

# The botany of the Cunene–Zambezi Expedition with notes on Hugo Baum (1867–1950)

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## ABSTRACT

A record and discussion of the Cunene–Zambezi Expedition that took place in Angola from 1899 to 1900 is provided. Although the main aim of the expedition was to evaluate the economic potential of southern Angola, it also resulted in significant botanical collections made by Hugo Baum (1867–1950), many of which serve as holotypes of names of plants from the region, and beyond. The itinerary is supplemented by a map illustrating the route followed by the expedition, and locality names are clarified and updated. A full list of the type specimens of flowering plants is provided, with their nomenclature updated and an indication of where known duplicates are housed.

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## INTRODUCTION

The collector Hugo Baum (1867–1950) participated in the Cunene–Zambezi Expedition, which took place in Angola from 1899 to 1900, led by the Dutchman, Pieter van der Kellen. In addition to botanical and zoological collections, ethnological observations were also recorded. All of these were described in German by Warburg (1903) in the now very rare book *Kunene–Sambesi Expedition. H. Baum*, which can only be found in highly specialized libraries or in the collections of rare book antiquarians. The book includes a folded map (Figure 1) that illustrates the course of the expedition, which left Moçâmedes (Namibe) on 11 August 1899 in an easterly direction, through the actual provinces of Cunene and Cuando-Cubango, reaching

the Cuando River in March 1900. After turning around, the expedition finally arrived back at Moçâmedes on 26 June 1900, more than 10 months later.

The expedition resulted in over 1 000 plant collections, many of which are types. In Warburg (1903), 281 taxa of flowering plants new to science are described based on these collections, with 310 numbers referred to as types. To these must be added an unknown number of taxa that were published later. In the Aluka database of types of African plant names (Aluka 2008, accessed in January 2008), there are 1 209 images of specimens collected by Baum. This figure includes duplicates of the same collection number. In fact, the Baum collections provided a series of duplicates distributed among European herbaria. This is fortunate because the holotypes of the taxa published in Warburg (1903) were deposited in the Herbarium of Berlin (B) and many of these specimens were destroyed in a fire during the Second World War. For that reason the Aluka database presently hosts only 48 images of Baum specimens from B. Duplicates have been recorded in various herbaria, namely B, BM, BR, COI, E, G, K, M, NY, P, S, W and Z (Holmgren, *et al.* 1990), which include several herbaria that were not listed as depositories of Baum collections in Lanjouw & Stafleu (1954). However, for some taxa, the holotype destroyed at B was apparently unique.

In terms of type material the Baum collection is one of the most important among those that originated in Angola, and is only surpassed by those of F. Welwitsch and J. Gossweiler. In addition to their type status, they provide information on type locality. This is very important in the case of rare plants, particularly those that were collected only once. Information on the exact collecting localities helps researchers find rare plants in the field, which in turn facilitates the eventual proposal of specific conservation measures. In the case of the Baum collection, pinpointing the collecting localities is often difficult for several reasons: 1, localities recorded on the labels are often not consistent with duplicates of the same collection, or localities given in the book; 2, the changes of geographical place names that took place in Angola over the last century; and 3, the original spelling of the localities that does not match the more recent spelling used in maps and gazetteers.

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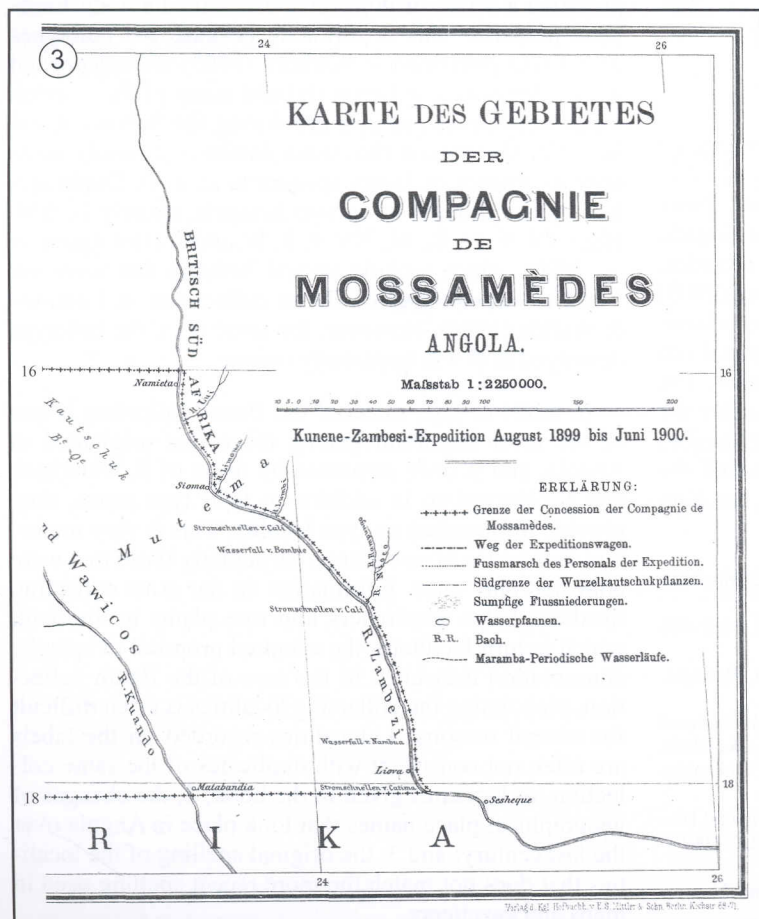
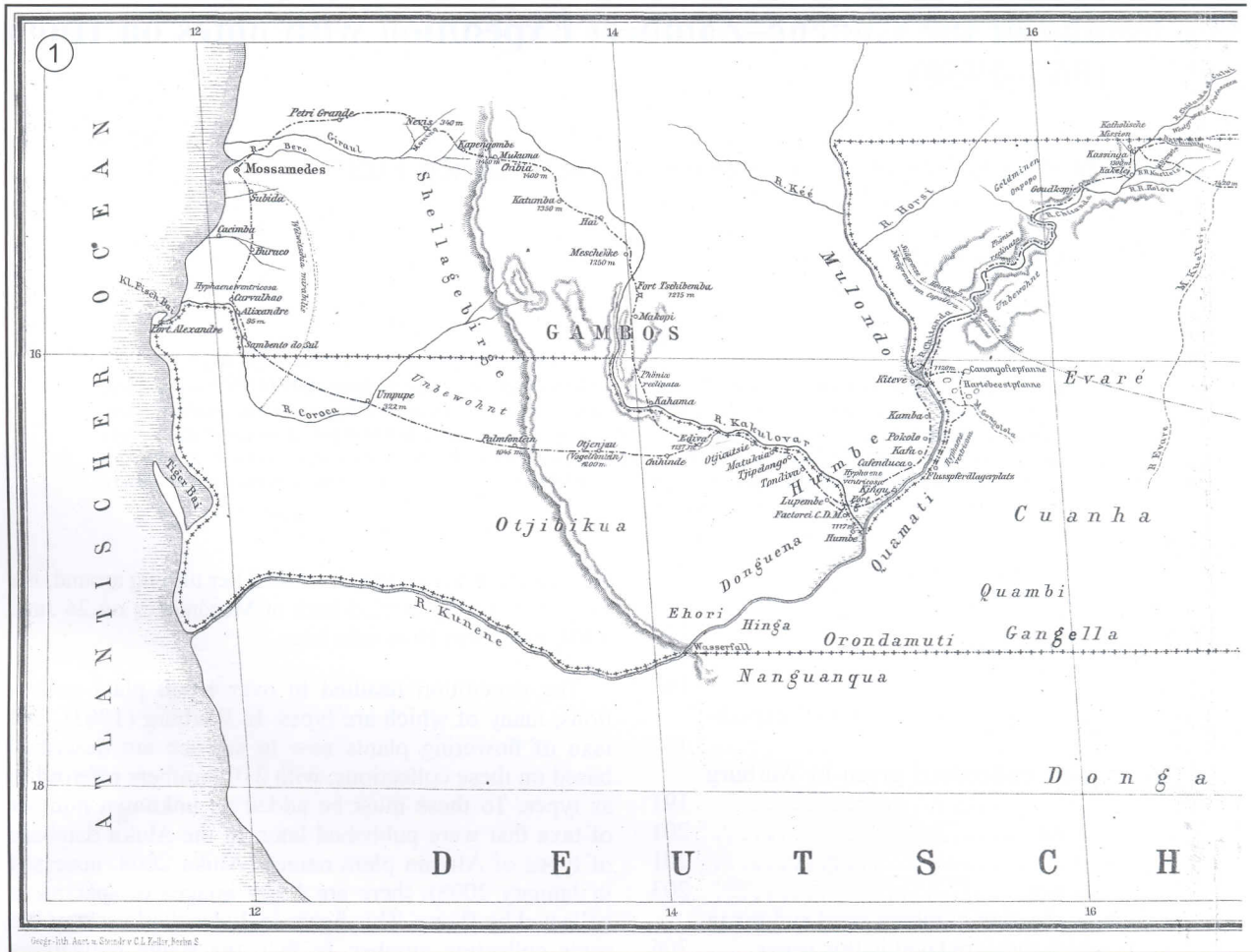


FIGURE 1.—Original map of expedition itinerary divided into three sections (Warburg 1903).





To facilitate the work of taxonomists and systematists studying the flora of southern Africa, the Baum collections and expedition itinerary were analysed. In the present work we include an historical overview of the expedition and an analysis of the flowering plant type material cited in the book (Warburg 1903). Based on the original map, a new map has been produced, which is complemented by a list of old locality names, as cited in Warburg (1903), and the corresponding current names and, whenever possible, geographical co-ordinates.

MATERIAL AND METHODS

The information on type collections was obtained from several sources. Initially, the information on types cited in Warburg (1903) was databased, using Figueiredo & Smith (2008) to update the nomenclature. The location of duplicates was determined mostly using internet resources. In this regard, the Aluka database ([www.aluka.org](http://www.aluka.org)) was particularly useful. Several herbaria online, such as K ([www.kew.org/herbcat](http://www.kew.org/herbcat)), B ([www.bgbm.org](http://www.bgbm.org)) and Z (<http://www.zuerich-herbarien.unizh.ch/>) also provided much information. Duplicates cited in the literature but not seen (either in herbaria or as images) were included in the database. Information from COI was obtained from a card catalogue. The existence of B types was verified using the resources mentioned above and a list of families including extant collections at B (Hiepko 1987). It was noted that the localities recorded on the labels are often not consistent with duplicates of the same collec-

tion. Furthermore, they often do not match exactly the localities given in the book. As a compromise the collecting localities given in Warburg (1903) are used.

The types are listed in alphabetical order by family, genus and species, in their currently accepted taxonomy (Figueiredo & Smith 2008). An index to all the scientific names as well as a sequential index of type numbers referring to their name in this list, is also presented.

A list of several geographical names, cited in Warburg (1903) as collecting localities, as well as those shown on the map, was compiled. The location of the names was determined using maps and gazetteers. An annotated copy of the Warburg (1903) map, produced at LISC, was examined. A new map (Figure 2) showing the itinerary and updated locality names was produced based on the information compiled.

HISTORICAL OVERVIEW AND ITINERARY OF THE EXPEDITION

Hugo Baum was born on 17 January 1867 in Forst Niederlehmsitz, the son of a railwayman. He was raised in Guben on the river Neisse (then in Brandenburg, Germany; now Polish and called Gubin) in a forested area where he developed an interest in plants and insects. After concluding his school education in Guben, he started his professional training as a gardener in Nettkow (Silesia; then German now Polish) and later attended a



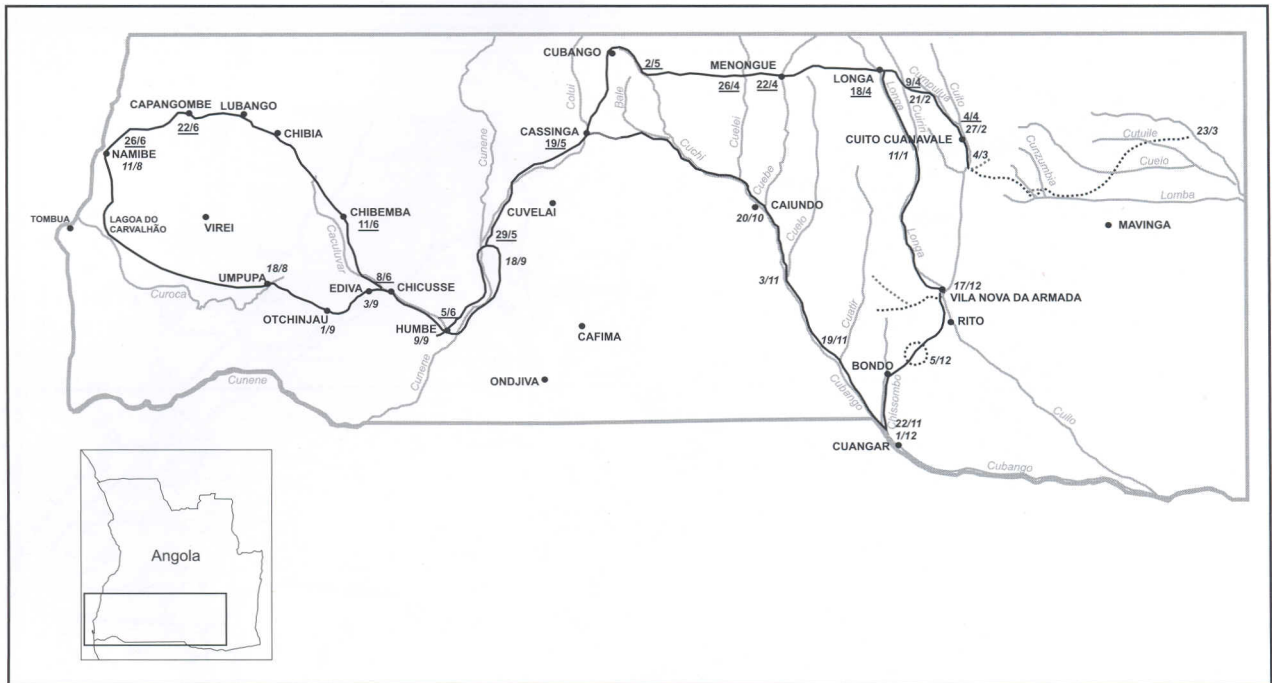


FIGURE 2.—Actual map of expedition itinerary showing route taken by ox-wagons (continuous line), routes travelled on foot (dotted lines), and dates when some localities were reached (in italics for journey out, underlined for return journey).

two-year study course in pomology in Proskau (Silesia). Following his compulsory military service in Magdeburg, he worked for ten years at the old Botanical Garden in Berlin. In 1899, thanks to his extensive botanical knowledge, he was invited to participate in the Cunene-Zambezi Expedition. After his return from Angola, in 1901, Baum was employed as master gardener by the Botanical Garden of the University of Rostock. In the same year he married Auguste Tank. For the following few years Baum busied himself evaluating the Cunene-Zambezi Expedition and in 1903 the expedition report was published. Baum undertook another botanical expedition to Mexico, from January to May 1925. In 1926 he was promoted to chief garden inspector (Gartenoberinspektor) of the University of Rostock, and in 1933, at the age of 66, he retired. On 15 April 1950, shortly after his 83rd birthday, Baum died impoverished. His wife passed away the following year. Altogether 71 taxa, including two genera, namely *Baumiella* (a mushroom) and *Baumia* (belonging to the Scrophulariaceae), have been named after Baum (Mansfeld 1983; Heintze 2007).

