Vagrant Emperor	Blourugkeiser					1													1	
46			Anax imperator	Blue Emperor	Blou Keiser	1		1	1	1			1			1	1				1		8	
47			Anax speratus	Orange Emperor	Oranje Keiser	1	1	1	1	1			1			1	1		1		1		10	
DRAGONFLIES, suborder ANISOPTERA																								
52	Gomphidae CLUBTAILS		Ceratogomphus pictus	Common Thorntail	Gewone Doringstert																1		1	
54			Crenigomphus hartmanni	Clubbed Talontail	Knoppieklouster																			
56			Gomphidia quarrei	Southern Fingertail	Suidelike Streepstert	1	1	1		1													4	
58			Ictinogomphus ferox	Common Tigertail	Gewone Streepstert	1	1	1	1	1	1	1	1	1		1	1	1			1		14	
60			Lestigomphus angustus	Spined Fairytail	Gewone Towerfeë	1		1															2	
62			Onychogomphus supinus	Lined Claspertail	Knypstert		1																1	
64			Paragomphus cognatus	Rock Hooktail	Kliphakiestert			1	1		1					1					1		5	
65			Paragomphus elpidius	Corkscrew Hooktail	Singerhakiestert	1																	1	
66			Paragomphus genei	Common Hooktail	Gewone Hakiestert					1		1	1								1		5	
68	Macromiidae CRUISERS		Phyllomacromia contumax	Two-banded Cruiser	Dubbelbandswalker	1																	1	
69			Phyllomacromia picta	Darting Cruiser	Pyltjeswalker				1														2	
71	Libellulidae SKIMMERS, DROPWINGS, etc		Acisoma inflatum	Stout Pintail	Dik Pylstertjie		1	1	1		1				1		1				1		7	
74			Brachythemis lacustris	Red Groundling	Rooi Grondwagtterjie	1					1												2	
75			Brachythemis leucosticta	Banded Groundling	Gebande Grondwagtterjie	1				1	1		1								1		5	
80			Crocothemis erythraea	Broad Scarlet	Breë Bloesie	1		1	1	1		1	1			1	1	1	1		1		12	
81			Crocothemis sanguinolenta	Little Scarlet	Klein Bloesie	1	1	1	1				1			1		1	1				8	
83			Diplacodes lefebvrii	Black Percher	Swartsittertjie								1				1	1					3	
89			Nesciothemis farinosa	Eastern Blacktail	Swartstertskepper	1	1	1	1	1	1		1	1	1		1	1	1	1		1	15	
91			Olpogastra lugubris	Bottletail	Lenige Bottelstert					1													1	
93			Orthetrum abbotti	Little Skimmer	Klein Skepper		1	1								1							3	
94			Orthetrum brachiale	Banded Skimmer	Gebande Skepper				1														1	
96			Orthetrum chrysostigma	Epaulet Skimmer	Epouletskepper	1	1	1	1	1	1		1	1	1		1	1			1	1	13	
98			Orthetrum hintzi	Dark-shouldered Skimmer	Donkerskofskepper		1											1					2	
99			Orthetrum icteromelas	Spectacled Skimmer	B rilskepper		1		1														2	
100			Orthetrum julia falsum	Julia Skimmer	Juliase Skepper			1	1	1			1		1								5	
101			Orthetrum machadoi	Highland Skimmer	Hooglandse Skepper																			
102			Orthetrum monardi	Woodland Skimmer	Bosskepper		1																1	
104			Orthetrum trinacria	Long Skimmer	Gestrekte Skepper	1		1		1							1					1	5	
107			Palpopleura jucunda	Yellow-veined Widow	Geelaarweetjie		1	1	1							1							4	
108			Palpopleura lucia	Lucia Widow	Luciase Weetjie											1							1	
109			Palpopleura portia	Portia Widow	Portiase Weetjie		1	1	1				1			1		1					7	
111			Pantala flavescens	Pantala	Narbroekie	1	1	1	1	1	1		1	1		1	1			1			12	
113			Rhyothemis semihyalina	Phantom Flutterer	Fladderigesie					1	1		1			1		1				1	7	
115			Sympetrum fonscolombii	Nomad	Swerwertjie			1															1	
117			Trithemis aconita	Halfshade Dropwing	Skaduvalvlerkie																			
118			Trithemis annulata	Violet Dropwing	Purper Valvlerkie	1					1						1						4	
119			Trithemis arteriosa	Red-veined Dropwing	Rooierfjie	1	1	1	1	1	1		1	1	1	1	1	1	1		1	1	17	
120			Trithemis donaldsoni	Denim Dropwing	Denim Valvlerkie	1		1		1							1				1		5	
122			Trithemis furva	Navy Dropwing	Blou Valvlerkie					1	1												3	
124			Trithemis kirbyi	Orange-winged Dropwing	Oranjevlerk-valvlerkie	1	1	1	1	1	1		1	1	1		1	1			1		12	
125			Trithemis pluvialis	Russet Dropwing	Rosbruinvalvlerkie		1	1				1											3	
126			Trithemis stictica	Jaunty Dropwing	Vrolike Valvlerkie	1	1	1	1	1	1					1	1	1	1			1	12	
130			Tramea basilaris	Keyhole Glider	Loerswewer											1							1	
131			Tramea limbata	Ferruginous Glider	Enkelbandswewer																1		1	
133			Urothemis edwardsii	Blue Basker	Blou Sonvangerjie					1							1						3	
134			Urothemis assignata	Red Basker	Rooi Sonvangerjie								1			1		1					3	
136			Zygonyx natalensis	Blue Cascader	Blou Klatertjie																		1	
137			Zygonyx torridus	Ringed Cascader	Kringklatertjie		1	1		1			1			1		1		1			7	





