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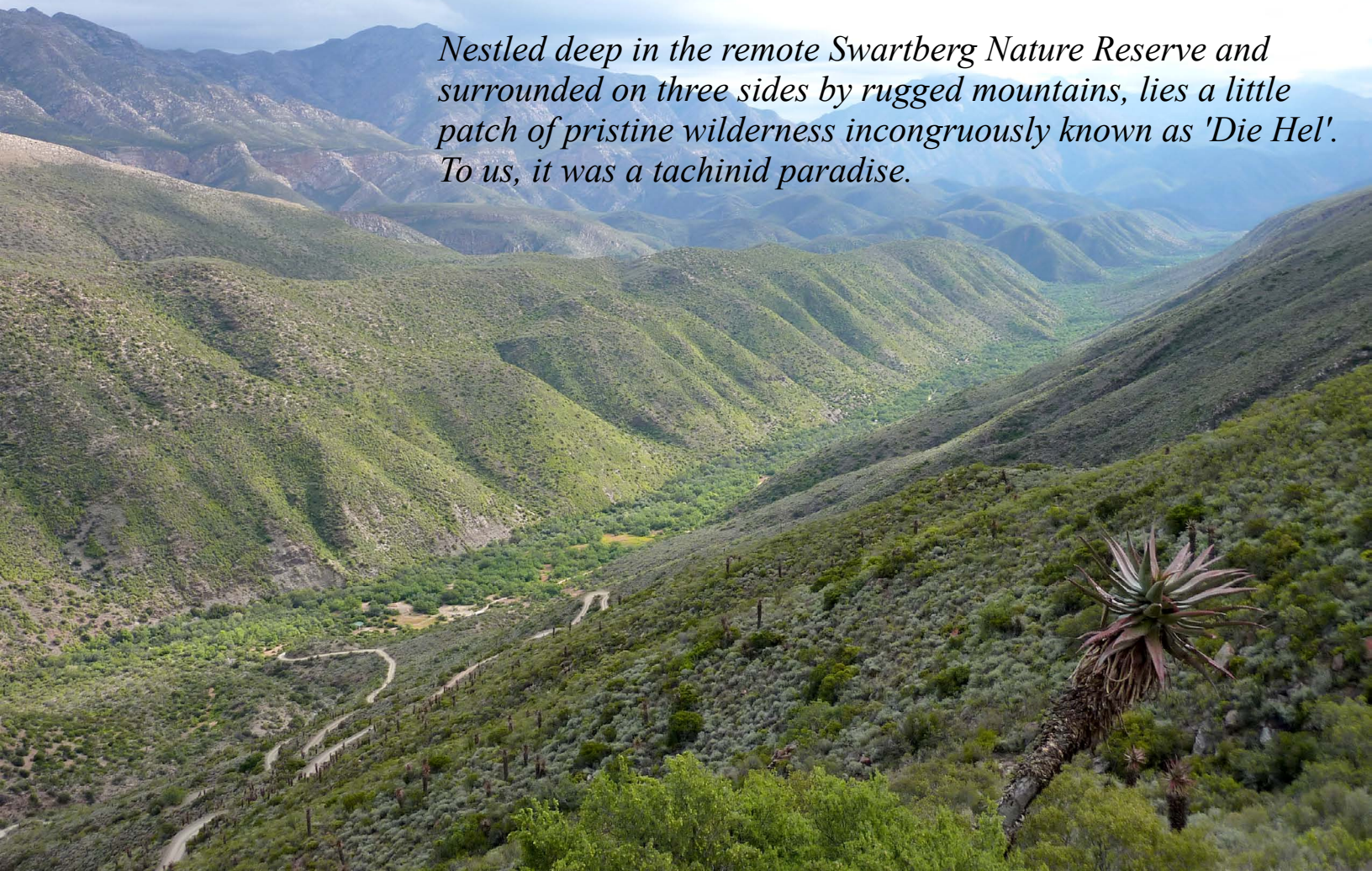
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To 'Die Hel' and back

Nestled deep in the remote Swartberg Nature Reserve and surrounded on three sides by rugged mountains, lies a little patch of pristine wilderness incongruously known as 'Die Hel'. To us, it was a tachinid paradise.