The Cunene-Zambezi Expedition was carried out at the request of the Berlin-based Colonial-Economic Committee together with the Compagnie de Moçâmedes (Paris) and the South West Africa Company (London). Its objective was to investigate the economic potential of the south of Angola. The expedition was the result of the interest of German Southwest Africa (now Namibia) in the planned train connection between Porto Alexandre (presently Tombua) in Angola and the then independent Zuid-Afrikaanse Republiek, later the Transvaal province of South Africa. At the time, there was a lack of knowledge of wild-growing cash crops and local African cultures in the area. In his expedition report Hugo Baum did not only describe the flora, but also provided information on the geography, geology, climate, the local people encountered on the expedition, and some of their cus-

toms. The leader of the expedition was the Dutchman, Pieter van der Kellen, who was the representative of the Compagnie de Moçâmedes in Ediva.

On 11 August 1899, the expedition left Moçâmedes (presently Namibe) with three ox-wagons for the rivers Kunene, Kubango, Kuito, up to the Cuando, and on 26 June 1900 it returned to the place from which it departed (Figures 1, 2; refer to Appendix 1 for actual name and co-ordinates of localities, which are mentioned in this text with the original spelling). At the time Moçâmedes was a town of 1 500 inhabitants with a local economy dominated by the trade in dried fish.

The most common acacia species found between Ediva and Humbe was *Acacia verrucifera* Harms [= *Acacia kirkii* Oliv. subsp. *kirkii* var. *kirkii*] that provided the best transparent gum (*gummi arabica*) of great bonding strength. The distribution area of this acacia extended from the Chela Mountains to the Kunene River, and from the Chitanda and the Kubango Rivers downwards to the territory of the Kuangari tribe. Near Chihinde, Baum collected *Strophanthus amboensis* (Schinz) Engl. & Pax of which only a few plants were found. At the same location he found for the first time a plant that was referred to as *Gardenia thunbergia* Thunb. [of which the collected specimen is *Gardenia volkensii* K.Schum. subsp. *spathulifolia* (Stapf & Hutch.) Verdc.], which was called *stumpdorn*, the German version of the Afrikaans *stompdoring*, a name recorded by Smith (1966), and *mulavi* by the local Africans. This tree appeared frequently along the Kunene, Chitanda and Kubango Rivers, but also along the Longa and Kuito Rivers and grew predominantly in the low grounds of the rivers or on the river islands.

The expedition arrived at Ediva on 3 September and there they met the leader Van der Kellen and two Boers



and two Africans with horses, who had been hired by the Dutchman at Humpata as hunters to provide game meat for the expedition. Van der Kellen's brother Emil managed a large farm in Ediva. It was owned by the Compagnie de Moçâmedes, and cultivated various food and cash crops, and carried between 800 and 1 000 head of cattle.

After Ediva, the first place reached by the expedition on their way to Humbe was called Otjikutsie. Humbe used to have a trading post for cattle. However, it had lost importance since the outbreak of the cattle plague. The local population in Humbe cultivated sorghum, pennisetum, groundnuts, groundpeas and to a lesser extent beans, locally called *macundi*. From Humbe the expedition travelled on the same day to the Kunene River. On 12 September they crossed the Kunene with the support of the people of Humbe, of whom some 40 men had joined the expedition as porters. On the left bank of the Kunene the expedition headed upstream to the mouth of the Chitanda River.

At the Chitanda, the *houtbosch*, *Berlinia baumii* Harms [= *Julbernardia paniculata* (Benth.) Troupin], which they considered the most common tree in southern Angola, was noticed for the first time. The local population used the bark of this tree for the production of boats. In Goudkopje, on the banks of the Chitanda, a place also locally called Ompopo, the expedition spent several days searching for alluvial gold in the river; they did find a small quantity. In early October the expedition reached Kassinga, also on the banks of the Chitanda. From there, they went on to the Nambali stream which flows into the Kubango River.

On 8 October the explorers reached the Kubango at Linghonung, the first village they came across since Kassinga. Following the Kubango, on 15 October the expedition came to the village of Chirumbo, located on a river island to protect the population against assaults by the Kuinghama tribe (Kwanhama?) from Ovamboland. On 16 October they crossed the Kubango for the first time between the Kutsi River and Massaca, a fortified village inhabited by some 500 people. From Massaca the explorers travelled the Kubango downstream to a village called Kanjundu, where they left the Kubango to proceed to the Kuebe River, which they followed downstream to its confluence with the Kubango. Then they continued along the Kubango to the mouth of the Quatiri River. Downstream from the mouth of the Quatiri, the expedition passed through the village of Kavanga on the Kubango that was inhabited by the Kangella tribe. From there, the explorers followed the Kubango downstream along the border with German Southwest Africa (presently Namibia) to Imbala, the principal village of the Kuangaris. On 27 November, the expedition left Imbala accompanied by a dozen Kuangari guides following the Kubango upstream to the confluence with the Habungu and then along this stream further upstream.

From the Habungu the journey continued to the Bondo, a small stream that contained little water even during the rainy season, which they followed for only a small distance. From there the expedition went to the lake-like pan called Ungombekike from where some of the Kuangari guides returned home. After passing through two other pans the group reached the Kuito River. Moving upstream along the Kuito, after a few days the group reached the mouth of the stream Jonkoa and from there,

the nearby mouth of the Longa. On 26 December, the explorers arrived at the village Napalanka, situated in a valley between the Longa and inaccessible swamps. After following the Longa upstream for four days, the expedition arrived at a place called Minnesera, which is situated in the swampy area of the mouth of the Quiriri.

On 16 January 1900, the group crossed the Longa, of which the banks were so swampy that 80 oxen were needed to pull the wagons out of the swamp. Downstream from the mouth of the Quiriri the expedition erected a camp where they were visited by the chief of Minnesera and 30 of his people. A few kilometres downstream from Minnesera, the Longa was crossed again with a float. On 31 January the expedition reached the same location at the Longa where they had been on the 12th. Due to a lack of food supplies for the expedition, following the local population's refusal to barter for food supplies, sweet potatoes were simply taken in sacks from nearby fields to feed the carriers and the horses. The shortage of maize rations had weakened the horses, which forced the expedition to reduce the hunting parties, which, in turn, resulted in a lack of game meat.

Subsequently the expedition reached a ford at the Longa, which rubber dealers used as passage-way. At that place, several residing dealers exchanged root rubber, *Carpodinus chylorrhiza* K.Schum. [= *Landolphia thollonii* Dewèvre] for commodities. Two-wheeled carriages were also sent to collect the rubber in the surrounding region. The dealers kept considerable rubber stocks tied up in bundles of 40 finger-strong rubber strips (see below), which as an exchange unit were called *manga*. The weight of one *manga* was about one kilogram. The expedition managed to purchase eleven sacks of maize from a local Portuguese man. That became their only foodstuff and had to be rationed. Due to the food shortage, 17 of the porters were sent back to Humbe and Ediva.

One of the ox-wagons left the Longa for the Quiriri, while the two others remained at the Longa to trade. The expedition avoided contact with the Portuguese traders at the Quiriri, because '...the Portuguese in the colonies were often deported persons...' (Warburg 1903: 93). However, they associated with the Swedish trader Swanström who sent them freshly baked bread. Later the two ox-wagons that were left at the Longa rejoined the expedition at the Quiriri, where in a few days, 300 *mangas* would be exchanged for cotton cloth. From the Quiriri downstream the inhabitants of the many villages were busy with the preparation of rubber. In a village at the Quiriri called Sakkemecho, the expedition exchanged consumer goods and cattle for 297 *mangas* on credit that would be collected after a few months during the return journey.

In the rubber-producing area, rubber completely replaced money as local currency. Root rubber was predominantly found on large grass fields on sandy soils, called *chanas* (*sannas*), which were surrounded by forests. The plant did not grow near the streams and rivers, but on the waterless *chanas* between the streams. Formerly, the root rubber plant had occurred commonly at the Kutsi and the Kubango Rivers at Massaca, where it had now become completely extinct. However, the plant was said to exist in the territory of the Kuinghama tribe and occurred above the mouth of the Luassingua, reach-



ing the Longa, Quiriri, Kampuluve and Kuito Rivers. Its range went beyond the latter and extended even as far as the Cuando. After having been dug out with short hoes, the roots, tied up into stacks of  $\pm 2$  m tall, were watered regularly to soften the bark so that it later peeled off easily. Thereafter, the bales were again dried in the sun and the single roots were cut into 30 to 40 cm long pieces that were beaten on a board to remove the bark from the wood. The pieces of bark were then worked with a wooden hammer until they took the form of a cake. This cake was boiled and again beaten with clubs. Finally the cake was cut into square pieces, which were placed in boiling water and, while still hot, were shaped into cylindrical, finger- to thumb-thick strips, about the length of a span of the hand ( $\pm 22$  cm) called *matali*, of which 40 pieces constituted one *manga*. There were a total of eleven traders in the entire rubber area, of whom nine were Portuguese, one was an Englishman and one a Swede.

The expedition continued the journey from Sakke-mecho, crossing a waterless and hilly area between the Quiriri stream and the Kampuluve, which ran into the Kuito River. The expedition reached the Kampuluve at its source in a swampy valley that extended for 25 to 30 km up to the mouth of the stream. They arrived there on 27 February 1900 and reached the Kuito River for the second time. At that point the Kuito was at most 150 m wide, but with very deep and fast-flowing water. On 14 March, the expedition crossed the Kuito with canoes and on the same day reached a stream called Chinpulu on foot. Due to the lack of grass for the oxen at the Kuito the wagons and oxen had been sent back with two people to the Onschingue River where the others were expected to arrive at the end of March. From the Chinpulu River the men reached a small stream called Miané that they followed up to its source. Then the march continued through waterless hills to the Kuisi stream in the Zambezi area. The expedition followed the Kuisi downstream, then crossed it and after several hours reached the village Konjongo at the Konjumbu, a small stream.

By the time the expedition reached Konjongo, Baum was weakened by fever and stomach pains and he decided to return with two porters to the Kuito River, which they crossed to the right bank. From there the group went to the Onschingue where on 1 April they met part of the expedition that had remained at the Cuando. On 4 April, the expedition initiated the return journey along the previous route, upstream along the Kuito and Kampuluve Rivers up to the Sakkemecho village, where they delivered to the local inhabitants part of the rubber they owed them from the previous transaction.

From the Sakkemecho village, the men followed the Quiriri upstream and then crossed the sandy hills to the Longa. From the Longa the expedition travelled to the Lazingua, and then westwards passing the Quatiri to the Bundju stream, where they remained for some time to allow the oxen some rest. The journey continued to the Kuebe and the Kulei, a tributary of the Kutsi. The passage across the Kutsi, which was rather deep, took three days. From there the journey went on to the Kubango. The crossing of the Kubango with more than a hundred head of cattle and the wagons that had to be disassembled to be ferried across the river, took another five days. The

group then followed the Cubango upstream and turned westward behind Kohi.

On 19 May, the expedition arrived at the Chitanga River and shortly afterwards at nearby Kassinga. After a half-day stay in Kassinga, the expedition followed the Chitanga downstream to Goudkopje. The Chitanga area was rich in game. On 29 May the expedition reached the Kunene at Kiteve. The local population provided eight large boats to help the expedition cross the Kunene within two days. From Kiteve the expedition followed the Kunene downstream. On 5 June the men arrived at Humbe where the porters from that place left the expedition after having been paid for their services. For the remaining journey to the coast the expedition recruited other local porters. On their way to Ediva at the Kaculovar River that was reached after two and a half days, they met the Dutchman Emil van der Kellen who had come by horse from Ediva when he had heard about the expedition's return.

At a place called Kahama, the expedition crossed the Kaculovar a second time and then followed it upstream. In the clay soils along the Kaculovar, Baum again frequently found *Acacia kirkii* Oliv., which was said to produce the best gum. Within two days the expedition crossed the passage through the Chela Mountains. After leaving the mountains, the men went along a stream called Tschikutt passing consecutively through Pietfontain [Pietfontein in modern Afrikaans], the dry Olefantsrivier [Olifantsrivier], the Bumbo and the Kitibe. At Monino village they had a longer rest before they walked the long and dry way to the Giraul River. From there the expedition travelled the last part to Moçâmedes, where they arrived on 26 June 1900.

During the ten-month journey, members of the expedition killed 175 antelopes, 3 hippos, 2 boars, and 3 crocodiles. Baum collected a total of 1 016 plant collection numbers, of which more than 300 were later described as new taxa. More than 60 of the new species were named after Baum. Besides this haul, Baum caught more than 300 butterflies, prepared them and sent them to Europe.

With regard to the economic importance of southern Angola, Baum recommended the areas close to the coast at the small rivers Bero, Giraul, Monino, and Coroca for the establishment of plantations, particularly for the cultivation of cotton. In his opinion, the high plateau, predominantly constituted of heavy loamy or clay soils was suitable for the cultivation of maize, wheat, rye, oats, barley, and European vegetables, subtropical fruits such as citrus, and grapevines. According to Baum, there was much fertile land for colonization at the Cuando. The part of this area east of the Cuebe and north of the Lomba was characterized by a wealth of root rubber plants. He considered the region particularly rich in trees providing tanning agents, such as the *mopane*, *Colophospermum mopane* (J.Kirk ex Benth.) J.Léonard, and the *houtbosch*, *Julbernardia paniculata* (Benth.) Troupin. The distribution area of the acacia that provided the best gum was located in the region of the Cacuvar and Kunene. Thanks to its large forests, southern Angola was considered very rich in timber; however, the cost of transport to the coast was very high. Although gold was panned in the Chitanda River at Goudkopje beneath



Cassinga, the main value of southern Angola was that it was very suitable for livestock. In Baum's opinion the transport of cattle to the coast was easy, given the availability of water and pastures along the whole way. Finally, he emphasized the abundance of fish resources at Moçâmedes (Namibe), Tiger Bay, and particularly Porto Alexandre (Tombua), where salterns that produced salt for the preservation of fish were located.

LIST OF BAUM TYPE COLLECTIONS GIVEN IN  
WARBURG (1903)

All the holotypes (or syntypes) of the names published in Warburg (1903) were deposited at B. Information is available in the literature and on the internet concerning the families which survived the fire that consumed the herbarium during the Second World War (see www.bgbm.org). At the time of the bombardment, the staff of the herbarium was undertaking the task of transferring the type specimens to a safer location. Types belonging to certain families are therefore still extant at Berlin. Likewise, material on loan to other herbaria obviously also survived. The remaining material has been reported as lost. In the case of the Baum collections, out of the 311 type collection numbers of flowering plants cited in Warburg (1903), only 40 holotypes and four syntypes are confirmed to exist. There are 181 holotypes reported as destroyed, and 34 belonging to families for which type material apparently survived, could not be located in any of the databases cited above. In rare cases, types that were reported as destroyed in the literature were found to be extant as they are available in the Aluka database. This is the case for the holotype of *Lobelia minutidentata* Engl. & Gilg, that had been reported as destroyed (Thulin 1984). This was probably due to the misplacement of the specimen as the locality data provided to Aluka wrongly assigns it to Namibia. It was noticed that several Baum collections have been attributed to the wrong country, and depending on the arrangement of herbaria, this may be a reason for the material not having been found in the past. For instance, *Baum 894* (*Cephalaria retroseta* Engl. & Gilg), is represented in Aluka (accessed in February 2008) by three duplicates: the K duplicate is attributed to South Africa, the BM duplicate to the Democratic Republic of Congo and only the duplicate in E is correctly assigned to Angola. In other cases it was found that types belonging to families that were reported as destroyed still exist. For example, in the Rubiaceae, at least four Baum types are extant.

Note: duplicate specimens in bold were accessible in Aluka (accessed in February 2008); duplicate specimens not in bold were accessible in other databases or examined by one of the authors; the \* sign is used for duplicates listed in the literature but not in databases. The original spelling of the localities is kept.

ACANTHACEAE

DUOSPERMA Dayton

**quadrangulare** (Klotzsch) Brummitt

**32** Type of *Hygrophila affinis* Lindau (B, holo. †?; COI, **G, K, W**, iso.). Palmfontein, 28-8-1899, 1 000 m.

**sessilifolium** (Lindau) Brummitt

**942** Type of *Hygrophila sessilifolia* Lindau (B, holo. †?; **BR, COI, G, K, W, Z**, iso.). Chitanda (left bank), 25-5-1900, 1 150 m.

