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BIODIVERSITY SURVEY

BIODIVERSITY SURVEY AT THE HANS HOHEISEN WILDLIFE RESEARCH STATION, ORPEN GATE

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Introduction

The Animal Demography Unit (ADU) held a biodiversity survey at Hans Hoheisen Wildlife Research Station over the weekend of 27–30 November 2015, with 30 delegates (Figure 1). There was bird ringing, bird atlasing and collection of Virtual Museum (VM) records. This paper reports on the taxa identified from ringing and Virtual Museum records on the weekend, as well as records reported prior to the weekend.

Study site

The Hans Hoheisen Wildlife Research Station (HHWRS, 24° 28' 55.60"S, 31° 23' 09.40"E) is situated next to the Orpen Gate of the Kruger National Park in South Africa, and officially opened on 25 August 2010. HHWRS is a research and training station managed by the University of Pretoria (UP) as part of a collaborative agreement with the Peace Parks Foundation and Mpumalanga Tourism and Parks Agency. HHWRS facilities include accommodation, multiple laboratories, library, wildlife housing and handling facilities as well as office space for researchers from UP as well as other institutions. The Station also has facilities suited for meetings and the presentation of courses, including a large auditorium.

The Draft Environmental Impact Report for the upgrade of the HHWRS (van der Westhuizen 2013) noted the following information about the flora and fauna of the site. The veld type was considered to be Mixed Lowveld Bushveld, or Arid Lowveld, and was described as dense bush on the uplands, open tree savanna in the bottom lands, and dense riverine woodland on the riverbanks and drainages. A long list of flora was provided. The report listed the number of animals for the Kruger National Park but had no list of fauna on the HHWRS property itself. The report noted that the boundary fence excluded large mammals but not small mammal species such as bats and rodents. The report listed only the following species from HHWRS: Southern African python *Python natalensis*, plated lizards *Gerrhosaurus* spp., two baboon spiders (*Augacephalus breyeri* and *Augacephalus junodi*), and Transvaal thick-tailed scorpion *Parabuthus transvaalicus*.

The present report details a list of confirmed species for HHWRS from the weekend, and also prior to the weekend, based on records submitted to ADU projects.

Methods

Mist nets were put up on Saturday and Sunday (28–29 November) by several bird ringers. Moth traps were set up at night to attract moths and other insects. A few *Charaxes* traps were baited and put out on Sunday. Other taxa were searched for by walking around singly or in groups, mostly during the day but also at night.

The records were extracted on 22 February 2016 from two of the digital biodiversity databases held at the ADU, collected largely by citizen scientists. These were the database of the South African Bird Ringing Unit (SAFRING), and the database of the ADU Virtual Museum (<http://vmus.adu.org.za>). The taxa/projects are listed in Table 1.

Results

74 birds were ringed during the weekend, and eight recaptured (Table 1, Appendix 2). Five of the recaptures were from the weekend itself, and three were birds from up to one year earlier. Kurrichane Thrush (ring CA31703) was ringed two months previously; an African Paradise-flycatcher (ring AR54250) and Southern Black Tit (ring FB69979) had both been ringed 11.5 months earlier. Including birds ringed before the weekend, and a few after, the ringing total at HHWRS increased to 236 birds, including several raptors.

The ADU Virtual Museum (<http://vmus.adu.org.za>) has 17 sections and records from HHWRS have been submitted for all except EchinoMAP (which is by definition only coastal) and FishMAP (which is possible in the adjacent Timbavati River). Over 500 records have been submitted (Table 1), with nearly half identified to species, or some higher level (Appendix 2). The moth component of LepiMAP contains the bulk of the unidentified records

Birdpix records totalled 22 species overall, and 17 during the weePend. PHOWN added one taxon not recorded by any other method, the Red-billed Buffalo-Weaver, as a nest was still present, although the birds were not (but they were observed at the nearby Southern African Wildlife College).