Expeditions of the phylogeny of World Tachinidae project

Part I: Western Cape,
South Africa

The "Phylogeny of World Tachinidae" project kicked off with an operational meeting in June 2012 at the Canadian National Collection of Insects (CNC) in Ottawa. Goals were discussed, work plans prepared, and of course the destinations and timing of major field expeditions were debated. During our three years of National Science Foundation funding we hope to gather fresh material for molecular analysis from all biogeographic regions of the world.

Choosing between potential destinations for field work requires a careful balance between scientific requirements and practical possibilities. We are looking for places that are fairly accessible, have an abundance of endemic key species, and for which collecting and exporting permits can be obtained. We chose as our first destination the Western Cape Province of South Africa. This region is characterized by a great floral and faunal diversity, with high rates of endemism. With respect to the tachinid fauna, the

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Western Cape is one of the better known areas of Africa. It also has numerous nature reserves, a great road system, and is one of the safer places in Africa to embark on a lengthy road trip. We were able to entice Ashley Kirk-Spriggs from the National Museum in Bloemfontein to join us for the duration of our trip. He not only advice

contributed about collecting in South Africa but also gave us all the tachinids captured in his six-meter long Malaise traps (Fig. 2). We soon discovered that Ashley has a hidden talent as a braai master and we were treated to his cooking wherever



Figure 1. Ashley Kirk-Spriggs cooking a braai at our rented cottage in Anysberg Nature Reserve.

facilities were available (Fig. 1). (At the time of this writing, a news item about our trip from Ashley's perspective is online on the National Museum's website at: <http://www.nasmus.co.za/departments/entomology/news/>.)

The Cape of Good Hope was a frequent stop on early voyages of discovery and all manner of wildlife from rhinos to tachinid flies were eagerly skinned or pinned for return to the home country.



Figure 2. Ashley Kirk-Spriggs checking the catch in one of his six-meter long Malaise traps, Anysberg Nature Reserve.

For example, the Naturhistorisches Museum in Vienna houses a collection of natural history specimens from the voyage of the Austrian frigate *Novara* (1857–1859) that includes tachinids from the Cape of Good Hope. One such fly, named *Alophora capensis* by Rudolph Schiner in a report on the Diptera of the *Novara* voyage published in 1868, is shown in O'Hara's article on the Vienna Museum in this issue of *The Tachinid Times*. Similarly, Wiedemann and Brauer & Bergenstamm also named new species of Tachinidae from specimens originating from various expeditions to the Cape



Figure 3. Map of the southern portion of the Western Cape Province of South Africa showing where we collected. The numbers correspond to the numbered sites in the text.

in the 19th Century (see O'Hara's article). We were pleased to be following in this grand tradition of Cape collecting, albeit at a somewhat less adventurous time.

South Africa began to construct natural history museums in selected provinces starting early in the 20th Century. These museums encouraged the development of collections that would stay in South Africa and become part of the continent's natural heritage. Over time, generations of entomologists have increased the collections to an impressive degree. Without entering into details, the bulk of the material collected in the 1900s up to the 1970s was studied first by Villeneuve and Curran and later by Mesnil. Much of the type material of these authors that remains in South Africa is currently preserved in the three great South African collections: the South African National Collection of Insects in Pretoria, the KwaZulu-Natal Museum in Pietermaritzburg, and the Iziko South African Museum in Cape Town.

Our purpose in the Western Cape was to collect as many endemic species as we could while covering the most representative habitats of the province (i.e., Fynbos, Succulent Karoo and Afromontane forest). The scheduled stopovers and the sites where we collected the most significant material were: Anysberg Nature Reserve, Swartberg Nature Reserve, West Coast National Park, and the Silvermine area of Table Moun-

tain National Park. We had hoped to collect in the beautiful Afromontane forest near Knysna, but were rained out and could do no more than drive through it hoping for a break in the weather. We augmented our catch from reserves by stopping frequently along our route for roadside collecting in promising areas. A schematic map of our collecting sites is shown in Fig. 3.