LEPIDAGATHIS Willd.

**macrochila** Lindau

**779** (B, holo. †?; COI, **K, M, W**, iso.). Kusisi, Likise, 16-3-1900, 1 225 m.

STROBILANTHOPSIS S.Moore

**linifolia** (T.Anderson ex C.B.Clarke) Milne-Redh.

**830** Type of *Hygrophila glutinifolia* Lindau (B, holo. †?; COI, **G, K, M, W**, iso.). Longa-Lazingua, 18-4-1900, 1 350 m.

ALLIACEAE

TULBAGHIA L.

**aequinoctialis** Welw. ex Baker subsp. **monantha** (Engl. & Gilg) R.B.Burb.

**351a** Type of *Tulbaghia monantha* Engl. & Gilg (**B**, holo.). Kubango, Kabindere, 30-10-1899.

AMARYLLIDACEAE

AMMOCHARIS Herb.

**baumii** (Harms) Milne-Redh. & Schweick.

**273** Type of *Crinum baumii* Harms (**B**, holo.; **BR, COI, G, M, S, Z**, iso.). Kubango, Chirumbu, 14-10-1899, 1 200 m.

ANACARDIACEAE

OZOROA Delile

**argyrochrysea** (Engl. & Gilg) R.Fern. & A.Fern.

**892** Type of *Heeria benguellensis* Engl. var. *petrophila* Engl. & Gilg (B, holo. †; \*BM, **BR, \*COI, \*K, M, W, Z**, iso.). Kutsi, Kapulo, 4-5-1900, 1 300 m. Reference: Exell & Mendonça (1954a: 122).

**941** Type of *Heeria argyrochrysea* Engl. & Gilg (B, holo. †; K, lecto., designated by Fernandes (1966: 45); \*BM, \*COI, **M, W**, iso.). Chitanda (right bank), 24-5-1900, 1 150 m.

**longipes** (Engl. & Gilg) R.Fern. & A.Fern.

**512** Type of *Heeria longipes* Engl. & Gilg (B, holo. †; **BR, COI, K, M, W, Z**, iso.). Ungombekike-Kuito, 7-12-1899, 1 200 m.

**stenophylla** (Engl. & Gilg) R.Fern. & A.Fern.

**662** Type of *Heeria stenophylla* Engl. & Gilg (B, holo. †; \*BM, **W, Z**, iso.). Longa (left bank), Lazingua, 20-1-1900, 1 250 m. Reference: Exell & Mendonça (1954a: 117).

**xylophylla** (Engl. & Gilg) R.Fern. & A.Fern.

**664** Type of *Heeria xylophylla* Engl. & Gilg (B, holo. †; Z, lecto., designated by Fernandes (1966: 48); **W, Z**, iso.). Quiriri, Sakkemecho, 20-1-1900, 1 200 m.

SEARSIA F.A.Barkley

**kirkii** (Oliv.) Moffet

**638** Type of *Rhus polyneura* Engl. & Gilg (B, holo. †; \*BM, \*COI, **K, M, W, Z**, iso.). Lazingua (near mouth), 6-1-1900, 1 200 m. Reference: Exell & Mendonça (1954a: 103).

**638a** Type of *Rhus polyneura* Engl. & Gilg var. *hylophila* Engl. & Gilg (B, holo. †). Longa, Minnesera, 1-1900, 1 200 m.

**tenuinervis** (Engl.) Moffet

**744** Type of *Rhus commiphoroides* Engl. & Gilg (B, holo. †; \*BM, \*COI, **K, M, W, Z**, iso.). Kuito, Onshingue-Kutue, 1-3-1900, 1 200 m. References: Exell & Mendonça (1954a: 102); Kokwaro (1986: 33).

ANISOPHYLLEACEAE

ANISOPHYLLEA R.Br. ex Sabine

**quangensis** Engl. ex Henric.

**808** Type of *Anisophyllea fruticulosa* Engl. & Gilg (B, holo. †; \*BM, fragment). Quiriri, Sakkemecho, 9/11?4-1900, 1 200 m. Reference: Mendes (1970: 41).

ANTHERICACEAE

ANTHERICUM L.

**liliagastrum** Engl. & Gilg

**461** (B, holo. †?). Kubango (left bank), Kuimarva (left bank), 11-1899, 1 100 m.

## ANTHERICUM L. (cont.)

**xylorrhizum** Engl. & Gilg

530 (B, holo. †?). Kuito (near), 12-1899, 1 150 m.

## CHLOROPHYTUM Ker Gawl.

**colubrinum** (Baker) Engl.

611 Type of *Chlorophytum dolichostachys* Engl. & Gilg (B, holo.). Longa, Napalanka, 1-1-1900, 1 150 m.

**psammophilum** Engl. & Gilg

517 (B, holo.; COI, M, K, Z, iso.). Ungombekike-Kuito, 9-12-1899, 1 200 m.

## APIACEAE

## DIPLOLOPHIUM Turcz.

**zambesianum** Hiern

834 Type of *Physotrichia arenaria* Engl. & Gilg (B, holo. †; BM, \*COI, G, \*K, W, Z, iso.). Lazingua, 19-4-1900, 1 275 m. References: Cannon (1970: 350); Townsend (1989: 83).

## APOCYNACEAE

## ASCLEPIAS L.

**baumii** Schltr.

699a (B, holo. †). Longa, 3-2-1900, 1 250 m.

## ASPIDOGLOSSUM E.Mey.

**masaicum** (N.E.Br.) Kupicha

413 Type of *Schizoglossum baumii* Schltr. ex N.E.Br. (K, holo.; COI, E, M, W, Z, iso.). Kubango, Kavanga, 17-11-1899, 1 100 m.

## CRYPTOLEPIS R.Br.

**producta** N.E.Br.

457 Type of *Cryptolepis baumii* Schltr. (B, holo. †; BM, COI, K, M, W, Z, iso.). Kubango (left bank), Kuimarva (left bank), 23-11-1899, 1 100 m.

## LANDOLPHIA P.Beauv.

**camptoloba** (K.Schum.) Pichon

669 Type of *Carpodinus leucantha* K.Schum. (B, holo. †; W, lecto., designated by Persoon *et al.* (1992: 39); G, W, iso.). Longa, Lazingua, 23-1-1900, 1 250 m.

## TACAZZEA Decne.

**apiculata** Oliv.

276 Type of *Tacazzea verticillata* K.Schum. (B, holo. †; COI, iso.). Kubango, Chirumbu, 10-1899, 1 200 m.

**rosmarinifolia** (Decne.) N.E.Br.

245 Type of *Tacazzea salicina* Schltr. (B, holo. †; G, lecto., designated by Venter, Verhoeven & Kotze (1990: 107); BM, COI, E, G, K, W, Z, iso.). Nambali, 6-10-1899, 1 280 m.

## TYLOPHORA R.Br.

**caffra** Meisn.

526 Type of *Gymnema melananthum* K.Schum. (B, holo. †; BR, COI, K, M, W, Z, iso.). Kuito (near), 12-1899, 1 150 m.

## XYSMALOBIMUM R.Br.

**undulatum** (L.) W.T.Aiton

332 Type of *Asclepias leucotricha* Schltr. (B, holo. †; E, W, Z, iso.). Kuebe, 28-10-1899, 1 150 m.

## ARACEAE

## ZANTEDESCHIA Spreng.

**albomaculata** (Hook.) Baill. subsp. **albomaculata**

398 Type of *Zantedeschia chloroleuca* Engl. & Gilg (B, holo. †?). Kubango (left bank), Kueio, 11-1899, 1 120 m.

## ASPARAGACEAE

## ASPARAGUS L.

**altiscandens** Engl. & Gilg

402 (B, holo.; COI, M, S, iso.). Kubango (left bank), Quatiri (left bank), 12-11-1899, 1 100 m.

**baumii** Engl. & Gilg

150 (B, holo.; COI, M, iso.). Okachitanda (right margin), 25-9-1899.

## ASPHODELACEAE

## ALOE L.

**metallica** Engl. & Gilg

891 (B, holo. †?). Kutsi, Kapulo, 5-1900, 1 300 m.

**nuttii** Baker

698 Type of *Aloe brunneo-punctata* Engl. & Gilg (B, holo.; B, BM, BR, COI, E, K, M, iso.). Longa, Quiriri, 2-2-1900, 1 250 m.

**zebrina** Baker

275 Type of *Aloe baumii* Engl. & Gilg (B, holo. †?; E, iso.). Kubango, Chirumbu, 14-10-1899, 1 200 m.

## BULBINE Wolf

**abyssinica** A.Rich.

487 Type of *Bulbine xanthobotrys* Engl. & Gilg (B, syn.; W, iso-syn.). Habungu, 28-11-1899, 1 100 m.

731 Type of *Bulbine xanthobotrys* Engl. & Gilg (B, syn.; BR, K, M, S, W, iso.). Quiriri, Kampuluve, 22-2-1900, 1 350 m.

## TRACHYANDRA Kunth

**arvensis** (Schinz) Oberm.

412 Type of *Anthericum pallidiflavum* Engl. & Gilg (B, holo. †?; BM, K, M, W, iso.). Kubango (left bank), Kavanga, 16-11-1899, 1 100 m.

## ASTERACEAE

## ANISOPAPPUS Hook. &amp; Arn.

**chinensis** Hook. & Arn. subsp. **chinensis** var. **chinensis**

877 Type of *Anisopappus gracilis* O.Hoffm. (B, holo. †; \*COI, K, M, S, W, Z, iso.). Kulei-Kutsi, 29-4-1900, 1 300 m. Reference: Mendonça (1943: 88).

801 Type of *Anisopappus subdiscoideus* O.Hoffm. (B, holo. †; \*COI, K, M, S, W, Z, iso.). Kampuluve, 6-4-1900, 1 200 m. Reference: Mendonça (1943: 88).

## ARTEMISIOPSIS S.Moore

**villosa** (O.Hoffm.) Schweick.

67 Type of *Amphidoxa lasiocephala* O.Hoffm. (B, holo. †; W, iso.). Ediva-Humbe, Kakulovar, 6-9-1899, 1 140 m. Reference: Mendonça (1943: 61).

## BIDENS L.

**baumii** (O.Hoffm.) Sherff

883 Type of *Coreopsis baumii* O.Hoffm. (B, holo. †; W, lecto., designated by Rayner (1992: 89); BM, \*COI, G, \*K, M, Z, iso.). Kuma-Kutsi, 5-1900, 1 300 m. Reference: Mendonça (1943: 103).

**flabellata** O.Hoffm.

847 (B, holo. †; G, lecto., designated by Rayner (1992: 82); \*BM, \*BR, \*K, W, Z, iso.). Manonge, Kuebe, 22-4-1900, 1 350 m. Reference: Mendonça (1943: 102).

## CONYZA Less.

**limosa** O.Hoffm.

358 (B, syn. †; G, isosyn.). Kubango (right bank), Kueio, 1-11-1899, 1 300 m. Reference: Mendonça (1943: 51).

433 (B, syn. †; BM, \*COI, G, K, M, W, Z, isosyn.). Maramba, Kalolo, 20-11-1899, 1 100 m. Reference: Mendonça (1943: 51).

**welwitschii** (S.Moore) Wild

342 Type of *Nidorella linearifolia* O.Hoffm. (B, holo. †). Kubango, Kabindere, 30-10-1899, 1 130 m. Reference: Mendonça (1943: 49).

## CRASSOCEPHALUM Moench

**uvens** (Hiern) S.Moore

354 Type of *Senecio telmatophilus* O.Hoffm. (B, holo. †; COI, BM, M, W, Z, iso.). Kubango (right bank), Kueio, 11-1899, 1 130 m. Reference: Mendonça (1943: 119).



**DICOMA** Cass.**anomala** Sond. subsp. **anomala**

**804** Type of *Dicoma anomala* Sond. var. *latifolia* O.Hoffm. (B, holo. †; **W**, iso.). Quiriri, Sakkemecho, 9-4-1900, 1 200 m.

**933** Type of *Dicoma anomala* Sond. var. *microphylla* O.Hoffm. (B, holo. †). Malolla Katumba-Chibia, 14-6-1900, 1 350 m. Reference: Mendonça (1943: 143).

**antunesii** O.Hoffm.

**926** (B, holo. †; \*COI). Kubango-Kassinga, Mundongo, 18-5-1900, 1 400 m. Reference: Mendonça (1943: 140).

**EMILIA** Cass.**baumii** (O.Hoffm.) S.Moore

**707** Type of *Senecio baumii* O.Hoffm. (B, holo. †; **BM**, \*COI, **K**, **M**, **W**, **Z**, iso.). Longa, Quiriri, 5-2-1900. Reference: Mendonça (1943: 112).

**limosa** (O.Hoffm.) C.Jeffrey

**907** Type of *Senecio limosus* O.Hoffm. (B, holo. †; \*COI, \***K**, **W**, **Z**, iso.). Kubango, Kohi, 14-5-1900, 1 350 m. Reference: Mendonça (1943: 118).

**ERIGERON** L.**baumii** O.Hoffm.

**187** (B, holo. †; **BM**, \*COI, **K**, **M**, **W**, **Z**, iso.). Goudkopje-Kakele, 2-10-1899, 1 210 m. Reference: Mendonça (1943: 46).

**ERLANGEA** Sch.Bip.**linearifolia** (O.Hoffm.) S.Moore

**710** Type of *Bothriocline linearifolia* O.Hoffm. (B, syn. †; \*COI, **W**, **Z**, isosyn.). Longa, Quiriri, 2-1900, 1 275 m. Reference: Mendonça (1943: 4).

**784** Type of *Bothriocline linearifolia* O.Hoffm. (B, syn. †; \*COI, **K**, **M**, **W**, **Z**, isosyn.). Onschingue, Kuito (near), 22-3-1900, 1 200 m. Reference: Mendonça (1943: 4).

**GRANGEA** Adans.**anthemoides** O.Hoffm.

**126** (B, holo. †; **M**, lecto., designated by Fayed (1979: 472); \*COI, **K**, **W**, iso.). Kunene and Chitanda, 21-9-1899, 1 100 m. Reference: Mendonça (1943: 43).

**HELICHRYSUM** Mill.**congolatum** Schltr. & O.Hoffm.

**226** (B, holo. †; \*COI, **K**, **M**, **W**, iso.). Kuelleis (Maramba), 5-10-1899, 1 400 m. Reference: Mendonça (1943: 69).

**INULA** L.**limosa** O.Hoffm.

**474** (B, syn. †). Habungu, Maramba, 28-11-1899, 1 100 m. Reference: Mendonça (1943: 77).

**630** (B, syn. †; **W**, **Z**, iso.). Longa, Chijija, 5-1-1900, 1 200 m. Reference: Mendonça (1943: 77).

**paludosa** O.Hoffm.

**699** (B, holo. †; \*COI, **K**, **W**, **Z**, iso.). Longa, Quiriri, 3-2-1900, 1 250 m. Reference: Mendonça (1943: 77).

**MELANTHERA** Rohr**triternata** (Klatt) Wild

**197** Type of *Melanthera baumii* O.Hoffm. (B, holo. †; **BM**, **COI**, **K**, **W**, iso.). Goudkopje-Kakele, 3-10-1899, 1 238 m. Reference: Mendonça (1943: 97).

**NICOLASIA** S.Moore**felicoides** S.Moore

**50** Type of *Laggera humilis* O.Hoffm. (B, holo. †; **BM**, \*COI, **W**, **Z**, iso.). Chihinde, 2-9-1899, 1 270 m. Reference: Mendonça (1943: 57).

**NIDORELLA** Cass.**resedifolia** DC. subsp. **resedifolia**

**47** Type of *Nidorella densiflora* O.Hoffm. (B, holo. †). Chihinde, 2-9-1899, 1 270 m. Reference: Mendonça (1943: 49).

