

*C. hypochaeridea* (DC.) Thell. subsp. *rhodesica* Bab. Five collections from new localities in Southern Rhodesia : *Collins 16* (K) Injina distr., Marandellas, 1373 m. ; *Wild 1349* (K) Inyanga distr., 2044 m. ; *Eyles 7197* (K) near Salisbury ; *Eyles 8467* (K) Inyanga, 1830 m. ; *Wild 2071* (K) Chirinda distr., 1160 m.

*C. hypochaeridea* (DC.) Thell. subsp. *brevicaulis* Bab. In addition to two isotypes in Herb. Kew., three other collections of this little known subspecies were seen : *Rogers 19021* (S) Transvaal : Pietersburg distr., 1200 m. ; *Hutchinson and Gillett 4205, 4206a* (K) N. Transvaal : Zoutpansberg, 1220 m.

*C. kilimandscharica* O. Hoffm. Two collections, *Greenway 3917* and *Rogers 441*, extend the altitudinal range for this species from 2700–3500 to 2675–3750 m., the higher limit given by Greenway along with the following notes : “ Growing on mossy banks in association with *Viola Eminii* in *Philippia excelsa*-*Hagenia abyssinica* woodland ; not very common ”.

*C. newii* Oliv. et Hiern. subsp. *greenwayi* Bab. The third reported collection of this subspecies, *Greenway 7575* (K) Tanganyika Territory : Northern Prov., southern Mbulu distr., Mt. Hanang, Nangwa, 2044 m., extends its known distributional area about 500 kilometers northward from the type region. The collector reports it as up to 1.5 dm. high and “ very locally common but scattered, with *Senecio bupleuroides* in *Themeda triandra*, *Exothea abyssinica*, *Solanum*, *Lippia asperifolia* grassland, on a reddish brown loam of volcanic origin on the foot-slopes of the mountain ”. The few heads are shortly pedunculate and arranged in a close cyme terminating the simple or 1-furcate stem. Collected February 4, 1916, flowers and young fruits.

*C. newii* Oliv. et Hiern, subsp. *tundensis* Bab. Four collections add new localities to the two already known for this subspecies : *Maitland 1469* (K) Southeast Nigeria : Bamenda, Belo, 1373 m. ; *Maitland 1678* (K) Bamenda, Lakina, 1830 m. ; *Migeod 443* (K) above Bamenda, 1983 m. ; *Keay 28384* (UC, K, FHI) Bamenda, Bafut-Ngamba F.R., by nursery, on recently cleared fire trace with bracken, 1830 m. From these specimens it appears that the flowering and fruiting period for this subspecies extends from January to April.

***C. newii*** Oliv. et Hiern subsp. ***mbuluensis*** subsp. nov. Planta 1.5–6 dm. alta ; folia caudicalia 6–9 cm. longa 2–3 cm. lata hispidulosa ; involucria hispidulosa vel glandulosa vel glabrescentia 10–12 mm. longa 5–8 mm. lata, squamis exterioribus 10–13 carinatis ad basim incrassatis pallidis scariosis, interioribus 12–14 carinatis ad basim spongioso-incrassatis ventrale glabris ; corolla 8–9 mm. longa, ligula 1 mm. lata, tubo 3 mm. longo papilloso ; antherae 2.5 mm. longae ; achaenia 5–6 mm. longa 0.6–0.8 mm. lata castanea 10–12-costata ; pappus flavescens 5–6 mm. longus 2-seriatus.

Plant 1.5–6 dm. high ; caudical leaves 6–9 cm. long, 2–3 cm. wide, densely hispidulous with yellowish setules ; involucries 10–12 mm. long, 5–8 mm. wide, like the peduncles hispidulous or glabrescent or sometimes gland-pubescent ; outer involucrial bracts 10–13, carinate, becoming scarios at the base ; inner bracts 12–14, dark brown, carinate,

spongy-thickened at the base, glabrous on inner face; corolla in marginal florets 9 mm. long; ligule 1 mm. wide; teeth 0.1–0.3 mm. long; corolla tube 3 mm. long, papillose, the papillae minute; anther-tube 2.5 × 0.7 mm. when slit and opened out; appendages 0.4 mm. long, acuminate; filaments 0.3 mm. longer; style branches 1.5 mm. long, 0.1 mm. wide, yellow; achenes dark brown (reddish brown when immature), 5–6 mm. long, 0.6–0.8 mm. wide, strongly attenuate near the apex, 10–12 ribbed, the ribs unequal, rounded, extending to the pappus disk; pappus yellowish white, 5–6 mm. long, 2-seriate. Flowering Jan.–Feb.; flowers lemon yellow. (Fig. 1).