Below are listed the taxa we collected at each location with a short description of the different habitats. The list of taxa is ordered mainly according to Crosskey (1980, 1984). Specimens destined for molecular analyses were either preserved whole in 95% ethanol or (more commonly) were pinned and the right legs removed and preserved in 95% ethanol. Specimens or legs of specimens in ethanol are currently stored in a -80°C freezer in the Stireman lab at Wright State University. Pinned specimens with right legs removed are or will be deposited in CNC.

1. Boland Mountain complex

Collection data: 34°4'35.44"S 19°4'1.10"E, 11.x.2012, 481 m.

Exoristinae
Chetogena sp. [2 males]



Figure 4. Limietberg Nature Reserve, Western Cape.

2. Limietberg Nature Reserve (Fig. 4)

Collection data: 33°37'41.57"S 19°6'11.70"E, 12.x.2012, 670 m.

Internet site: <http://www.capenature.co.za/reserves.htm?reserve=Limietberg+Nature+Reserve>

From the website: "Limietberg Nature Reserve lies in the Du Toitskloof mountains near Paarl, forming a part of the greater Boland mountain range. ... The weather conditions in these mountains vary from very hot and dry in the summer months, to extremely cold and wet during the winter, with snow on the higher peaks. The vegetation is predominantly mountain fynbos with remnants of indigenous forest in some of the wetter kloofs. Alien trees, including black wattle, hakea and pine have invaded sections of the reserve."

Tachininae

Linnaemya sp. [1 male, 1 female]

Peleteria sp. [1 female]. This is an undescribed species of *Peleteria*, strongly resembling the Palaearctic species *P. meridionalis* (Robineau-Desvoidy). This species is unusually characterized by having a row of pro-medio-clinate setae on the parafacial, rather than the 2–3 usually present in this genus. There are several specimens recently collected by Jason Londt from the same locality preserved in the KwaZulu Natal Museum.

3. Ceres Bergfynbos Reserve

Collection data: 33°23'1.91"S 19°17'20.16"E, 12.x.2012, 459 m.

Exoristinae

Gaedioxenis brevicornis Villeneuve, 1939 [1 male, 2 females]

Collecting sites 4–6 are all included in the Anysberg Nature Reserve.

Internet site: http://www.capenature.co.za/reserves.htm?reserve=Anysberg+Nature+Reserve#reserve_tabs

From the website: "Anysberg lies within the Cape fold mountains and the vegetation is transitional between mountain fynbos and typical Klein Karoo veld.

The plant life ranges from eye-catching succulents to impressive stands of proteas which occur at higher altitudes." Acacias dominate along the river bed.

4. Anysberg Nature Reserve (Fig. 5)

Collection data: 33°28'0.31"S 20°36'1.97"E, 13.x.2012, 725 m.

Phasiinae

Cylindromyia sp. [1 male]. This is a widespread and apparently undescribed South African species. Several conspecific specimens are preserved in the KwaZulu-Natal Museum.



Figure 5. Anysberg Nature Reserve, Western Cape.



6. Anysberg Nature Reserve

Collection data: 33°25'56.23"S
20°47'24.56"E (hilltop), 14.x.2012, 747
m.

Exoristinae

Genus A sp. [1 male]. This is an apparently undescribed blondeliine genus. There are several well-preserved specimens belonging to the same taxon in the KwaZulu-Natal Museum.

Gonia bimaculata Wiedemann, 1819 [1 male]

Tachininae

Macquartia cf. *tessellata* van Emden, 1960 [9 males]

Collecting sites 7–12 were close around or included in the Swartberg Nature Reserve (Fig. 8).

Internet site: http://www.capenature.co.za/reserves.htm?reserve=Swartberg+Nature+Reserve#reserve_tabs

From the website: "The Swartberg mountains are part of the Cape fold mountain range. ... This is an area of climatic extremes, with very cold winters, often with snow on the mountains and temperatures well below zero, while summers can be uncomfortably hot with temperatures reaching 40°C and more! ... The reserve's vegetation is remarkably diverse, featuring renosterveld, mountain fynbos, Karoo-veld, spekboom veld, and numerous geophyte species. Some species will be in bloom virtually throughout the year."