**PASACCARDOA** Kuntze**baumii** O.Hoffm.

**318** (B, holo. †; **K**, **W**, **Z**, iso.). Kuebe (near), 24-10-1899, 1 170 m. Reference: Mendonça (1943: 139).

**SENECIO** L.**cryphiactis** O.Hoffm.

**68** (B, holo. †; COI, **K**, **W**, **Z**, iso.). Ediva-Humbe, Kakulovar, 6-9-1899, 1 140 m. Reference: Mendonça (1943: 120).

**SPHAERANTHUS** L.**flexuosus** O.Hoffm. ex De Wild.

**184** Type of *Sphaeranthus humilis* O.Hoffm. (B, holo. †; \*COI, **K**, **M**, **W**, iso.). Goudkopje-Kakele, 2-10-1899, 1 210 m. Reference: Mendonça (1943: 61).

**VERNONIA** Schreb.**brideliifolia** O.Hoffm.

**610** (B, holo. †; **W**, **Z**, iso.). Longa, Napalanka, 1-1-1900, 1 150 m. Reference: Mendonça (1943: 30).

**gerberiformis** Oliv. & Hiern subsp. **macrocyaneus** (O.Hoffm.) C.Jeffrey

**134** Type of *Vernonia primulina* O.Hoffm. (B, holo. †; \*COI, **M**, **W**, **Z**, iso.). Chitanda (left bank), Kunene, 23-9-1899, 1 108 m. Reference: Mendonça (1943: 29).

**limosa** O.Hoffm.

**255** (B, syn. †; **G**, isosyn.). Nambali, Maramba, 7-10-1899, 1 250 m. Reference: Mendonça (1943: 27).

**624** (B, syn. †; **G**, **W**, **Z**, isosyn.). Longa, Chijija, 4-1-1900, 1 200 m. Reference: Mendonça (1943: 27).

**mesogramme** O.Hoffm.

**616** (B, holo. †). Kuairiri, 2-1-1900, 1 150 m. Reference: Mendonça (1943: 35).

**pygmaea** O.Hoffm.

**235** (B, holo. †; **W**, iso.). Maramba, Kuelleis, 5-10-1899, 1 400 m. Reference: Mendonça (1943: 30).

**subplumosa** O.Hoffm.

**703** (B, holo. †; **BM**, **W**, **Z**, iso.). Longa, Quiriri, 3-2-1900, 1 250 m. Reference: Mendonça (1943: 10).

**temnolepis** O.Hoffm.

**929** Type of *Vernonia baumii* O.Hoffm. (B, syn. †; \*COI, **K**, **M**, **W**, **Z**, isosyn.). Chitanda, Kassinga, 19-5-1900, 1 325 m. Reference: Mendonça (1943: 25).

**929a** Type of *Vernonia baumii* O.Hoffm. (B, syn. †; \*COI, **W**, isosyn.). Chitanda, Kassinga, 19-5-1900, 1 325 m. Reference: Mendonça (1943: 25).

**BORAGINACEAE****TRICHODESMA** R.Br.**baumii** Gürke

**844** (B, holo. †; **BM**, **COI**, **E**, **M**, **W**, **Z**, iso.). Manonge, Kuebe, 22-4-1900, 1 350 m.

**BRASSICACEAE****RORIPPA** Scop.**cryptantha** (A.Rich.) Robyns & Boutique

**129** Type of *Nasturtium microcapsum* Engl. & Gilg (B, holo.; **BM**, **COI**, **K**, iso.). Okachitanda (left bank), 22-9-1899. Reference: Exell & Mendonça (1937a: 50).

**BURMANNIACEAE****BURMANNIA** L.**madagascariensis** Mart.

**619** Type of *Burmanna bicolor* Mart. var. *micrantha* Engl. & Gilg (B, holo.; **COI**, **S**, iso.). Longa, Chijija, 4-1-1900, 1 200 m.

**726** Type of *Burmanna blanda* Engl. & Gilg (B, holo.; **B**, **K**, iso.). Quiriri, Sobi, 20-2-1900, 1 300 m. Reference: Cowley (1988: 2).

## CAMPANULACEAE

## WAHLENBERGIA Schrad. ex Roth

*banksiana* A.DC.

421 Type of *Wahlenbergia leucantha* Engl. & Gilg (B, holo. †; K, lecto., designated by Thulin (1975: 119); **BM**, **COI**, **G**, **K**, **M**, \*S, **W**, **Z**, iso.). Kubango (left bank), Kavanga, 18-11-1899, 1 100 m.

*denticulata* (Burch.) A.DC.

837 Type of *Lightfootia laricifolia* Engl. & Gilg (B, holo. †; Z, lecto., designated by Thulin (1975: 116); **G**, **W**, \*Z, iso.). Lazingua, 19-4-1900, 1 275 m.

*undulata* (L.f.) A.DC.

477 Type of *Wahlenbergia cyanea* Engl. & Gilg (B, holo. †; M, lecto., designated by Thulin (1975: 76); \***BM**, **COI**, **G**, **K**, \*S, **W**, **Z**, iso.). Habungu, 28-11-1899, 1 100 m.

## CAPPARACEAE

## BOSCIA Lam.

*welwitschii* Gilg

999 Type of *Boscia suaveolens* Gilg (B, holo. †?; \***BM**, **COI**, \***K**, **M**, **W**, **Z**, iso.). Jau, 19-6-1900, 1 100 m. Reference: Exell & Mendonça (1937b: 65).

## CARYOPHYLLACEAE

## POLYCARPAEA Lam.

*inaequalifolia* Engl. & Gilg

816 (B, holo. †; \***BM**, **Z**, iso.). Quiriri, Sakkemecho, 4-1900, 1 200 m. Reference: Exell & Mendonça (1937c: 112).

## CELASTRACEAE

## GYMNOSPORIA (Wight &amp; Arn.) Hook.f.

*senegalensis* (Lam.) Loes.

565 Type of *Gymnosporia baumii* Loes. (B, holo. †; **BM**, \***COI**, **K**, **W**, **Z**, iso.). Jonkoa, 21-12-1899, 1 150 m. Reference: Exell & Mendonça (1954b: 8).

## SALACIA L.

*bussei* Loes.

480 Type of *Salacia rehmanii* Schinz var. *baumii* Loes. (B, holo. †?). Habungu, 11-1899, 1 100 m. Reference: Exell & Mendonça (1954b: 24).

## COMBRETACEAE

## COMBRETUM Loefl.

*aureonitens* Engl. & Gilg

53 (B, syn. †; **BM**, lecto., designated by Exell & Garcia (1970: 57), **BR**, \***COI**, **K**, **M**, **W**, **Z**, iso.). Chihinde-Ediva, 2-9-1899, 1 250 m.

113 (B, syn. †; **BM**, \***COI**, **K**, **W**, isosyn.). Hartebeest-Lövenpan, 18-9-1899, 1 100 m. Reference: Exell & Garcia (1970: 57).

982 (B, syn. †; \***BM**, \***COI**, **K**, **M**, **W**, isosyn.). Makopi, 11-6-1900. Reference: Exell & Garcia (1970: 57).

*collinum* Fresen.

54 Type of *Combretum monticola* Engl. & Gilg (B, syn. †; **BM**, lecto., designated by Exell & Garcia (1970: 58)). Chihinde-Ediva, 9-1899, 1 250 m.

56 Type of *Combretum monticola* Engl. & Gilg (B, syn. †; **W**, **Z**, isosyn.). Chihinde, 2-9-1899, 1 270 m.

981 Type of *Combretum pachycarpum* Engl. & Gilg (B, syn. †). Makopi, 6-1900, 1 200 m.

983 Type of *Combretum pachycarpum* Engl. & Gilg (B, syn. †; **BM**, lecto., designated by Exell & Garcia (1970: 58); **BR**, \***COI**, **K**, **M**, **S**, **W**, **Z**, iso.). Makopi, 11-6-1900, 1 200 m.

986 Type of *Combretum laeteviride* Engl. & Gilg (B, holo. †; **BM**, lecto., designated by Exell & Garcia (1970: 58); **BR**, \***COI**, **K**, **M**, **S**, **W**, **Z**, iso.). Meschekke-Katumba, 14-6-1900, 1 350 m.

*molle* R.Br. ex G.Don

127 Type of *Combretum arbuscula* Engl. & Gilg (B, syn. †; **BM**, **COI**, **K**, **W**, **Z**, isosyn.). Chitanda (left bank), 21-9-1899, 1 100 m.

155 Type of *Combretum arbuscula* Engl. & Gilg (B, syn. †; **BM**, **K**, **W**, isosyn.). Chitanda (right margin), 25-9-1899, 1 150 m.

947 Type of *Combretum arbuscula* Engl. & Gilg (B, syn. †; **BM**, **BR**, **COI**, **K**, **S**, **W**, isosyn.). Chitanda (left bank), 27-5-1900, 1 150 m.

*platypetalum* Welw. ex M.A.Lawson subsp. *baumii* (Engl. & Gilg) Exell

117 Type of *Combretum baumii* Engl. & Gilg (B, syn. †; **BM**, lecto., designated by Exell & Garcia (1970: 73); **BM**, **COI**, **K**, **M**, **W**, **Z**, iso.). Hartebeest-Lövenpan, 18-9-1899, 1 100 m.

119 Type of *Combretum baumii* Engl. & Gilg (B, syn. †). Hartebeest-Lövenpan, 9-1899, 1 100 m.

232 Type of *Combretum arenarium* Engl. & Gilg (B, holo. †; **BM**, lecto., designated by Exell & Garcia (1970: 72); **BM**, **K**, **W**, **Z**, iso.). Kuelleis (Kassinga-Kubango), 5-10-1899, 1 400 m.

232a Type of *Combretum argyochryseum* Engl. & Gilg (B, holo. †; **BM**, fragment and drawing of holo. [cited by Exell & Garcia (1970: 72)], **W**, iso.). Kuelleis (Kassinga-Kubango), 5-10-1899, 1 400 m.

232b Type of *Combretum gnidioides* Engl. & Gilg (B, holo. †; **BM**, lecto., designated by Exell & Garcia (1970: 72); **W**, **Z**, iso.). Kuelleis (Kassinga-Kubango), 5-10-1899, 1 400 m.

*psidioides* Welw. subsp. *dinteri* (Schinz) Exell

722 Type of *Combretum quirirensense* Engl. & Gilg (B, holo. †; **BM**, lecto., designated by Exell & Garcia (1970: 66); **BR**, \***COI**, \***K**, **S**, **W**, **Z**, iso.). Quiriri, Sobi, 19-2-1900, 1 300 m.

## TERMINALIA L.

*brachystemma* Welw. ex Hiern

215 Type of *Terminalia baumii* Engl. & Gilg (B, holo. †; **BM**, lecto., designated by Exell & Garcia (1970: 89); \***COI**, **K**, **M**, **W**, **Z**, iso.). Kassinga-Kolove, 4-10-1899, 1 300 m.

## COMMELINACEAE

## ANEILEMA R.Br.

*plagiocapsa* K.Schum.

716 (B, holo.; **BM**, **COI**, **G**, **K**, **W**, iso.). Quiriri, Sobi, 18-2-1900, 1 300 m.

## COMMELINA L.

*milne-redheadii* Faden

256 Type of *Commelina welwitschii* C.B.Clarke var. *glabra* K.Schum. (B, holo. †; **BM**, **K**, iso.). Nambali, 7-10-1899, 1 250 m.

*subulata* Roth

963 Type of *Commelina elegantula* K.Schum. (B, holo.; **BM**, **M**, iso.). Kitewe-Humbe, 3-6-1900, 1 100 m.

*welwitschii* C.B.Clarke

814 Type of *Commelina filifolia* K.Schum. (B, holo.; **K**, iso.). Quiriri, Sakkemecho, 15/16? 4-1900, 1 200 m.

## FLOSCOPA Lour.

*flavida* C.B.Clarke

915 Type of *Floscopa pusilla* K.Schum. (B, holo. †?; **BR**, **K**, **M**, **S**, iso.). Kubango, Kohi, 15-5-1900.

## CONVOLVULACEAE

## IPOMOEIA L.

*crassipes* Hook.

151 Type of *Ipomoea crassipes* Hook. var. *hirta* Hallier f. (B, syn. †). Chitanda (right margin), 25-9-1899, 1 150 m.

454 Type of *Ipomoea crassipes* Hook. var. *hirta* Hallier f. (B, syn. †; **COI**, **M**, **W**, iso.). Kubango (left bank), Kuimarva, 23-11-1899, 1 100 m.

## CRASSULACEAE

## KALANCHOE Adans.

*brachyloba* Welw. ex Britten

938 Type of *Kalanchoe baumii* Engl. & Gilg (B, holo. †). Goudkopje, 22-5-1900, 1 300 m.

## CUCURBITACEAE

## TROCHOMERIA Hook.f.

*baumiana* Gilg

445 (B, holo. †). Kubango (left bank), Kalolo, 11-1899, 1 100 m.



## CYPERACEAE

## CYPERUS L.

**chrysocephalus** (K.Schum.) Kük.

**311** Type of *Mariscus chrysocephalus* K.Schum. (B, syn. †?; **K**, isosyn.). Longa, Maschonge, 23-11-1899, 1 170 m.

**311a** Type of *Mariscus chrysocephalus* K.Schum. (B, syn. †?; **COI**, isosyn.). Longa, Maschonge, 31-12-1899, 1 150 m.

## RHYNCHOSPORA Vahl

**holoschoenoides** (Rich.) Herter

**355** Type of *Rhynchospora dolichostyla* K.Schum. (B, holo. †?; **K**, iso.). Kubango (right bank), Kueio, 1-9-1899, 1 130 m.

## DICHAPETALACEAE

## DICHAPETALUM Thouars

**cymosum** (Hook.) Engl.

**64** Type of *Dichapetalum venenatum* Engl. & Gilg (B, holo. †; **M**, lecto., designated by Breteler (1978: 32); **BM**, **BR**, **COI**, **E**, **K**, **M**, **S**, **W**, **Z**, iso.). Ediva-Humbe, 6-9-1899, 1 200 m.

## DIPSACACEAE

## CEPHALARIA Schrad.

**retrosetosa** Engl. & Gilg

**894** (B, holo. †; **BM**, **COI**, **E**, **K**, **Z**, iso.). Kutsi, Kapulo, 5-5-1900, 1 300 m.

## DIPTEROCARPACEAE

## MONOTES A.DC.

**dasyanthus** Gilg

**888** (B, holo. †; \***BM**, \***COI**, **K**, **M**, **W**, **Z**, iso.). Kutsi, 2-5-1900, 1 300 m. Reference: Bancroft (1937: 139).

## EBENACEAE

## DIOSPYROS L.

**batocana** Hiern

**780** Type of *Diospyros xanthocarpa* Gürke (B, holo. †; **W**, iso.). Kusisi, Likise, 16-3-1900, 1 200 m.

**kirkii** Hiern

**945** Type of *Diospyros baumii* Gürke (B, holo. †; **BR**, **K**, **M**, **W**, **Z**, iso.). Chitanda (left bank), 26-5-1900, 1 150 m.

**virgata** (Gürke) Brenan

**792** Type of *Maba virgata* Gürke (B, holo. †; **G**, iso.). Onschingue, Kuito (near), 1-4-1900, 1 200 m.

## EUCLEA Murray

**crispa** (Thunb.) Gürke

**191** Type of *Euclea baumii* Gürke (B, holo. †; **COI**, **K**, **M**, **W**, **Z**, iso.). Goudkopje-Kakele, 10-1899, 1 210 m.

**divinorum** Hiern

**33** Type of *Euclea huillensis* Gürke (B, holo. †; **BR**, **COI**, **K**, **M**, **S**, **W**, **Z**, iso.). Palmfontein, Ediva, 28-8-1899, 1 000 m.

## ELATINACEAE

## BERGIA L.

**pentheriana** Keissl.

**98** Type of *Bergia pallide-rosea* Gilg (B, holo. †; \***BM**, **BR**, **COI**, **M**, **S**, **W**, iso.). Kunene (left bank), Humbe, 14-9-1899, 1 140 m. Reference: Exell & Mendonça (1937d: 118).

