# A New Species of Assassin-fly in Namibia

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## What is an Assassin Fly?

Assassin flies are a true fly (Diptera:Asilidae) and a fierce predator, like the cheetah of the insect kingdom waits for its prey. It lunges, quickly catching it midair, sometimes taking prey much bigger than itself down by injecting a paralyzing neurotoxin that digests the prey's insides.

A cheetah ( and assassin fly comparison both ready to attack

The genus *Anypodetus* is restricted to Southern Africa and most diverse in Namibia with 7 of 8 species recorded. The most recent review of the genus was published by Jason Londt in 2000. Recently, specimens that cannot be readily identified were collected during fieldwork in the Namib Desert Sand Sea off C14 in west-central Namibia that we studied here.

We used U.S. National Museum of Natural History's collections as well as records from collections the Kwazulu-Natal Museum of South Africa and Staatliches Museum für Naturkunde Stuttgart

## Results

### Thorax



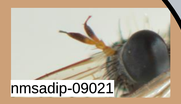
A. sp. n. (left) is dorsally grey pruinose and laterally apubescent with white thoracic setae. A. unicolor (right) which fully grey pubescent.

### Scutellar

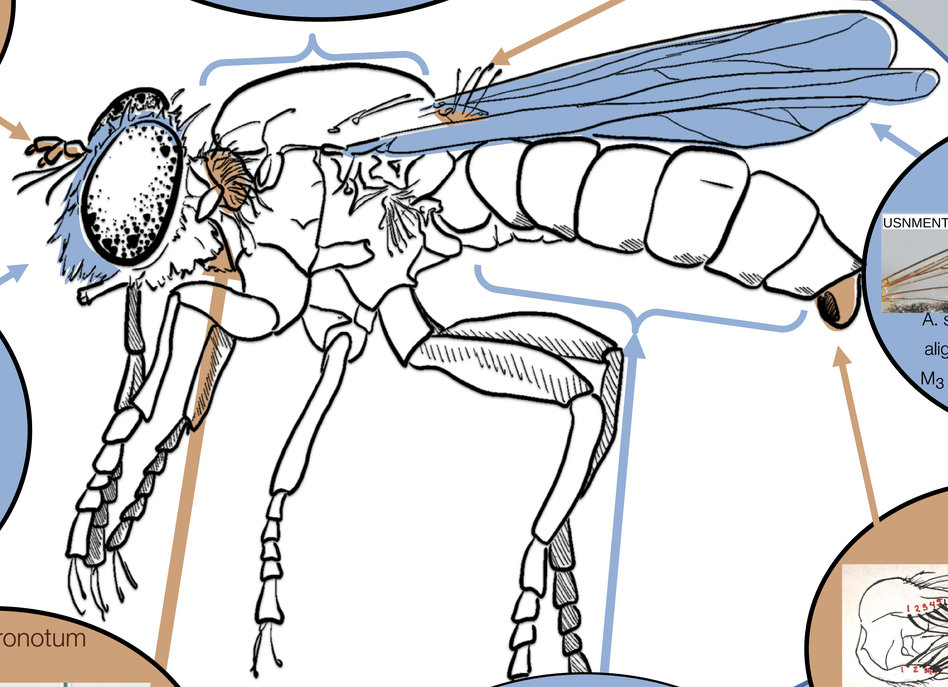


A. sp. n. (left) has marginal setae present. A. phalaros is asetose

### Antennae


A. sp. n. (left) with short antennae and solid coloration. A. macroceros (right) with long antennae with distal discoloration

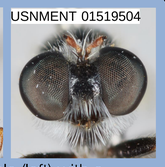


### Wing



A. sp. n. (left) with $M_2$ and $M_3$ veins aligned. A. leucothrix (right) $M_2$ and $M_3$ veins unaligned. Both unstained.