SABAP2 records have not been included in this report because the pentad spatial scale (9×10 km) for this project includes an area substantially larger than HHWRS. Atlasers visited the Kruger National Park to include species on bird atlas checklists. More than 110 bird species were atlased for the Orpen pentad 2425_3120 over the weekend (Williams 2016). The SABAP2 database contained 94 full protocol pentads for this pentad, listing 268 species (see http://sabap2.adu.org.za/pentad_info.php?group=&qdgc=&iba=&area=&pentad=2425_3120§ion=species_rr#pent_info_tabs).

Table 1. Number of records obtained at the Hans Hoheisen Wildlife Research Station per section of the ADU Virtual Museum project, showing totals submitted and identified, both for records and for the ADU weekend alone. Bird species totals including ringing are also shown.

VM project	Records overall		27–30 November 2015	
	Submitted	Identified	Submitted	Identified
BirdPix	22	21	17	17
BOP	2	2		
DungBeetleMAP	13	1	13	1
EchinoMAP	0	0		
FishMAP	0	0		
FrogMAP	4	4		
LacewingMAP	11	10	9	8
LepiMAP	266	96	57	26
MammalMAP	22	21	9	8
MushroomMAP	5	0	5	0
OdonataMAP	2	2		
OrchidMAP	1	0	1	0
PHOWN	5	5	4	4
ReptileMAP	59	57	10	8
ScorpionMAP	6	6	2	2
SpiderMAP	58	8	17	3
TreeMAP	28	5	20	4
Total	504	238	164	81
Birds [incl Ringed]		68		41
Taxa totals		285		105

Discussion

The conference event, and visits leading up to the conference, contributed a large number of species records that were not available for the EIA report (van der Westhuizen 2013).

A total of over 500 Virtual Museum records of fauna and flora have been submitted to 15 of the 17 sections of the ADU Virtual Museum and 164 of these records were collected during the weekend of the Citizen Science Conference of November 2015. 238 taxa have been identified by expert panels of the Virtual Museum, and the total list of identified species stands at 285 (Appendices 1 and 2).

There are 236 bird ringing records for the site of 58 species. The total bird species list for the site, using ringing records and the VM projects Birdpix and PHOWN, makes 68 species.

The most diverse group was the Lepidoptera with 96 species identified; the moths may be identified in the future but no moth list was available at the time of analysis. This is followed by the birds with 68 species, and reptiles with 57 species identified.

Acknowledgements

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Thanks to all the citizen scientists who participated in the conference at HHWRS and who have contributed biodiversity records for HHWRS.

Especially thanks to the Professor Darrell Abernethy and the HHWRS staff for hosting the event, and to Zephné Bernitz for organising the logistics.

References

Van der Westhuizen M 2013. Proposed upgrade of the Hans Hoheisen Wildlife Research Station, Mpumalanga. Draft Environmental Impact Report (online at http://www.nuleafsa.co.za/wp-content/uploads/2012/12/EIR-HHWRS-July-2013_final_5.pdf)

Williams D 2016. ADU week-end at Hans Hoheisen. Hornbill 120:27.



Figure 1. Delegates who attended the survey weekend at the Hans Hoheisen Wildlife Research Station, Orpen Gate..

Appendix 1. List of bird species recorded at Hans Hoheisen Wildlife Research Station from ringing and BirdPix, showing both all records and those recorded during the Conference weekend, 27–30 November 2015.