**spathulata** Schinz

**110** Type of *Bergia erythroleuca* Gilg (B, holo. †; \***BM**, **BR**, **COI**, **K**, **M**, **S**, **W**, **Z**, iso.). Kunene (left bank), Soba Gongo, 17-9-1899, 1 115 m. Reference: Exell & Mendonça (1937d: 119).

## EUPHORBIACEAE

## JATROPHA L.

**baumii** Pax

**122a** (B, holo. †?). Löwenpan-Kunene, 19-9-1899, 1 100 m.

## SCLEROCROTON Hochst.

**oblongifolius** (Müll.Arg.) Kruijt & Roebers

**257** Type of *Sapium suffruticosum* Pax (B, holo. †?; **BR**, **COI**, **E**, **K**, **M**, **W**, iso.). Nambali, Maramba, 10-1899, 1 250 m.

## FABACEAE

## ADENODOLICHOS Harms

**baumii** Harms

**848** (B, holo. †; **COI**, lecto., designated by Torre (1966: 301); **BM**, **COI**, \***K**, **M**, **Z**, iso.). Manonge, 22-4-1900, 1 350 m.

**rhomboideus** (O.Hoffm.) Harms var. **rhomboideus**

**872** Type of *Adenodolichos euryphyllus* Harms (B, holo. †; \***COI**, **BM**, **K**, **Z**, iso.). Kulei-Kutsi, 29-4-1900, 1 300 m. Reference: Torre (1966: 300).

## AESCHYNOMENE L.

**baumii** Harms

**810** (B, holo. †; **COI**, lecto., designated by Torre (1966: 198); **BR**, **COI**, \***K**, **M**, **S**, **W**, **Z**, iso.). Quiriri, Sakkemecho, 10-4-1900, 1 200 m.

**bracteosa** Welw. ex Baker

**252** Type of *Aeschynomene nambalensis* Harms (B, holo. †; **BM**, \***COI**, \***K**, **W**, **Z**, iso.). Nambali, 7-10-1899, 1 250 m. Reference: Torre (1966: 199).

## BAIKIAEA Benth.

**plurijuga** Harms

**428** (B, holo. †; \***BM**, **COI**, **K**, **M**, **W**, **Z**, iso.). Kubango (left bank), Kalolo, 20-11-1899, 1 100 m. Reference: Torre & Hillcoat (1956: 220).

**BAPHIA** Afzel. ex Lodd.**massaiensis** Taub. subsp. **obovata** (Schinz) Brummitt var. **cornifolia** (Harms) Soladoye

**121** Type of *Baphia cornifolia* Harms (B, holo. †; **K**, lecto., designated by Hillcoat (1966: 376); **BM**, \***COI**, \***K**, **M**, **W**, **Z**, iso.). Löwenpan-Kunene, 18-9-1899, 1 100 m.

## COPAIFERA L.

**baumiana** Harms

**523** (B, holo. †; \***BM**, **COI**, **K**, **M**, **S**, **W**, **Z**, iso.). Ungombekike-Kuito, 10-12-1899, 1 200 m. References: Torre & Hillcoat (1956: 243).

## CROTALARIA L.

**angulicaulis** Harms

**740** (B, holo. †; **BM**, iso.). Kampuluve, 2-1900, 1 200 m.

**baumii** Harms

**836** (B, holo. †; **BM**, **COI**, **K**, **W**, **M**, **S**, **Z**, iso.). Lazingua, 19-4-1900, 1 275 m. Reference: Torre (1962: 35).

**densicephala** Welw. ex Baker

**670** Type of *Crotalaria lachnoclada* Harms (B, holo. †; **BM**, **COI**, **K**, **M**, **S**, **W**, **Z**, iso.). Longa, Lazingua, 23-1-1900, 1 250 m. Reference: Torre (1962: 63).

**leptoclada** Harms var. **leptoclada**

**829** (B, holo. †; **BM**, **COI**, **K**, **LISC**, **M**, **W**, **Z**, iso.). Longa, 18-4-1900, 1 275 m. Reference: Torre (1962: 66).

**psammophila** Harms

**741** (B, holo. †; **BM**, **COI**, **K**, **M**, **S**, **W**, **Z**, iso.). Kampuluve, Kuito (near), 27-2-1900, 1 200 m. Reference: Torre (1962: 29).

**sericifolia** Harms

**483** (B, holo. †; **BM**, **COI**, **K**, **M**, **W**, **Z**, iso.). Habungu, 28-11-1899, 1 100 m. Reference: Torre (1962: 67).

**subsessilis** Harms

**787** (B, holo. †; **BM**, **COI**, **K**, **M**, **W**, **Z**, iso.). Onschingue, Kuito (near), 29-3-1900, 1 200 m. Reference: Torre (1962: 67).

## ENTADA Adans.

**arenaria** Schinz subsp. **arenaria**

**471** Type of *Entada nana* Harms (B, holo. †; **W**, **Z**, iso.). Habungu, 28-11-1899, 1 100 m.

## ERYTHRINA L.

**baumii** Harms

223 (B, holo. †; BM, lecto., designated by Torre (1966: 248); E, NY, W, iso.). Kuelleis (Maramba), 5-10-1899, 1 400 m.

## INDIGOFERA L.

**baumiana** Harms

497 (B, syn. †; BM, BR, COI, E, K, M, W, Z, isosyn.). Habungu, 1-12-1899, 1 150 m. Note: Torre (1962: 118) referred to the B specimen as holotype (because it was the first of the two syntypes cited in the protologue) which would make it a lectotype. However, he did not see the specimen (having referred to it as n.v.). Therefore, we think this cannot be considered a lectotypification.

819 (B, syn. †). Quiriri, Sakkemecho, 4-1900, 1 200 m.

**griseoides** Harms

745 (B, holo. †; E, W, iso.). Kuito, Onschingue–Kutue, 1-3-1900, 1 200 m.

**nambalensis** Harms

254 (B, holo. †). Nambali, 10-1899, 1 250 m.

## JULBERNARDIA Pellegr.

**paniculata** (Benth.) Troupin

732 Type of *Berlinia baumii* Harms (B, holo. †; BM, COI, K, M, iso.). Onschingue, Kuito, 22-2-1900, 1 200 m. Reference: Torre & Hillcoat (1956: 212).

## PHYSOSTIGMA Balf.

**mesoponticum** Taub.

133 Type of *Physostigma mesoponticum* Taub. var. *baumii* Harms (B, holo. †; COI, lecto., designated by Torre (1966: 260); \*BM, E, K, iso.). Chitanda (left bank), 23-9-1899, 1 108 m.

## RHYNCHOSIA Lour.

**baumii** Harms

764 (B, holo. †; Z, lecto., designated by Torre (1965: 223); S, W, Z, iso.). Kuito, Kutue–Sobi, 4-3-1900, 1 200 m.

**luteola** (Hiern) K.Schum.

1005a Type of *Rhynchosia moninensis* Harms (B, holo. † \*BM, \*COI, \*K, W, Z, iso.). Monino, Nevis, 23-6-1900, 350 m. Reference: Torre (1966: 316).

## SESBANIA Scop.

**coerulescens** Harms

782 (B, holo. †; K, M, W, Z, iso.). Miané, Kavamba, 14-3-1900, 1 175 m. Reference: Sousa (1962: 184).

**microphylla** Harms

569 (B, holo. †; K, Z, iso.). Longa (mouth), 22-12-1899, 1 130 m. Reference: Sousa (1962: 186).

## TEPHROSIA Pers.

**cephalantha** Welw. ex Baker

563 Type of *Tephrosia hypargyrea* Harms (B, holo. †; \*BM, COI, \*K, M, W, Z, iso.). Jonkoa, 20-12-1899, 1 150 m. Reference: Torre (1962: 164).

**coronilloides** Welw. ex Baker

612 Type of *Tephrosia longana* Harms (B, holo. †; BM, COI, K, W, Z, iso.). Longa, Napalanka, 1-1-1900, 1 150 m. Reference: Torre (1962: 155).

## FLACOURTIACEAE

## XYLOTHECA Hochst.

**longipes** (Gilg) Gilg

388 Type of *Oncoba longipes* Gilg (B, holo. †; G, iso.). Kubango (right bank), Kueio, 5-11-1899, 1 100 m. Reference: Sleumer (1937: 81).

## GENTIANACEAE

## CHIRONIA L.

**baumiana** Gilg

739 (B, holo. †; COI, E, K, M, W, Z, iso.). Kampuluve, 26-2-1900, 1 210 m.

## NEUROTHECA Salisb. ex Benth.

**congolana** De Wild. & T.Durand

604 Type of *Neurotheca baumii* Gilg (B, holo. †; COI, E, K, M, S, W, Z, iso.). Longa, Napalanka, 1-1900, 1 150 m.

## PYCNOSPHAERA Gilg

**buchananii** (Baker) N.E.Br.

752 Type of *Pycnosphaera trimera* Gilg (B, holo. †; COI, E, K, M, S, W, Z, iso.). Kuito, Kutue, 2-3-1900, 1 200 m.

## SEBAEA Sol. ex R.Br.

**baumiana** (Gilg) Boutique

692 Type of *Belmontia baumiana* Gilg (B, holo. †; COI, E, W, Z, iso.). Longa, Quiriri, 2-2-1900, 1 250 m.

**teuszii** (Schinz) P.Taylor

316 Type of *Belmontia chionantha* Gilg (B, syn. †; \*K, isosyn.). Kuebe (near), 10-1899, 1 170 m. Reference: Nemomissa (2002: 18).

702 Type of *Belmontia chionantha* Gilg (B, syn. †; E, \*K, W, isosyn.). Longa, Quiriri, 3-2-1900, 1 250 m. Reference: Nemomissa (2002: 18).

838 Type of *Belmontia chionantha* Gilg (B, syn. †; COI, E, K, M, W, Z, isosyn.). Lazingua, 19-4-1900, 1 300 m. Reference: Nemomissa (2002: 18).

## HYACINTHACEAE

## DIPCADI Medik.

**longifolium** (Lindl.) Baker

499 Type of *Dipcadi anthericoides* Engl. & Gilg (B, holo.; COI, K, M, iso.). Bondo, 2-12-1899, 1 150 m.

**vaginatum** Baker

349 Type of *Dipcadi baumii* Engl. & Gilg (B, holo.). Kubango, Kabindere, 30-10-1899, 1 150 m.

**viride** (L.) Moench

459 Type of *Dipcadi lividescens* Engl. & Gilg (B, holo.). Kubango (left bank), Kuimarva, 23-11-1899, 1 100 m.

## LEDEBOURIA Roth

**revoluta** (L.f.) Jessop

203a Type of *Scilla lanceifolia* (Jacq.) Baker var. *longiracemosa* Engl. & Gilg (B, syn. †?). Kakele, Kassinga, 10-1899, 1 250 m.

447 Type of *Scilla lanceifolia* (Jacq.) Baker var. *longiracemosa* Engl. & Gilg (B, syn. †?). Kubango (left bank), Kalolo, 11-1899, 1 100 m.

## SCHIZOCARPUS Van der Merwe

**nervosus** (Burch.) Van der Merwe

410 Type of *Scilla eriospermoides* Engl. & Gilg (B, holo.; COI, K, M, iso.). Kubango (left bank), Kavanga, 16-11-1899, 1 100 m.

## SCILLA L.

**baumiana** Engl. & Gilg

122 (B, holo.; COI, K, Z, iso.). Lövenpan–Kunene, 19-9-1899, 1 100 m.

## HYDROCHARITACEAE

## OTTELIA Pers.

**kunenensis** (Gürke) Dandy

962 Type of *Boottia kunenensis* Gürke (B, holo. †?; COI, K, M, W, iso.). Kunene, Kitewe–Humbe, 3-6-1900, 1 100 m.

**muricata** (C.H.Wright) Dandy

772 Type of *Boottia aschersoniana* Gürke (B, holo. †?; COI, M, W, iso.). Kuito, Kutue–Sobi, 10-3-1900, 1 200 m.

**ulvifolia** (Planch.) Walp.

120 Type of *Ottelia benguellensis* Gürke (B, holo. †?; W, iso.). Lövenpan, 18-9-1899, 1 100 m.

858 Type of *Ottelia baumii* Gürke (B, holo. †?; COI, K, W, iso.). Manonge, 23-4-1900, 1 350 m.



## HYDROSTACHYACEAE

## HYDROSTACHYS Thouars

*triaxialis* Engl. & Gilg

263 (B, holo. †; **BM**, **COI**, **K**, **M**, **W**, **Z**, iso.). Kubango, Massaca, 8-10-1899, 1 200 m.

## HYPERICACEAE

## HYPERICUM L.

*lalandii* Choisy

909 Type of *Hypericum baumii* Engl. & Gilg (B, holo. †). Kubango, Kohi, 5-1900, 1 350 m. References: Exell & Mendonça (1937e: 120); Milne-Redhead (1953: 9).

## IRIDACEAE

## GLADIOLUS L.

*benguellensis* Baker

632 Type of *Gladiolus longanus* Harms (B, holo.; **BM**, **E**, **Z**, iso.). Longa, Chijija, 5-1-1900, 1 200 m.

*magnificus* (Harms) Goldblatt

651 Type of *Antholyza magnifica* Harms (B, holo.; **COI**, **M**, **W**, iso.). Longa, Minnesera, 11-1-1900, 1 250 m.

*pallidus* Baker

881 Type of *Gladiolus baumii* Harms (B, holo.). Kulei-Kutsi, 30-4-1900, 1 300 m.

898 Type of *Gladiolus kubangensis* Harms (B, holo.; **COI**, **E**, **M**, **S**, **Z**, iso.). Kubango (near), 8-5-1900, 1 450 m.

## IXONANTHACEAE

## PHYLLOCOSMUS Klotzsch

*lemaireanus* (De Wild. & T.Durand) T.Durand & H.Durand

712 Type of *Phyllocosmus candidus* Engl. & Gilg (B, holo. †; **BM**, **COI**, **K**, **W**, **Z**, iso.). Quiriri, Sakkemecho, 13-2-1900, 1 300 m. References: Exell & Mendonça (1951a: 247); Verdcourt (1984: 4).

## LAMIACEAE

## AEOLLANTHUS Mart. ex K.Spreng.

*engleri* Briq.

737 Type of *Aeolanthus paludosus* Gürke (B, holo. †; **COI**, **E**, **K**, **W**, **Z**, iso.). Kampuluve, 26-2-1900, 1 210 m.

866 Type of *Aeolanthus uliginosus* Gürke (B, holo. †; **COI**, **E**, **K**, **M**, **S**, **W**, iso.). Chimpungu, 25-4-1900, 1 400 m.

## BENGUELLIA G.Taylor

*lanceolata* (Gürke) G.Taylor

910 Type of *Orthosiphon lanceolatus* Gürke (B, holo. †; **COI**, **M**, **W**, iso.). Kubango, Kohi, 15-5-1900, 1 350 m.

## CLERODENDRUM L.

*baumii* Gürke

661 (B, holo. †; **E**, **W**, **Z**, iso.). Longa (left bank), Lazingua, 20-1-1900, 1 250 m.

## PLATOSTOMA P.Beauv.

*strictum* (Hiern) A.J.Paton

644 Type of *Geniosporum baumii* Gürke (B, holo. †; **BM**, **COI**, **K**, **M**, **S**, **W**, iso.). Lazingua, near Longa, 7-1-1900, 1 130 m.

## PLECTRANTHUS L'Hér.

*baumii* Gürke

283 (B, holo. †; **COI**, **W**, **Z**, iso.). Kubango, Massaca, 19-10-1899, 1 150 m.

*betonicifolius* Baker

544 Type of *Coleus baumii* Gürke (B, holo. †; **BM**, **COI**, **K**, **M**, **S**, **W**, **Z**, iso.). Kuito, 14-12-1899, 1 150 m.

*guerkei* Briq.

789 Type of *Hyptis baumii* Gürke (B, holo. †; **COI**, **E**, **M**, **W**, **Z**, iso.). Onschingue, Kuito (near), 1-4-1900, 1 200 m.