The renosterveld vegetation type is one of the major plant communities of the Western and Eastern Cape Provinces, dominated by *Elytropappus rhinocerotis* (Rhinoceros bush, Asteraceae).

5. Anysberg Nature Reserve (Figs. 6–7)

Collection data: 33°26'37.76"S 20°47'29.25"E (hilltop),
14.x.2012, 840 m.

Dexiinae

Periscepsia sp. [1 female]

Piligena mackieae van Emden, 1947 [1 female, 1 male]

Pseudodinera sp. [7 males, 2 females]

Exoristinae

Exorista sp. 1 [1 male]. This specimen probably belongs to an undescribed species characterized by having the first postsutural supra-alar seta unusually long.

Exorista sp. 2 [1 male]

Gaedioxis haematodes Villeneuve, 1939 [1 male]

Myxogaedia undescribed sp. (near *M. setosa* Curran, 1938) [1 male]

Pexopsis pyrrhaspis Villeneuve, 1916 [1 female]

Figure 7. Hilltop, Anysberg Nature Reserve, Western Cape.



Figure 8. Swartberg Range, Swartberg Nature Reserve, Western Cape.



7. Calitzorp road, Matjiesrivier

Collection data: 33°24'21.92"S
21°59'32.43"E, 15.x.2012, 672 m.

Dexiinae

Periscepsia sp. [1 male]

Pretoriamyia sp. [1 female]

Phasiinae

Phasia sp. [4 male, 3 females]

Tachininae

Actia sp. [1 male]

Graphogaster undescribed sp. [1 male]. First record of this genus for the Afrotropical Region. A female from Western Cape, probably conspecific to our male, is preserved at the KwaZulu-Natal Museum.

8. 8 km south of Prince Albert, Eerstewater (Figs. 9–10)

Collection data: 33°17'38.11"S 22°3'5.63"E,
15–16.x.2012, 829 m.

Dexiinae

Billaea sp. [1 male]

Exoristinae

Metacemyia sp. [1 female]

Paratrypha undescribed sp. [2 females]

Tachininae

Brachelia sp. [4 males, 1 female]

Microphthalma sp. [1 female]

Mintho sp. [1 male]

Rondaniooestrus apivorus Villeneuve,
1916 [1 male]

9. Gamkaskloof (Die Hel)

Collection data: 33°21'11.49"S
21°44'36.57"E, 16.x.2012, 580 m.

Exoristinae

Chaetoria cf. *stylata* Becker, 1908
[1 male]



Figure 9. Eerstewater area south of Prince Albert, Western Cape.



Figure 10.
Eerstewater
area south of
Prince Albert,
Western
Cape.

[Malaise trap]

Exoristinae

Rioteria undescribed sp. [1 male]. First record of this genus for South Africa.

Genus B sp. [1 male]. There are two described South African species, currently assigned to genus *Myxogaedia* (*M. longirostris* Villeneuve and *M. majestica* (Curran, 1940)), which are closely related to the male we collected and should be removed from *Myxogaedia* and assigned to Genus B.

Phasiinae

Besseria longicornis Zeegers, 2007 [3 females, 1 male]. This recently described species was previously known only from the type locality in Yemen.

Leucostoma engeddense Kugler, 1966 [1 female]. First record for continental Afrotropical Africa. *Leucostoma engeddense* was described by Kugler from Israel (En Gedi). It is a widespread element in the southern Mediterranean Basin and was recently cited from U.A. Emirates, which up until now represented the southernmost locality for this species.

Tachininae

Linnaemya spp. [2 females]

Peribaea sp. [2 males]

Siphona (*Ceranthia*) sp. [1 male]

10. Gamkaskloof (Die Hel)

Collection data: 33°21'49.60"S
21°37'40.97"E, 16–18.x.2012, 336 m.