Sp. No.	Species name	Latin	Ringed & retrapped, 2015	Ringed November 2015	Retraps November 2015	Birdpix, 2012–2015	Birdpix November 2015
107	White-backed Vulture	<i>Gyps africanus</i>	1				
110	Hooded Vulture	<i>Necrosyrtes monachus</i>				y	y
137	Wahlberg's Eagle	<i>Aquila wahlbergi</i>	1				
158	Little Sparrowhawk	<i>Accipiter minullus</i>	1				
183	Natal Spurfowl	<i>Pternistis natalensis</i>				y	
227	Black-bellied Bustard	<i>Lissotis melanogaster</i>				y	y
244	Senegal Lapwing	<i>Vanellus lugubris</i>				y	
316	Cape Turtle Dove	<i>Streptopelia capicola</i>	1				
321	Emerald-spotted Wood-Dove	<i>Turtur chalcophilus</i>	10	4			
328	Brown-headed Parrot	<i>Poicephalus cryptoxanthus</i>				y	y
365	Pearl-spotted Owl	<i>Glaucidium perlatum</i>	1				
369	Verreaux's Eagle-Owl	<i>Bubo lacteus</i>				y	
392	Red-faced Mousebird	<i>Urocolius indicus</i>	3				
399	Woodland Kingfisher	<i>Halcyon senegalensis</i>	3				
407	Southern Carmine Bee-eater	<i>Merops nubicoides</i>				y	
412	European Roller	<i>Coracias garrulus</i>				y	
439	Crested Barbet	<i>Trachyphonus vaillantii</i>	1				
440	Greater Honeyguide	<i>Indicator indicator</i>	2	1			
442	Lesser Honeyguide	<i>Indicator minor</i>	4	2			
447	Golden-tailed Woodpecker	<i>Campethera abingoni</i>	1				
503	Lesser Striped Swallow	<i>Hirundo abyssinica</i>	2			y	y
521	Black-headed Oriole	<i>Oriolus larvatus</i>	1				
522	Pied Crow	<i>Corvus albus</i>	1	1		y	y
527	Southern Black Tit	<i>Parus niger</i>	8	3	1	y	y

Sp. No.	Species name	Latin	Ringed & retrapped, 2015	Ringed Nov 2015	Retraps Nov 2015	Birdpix, 2014-2015	Birdpix Nov 2015
533	Arrow-marked Babbler	<i>Turdoides jardineii</i>	5				
545	Dark-capped Bulbul	<i>Pycnonotus barbatus</i>	4	2			
551	Sombre Bulbul	<i>Andropadus importunus</i>	2				
552	Kurrichane Thrush	<i>Turdus libonyana</i>	6	0	1		
582	White-throated Robin	<i>Cossypha humeralis</i>	1				
588	White-browed Robin	<i>Erythropygia leucophrys</i>	11	6			
595	Garden Warbler	<i>Sylvia borin</i>	3	1		y	y
599	Willow Warbler	<i>Phylloscopus trochilus</i>	3	1			
615	Stierling's Barred Warbler	<i>Calamonastes stierlingi</i>	2	1		y	y
621	Long-billed Crombec	<i>Sylvietta rufescens</i>	25	9	2		
625	Yellow-breasted Apalis	<i>Apalis flavida</i>	4	1			
627	Bleating Warbler	<i>Camaroptera brachyura</i>	3	1			
642	Rattling Cisticola	<i>Cisticola chiniana</i>	1				
654	Spotted Flycatcher	<i>Muscicapa striata</i>	2	1			
657	Fantailed Flycatcher	<i>Myioparus plumbeus</i>	2	1			
673	Chinspot Batis	<i>Batis molitor</i>	15	5	2	y	y
682	African Paradise Flycatcher	<i>Terpsiphone viridis</i>	7	2	1		
708	Red-backed Shrike	<i>Lanius collurio</i>	4	1		y	y
712	Black-backed Puffback	<i>Dryoscopus cubla</i>	12	5			
714	Three-streaked Tchagra	<i>Tchagra australis</i>	7	3			
715	Black-crowned Tchagra	<i>Tchagra senegala</i>	1				
719	Orange-breasted Bush Shrike	<i>Telophorus sulfureopectus</i>	4	2			
721	Gorgeous Bush Shrike	<i>Telophorus quadricolor</i>	1	1			
723	Grey-headed Bush Shrike	<i>Malaconotus blanchoti</i>	1				
738	Greater Blue-eared Starling	<i>Lamprotornis chalybaeus</i>	2	1			

