

New and interesting *Campylopus* records from South Africa

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Summary: New records are presented based on a collection of *Campylopus* specimens made by the second author in the Western Cape Province of South Africa. The austral species *Campylopus clavatus* (R. Brown) Wils. in Hook. and *Campylopus vesticaulis* Mitt. are reported for the first time for Africa, and *Campylopus acuminatus* Mitt. var. *kirkii* (Mitt.) J.-P. Frahm is recorded for the second time for Africa. *Campylopus arctocarpus* (Hornsch.) Mitt. ssp. *madegassus* (Besch.) J.-P. Frahm is reported for the first time for the Republic of South Africa, and this is the southernmost record of this species. *Campylopus simii* Schelpe is not synonymous with *C. julaceus* Jaeg. ssp. *arbogastii* (Ren. & Card.) J.-P. Frahm but combined here as new as a variety of *C. pilifer* Brid.

Introduction

The *Campylopus* flora of South Africa was first treated by Sim (1926) in the first survey of the moss flora of the country. Although Sim listed 21 species of *Campylopus*, and the present number of species is 27, Sim treated fewer than half of the species currently recognised since many were treated under up to three different names, which are regarded today merely as modifications of the same species.

Fifty five years later, Magill (1981) provided a new treatment of the genus in his flora of Southern Africa, reducing the species number to 12. Frahm (1985) provided a revision of all African species of the genus. This survey of the

Campylopus flora of the whole continent as well as experiences from revisions of the *Campylopus* flora of many other parts of the world revealed again major nomenclatural alterations. The species number in South Africa was raised to 24, which was again raised by subsequent additions (Frahm 1994a, 1998) to 26 (of which only half the number were identical with the species listed by Sim).

In the present paper we present some results based on specimens of *Campylopus* collected by the second author in the Western Cape province of South Africa between 2000 and 2002, and identified by the first author. Although the Cape Province has received attention by bryophyte collectors over the past hundred

years, mainly because of its endemic or austral elements, the identification revealed several new records either for Africa (marked with **) or the Republic of South Africa (marked with *). We provide additional notes on taxa that have been nomenclaturally misconstrued or that have been poorly known in the Cape. To clarify the taxonomic and nomenclatural confusion, tables are provided in the appendix, which compares the currently accepted names of species with those from the previous literature. In a future publication we will provide keys and detailed distributional information for all members of the genus in South Africa.

List of species

All collecting numbers are those of the second author, and specimens have been deposited in BOL.

Campylopus acuminatus Mitt. var. *kirkii* (Mitt.) J.-P. Frahm Cape Peninsula, Oliphantsbos Bay. 12801.

The second record of this austral species for South Africa and Africa in general. The first was made by Lübenau in 1990 in the same region (Frahm 1994a). The range includes Australia, New Zealand and Patagonia.

**Campylopus arctocarpus* (Hornsch.) Mitt. ssp. *madegassus* (Besch.) J.-P. Frahm Cape Peninsula, Table Mountain, Window Gorge 13341 det. Hedderson teste Frahm
New to South Africa. The former known range included Madagascar, Comores, Seychelles, Mauritius, Reunion, Tristan d'Acunha, Tanzania and Malawi (Frahm 1985).

Campylopus atroluteus (C. Müll.) Par. 13062, 13108, 13118, 13352, 13469, 13610, 13622, 13626, 13699, 14450, 14499

This species was reduced to the rank of a subspecies of *C. bicolor* by Frahm (1985), because it seemed to differ from that species only in the narrower leaf apices. Recent molecular studies (Stech unpubl.) revealed that the two are reciprocally monophyletic and that the genetic distance between them is characteristic of that between species. *C. atroluteus* may therefore be

regarded once again as a separate species. In anatomical and morphological respects it is, however, closely related to *C. bicolor* and apparently a vicariant of the latter. The molecular data suggest that there is no gene exchange between the populations in South Africa and Australia/New Zealand, possibly as a result of a long lasting separation.

In the Western Cape *Campylopus atroluteus* occupies a very narrow range from the Cedarberg south to the mountains of the Cape peninsula and eastward to the Kooelberg. It is also reported from Lesotho. (Hodgetts et al, 1999), which needs confirmation.

Campylopus bartramiaceus (C. Müll.) Par. 13122, 13515, 13615

This taxon was erroneously placed in synonymy with *C. nivalis* (Brid.) Brid. by Frahm (1999) with reference to Frahm (1985:35), where *C. bartramiaceus* was, however, treated as good species. Its range is confined to South Africa, from the Cape Peninsula to Transvaal.

Campylopus cambouei Ren. & Card. in Ren. 13121, 13647, 13656

A very inconspicuous, small, tropical African species ranging to South Africa.

Campylopus catarractilis (C. Müll.) Par. 13738, 13702, 13604, 14464

A species closely related to the australy-distributed *C. incrassatus* C. Müll. It was described from South Africa, but is found also in Madagascar and Australia.

***Campylopus clavatus* (R. Brown) Wils. in Hook. Ceres District, Cederberg: Algeria Forest Station 13060, Zuurvlaakte below Apex Peak 13110. New to Africa. An austral species widespread from Patagonia through the subantarctic islands to southern Australia, Tasmania and New Zealand. Given other austral species occurring in South Africa with a similar world range (*C. acuminatus*, *atroluteus*, *catarractilis*, *introflexus*), this species had to be expected.

13110 is a blackish form, which is characteristic for wet habitats and found in other species of the genus.

Campylopus pilifer Brid. var. *pilifer*var. *simii* comb. et stat. nov.*Campylopus simii* Schelpe, Mem. bot. surv. S. Afr. 43:5, 19179.*Campylopus pseudojulaceus* Sim, Trans. R. Soc. S. Afr. 15: 169, 1926, hom. illeg.