[hand net]

Tachininae

Macquartia sp. [1 male]

Rondanioestrus apivorus Villeneuve, 1916 [1 male]. This specimen was collected in the early morning in a bathroom where the light was left on all night long.

Phasiinae

Cylindromyia sp. [3 females]

[pan traps]

Phasiinae

Litophasia sp. (cf. *L. sulcifacies* Dear, 1980)

11. Gamkaskloof (Die Hel) (Fig. 11)

Collection data: 33°22'5.90"S 21°37'19.43"E (hilltop),
17–18.x.2012, 336 m.



Figure 11. View of hill visited for hilltopping tachinids, Gamkaskloof Die Hel, Swartberg Nature Reserve, Western Cape.

Dexiinae

Pseudodinera sp. [1 male]

Exoristinae

Aplomya sp. [3 males]

Dolichocolon paravicinum Cerretti & Shima, 2011 [1 male]. New record for South Africa.

Drino (Palexorista) sp. [1 female]

Exorista sp. 3 [11 males, 2 female]

Exorista sp. 4 [1 male]

Gonia bimaculata Wiedemann, 1819 [2 males]

Myxarchiclops cf. *caffer* Villeneuve, 1916 [1 female]

Pseudogonia ruffrons (Wiedemann, 1830) [1 female]

Smidtia capensis (Schiner, 1868) [12 males, 1 female] (Fig. 12)

Genus C sp. [1 male, 1 female]. These specimens were



Figure 12. *Smidtia capensis* (Schiner) on hilltop shown in Fig. 11.

collected on the slope close to the hilltop. They are strongly characterized by a wide parafacial, covered with short setulae, and very short antennae. At a first glance they resemble *Pseudalsomyia* Mesnil, and in fact they may belong to this genus, but the male abdominal tergites 3 and 4 do not have sexual patches. The tip of tergite 5 of both sexes is red.

Tachininae

Rossimylops undescribed sp. [1 female]

12. Calitzdorp, 10 km E (R62)

Collection data: 33°32'27.90"S 21°48'2.84"E, 21.x.2012, 362 m.

Exoristinae

Drino (Palexorista) sp. [4 males]

Pexopsis pyrhaspis Villeneuve, 1916 [1 male]

Phasiinae

Phasia sp. [1 male]

13. Ladismith, 30 km SW (R62)

Collection data: 33°37'44.50"S 21°2'58.04"E, 21.x.2012, 385 m.

Dexiinae

Pretoriamyia sp. [1 female]

Exoristinae

Exorista spp. [9 males]

Pexopsis pyrhaspis Villeneuve, 1916 [1 female]

Smidtia capensis (Schiner, 1868) [3 males]

Phasiinae

Besseria zonaria (Loew, 1847) [1 male]

Collecting sites 14 and 15 (Figs. 13–14) were in the Langebaan Fynbos/Thicket habitat of the West Coast National Park. The area is almost flat and sandy.