Site 1, Farm Stay, our 4-day base on the edge of a dammed up section of the Mogol river. Darting and Two-banded Cruisers, commonly patrolled the water and 5 sprite species occurred along the grassy verge - Assegaii, Catshead, Swarthy, Slate and Blue-sided.



Site 2, two km downstream from site 1 where the Mogol river is slow-flowing with extensive areas of rock outcrop; Common and Cork-screw found here, also Variable Sprite.



Sites 9-12. The Taaibos river in Welgevonden Game Reserve: 36 species were recorded at the four points surveyed along this stream, the highest number counted on any single river during the survey; it was the only locality where Painted Sprite was recorded



Sites 5-8. The Sterkstroom river in Welgevonden Game Reserve: 31 species were recorded at the four points surveyed along this stream: Russet and Jaunty Dropwings were especially common along here



Site 13. Leopard Dam in Welgevonden Game Reserve: Banded Skimmer and Woodland Skimmer, both with localized occurrence in South Africa and new for the Waterberg, were found here.



Site 22. The Tamboetiespruit on Caledonia: 24 species recorded here and the only site where Keyhole Glider was found; in 2007 Rock Scarlet was recorded at this site but none were located during the present survey.



Site 37. The Melkrivier on Hillsong: 29 species recorded here and the only locality where White-masked Wisp was found..



Site 31. The Palala river at Waterberg Natuurpraal where we were based for three nights. The very localized Half-shade Dropwing was reasonably common here



Site 39. The Palala river in the Lapalala Wilderness: 32 species recorded here and the only locality where Clubbed Talontail, a species new for the Waterberg, was found (see photo below). It was one of six clubtail species here, more than were found at any other site