13119, 13097, 13093, 13682, 13109, 13809, 1360, 14481, 13619, 13089, 13037

The plants are small and stunted. The leaves are short, broadly ovate, and contracted into the acumen, which can be almost subcucullate, epilose or have a short hair point. The upper laminal cells are generally comparably short and vary in the length-width ratio between 2:1 and 3:1. The length of the laminal cells varies with the leaf length and shape.

Such plants were described and illustrated by Sim (1926) as *C. pseudojulaceus* hom. illeg. and as *C. simii* by Magill (1981) but later included by Frahm (1985) in *C. julaceus* ssp. *arbogastii*. In leaf shape, the plants resemble *Campylopus julaceus* ssp. *arbogasti*, indeed, however, the costae have lamellae 4 cells high in transverse section but only 1-2 in *C. julaceus* ssp. *arbogastii*. They seem therefore to belong to *C. pilifer* and need recognition at an infraspecific level. Since the differences concern mainly leaf shape and shorter laminal cells, whilst otherwise the plants fall into the range of *C. pilifer*, it is treated here as a variety of the latter, which seems to be endemic to South Africa.

Campylopus praetermissus J.-P. Frahm

13809, 13354

A species widespread but scattered through tropical Africa, recorded before from South Africa as *C. sylvaticus* Rehm. *nom. nud.*

Campylopus pseudobicolor C. Müll. ex Ren. & Card.

13085, 13242

A somewhat dubious taxon described from Madagascar and also reported from South Africa which resembles much *C. atroluteus* (*C. bicolor* ssp. *atroluteus*) but lacks the cucullate leaf apices and has smaller ventral hyalocysts in transverse section of the costa.

Campylopus pyriformis (Schultz) Brid.

13318, 13871

A species widely distributed in the temperate southern hemisphere, swamps in central Africa (as *C. paludicola* Broth.), SE North America and western Europe.

Campylopus thwaitesii (Mitt.) Jaeg.

13592, 13497, 13486

This species was described from South Africa under the name *C. stenopelma* (C. Müll.) Rehm. ex Par. Later, the identity with the Brazilian *C. controversus* became clear (Frahm 1994b), which resulting in an apparent disjunction between SE-Brazil – SE-Africa. Finally, *C. thwaitesii* from Sri Lanka was revealed to be the same species, being the oldest name (Frahm 1998). Thus this species shows a perfect Gondwana-range.

*****Campylopus vesticaulis* Mitt.** Ceres District, Cederberg, Zuurvlakte below Apex Peak 13100, 13101.

New to Africa. Another austral species, which was formerly known from New Zealand, St. Helena, Patagonia, Falkland and Juan Fernandez Islands.

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Appendix 1: Currently accepted names of *Campylopus* species given in Sim (1926):

Sim (1926)	Current use
atroluteus	bartramiaceus
bewsii	pilifer
bicolor	pseudobicolor
catarractilis	catarractilis
chlorophyllosus	atroluteus
chlorotrichus	thwaitesii
echinatus	introflexus
edwardsii	flaccidus
griseolus	pilifer
inchangae	robillardei
introflexus	introflexus
lepidophyllus	introflexus
leptotrichaceus	pyriformis
longescens	robillardei
nanus	Dicranella subsubulata
pseudojulaceus	pilifer var. simii
pulvinatus	catarractilis
purpurascens	pilifer
stenopelma	thwaitesii
symonsii	bicolor var. ericeticola
trichodes	pilifer

Appendix 2: Currently accepted names of *Campylopus* species given in Magill (1981):

Magill (1981)	Current use
ampliretis	flaccidus
atroluteus	atroluteus
bequaertii	savannarum
delagoae	savannarum
inchangae	robillardei
introflexus	introflexus
pallidus	pyriformis
pilifer	pilifer
procerus	jamesonii
simii	pilifer var.
stenopelma	thwaitesii
subchlorophyllosus	Sphaerothecium s.

Appendix 3: Currently accepted list of *Campylopus* species recorded from South Africa (compiled from Frahm 1985, modified).

	Sim (1926)	Magill (1981)
acuminatus var. kirkii ¹		
arctocarpus ssp. madegassus*		
atroluteus	chlorophyllosus	atroluteus
aureonitens	symonsii, flavescens, hygrometricus	pilifer p.pt.
bartramiaceus	atroluteus	?
cambouei		
carolinae ²		
catarractilis	catarractilis	in atroluteus
clavatus*		
decaryii		
flaccidus	edwardsii	ampliretis
fragilis		
hensii		
hildebrandti		
introflexus	lepidophyllus, echinatus, introflexus	introflexus
jamesonii	echernieri	procerus
nanophyllus		
nivalis		
perpusillus	Microcampylopus p.	Microcampylopus p.
pilifer	bewsii, griseolus, purpurascens	pilifer
pilifer var. simii (julaceus ssp. arbogastii)	pseudojulaceus	simii
praetermissus		
pseudobicolor		
pyriformis	leptotrichaceus	pallidus
robillardei	longescens	inchangae
savannarum	substenopelma	delagoae, bequaertii
thwaitesii (stenopelma)	stenopelma, chlorotrichus	stenopelma
vesticaulis*		
Sphaerothecium		subchlorophyllosus
subchlorophyllosum		

¹ collected in the Harold Porter Botanical Garden, Betty's Bay, by Lübenau (Frahm 1994a).

² collected in Venda, Thonder Forest, by Lübenau (Frahm 1998).

* species newly recorded for (South) Africa here.