Sp. No.	Species name	Latin	Ringed & retrapped, 2015	Ringed Nov 2015	Retraps Nov 2015	Birdpix, 2014-2015	Birdpix Nov 2015
743	Burchell's Starling	<i>Lamprotornis australis</i>	2				
748	Red-billed Oxpecker	<i>Buphagus erythrorhynchus</i>				y	y
755	Marico Sunbird	<i>Nectarinia mariquensis</i>	5				
756	Purple-banded Sunbird	<i>Nectarinia bifasciata</i>	7	4			
763	White-bellied Sunbird	<i>Nectarinia talatala</i>	14	3			
771	Collared Sunbird	<i>Anthreptes collaris</i>	1				
779	Red-billed Buffalo-Weaver	<i>Bubalornis niger</i>				PHOWN	PHOWN
791	Spectacled Weaver	<i>Ploceus ocularis</i>	4	1	1	y	y
793	Red-headed Weaver	<i>Anaplectes rubriceps</i>	2	1		y	y
803	Southern Masked Weaver	<i>Ploceus velatus</i>	2	1		y	y
830	Green-winged Pytilia	<i>Pytilia melba</i>	3				
835	Jameson's Firefinch	<i>Lagonosticta rhodopareia</i>	3				
837	Red-billed Firefinch	<i>Lagonosticta senegala</i>	2	1			
839	Blue Waxbill	<i>Uraeginthus angolensis</i>	9	1		y	y
846	Pintailed Whydah	<i>Vidua macroura</i>	2	1		y	y
859	Yellow-eyed Canary	<i>Serinus mozambicus</i>	7	4			
874	Golden-breasted Bunting	<i>Emberiza flaviventris</i>	2	1			
4129	Red-billed Hornbill	<i>Tockus erythrorhynchus</i>				y	y
4142	Southern Greyheaded Sparrow	<i>Passer diffusus</i>	2	1			
Totals			236	74	8		

Appendix 2. List of taxa (other than birds) recorded and identified at Hans Hoheisen Wildlife Research Station from the ADU Virtual Museum, 1984–2016, listing all records (those noted during the Conference weekend are marked as “y” in the column November 2015).

Species number	Common name	Scientific name	November 2015
Dung Beetles			
7710170		<i>Scarabaeus nigroaeneus</i>	y
Lacewings			
328780		<i>Nemoleon sp.</i>	y
327840		<i>Cueta sp.</i>	y
327800		<i>Creoleon nubifer</i>	y
326160		FAMILY Mantispidae	y
328520		<i>Maula stigmatus</i>	y
329580		<i>Palpares torridus</i>	y
Odonata			
669120	Orange-winged Dropwing	<i>Trithemis kirbyi</i>	
668640		<i>Trithemis sp.</i>	
Lepidoptera			
469230	Ragged skipper	<i>Caprona pillaana</i>	
408530	Spotted joker	<i>Byblia ilithyia</i>	
407590	African common white	<i>Belenois creona severina</i>	
407450	Brown-veined white	<i>Belenois aurota</i>	
458810	Eastern scarlet	<i>Axiocerses tjoane tjoane</i>	
458500	Bush scarlet	<i>Axiocerses amanga amanga</i>	
460430	Black striped hairtail	<i>Anthene amarah amarah</i>	
410760	Wandering donkey acraea	<i>Acraea neobule neobule</i>	
411820	Natal acraea	<i>Acraea natalica</i>	

Species no.	Common name	Scientific name	Nov 2015
410360	Acara acraea	<i>Acraea acara acara</i>	
403120	African migrant	<i>Catopsilia florella</i>	
435200	White-barred charaxes	<i>Charaxes brutus natalensis</i>	
435270	Giant charaxes	<i>Charaxes castor flavifasciatus</i>	
433620	Pearl-spotted charaxes	<i>Charaxes jahlusa rex</i>	
434010	Demon charaxes	<i>Charaxes phaeus</i>	
466030	Grass jewel	<i>Chilades trochylus</i>	
468380	Two-pip policeman	<i>Coeliades pisistratus</i>	
419510	Zulu shadefly	<i>Coenyra hebe</i>	
404180	Smoky orange tip	<i>Colotis euipe omphale</i>	
404760	Veined tip	<i>Colotis vesta argillaceus</i>	
409280	African monarch, Plain tiger	<i>Danaus chrysippus orientis</i>	
402930	Broad-bordered grass yellow	<i>Eurema brigitta brigitta</i>	
408790	Golden piper	<i>Eurytela dryope angulata</i>	
439300	Common diadem	<i>Hypolimnias misippus</i>	
438340	Blue pansy	<i>Junonia oenone oenone</i>	
472900	Pale ranger	<i>Kedestes callicles</i>	
440210	Common woolly legs	<i>Lachnocnema bibulus</i>	
463230	Pea blue	<i>Lampides boeticus</i>	
464050	Common zebra blue	<i>Leptotes pirithous pirithous</i>	
469270	White-cloaked skipper	<i>Leucochitonea levubu</i>	
415130	Twilight Brown	<i>Melanitis leda</i>	
405670	Common dotted border	<i>Mylothris agathina agathina</i>	
400530	Citrus swallowtail	<i>Papilio demodocus demodocus</i>	
419560	Dark-webbed ringlet	<i>Physcaeneura panda</i>	
403570	Zebra white	<i>Pinacopteryx eriphia eriphia</i>	
409060	Natal tree-nymph	<i>Sevenia natalensis</i>	
464330	Black pie	<i>Tuxentius melaena melaena</i>	
438050	Painted lady	<i>Vanessa cardui</i>	