Michèle Tarboton



Kurtis Gieseler



Kurtis Gieseler

Dancing Jewel *Platycypha caligata*, imm male on left, ad male on right



Kurtis Gieseler

Glistening Demoiselle *Phaon iridipennis*, ad male



Corrie du Toit

Common Spreadwing *Lestes plagiatus*, ad female



Corrie du Toit

Smoky Spreadwing *Lestes virgatus*, ad male



Kurtis Gieseler

Common Spreadwing *Lestes plagiatus*, ad male



Michelle Tarboton



Warwick Tarboton

Savanna Riverjack *Mesocnemis singularis*, mating pair



Warwick Tarboton

Common Threadtail *Elatoneura glauca*, ad male



Michelle Tarboton

Assegai Sprite *Pseudagrion assegaii*, ad male



Corinne da Silva

Catshead Sprite *Pseudagrion coeleste*, ad male



Warwick Tarboton

Pinhey's Wisp *Agriocnemis pinheyi*, imm & ad male



John Williamson

White-masked Wisp *Agriocnemis falcifera*, male



Painted Sprite *Pseudagrion hageni*, ad male



Makabusi Sprite *Pseudagrion makabusiense*, ad male



Blue-sided Sprite *Pseudagrion sudanicum*, ad male



Swarthy Sprite *Pseudagrion hamoni*, ad male



Masai Sprite *Pseudagrion massaicum*, ad male



Variable Sprite *Pseudagrion sjoestedti*, ad male



Darting Cruiser *Phyllomacromia picta*, ad male



Blue Emperor *Anax imperator*, ad male



Common Hooktail *Paragomphus genei*, ad male



Rock Hooktail *Paragomphus cognatus*, ad male



Corkscrew Hooktail *Paragomphus elpidius*, ad male



Antoinette Snyman



Common Tigertail *Ictinogomphus ferox*, ad male



Clubbed Talontail *Crenigomphus hartmannii*, ad male



Sharon Stanton



Warwick Satchell

Spined Fairytail *Lestinogomphus angustus*, ad male



Heather Green

Southern Fingertail *Gomphidia quarrei*, above & below



Warwick Satchell

Lined Claspertail *Onychogomphus supinus*, ad male



Sharon Stanton



Banded Groundling *Brachythemis leucosticta*, ad male



Road block on Welgevonden



Banded Groundling *Brachythemis leucosticta*, ad female



Broad Scarlet *Crocothemis erythraea*, ad male



Little Scarlet *Crocothemis sanguinolenta*, ad male



Neels Shyman



Eastern Blacktail *Nesciothemis farinosa*, ad male on left, female on right



Spectacled Skimmer *Orthetrum icteromelas*, ad male



Epaulet Skimmer *Orthetrum chrysostigma*, mating pair



Dark-shouldered Skimmer *Orthetrum hintzi*, ad male



Highland Skimmer *Orthetrum machadoi*, ad male



Woodland Skimmer *Orthetrum monardi*, ad male



Phantom Flutterer *Rhyothemis semihyalina*, ad male



Portia Widow *Palpopleura portia*, ad male



Lucia Widow *Palpopleura lucia*, ad male



Yellow-veined Widow *Palpopleura jucunda*, ad male on left, imm male on right



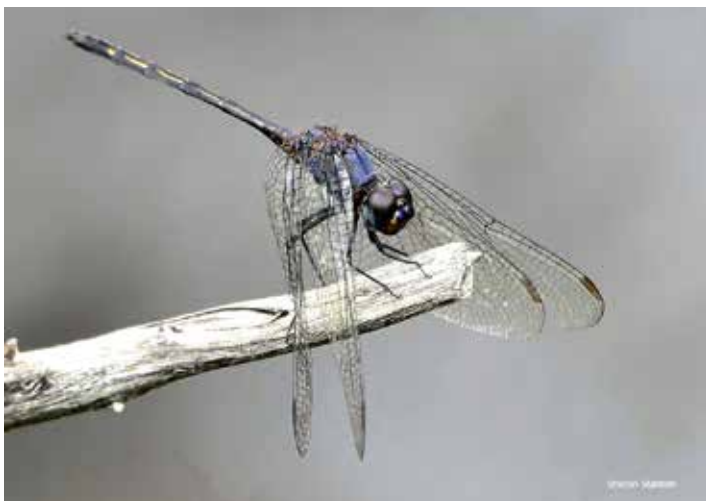
Denim Dropwing *Trithemis donaldsoni*, ad male on left, female on right



Russet Dropwing *Trithemis pluvialis*, ad male



Red-veined Dropwing *Trithemis arteriosa*, ad male on left, imm male on right



Half-shade Dropwing *Trithemis aconita*, ad male on left, female on right



Jaunty Dropwing *Trithemis stictica*, ad male on left, female on right



Violet Dropwing *Trithemis annulata*, ad male



Red Basker *Urothemis assignata*, ad male



Blue Basker *Urothemis edwardsii*, ad male on left, mating pair on right



Blue Cascader *Zygonyx natalensis*, ad male



Ringed Cascader *Zygonyx torridus*, ad male, above & below