## TINNEA Kotschy &amp; Peyr.

*benguellensis* Gürke

697 (B, holo. †; **BM**, **COI**, **E**, **K**, **M**, **W**, **Z**, iso.). Longa, Quiriri, 2-2-1900, 1 250 m.

*coerulea* Gürke var. *coerulea*

857 (B, holo. †; **BM**, **G**, **K**, **M**, **W**, **Z**, iso.). Manonge, Kuebe, 23-4-1900, 1 350 m.

*vestita* Baker

695 Type of *Timnea fusco-luteola* Gürke (B, holo. † **BM**, **COI**, **E**, **G**, **K**, **M**, **W**, **Z**, iso.). Longa, Quiriri, 2-2-1900, 1 250 m.

## LENTIBULARIACEAE

## UTRICULARIA L.

*spiralis* Sm.

307 Type of *Utricularia baumii* Kamienski (B, holo. †; \***BM**, \***BR**, **COI**, **G**, \***HBG**, **K**, \***M**, \***S**, **W**, **Z**, iso.). Kuebe (near), 23-10-1899, 1 170 m. Reference: Taylor (1973: 8).

*subulata* L.

691 Type of *Utricularia angolensis* Kamienski (B, holo. †; **K**, iso.). Longa, Quiriri, 2-2-1900, 1 250 m.

## LOBELIACEAE

## LOBELIA L.

*angolensis* Engl. & Diels ex Diels

43 Type of *Lobelia minutidentata* Engl. & Gilg (B, holo.; \***BM**, **COI**, **G**, \***K**, **M**, \***S**, **W**, **Z**, iso.). Chihinde, 2-9-1899, 1 270 m. Note: although the holotype has been reported as destroyed, e.g. Thulin (1984: 45), it has recently been found.

## MONOPSIS Salisb.

*zeyheri* (Sond.) Thulin

144 Type of *Lobelia fonticola* Engl. & Gilg (B, holo. †; **G**, lecto., designated by Thulin (1979: 135); \***BM**, **COI**, **K**, **M**, **S**, **W**, iso.). Chitanda (left bank), 24-9-1899. Reference: Thulin (1984: 49).

## LORANTHACEAE

## AGELANTHUS Tiegh.

*terminaliae* (Engl. & Gilg) Polhill & Wiens

519 Type of *Loranthus terminaliae* Engl. & Gilg (B, holo.; **K**, **Z**, iso.). Ungombekike-Kuito, 9-12-1899, 1 200 m. Reference: Gebauer (1993).

## PHRAGMANTHERA Tiegh.

*baumii* (Engl. & Gilg) Polhill & Wiens

217 Type of *Loranthus baumii* Engl. & Gilg (B, holo.; **COI**, **K**, **Z**, iso.). Kassinga-Kolove, 4-10-1899, 1 300 m. Reference: Gebauer (1993).

## LYTHRACEAE

## NESAEA Kunth

*baumii* Koehne

204 (B, holo. †; **COI**, lecto., designated by Fernandes & Fernandes (1970: 185); **K**, **M**, **W**, **Z**, iso.). Kakele, 3-10-1899, 1 250 m.

## MALPIGHIACEAE

## SPHEDAMNOCARPUS Planch. ex Benth. &amp; Hook.f.

*angolensis* (A.Juss.) Planch. ex Oliv.

588 Type of *Sphedamnocarpus pulcherrimus* Engl. & Gilg (B, holo. †; \***BM**, **BR**, \***COI**, **K**, **M**, **W**, **Z**, iso.). Longa, Napalanka, 28-12-1899, 1 150 m. Reference: Exell & Mendonça (1951b: 252).

## MALVACEAE

## PAVONIA Cav.

*senegalensis* (Cav.) Leistner

760 Type of *Hibiscus baumii* Gürke (B, holo. †; **BM**, **COI**, \***K**, **M**, **W**, **Z**, iso.). Kuito, Kutue-Sobi, 4-3-1900, 1 200 m. Reference: Exell & Mendonça (1937f: 157).

## MELIACEAE

## ENTANDROPHRAGMA C.DC.

*ekebergioides* (Harms) Sprague

88 Type of *Wulffhorstia ekebergioides* Harms (B, holo. †?; \*BM, COI, E, K, M, W, iso.). Humbe, 10-9-1899, 1 200 m. Reference: Exell & Mendonça (1951c: 309).

## MENISPERMACEAE

## TINOSPORA Miers

*caffra* (Miers) Troupin

540 Type of *Desmonema pallide-aurantiacum* Engl. & Gilg (B, holo.; \*BM, BR, COI, E, G, K, M, S, Z, iso.). Kuito, Onjimba, 13-12-1899, 1 150 m. Reference: Exell & Mendonça (1937g: 39).

## NYMPHAEACEAE

## NYMPHAEA L.

*sulphurea* Gilg

325 (B, syn.; Z, isosyn.). Kuebe (near), 26-10-1899, 1 150 m. Reference: Exell & Mendonça (1937h: 48).

657 (B, syn.; \*BM, \*COI, K, isosyn.). Longa (left bank), Minnesera, 17-1-1900, 1 250 m. Reference: Exell & Mendonça (1937h: 48).

## OCHNACEAE

## OCHNA L.

*arenaria* De Wild. & T.Durand

813 Type of *Ochna roseiflora* Engl. & Gilg (B, lecto., designated by Exell & Mendonça (1951d: 285)†; K, W, isolecto.). Chimpungu-Kulei, 11-4-1900, 1 350 m. Note: Exell & Mendonça (1951d: 285) cited the two syntype collections 813 and 813a, but referred to the B duplicate of no. 813 as type, which is thus the lectotype. However, this specimen was destroyed. Verdcourt (2005) cited Baum 813 (B) as holotype.

813a Type of *Ochna roseiflora* Engl. & Gilg (B, syn. †; BM, E, isosyn.). Quiriri, Sakkemecho, 11-4-1900, 1 200 m. Reference: Exell & Mendonça (1951d: 285).

*cinnabarina* Engl. & Gilg

550 (B, holo. †; E, W, Z, iso.). Kuito, Longa, 16-12-1899, 1 150 m. Reference: Exell & Mendonça (1951d: 292).

*pulchra* Hook.

114 ? Type of *Ochna antunesii* Engl. & Gilg (B, holo. †; COI, K, P, W, Z, iso.). Hartebeest-Lövenpan, 18-9-1899, 1 100 m. Note: although the description in Warburg (1903) is based on this collection, the name had been previously considered a synonym by Tieghem (see Exell & Mendonça 1951d: 291) and the type may be a specimen collected by Antunes.

145 Type of *Ochna brunnescens* Engl. & Gilg (B, holo. †; BM, COI, E, K, P, Z, iso.). Chitanda (left bank), 24-9-1899, 1 150 m. Note: the name had been previously considered a synonym by Tieghem (see Exell & Mendonça 1951d: 291).

*pygmaea* Hiern

172 Type of *Ochna hoepfneri* Engl. & Gilg (B, lecto., designated by Exell & Mendonça (1951d: 287)†; BM, BR, \*COI, K, M, P, W, iso.). Chitanda (right margin), 27-9-1899, 1 150 m. Note: Exell & Mendonça (1951d: 287) cite the two syntypes 172 and 220 but designate the B duplicate of the former as type (i.e. lectotype). This was apparently destroyed.

220 Type of *Ochna hoepfneri* Engl. & Gilg (B, syn. †; BM, COI, K, M, P, W, Z, isosyn.). Kuelleis (Maramba), 5-10-1899, 1 400 m. Reference: Exell & Mendonça (1951d: 287).

## SAUVAGESIA L.

*africana* (Baill.) Bamps

620 Type of *Vausagesia bellidifolia* Engl. & Gilg (B, holo. †; BM, COI, E, G, K, M, W, Z, iso.). Longa, Chijija, 4-1-1900, 1 200 m. Reference: Exell & Mendonça (1951d: 284).

## ONAGRACEAE

## LUDWIGIA L.

*senegalensis* (DC.) J.Troch.

97 Type of *Ludwigia pulvinaris* Gilg (B, holo. †; COI, lecto., designated by Fernandes & Fernandes (1970: 196); G, K, M, W, Z, iso.). Kunene (left bank), Humbe, 12-9-1899, 1 066 m.

## ORCHIDACEAE

## BRACHYCORYTHIS Lindl.

*angolensis* (Schltr.) Schltr.

326 Type of *Platanthera angolensis* Schltr. (B, holo. †; BM, \*COI, E, K, M, S, W, iso.).

Kuebe, 26-10-1899, 1 150 m. Reference: Summerhayes (1968: 21).

614 Type of *Brachycorythis oligophylla* Kraenzl. (B, holo. †; BM, W, iso.). Longa, Napalanka, 1-1-1900, 1 150 m.

*rhodostachys* (Schltr.) Summerh.

381 Type of *Platanthera rhodostachys* Schltr. (B, syn. †; \*BM, E, W, isosyn.). Kubango, Kueio, 4-11-1899, 1 120 m. Note: Summerhayes (1968: 18) cited the collection 381 at B as holotype. In fact, there were two syntypes, 381 and 629. The 381 duplicate cited as holotype was also reported as destroyed, therefore this is not considered a lectotypification.

629 Type of *Platanthera rhodostachys* Schltr. (B, syn. †; W, isosyn.). Longa, Chijija, 5-1-1900, 1 200 m.

## EULOPHIA R.Br. ex Lindl.

*adenoglossa* (Lindl.) Rchb.f.

505 Type of *Eulophia baumiana* Kraenzl. (B, holo. †?; K, W, iso.). Ungombekike, 5-12-1899, 1 200 m. Note: the holotype is cited by Cribb (1989: 455) as seen; however, it is not available in Aluka nor in the B website.

*arenicola* Schltr.

384 (B, holo. †; COI, E, K, M, W, iso.). Kubango, Kueio, 11-1899, 1 120 m.

*calantha* Schltr.

382 Type of *Eulophia calantha* Schltr. var. *kubangensis* Schltr. (B, holo. †). Kubango, Kueio, 4-11-1899, 1 120 m. Reference: Cribb (1989: 435).

631 (B, holo. †; BM, COI, E, \*G, \*K, M, S, W, iso.). Longa, Chijija, 5-1-1900, 1 200 m. Reference: Cribb (1989: 434).

*coeloglossa* Schltr.

367 (B, holo. †; BM, COI, E, \*G, K, M, S, W, iso.). Kubango, Kueio, 11-1899, 1 120 m. Reference: Cribb (1989: 435).

*corymbosa* Schltr.

377 (B, holo. †; E, K, M, S, W, iso.). Kubango, Kueio, 4-11-1899, 1 120 m.

*gonychila* Schltr.

261 (B, holo. †). Nambali, Kubango (near), 7-10-1899, 1 200 m. Reference: Cribb (1989: 471).

*malangana* (Rchb.f.) Summerh.

496 Type of *Eulophia warburgii* Schltr. (B, holo. †; COI, E, K, M, S, W, iso.). Habungu, 30-11-1899, 1 100 m. Reference: Cribb (1989: 434).

*rolfeana* Kraenzl.

369 (B, holo. †). Kubango (right bank), Kueio (mouth), 3-11-1899.

*tricristata* Schltr.

357 (B, holo. †; COI, K, M, S, W, iso.). Kubango, Kabindere, 30-11-1899, 1 130 m.

*trilamellata* De Wild.

341 Type of *Eulophia macra* Schltr., *nom. illeg.* (B, holo. †?; COI, K, M, S, W, \*Z, iso.). Kubango, Kabindere, 10-1899, 1 130 m. Note: the holotype is cited by Cribb (1989: 455) as seen; however, it is not available in Aluka nor in the B website.

## HABENARIA Willd.

*holothrix* Schltr.

578 (B, holo. †; BM, COI, K, M, \*S, W, Z, iso.). Longa, Napalanka, 12-1899, 1 150 m. Reference: Summerhayes (1968: 122).

*holubii* Rolfe

598 Type of *Habenaria rhopaloceras* Schltr. (B, holo. †; BM, \*COI, K, M, W, Z, iso.). Maschonge, Napalanka, 28-12-1899, 1 150 m. Reference: Summerhayes (1968: 110).

*huillensis* Rchb.f.

425 Type of *Habenaria kubangensis* Schltr. (B, holo. †; BM, M, S, W, Z, iso.). Kubango, Kavanga-Kalolo, 19-11-1899, 1 100 m.

*macroplectron* Schltr.

603 (B, holo. †; BM, K, M, S, W, Z, iso.). Longa, Napalanka, 1-1-1900, 1 150 m.



**HABENARIA** Willd. (cont.)**verdickii** (De Wild.) Schltr.

561 Type of *Habenaria monophylla* Schltr., *nom. illeg.* (B, holo. †; BM, K, M, S, W, Z, iso.). Jonkoa, 20-12-1899, 1 150 m.

**PHAIUS** Lour.**occidentalis** Schltr.

374 (B, holo. †). Kubango, Kueio, 3-11-1899, 1 120 m. Reference: Cribb (1984: 281).

**POLYSTACHYA** Hook.**dendrobiiflora** Rchb.f.

839 Type of *Polystachya holochila* Schltr. (B, holo. †; COI, G, K, M, S, W, iso.). Lazingua, 20-4-1900, 1 300 m. Reference: Cribb (1984: 286).

**SATYRIUM** Sw.**oliganthum** Schltr.

383 Type of *Satyrium paludosum* Rchb.f. var. *parvibracteatum* Schltr. (B, holo. †; K, W, iso.). Kubango, Kueio, 4-11-1899, 1 120 m.

**OROBANCHACEAE****BUCHNERA** L.**baumii** Engl. & Gilg

225 (B, holo. †; COI, G, K, M, W, Z, iso.). Kuelleis (Maramba), 5-10-1899, 1 400 m.

**prorepens** Engl. & Gilg

875 (B, holo. †; COI, G, K, M, W, iso.). Kulei-Kutsi, 29-4-1900, 1 300 m.

**strictissima** Engl. & Gilg

734 (B, holo. †; BM, COI, K, M, W, iso.). Kampuluve (at source), 25-2-1900, 1 210 m.

**CYCNIMUM** E.Mey. ex Benth. emend. Engl.**tubulosum** (L.f.) Engl. subsp. **tubulosum**

403 Type of *Cychnium hamatum* Engl. & Gilg (B, holo. †; BM, lecto., designated by Jansen (1978: 34); COI, HBG, K, W, iso.). Quatiri (mouth), 13-11-1899, 1 100 m.

**HARVEYA** Hook.**andongensis** Hiern

869 Type of *Harveya macrantha* Engl. & Gilg (B, holo. †; COI, E, K, M, W, iso.). Kulei, 26-4-1900, 1 300 m.

**SOPUBIA** Buch.-Ham. ex D.Don**mannii** Skan

475 Type of *Sopubia dregeana* Benth. var. *tenuifolia* Engl. & Gilg (B, holo. †; COI, E, G, K, M, W, iso.). Habungu, Maramba, 28-11-1899, 1 100 m.

**PASSIFLORACEAE****BASANANTHE** Peyr.**baumii** (Harms) W.J.de Wilde

391 Type of *Tryphostemma baumii* Harms (B, holo. †?; \*BM, \*COI, G, \*K, M, W, Z, iso.). Kubango (right bank), Kueio (right bank), 7-11-1899, 1 120 m.

**PEDALIACEAE****SESAMUM** L.**calycinum** Welw. subsp. **repens** (Engl. & Gilg) Seidenst.

660 Type of *Sesamum repens* Engl. & Gilg (B, holo. †; K, W, iso.). Longa (left bank), Lazingua, 20-1-1900, 1 250 m.

**POACEAE****ELYTROPHORUS** P.Beauv.**globularis** Hack.

112 Type of *Elytrophorus interruptus* Pilg. (B, holo. †?; BM, K, M, W, iso.). Kunene (left bank), Soba Gongo (near), 17-9-1899, 1 115 m.