Species no.	Common name	Scientific name	Nov 2015
464560	Hintza pierrot	<i>Zintha hintza hintza</i>	
475590	Palm-tree night-fighter	<i>Zophopetes dysmephila</i>	
551040		<i>Omizodes rubrifasciata</i>	
408500	Joker	<i>Byblia anvatara acheloia</i>	
465310	Common smoky blue	<i>Euchrysops malathana</i>	
472120	Common hottentot	<i>Gegenes niso niso</i>	
464720	Tiny grass blue	<i>Zizula hylax</i>	
529270		<i>Sphingomorpha chlorea</i>	
464800	Topaz babul blue	<i>Azanus jesus</i>	
404550	Bushveld orange tip	<i>Colotis pallene</i>	
463950		<i>Leptotes sp.</i>	
458480		<i>Axiocerses sp.</i>	
403740	Scarlet tip	<i>Colotis annae annae</i>	y
530470		<i>Arniocera auriguttata</i>	y
403720		<i>Colotis sp.</i>	y
411830	Window Acraea	<i>Acraea oncaea</i>	y
404320	Orange tip	<i>Colotis evenina evenina</i>	y
522710		<i>Cylogramma latona</i>	y
466520	Silvery blue	<i>Lepidochrysops glauca</i>	y
467330	Twin-spot blue	<i>Lepidochrysops plebeia plebeia</i>	y
625990		<i>Acherontia atropos</i>	y
626920		<i>Hippotion balsaminae</i>	y
628350		<i>Pseudoclanis postica</i>	y
517380		<i>Spilosoma lineatum</i>	y
404690	Queen purple tip	<i>Colotis regina</i>	y
436040	Foxy charaxes	<i>Charaxes jasius saturnus</i>	y
432530	Bushveld charaxes	<i>Charaxes achaemenes achaemenes</i>	y
437080	Pearl charaxes	<i>Charaxes varanes varanes</i>	y

Species no.	Common name	Scientific name	Nov 2015
438280	Yellow pansy	<i>Junonia hierta cebrene</i>	y
432240	Guinea-fowl butterfly (Figure 2)	<i>Hamanumida daedalus</i>	y
Frogs			
760	Banded Rubber Frog	<i>Phrynomantis bifasciatus</i>	
470	Southern Foam Nest Frog	<i>Chiromantis xerampelina</i>	
590	Painted Reed Frog	<i>Hyperolius marmoratus</i>	
Reptiles			
1570	Southern Tree Agama	<i>Acanthocercus atricollis atricollis</i>	
5410	Puff Adder	<i>Bitis arietans arietans</i>	
5380	Snouted Night Adder	<i>Causus defilippii</i>	
4690	Boomslang	<i>Dispholidus typus typus</i>	
4400	Cape Wolf Snake	<i>Lycophidion capense capense</i>	
5000	East African Shovel-snout	<i>Prosymna stuhlmannii</i>	
3880	Schlegel's Beaked Blind Snake	<i>Afrotyphlops schlegelii</i>	
5630	Natal Hinged Tortoise	<i>Kinixys natalensis</i>	
5360	Black Mamba	<i>Dendroaspis polylepis</i>	
5270	Snouted Cobra	<i>Naja annulifera</i>	
5300	Mozambique Spitting Cobra	<i>Naja mossambica</i>	
4070	Southern African Python	<i>Python natalensis</i>	
1220	Rock Monitor	<i>Varanus albigularis albigularis</i>	
4970	Striped Grass Snake	<i>Psammophylax tritaeniatus</i>	
4900	Olive Grass Snake	<i>Psammophis mossambicus</i>	
4640	Spotted Bush Snake	<i>Philothamnus semivariatus</i>	
4930	Western Yellow-bellied Sand Snake	<i>Psammophis subtaeniatus</i>	
4570	Marbled Tree Snake	<i>Dipsadoboa aulica</i>	
580	Turner's Gecko	<i>Chondrodactylus turneri</i>	
5540	Leopard Tortoise	<i>Stigmochelys pardalis</i>	