Internet site: http://www.sanparks.org/parks/west_coast/

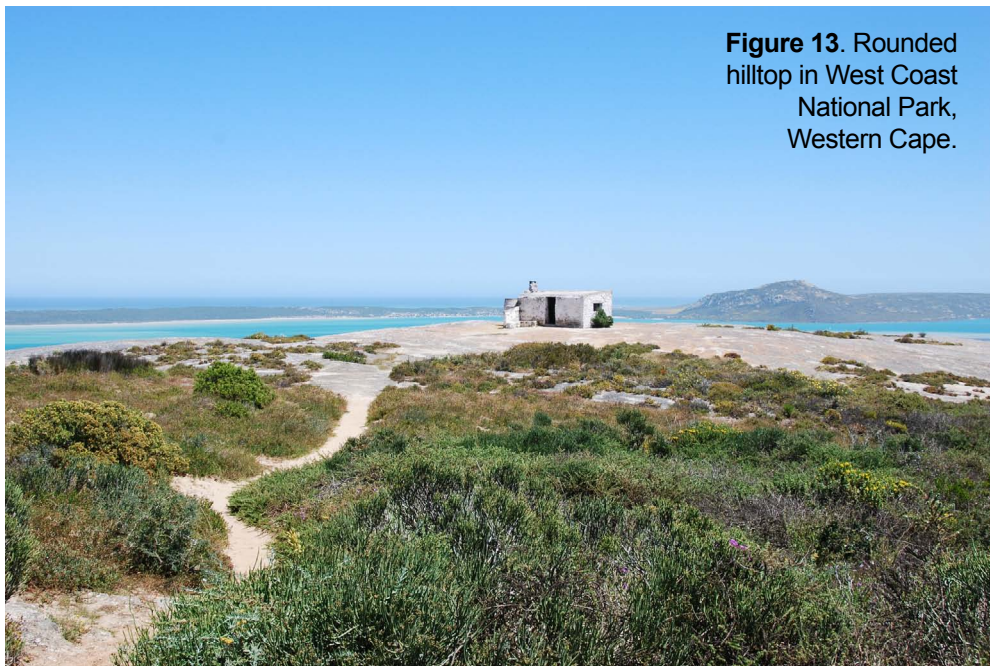


Figure 13. Rounded hilltop in West Coast National Park, Western Cape.



Figure 14. Same hill as in Fig. 13, West Coast National Park, Western Cape.

14. West Coast National Park, Duinepos

Collection data: 33°7'20.57"S 18°4'41.12"E, 22.x.2012, 125 m.

Exoristinae

?*Cestonia* sp. [1 female]

Chetogena sp [2 males]

Chlorolydella sp. [1 female]

Chlorolydella undescribed sp. [1 female]

Pseudogonia cf. *fasciata* (Wiedemann, 1819) [1 male]

Peleteria sp. [1 female]

cf. *Porphyromus* undescribed sp. [4 males]

Siphona (*Aphantorhaphopsis*) sp. [1 male]

16. Table Mountain N.P., Clovelly (Fig. 15)

Collection data: 34°07.465'S, 18°26.094"E, 24.x.2012, 64 m.

Dexiinae

Dinera sp. [5 males]

Periscepsia sp. [1 female]

Exoristinae

Nemorilloides flaviventris Brauer & Bergenstamm, 1891 [1 female]

Tachininae

Brachelia westermanni (Wiedemann, 1819) [1 male, 4 females]

Mintho sp. [1 female]

Phytomyptera sp.1 [1 male]

15. West Coast National Park, Duinepos

Collection data: 33°12'13.89"S 18°8'24.91"E, 23.x.2012, 10 m.

Dexiinae

Genus D sp. [1 male]. This specimen belongs to an undescribed dufouriine genus. It is about 3 mm long and strongly characterized by long and geniculate mouthparts recalling those of *Siphona*. The fresh specimen was dissected revealing a membranous dorsal connection between basiphallus and distiphallus, which is the groundplan trait of the Dexiinae.

Exoristinae

Drino (*Palexorista*) sp. [10 males]

Medina sp. [1 male]

Myxarchiclops sp. [1 male]

Paratryphera sp.2 [1 male]

Tachininae

Mintho sp. [1 male]



Figure 15. Trail near Clovelly, Table Mountain National Park, Western Cape.

17. Table Mountain N.P., near Echo Valley (Fig. 16)

Collection data: 34°04.539'S, 18°23.872"E, 24.x.2012, 454 m.

Dexiinae

Dinera sp. [1 female]

Periscepsia sp. [1 male]

Exoristinae

Winthemia quadrata (Wiedemann, 1830) [1 male]

Genus E (near *Drino*) sp. [1 male]. The specimen has reduced ocelli and remarkably, tergite 5 is strongly conically pointed.

Pales sp. [1 male]

Myxarchiclops caffer Villeneuve, 1916 [1 male, 1 female]

Tachininae

Brachelia westermanni (Wiedemann, 1819) [1 female]

Leskia sp. [1 female]

Phytomyptera sp. [1 female]

Rondanioestrus apivorus Villeneuve, 1916 [1 female]

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Figure 16. Near Echo Valley, Table Mountain National Park, Western Cape.