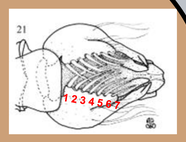
### Face


A. spn. n. female (left) with a fully white mystax. Male (right) has a black and white mystax. Both have white ocular setae.

### Terminalia





A. sp. n.(left) with 5 gonocoxal macrosetae and A. leucothrix (right) with 7.

### Postpronotum



A. sp. n. (left) with 20+ white setae. A. leucothrix (right) with 3 white setae.



A. sp. n. (left) with two large prunoise areas. A. macroceros (right) with predominantly grey and brown pubescence.

## Discussion

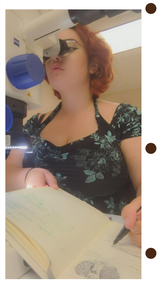
The morphological uniqueness and early seasonal flight activity support the conclusion that *A.* sp. n. represents a new species.

Our study focused on the morphological study of 111 specimens of *Anypodetus* from 3 natural history museums. We did not use DNA analysis because we worked with historical specimen.

One other male specimen found in Mozambique (USNMENT01140568) which was not readily identified was excluded, but may represent another undescribed species.

Desert environments support many assassin fly species and our study highlights the fact that new species can still be discovered. As we continue to study we learn more about the world we live in and the creatures that surround us.

## Materials and Methods



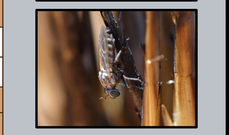
Meliah at a microscope practicing her scientific illustration.

- Morphological traits studied with a stereo microscope and the use of scientific illustration.
- Comparative analysis done using Lucid4 Builder
- Dissections done manually and cleared with Potassium Hydroxide heated to approximately 55℃

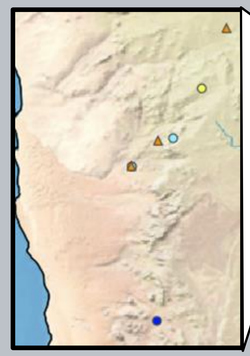
Seasonal flight activity of *Anypodetus* species

| | Sep | Oct | Nov | Dec | Jan | Feb | Mar |
|---|---|---|---|---|---|---|---|
| A. sp.n. | ■ | | ■ | | | | |
| A. fasciatus | | | ■ | ■ | ■ | ■ | ■ |
| A.leucothrix | | ■ | ■ | | | | |
| A.arachnoides | | | ■ | ■ | | ■ | ■ |
| A.fascipennis | | ■ | ■ | ■ | ■ | ■ | |
| A.macroceros | | | ■ | | | ■ | |
| A.nigrifacies | | | | ■ | ■ | ■ | ■ |
| A.phalaros | | | | | | ■ | ■ |
| A.unicolor | | ■ | ■ | ■ | ■ | | |

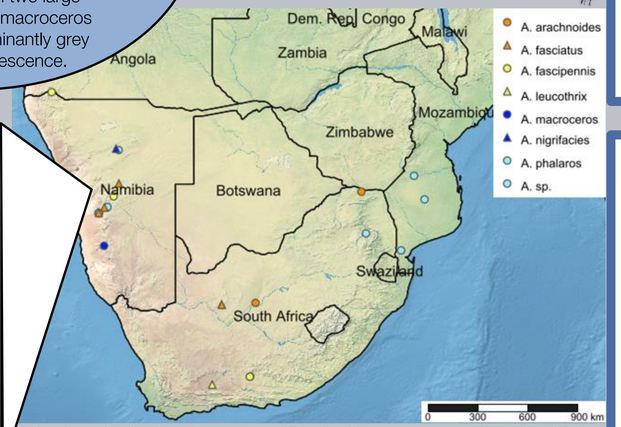
months abbreviated, spring through early fall showing sp. n. flies earlier than any other species in the genus.



*Field photos: A. fasciatus* at C14 locality in February 2012.



True to scale




Species distribution. *A.* sp. n. and *A. fasciatus* are sympatric at the C14 locality.

## Acknowledgements

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