Species no.	Common name	Scientific name	Nov 2015
2430	Striped Skink	<i>Trachylepis striata</i>	
2480	Variable Skink	<i>Trachylepis varia</i>	y
320	Common Dwarf Gecko	<i>Lygodactylus capensis capensis</i>	y
1410	Common Flap-neck Chameleon	<i>Chamaeleo dilepis dilepis</i>	y
3550	Common Giant Plated Lizard	<i>Matobosaurus validus</i> (Figure 3)	y
230	Common Tropical House Gecko	<i>Hemidactylus mabouia</i>	y
Scorpions			
303850		<i>Hadogenes troglodytes</i>	
302800		<i>Parabuthus transvaalicus</i>	
304080		<i>Opisthacanthus asper</i> (Figure 4)	
303250		<i>Uroplectes chubbi</i>	
304500		<i>Opisthophthalmus glabrifrons</i>	y
Spiders			
700240		<i>Ceratogyrus darlingi</i>	
700150		<i>Augacephalus junodi</i>	
700070	Unidentified Idiopidae	FAMILY Idiopidae	
700110	Unidentified Theraphosidae	FAMILY Theraphosidae	y
700640		<i>Idiothele nigrofulva</i>	y
Mammals			
110080	Moholi Bushbaby	<i>Galago moholi</i>	
198960	African wild dog	<i>Lycaon pictus</i>	
191540	Ground Pangolin	<i>Smutsia temminckii</i>	
217920	Vervet Monkey	<i>Chlorocebus pygerythrus pygerythrus</i>	
175880	Mauritian Tomb Bat	<i>Taphozous (Taphozous) mauritanus</i>	
110190	Brown Greater Galago	<i>Otolemur crassicaudatus</i>	

Species no.	Common name	Scientific name	Nov 2015
197810	Side-striped Jackal	<i>Canis adustus</i>	
196670	Common Dwarf Mongoose	<i>Helogale parvula</i>	
207390	White Rhinoceros	<i>Ceratotherium simum</i>	
158240	Scrub Hare	<i>Lepus (- [see comments under species]) saxatilis</i>	
207010	Plains Zebra	<i>Equus quagga</i>	
216040	Waterbuck	<i>Kobus ellipsiprymnus</i>	y
211850	Impala	<i>Aepyceros melampus</i>	y
197450	Banded Mongoose	<i>Mungos mungo</i>	y
123710	Smith's Bush Squirrel	<i>Paraxerus cepapi</i>	y
107520	African Bush Elephant	<i>Loxodonta africana</i>	y
Trees			
20699	Sickle-bush	<i>Dichrostachys cinerea</i>	y
19690	Fever-tree Acacia	<i>Acacia xanthophloea</i>	y
10659	Marula	<i>Sclerocarya birrea</i>	y



Figure 2. Guinea-fowl butterfly, LepiMAP 583564 (HD Oschadleus)



Figure 3 Common Giant Plated Lizard, ReptileMAP 155737 (HD Oschadleus)



Figure 4. *Opisththalmus glabrifrons* ScorpionMAP 1136 (HD Oschadleus)