**SPOROBOLUS** R.Br.**welwitschii** Rendle

511 Type of *Sporobolus baumianus* Pilg. (B, holo. †?; M, iso.). Ungombekike, 5-12-1899, 1 200 m.

**PODOSTEMACEAE****LEDERMANNIELLA** Engl.**warmingiana** (Gilg) C.Cusset

904 Type of *Sphaerostylax warmingiana* Gilg (B, holo. †; BM, COI, K, M, W, Z, iso.). Kubango, Menemprem, 11-5-1900, 1 300 m.

**POLYGALACEAE****POLYGALA** L.**arenicola** Gürke

301 (B, holo. †; BM, lecto., designated by Paiva (1998: 235); \*COI, E, K, M, W, Z, iso.). Kuebe, 23-10-1899, 1 170 m. Reference: Exell & Mendonça (1937i: 107).

**baumii** Gürke

815 (B, holo. †; BM, lecto., designated by Paiva (1998: 231); BR, \*COI, E, K, M, W, Z, iso.). Quiriri, Sakkemecho, 16-4-1900, 1 200 m. Reference: Exell & Mendonça (1937i: 106).

**kalaxariensis** Schinz

287 Type of *Polygala kubangensis* Gürke (B, holo. †; BM, \*COI, E, \*K, M, W, iso.). Kubango, Massaca, 19-10-1899, 1 150 m. References: Exell & Mendonça (1937i: 106); Paiva (1998: 234).

**nambalensis** Gürke

244 (B, holo. †; BM, iso.). Nambali (Maramba), 6-10-1899, 1 275 m. Reference: Exell & Mendonça (1937i: 99).

817 Type of *Polygala psammophila* Gürke, *nom. illeg.* (B, syn. † BM, \*COI, \*K, W, isosyn.). Quiriri, Sakkemecho, 16-4-1900, 1 200 m. Reference: Exell & Mendonça (1937i: 99).

871 Type of *Polygala psammophila* Gürke, *nom. illeg.* (B, lecto., designated by Exell & Mendonça (1937i: 99) †; BM, \*COI, K, M, W, iso.). Kulei-Kutsi, 29-4-1900, 1 300 m. Note: Exell & Mendonça (1937i) cited the two syntypes 817 and 871, but they indicated the B duplicate of the latter as type, making it a lectotype. This specimen was later destroyed.

**paludicola** Gürke

315a (B, syn. †). Kuebe, 23-10-1899, 1 170 m.

373 (B, lecto., designated by Exell & Mendonça (1937i:100)†; BM, lecto., designated by Paiva (1998: 209) without collection number; E, K, W, isolecto.). Kubango (right bank), Kueio (mouth), 3-11-1899, 1 120 m. Note: Exell & Mendonça (1937i: 100) cited the three syntype collections, 373, 373a and 315a, referring to the B duplicate of the first as type. However, this duplicate was later destroyed. Paiva (1998) indicated as lectotype the duplicate at BM of a Baum collection from R.Cubango but the number was omitted. It is assumed that it is no. 373, since the other two syntype collections are from other localities.

373a (B, syn. †; BM, \*COI, E, \*K, W, Z, isosyn.). Longa, Maschonge, 30-12-1899, 1 120 m. Reference: Exell & Mendonça (1937i: 100).

**rivularis** Gürke

595 (B, syn. †; \*BM, \*COI, K, W, Z, isosyn.). Maschonge, Napa-lanka, 28-12-1899, 1 150 m. Reference: Exell & Mendonça (1937i: 105).

911 (BM, lecto., designated by Paiva (1998: 224); \*COI, E, K, W, Z, iso.). Kubango, Kohi, 15-5-1900, 1 350 m. Note: Exell & Mendonça (1937i: 105) cited the two syntype collections 595 and 911, referring to the B duplicate of the latter as type. This specimen was later destroyed. The BM duplicate was later designated as lectotype by Paiva (1998).

**robusta** Gürke

704 Type of *Polygala robusta* Gürke var. *coerulea* Gürke (B, holo. †; BM, lecto., designated by Paiva (1998: 230); BM, BR, \*COI, E, K, M, W, Z, iso.). Longa, Quiriri, 3-2-1900, 1 275 m. Reference: Exell & Mendonça (1937i: 106). Note: this is the lectotype of *P. robusta*.

704a Type of *Polygala robusta* Gürke var. *rubra* Gürke (B, holo. †). Quiriri, Sakkemecho, 15-4-1900, 1 200 m. References: Exell & Mendonça (1937i: 106); Paiva (1998: 230).



## POLYGALA L. (cont.)

*schinziana* Chodat

554 Type of *Polygala benguelensis* Gürke (B, holo. †; BM, \*COI, \*K, W, Z, iso.). Jonkoa, 17-12-1899, 1 150 m. References: Exell & Mendonça (1937i: 104); Paiva (1998: 219).

## PRIMULACEAE

## ANAGALLIS L.

*filifolia* Engl. & Gilg

906 (B, holo. †; COI, E, M, S, W, Z, iso.). Kubango, Kohi, 14-5-1900, 1 350 m.

## PROTEACEAE

## FAUREA Harv.

*intermedia* Engl. & Gilg

912 (B, holo.; \*BR, COI, E, K, M, iso.). Kubango, Kohi, 15-5-1900, 1 350 m. Reference: Brummitt & Marner (1993: 7).

## PROTEA L.

*angolensis* Welw. var. *angolensis*

863 Type of *Protea chionantha* Engl. & Gilg var. *typica* Engl. & Gilg (B, holo. [of *P. chionantha*]; BM, COI, E, G, K, M, Z, iso.). Chimpungu-Kulei, 25-4-1900, 1 400 m.

*angolensis* Welw. var. *divaricata* (Engl. & Gilg) Beard

920 Type of *Protea chionantha* Engl. & Gilg var. *divaricata* Engl. & Gilg (B, holo.; BM, COI, E, G, K, M, Z, iso.). Kubango-Kassinga, 17-5-1900, 1 400 m.

*baumii* Engl. & Gilg subsp. *baumii*

375 (B, holo.; BM, E, G, M, Z, iso.). Kubango (right bank), Kueio (mouth), 3-11-1899, 1 100 m.

*gaguedi* J.F.Gmel.

272 Type of *Protea chrysolepis* Engl. & Gilg (B, holo.; BM, COI, E, G, M, Z, iso.). Kubango, Chirumbu, 14-10-1899, 1 200 m.

*lemairei* De Wild. subsp. *trichophylla* (Engl. & Gilg) Beard

918 Type of *Protea trichophylla* Engl. & Gilg (B, holo.; BM, COI, E, G, K, M, Z, iso.). Kubango-Kassinga, 17-5-1900, 1 400 m.

*poggei* Engl. subsp. *haemantha* Chisumpa & Brummitt

709 Type of *Protea haemantha* Engl. & Gilg (B, holo.; BM, COI, E, G, K, M, Z, iso.). Longa, Quiriri, 6-2-1900, 1 275 m.

*welwitschii* Engl.

653 Type of *Protea melliodora* Engl. & Gilg (B, holo.; BM, COI, E, G, M, Z, iso.). Longa, Minnesera, 11-1-1900, 1 250 m.

903 Type of *Protea myrsinifolia* Engl. & Gilg (B, holo.; COI, G, K, M, S, Z, iso.). Kubango, Menemprem, 8-5-1900, 1 450 m.

## RUBIACEAE

## CALANDA K.Schum.

*rubricaulis* K.Schum. var. *rubricaulis*

899 (B, holo. †; BR, COI, K, M, W, Z, iso.). Menemprem, Kubango (near), 14-5-1900, 1 450 m.

## FADOGIA Schweinf.

*chlorantha* K.Schum. var. *chlorantha*

482 (B, holo. †; E, W, Z, iso.). Habungu, 28-11-1899, 1 100 m.

*chlorantha* K.Schum. var. *thamnus* (K.Schum.) Verdc.

491 Type of *Fadogia thamnus* K.Schum. (B, holo. †; BM, E, K, M, S, W, Z, iso.). Habungu, 22-11-1899, 1 100 m.

*chrysantha* K.Schum.

210 (B, holo.; BM, M, S, W, Z, iso.). Kassinga, 4-10-1899, 1 290 m.

## GARDENIA Ellis

*brachythamnus* (K.Schum.) Launert

389 Type of *Randia brachythamnus* K.Schum. (B, holo. †; BM, COI, M, W, Z, iso.). Kubango (right bank), Kueio, 5-11-1899, 1 100 m.

## LEPTACTINA Hook.f.

*pretrophylax* K.Schum.

137 (B, holo. †; BM, E, G, W, Z, iso.). Chitanda (left bank), 23-9-1899, 1 105 m.

*prostrata* K.Schum.

713 (B, holo. †; E, G, W, iso.). Quiriri, Sakkemecho, 13-2-1900, 1 300 m.

## NEOPENTANISIA Verdc.

*annua* (K.Schum.) Verdc.

659 Type of *Pentania annua* K.Schum. (B, holo. †; BM, K, M, W, Z, iso.). Longa (left bank), Lazingua, 20-1-1900, 1 250 m.

## PAVETTA L.

*arenicola* K.Schum.

522 (B, holo. †; E, W, iso.). Ungombekike-Kuito, 10-12-1899, 1 200 m.

*paupercula* K.Schum.

805 (B, holo. †; BM, E, K, W, Z, iso.). Quiriri, Sakkemecho, 9-4-1900, 1 200 m.

*stipulopallium* K.Schum.

948 (B, holo.; BM, E, K, M, W, Z, iso.). Chitanda (left bank), 28-5-1900, 1 150 m.

## RYTIGYNIA Blume

*orbicularis* (K.Schum.) Robyns

581 Type of *Plectronia orbicularis* K.Schum. (B, holo.; BM, E, K, M, W, Z, iso.). Longa, Napalanka, 25-12-1899, 1 150 m.

## VANGUERIA Juss.

*proschii* Briq.

446 Type of *Vangueria lasiocladus* K.Schum. (B, holo.; COI, E, K, M, W, Z, iso.). Kubango (left bank), Kalolo, 20-11-1899.

## SANTALACEAE

## THESIUM L.

*leucanthum* Gilg

218 (B, holo. †?; COI, E, K, W, iso.). Kassinga-Kolove, 4-10-1899, 1 300 m.

*lycopodioides* Gilg

879 (B, holo. †?; E, K, W, iso.). Kulei-Kutsi, 29-4-1900, 1 300 m.

## SCROPHULARIACEAE

## BAUMIA Engl. &amp; Gilg

*angolensis* Engl. & Gilg

785 (B, holo. †?; S, iso.). Onschingue, Kuito (near), 29-3-1900, 1 200 m.

## DOPATRIUM Benth.

*stachytarphetoides* Engl. & Gilg

923 (B, holo. †?; COI, E, M, S, W, iso.). Kubango-Kassinga, 17-5-1900, 1 400 m.

## LIMNOPHILA R.Br.

*ceratophylloides* (Hiern) Skan

750 Type of *Ambulia baumii* Engl. & Gilg (B, holo. †?; COI, K, M, S, W, Z, iso.). Kutue, 2-3-1900, 1 200 m.

*dasyantha* (Engl. & Gilg) Skan

729 Type of *Ambulia dasyantha* Engl. & Gilg (B, holo. †?; COI, K, M, S, W, iso.). Quiriri, Sobi, 2-1900, 1 285 m.

## SIMAROUBACEAE

## KIRKIA Oliv.

*acuminata* Oliv.

966 p.p. quoad fructus, Type of *Kirkia glauca* Engl. & Gilg (B, holo. †?). Makopi-Gambos, 8-6-1900, 1 200 m. Reference: Exell & Mendonça (1951e: 276).



## QUASSIA L.

**undulata** (Guill. & Perr.) D.Dietr.

674 Type of *Hannoa chlorantha* Engl. & Gilg (B, holo. †; \*BM, COI, K, M, S, W, iso.). Longa, Lazingua, 23-1-1900, 1 250 m. References: Exell & Mendonça (1951e: 278); Stannard (2000: 11).

## STERCULIACEAE

## HERMANNIA L.

**eonii** Baker f.

514 Type of *Hermannia angolensis* K.Schum. (B, holo. †; \*BM, COI, E, G, K, M, W, Z, iso.). Ungombekike-Kuito, 9-12-1899, 1 200 m. Reference: Exell & Mendonça (1951f: 195).

## STRYCHNACEAE

## STRYCHNOS L.

**cocculoides** Baker

290 Type of *Strychnos schumanniana* Gilg (B, holo. †; BM, E, K, W, Z, iso.). Kubango, Massaca, 19-10-1899, 1 150 m.

## THYMELAEACEAE

## GNIDIA L.

**baumiana** Gilg

211 (B, holo. †; COI, M, W, iso.). Chitanda, Kassinga, 4-10-1899, 1 290 m.

**pleurocephala** Gilg

828 (B, holo. †; W, iso.). Longa, 18-4-1900, 1 275 m.

## TILIACEAE

## GREWIA L.

**avellana** Hiern

289 Type of *Grewia perennans* K.Schum. (B, holo. †; G, iso.). Kubango, Massaca, 19-10-1899, 1 150 m. Reference: Exell & Mendonça (1951g: 218).

535 Type of *Grewia hydrophila* K.Schum. (B, holo. †; \*BM, COI, E, G, \*K, M, Z, iso.). Kuito (near), 12-12-1899. Reference: Exell & Mendonça (1951g: 218).

**falcistipula** K.Schum.

353 (B, holo. †; COI, E, G, K, M, S, W, Z, iso.). Kubango (right bank), Kueio, 1-11-1899, 1 300 m. Reference: Exell & Mendonça (1951g: 216).

**schinzii** K.Schum.

420 Type of *Grewia pinacostigma* K.Schum. (B, holo. †; BM, E, G, W, iso.). Kubango (left bank), Kavanga, 18-11-1899, 1 100 m. Reference: Exell & Mendonça (1951g: 217).

**suffruticosa** K.Schum.

189 Type of *Grewia brevicaulis* K.Schum. (B, holo. †; \*BM, COI, E, G, \*K, M, S, Z, iso.). Goudkopje-Kakele, 3-10-1899, 1 210 m. Reference: Exell & Mendonça (1951g: 224).

## VERBENACEAE

## LIPPIA L.

**baumii** Gürke var. **baumii**

515 (B, holo. †; \*BM, COI, G, K, M, W, iso.). Ungombekike-Kuito, 9-12-1899, 1 200 m. Reference: Verdcourt (1992: 32).

## VITACEAE

## AMPELOCISSUS Planch.

**brunneo-rubra** Gilg

509 (B, holo. †; \*BM, COI, G, K, W, iso.). Ungombekike, 5-12-1899, 1 200 m. Reference: Exell & Mendonça (1954c: 38).

## CISSUS L.

**jatrophioides** (Welw. ex Baker) Planch.

278 Type of *Cissus chlorantha* Gilg (B, holo. †; G, W, iso.). Kubango, Chirumbu, 14-10-1899, 1 200 m.

## CYPHSTEMMA (Planch) Alston

**choloroleucum** (Welw. ex Baker) Desc. ex Wild & R.B.Drumm.

361 Type of *Cissus hypargyrea* Gilg (B, holo. †; \*BM, COI, G, \*K, W, iso.). Kubango (left bank), Kabindere, 2-11-1899, 1 150 m. Reference: Exell & Mendonça (1954c: 60).

**fugosioides** (Gilg) Desc. ex Wild & R.B.Drumm.

174 (B, holo. †; \*BM, COI, G, \*K, M, W, iso.). Chitanda (right margin), 27-9-1899, 1 150 m. Reference: Exell & Mendonça (1954c: 58).

**violaceo-glandulosum** (Gilg) Desc.

270 (B, lecto., designated by Exell & Mendonça (1954c: 56)†; \*BM, COI, G, \*K, M, S, isolecto.). Kubango, Chirumbu, 11-10-1899, 1 200 m. Note: Exell & Mendonça (1954c) cited the two syntypes but only 270 is referred to as 'type'. This is considered a lectotypification.