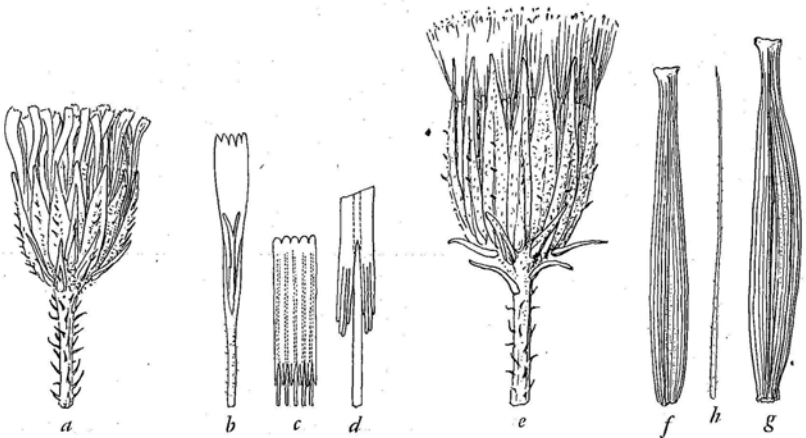


FIG. 1. *Crepis newii* Oliv. et Hiern subsp. *mbuluensis* Babc. from type. *a*, head in anthesis, × 2; *b*, floret lacking ovary, × 4; *c*, anther tube opened out, × 8; *d*, detail of appendages, × 32; *e*, fruiting head, × 2; *f*, *g*, *h*, two achenes and a pappus bristle, × 8.

■ Tanganyika Territory: Northern Prov., southern Mbulu distr., western slopes of Mt. Hanang, Shepeda to Gendabi, 2283 m. *Greenway* 7676 (K) type, February 10, 1946, flowers and fruits. "Common but scattered with *Vernonia smithiana*, *Senecio bupleuroides*, *Scabiosa columbaria* and *Pterocephalus frutescens* in *Setaria*, *Exothea abyssinica*, *Themeda triandra* upland grassland on a dark brown loam of volcanic origin on the foot-slopes of the mountain".

Close to both subsp. *typica* and subsp. *greenwayi*, but distinct from both in the wider outer involucre bracts, the chestnut-brown mature achenes, and, most strikingly, in the smaller florets, with corolla only 9 mm. long in the marginal ones and anther tube only 2.5 mm. long with very short appendages and filaments.

Consideration was given to the possibility that the four or five plants in the type collection represent a hybrid population derived from the crossing of subsp. *typica* with subsp. *greenwayi*, both of which occur in this region. But the smaller florets and wider outer bracts than in either putative parent are constant in all of the plants in the type collection (only one of these plants has mature achenes). In a recently produced hybrid swarm one would expect to find some plants at least with florets and bracts intermediate in size between those of the putative parents instead of constantly smaller in one character and larger in another. Finally, the pollen of three of these plants was compared with pollen of

two plants of subsp. *greenwayii* (Greenway 7575, cited above) and in all five plants the grains were abundant and regular in size, averaging about 28 microns in diameter, which indicates that they are sexual diploids. Therefore a new subspecies is recognized. It is possible, however, that this subspecies originated through hybridization between the other two subspecies, followed by transgressive variation and eventually by chance fixation of the peculiar combination of characters found in this new subspecies.

*C. newii* Oliv. et Hiern, subsp. *nyasensis* Bab. One collection, Greenway and Brenan 8274 (UC, EA) Tanganyika Territory: Iringa Prov., Rungwe distr., Kiwira River, upper fishing camp, 2196 m., is the second record for this subspecies. Both known localities are in the region north of Lake Nyasa. "A carrot-rooted perennial herb with scapes of lemon yellow flowers up to 20 inches tall. Common but very scattered in burnt grassland with *Gerbera*, *Moraea* and *Helichrysum* species on rounded hill slopes on a dark grey loam of volcanic origin" (collector's notes).

*C. rueppellii* Sch. Bip. Fifteen collections from Uganda and northern Tanganyika provide material establishing such a degree of intergradation between *C. rueppellii* and *C. ugandensis* as to necessitate the merging of the latter with the former. Nevertheless typical *C. rueppellii* presumably still maintains itself in the northern part of its range, whereas typical *C. ugandensis* has recently been collected in Uganda. Apparently we are dealing here with the results of natural crossing between two distinct species which may not be as distantly related as their classification in sections 8 and 27 (1947 b) would indicate. The pollen of four of the intergrading variants was found to be abundant, mostly regular, 3-pored and about 28 microns in diameter, thus resembling the pollen of the isotype of *C. ugandensis*. In another variant, however, the pollen was irregular in size and two giant 4-pored grains were observed. Furthermore, the occurrence, at or near the type locality of *C. ugandensis*, of variants that strongly resemble *C. rueppellii* favours the hybridization hypothesis rather than the possible existence of some sort of cline connecting the two extremes. The likelihood that some such situation exists was forecast by the recognition of "The Uganda Assemblage" in the discussion of minor variants under *C. rueppellii* (1947 b, 897). Under these circumstances the most practicable procedure is to recognize two subspecies, *typica* and *ugandensis*, with the clear understanding that some of the inter-grading variants must be arbitrarily placed in one or other subspecies.

#### Key to the Subspecies of *C. rueppellii*

- Plant 0.5-4 dm. high; basal leaves 3-18 cm. long, mostly obtuse and denticulate; stems semi-decumbent with flexuous branches; involucre 8-11 mm. long; achenes tawny, finely ribbed and finely beaked, the beak paler . . . . . subsp. *typica*
- Plant 5-12 dm. high; basal leaves up to 27 cm. long, mostly acute and dentate; stems erect with strict branches; involucre 7-8 mm. long; achenes brown, less finely ribbed, shortly and coarsely beaked, the beak brown . . . . . subsp. *ugandensis*