276a (B, syn. †). Kubango, Chirumbu, 10-1899, 1 200 m. Reference: Exell & Mendonça (1954c: 56).

## XYRIDACEAE

## XYRIS L.

**congensis** Büttner

333 Type of *Xyris baumii* L.A.Nilsson (B, holo.; BM, BR, K, M, iso.). Kuebe and Kubango (confl.), 28-10-1899, 1 150 m.

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 857 *Tinnea coerulea* Gürke var. *coerulea*  
 858 *Ottelia ulvifolia* (Planch.) Walp.  
 863 *Protea angolensis* Welw. var. *angolensis*  
 866 *Aeollanthus engleri* Briq.  
 869 *Harveya andongensis* Hiern  
 871 *Polygala nambalensis* Gürke  
 872 *Adenodolichos rhomboideus* (O.Hoffm.) Harms var. *rhomboideus*  
 875 *Buchnera prorepens* Engl. & Gilg  
 877 *Anisopappus chinensis* Hook. & Arn. subsp. *chinensis* var. *chinensis*  
 879 *Thesium lycopodioides* Gilg  
 881 *Gladiolus pallidus* Baker  
 883 *Bidens baumii* (O.Hoffm.) Sherff  
 888 *Monotes dasyanthus* Gilg  
 891 *Aloe metallica* Engl. & Gilg  
 892 *Ozoroa argyochrysea* (Engl. & Gilg) R.Fern. & A.Fern.  
 894 *Cephalaria retrosetosa* Engl. & Gilg  
 898 *Gladiolus pallidus* Baker  
 899 *Calanda rubricaulis* K.Schum. var. *rubricaulis*  
 903 *Protea welwitschii* Engl.  
 904 *Ledermannia warmingiana* (Gilg) C.Cusset  
 906 *Anagallis filifolia* Engl. & Gilg  
 907 *Emilia limosa* (O.Hoffm.) C.Jeffrey  
 909 *Hypericum lalandii* Choisy  
 910 *Benguellia lanceolata* (Gürke) G.Taylor  
 911 *Polygala rivularis* Gürke  
 912 *Faurea intermedia* Engl. & Gilg  
 915 *Floscopa flavida* C.B.Clarke  
 918 *Protea lemairei* De Wild. subsp. *trichophylla* (Engl. & Gilg) Beard  
 920 *Protea angolensis* Welw. var. *divaricata* (Engl. & Gilg) Beard  
 923 *Dopatrium stachytarphetoides* Engl. & Gilg  
 926 *Dicoma antunesii* O.Hoffm.  
 929, 929a *Vernonia temnolepis* O.Hoffm.  
 933 *Dicoma anomala* Sond. subsp. *anomala*  
 938 *Kalanchoe brachyloba* Welw. ex Britten  
 941 *Ozoroa argyochrysea* (Engl. & Gilg) R.Fern. & A.Fern.  
 942 *Duosperma sessilifolium* (Lindau) Brummitt  
 945 *Diospyros kirkii* Hiern  
 947 *Combretum molle* R.Br. ex G.Don  
 948 *Pavetta stipulopallium* K.Schum.  
 962 *Ottelia kunenensis* (Gürke) Dandy  
 963 *Commelina subulata* Roth  
 966 p.p. *quoad fructus* *Kirkia acuminata* Oliv.  
 981 *Combretum collinum* Fresen.  
 982 *Combretum aureonitens* Engl. & Gilg  
 983, 986 *Combretum collinum* Fresen.  
 999 *Boscia welwitschii* Gilg  
 1005a *Rhynchosia luteola* (Hiern) K.Schum.

APPENDIX 1.—Main geographical names cited in Warburg (1903) as collecting localities or shown on his map [included in book], with corresponding actual name and geographical co-ordinates

Original name in Warburg (1903)	Portuguese names on maps consulted	S	E	Source*	Notes
Alixandre	Fazenda do Alexandre; Alexandre	15.52 (15.48)	12.09 (12.06)	[4] Sheet no. 3; [5] Sheet no. 1	
Andara	Andara	18.03	21.25	[2]	
Bindi	Lagoa Bindi	17.05	18.40	[2]	
Buraco	Buraco	15.35 (15.37)	12.12 (12.11)	[2]; [5] Sheet no. 1	
Cabindere	Cavindera; Cabindele	15.50 (15.52)	17.36 (17.35)	[2]; [3] Sheet no. 385	
Cacimba	Cacimba	15.32	12.02	[5] Sheet no. 1	
Camelungu	Lagoa Camelungu	16.58	18.44	[2]	
Canongofepfanne	Lagoa Canangossi	16.01	15.24	[5] Sheet no. 2	This lake has apparently disappeared as it is not shown on recent maps examined. Baum's itinerary follows paths marked on map [5].
Carvalho	Lagoa do Carvalho	15.45	12.06	[3] Sheet no. 374	
Chibia	Chibia; Vila João de Almeida	15.11	13.42	[3] Sheet no. 356; [2]; [5]	
Chihinde	Chindinde	16.32	14.05	[3] Sheet no. 421	

\* Publications and maps consulted:

- [1] Warburg, O. 1903. *Kunene-Sambesi-Expedition*. H. Baum. Kolonial-Wirtschaftliches Komitee, Berlin.  
 [2] Carta da Colónia de Angola (Esboço), Ministério das Colónias, Junta das Missões Geográficas e de investigações Coloniais. 1935. Esc. 1: 1.500.000.  
 [3] Carta de Angola, Ministério do Ultramar, Junta das Missões Geográficas e de investigações Coloniais. Esc. 1: 100.000.  
 [4] Carta da Colónia de Angola, Ministério das Colónias, Junta das Missões Geográficas e de investigações Coloniais. 1947. Esc. 1: 2.000.000.  
 [5] Carta do Sul de Angola, Ministério das Colónias, Comissão de Cartografia. 1929–1932. Esc. 1: 500.000.  
 [6] Carta dos Districtos de Benguela e Mossamedes, Província de Angola, Comissão de Cartografia. 1895. Esc. 1: 1.000.000.  
 [7] Carta de Angola, Junta de Investigações do Ultramar. 1973. Esc. 1: 2 000 000.  
 [8] Angola Gazetteer. USGS.



APPENDIX 1.—Main geographical names cited in Warburg (1903) as collecting localities or shown on map included in book, with corresponding actual name and geographical co-ordinates (cont.)

Original name in Warburg (1903)	Portuguese names on maps consulted	S	E	Source*	Notes
Chijija (Chȳya on map)	Chicungo	15.47	18.38	[3] Sheet no. 387	Location in [1] coincides with Chicungo.
Chitanda	R. Chitanda; R. Calonga			[2]; [3]	As Chitanda R. in [2] and Calonga R. in [3].
Cicalele-Calilile	Calalele	15.08	20.18	[2]	
Ediva	Ediva	16.20	14.15	[3] Sheet no. 399; [5] Sheet no. 2; [2]	
Fort Tschimbemba	Chibemba; Chivemba	15.45	14.05	[3] Sheet no. 378; [2]; [5] Sheet no. 2; [4] Sheet no. 3	
Goudkopje		15.19	15.55	[3] Sheet no. 360	Exact location may be near these co-ordinates.
Habungu				[7]	Appears to be Chissombo R.
Hadjon Longa (3 dots N on map)		16.06	19.07	[3] Sheet no. 409	There is no indication of settlement in this location. Co-ordinates given here represent a medium location between Palai R. (Palé) and Cuma R. (Mocuma).
Hadjon Longa (3 dots S on map)		16.15	19.07	[3] Sheet no. 409	Co-ordinates given here represent a medium location between Cuma R. (Mocuma) and Cacito R. (Cafito), on left bank of Cuito R.
Hai	Hae; Haii	15.27	13.50	[5] Sheet no. 2; [3] Sheet no. 356; [2]	
Hartebeestpfanne		16.04	15.27	[5] Sheet no. 2; [3] Sheet no. 401	These may be three lakes that have been mapped with the name Etalas Camunhandi. Co-ordinates are those given on map [5].
Humbe	Humbe	16.41	14.54	[3] Sheet no. 422; [4] Sheet no. 3; [2]; [5]	
Jai	Jai	14.42	17.38	[3] Sheet no. 344	
Kafa	Cafu; Cáfú	16.27	15.07	[3] Sheet no. 401; [5] Sheet no. 2; [4] Sheet no. 3; [2]	Co-ordinates correspond to a location on left bank and not to place named Cafu (Cáfú) on map.
Kahama	Cahama	15.17	14.18	[3] Sheet no. 399; [2]; [5] Sheet no. 2; [4] Sheet no. 3	
Kakele	Calima	15.14	16.02	[3] Sheet no. 361	
Kakulovar	R. Caculuvar			[7]	
Kalolo	Calola	17.08	18.14	[3] Sheet no. 452	
Kamba	Pecuária da Camba; Embala da Camba; Camba	16.16	15.15	[3] Sheet no. 401; [5] Sheet no. 2; [2]; [4] Sheet no. 3	
Kampuluve	R. Cumpulua			[7]	
Kanjundu	Caiundo	15.42	17.27	[3] Sheet no. 384; [5] Sheet no. 2; [2]; [4] Sheet no. 3; [6]	
Kapengombe	Capangombe	15.07 (15.06)	13.07 (13.08)	[5] Sheet no. 1; [2]; [3] Sheet no. 355	
Kassinga	Cassinga	15.07	16.05	[3] Sheet no. 361; [2]; [5] Sheet no. 2; [4] Sheet no. 3	
Katholische Mission (Kassinga)	Missão Católica de Cassinga	15.06	16.05	[6] Sheet no. 3	On this map, the mission appears mapped south of Cassinga, not north as it appears on [1].
Katumba	Catomba	15.20	13.37	[3] Sheet no. 356	
Kavumba		15.31	19.15	[3] Sheet no. 367	No village could be located. Co-ordinates correspond to a location near source of Chiova R. (Vijowa).
Kawanga	Cabanga	17.04	18.10	[2]	
Kingu	Quengue?	16.36	15.07	[6] Sheet no. 3	

\* Publications and maps consulted:

[1] Warburg, O. 1903. *Kunene-Sambesi-Expedition*. H. Baum. Kolonial-Wirtschaftliches Komitee, Berlin.

[2] Carta da Colónia de Angola (Esboço), Ministério das Colónias, Junta das Missões Geográficas e de investigações Coloniais. 1935. Esc. 1: 1.500.000.

[3] Carta de Angola, Ministério do Ultramar, Junta das Missões Geográficas e de investigações Coloniais. Esc. 1: 100.000.

[4] Carta da Colónia de Angola, Ministério das Colónias, Junta das Missões Geográficas e de investigações Coloniais. 1947. Esc. 1: 2.000.000.

[5] Carta do Sul de Angola, Ministério das Colónias, Comissão de Cartografia. 1929–1932. Esc. 1: 500.000.

[6] Carta dos Districtos de Benguela e Mossamedes, Província de Angola, Comissão de Cartografia. 1895. Esc. 1: 1.000.000.

[7] Carta de Angola, Junta de Investigações do Ultramar. 1973. Esc. 1: 2 000 000.

[8] Angola Gazetteer. USGS.

APPENDIX 1.—Main geographical names cited in Warburg (1903) as collecting localities or shown on map included in book, with corresponding actual name and geographical co-ordinates (cont.)

Original name in Warburg (1903)	Portuguese names on maps resources	S	E	Source*	Notes
Kiteve	Quiteve; Chiteve	16.01	15.11	[3] Sheet no. 401; [2]; [5] Sheet no. 2; [4] Sheet no. 3	
Kohi	Vila da Ponte; Vila Artur de Paiva	14.28	16.18	[3] Sheet no. 321; [2]; [5] Sheet no. 2; [4] Sheet no. 3	As Vila da Ponte on [2] and Vila Artur de Paiva on [3] Sheet no. 321.
Konjongo	Caiongo	15.33	19.50	[2]	
Kubango	R. Cubango			[7]	
Kuebe	R. Cuebe			[7]	
Kueio	R. Cueio			[7]	
Kuelleis	R. Colui?			[7]	
Kuimara		17.36	18.37	[3] Sheet no. 463; [2]; [5] Sheet no. 2; [4] Sheet no. 3	This name could not be found but it appears to correspond to Cuangar, since Habungu R. [1] appears to be Bungo R. or Puca R. [2] and Chis-sombo [7].
Kuito	R. Cuito			[7]	
Kulei	R. Cuelei			[7]	
Kunene	R. Cunene			[7]	
Kusisi	R. Cuzizi			[7]	
Kutsi	R. Cuchi			[7]	
Lazingua	R. Luassingua			[7]	
Lihurna ("Destroyed by Kuangaris")		15.12	19.23	[3] Sheet no. 367	Co-ordinates are for Sampuloto, which corresponds to the point given on [1].
Likise (Agent C.D.M.)		15.29	19.38	[3] Sheet no. 368	Co-ordinates refer to an unnamed native village which is located in same place as this name on [1].
Lupembe	Lupembe	16.39	14.52	[5] Sheet no. 2	
Makopi	Macope	15.54	14.09	[6] Sheet no. 3	
Makuju	Macujo; Lagoa Maconguele	16.26 (16.57)	18.47 (18.50)	[2]; [3] Sheet no. 430	Even though the latitude of this lake is different from that on [1], there are no other lakes mapped in the area.
Manonge	Serpa Pinto; Menongue	14.39	17.41	[3] Sheet no. 344; [2]; [4] Sheet no. 3	
Manonge 1		14.42	17.39	[3] Sheet no. 344	Near Tucuve R. On [3] Sheet no. 344 corresponds to Muanangombe.
Maschonge	R. Massongue			[7]	
Massaca	Massaca	15.35	17.24	[4] Sheet no. 3; [2]	
Matonga	Matonga; Malonga	15.30	20.17	[2]; [4] Sheet no. 6	This locality is east of Ngombé R., whereas on [1] it appears west of that river (Ongombe R.). Taking into account the tracks mapped on [2] which Baum most probably followed, we suppose this is the same Matonga.
Matukua	Mutucua	16.28	14.35	[5] Sheet no. 2	
Menempremp		14.42	16.36	[3] Sheet no. 342	There is a Mema Grande R., south of Vulumba R., that is also a tributary of Cubango R. Co-ordinates given here are those of the confluence of Mema Grande-Cubango Rivers.
Meschekke	Área de Muchequecheque	15.36	13.47	[3] Sheet no. 377	Co-ordinates of Tomba village, which is located in Muchequecheque area.
Minjanja (Norte)		15.35	19.41	[3] Sheet no. 389	Location of an unnamed village, based on the point mapped on [1].

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[1] Warburg, O. 1903. *Kunene-Sambesi-Expedition*. H. Baum. Kolonial-Wirtschaftliches Komitee, Berlin.

[2] Carta da Colónia de Angola (Esboço), Ministério das Colónias, Junta das Missões Geográficas e de investigações Coloniais. 1935. Esc. 1: 1.500.000.

[3] Carta de Angola, Ministério do Ultramar, Junta das Missões Geográficas e de investigações Coloniais. Esc. 1: 100.000.

[4] Carta da Colónia de Angola, Ministério das Colónias, Junta das Missões Geográficas e de investigações Coloniais. 1947. Esc. 1: 2.000.000.

[5] Carta do Sul de Angola, Ministério das Colónias, Comissão de Cartografia. 1929–1932. Esc. 1: 500.000.

[6] Carta dos Districtos de Benguela e Mossamedes, Província de Angola, Comissão de Cartografia. 1895. Esc. 1: 1.000.000.

[7] Carta de Angola, Junta de Investigações do Ultramar. 1973. Esc. 1: 2 000 000.

[8] Angola Gazetteer. USGS.



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Minjanja (Sul)		15.37	19.44	[3] Sheet no. 389	Location of the Mucoboto village, based on the point mapped on [1].
Minnesera				[7]	Not listed in sources searched, it is situated at confluence of Longa and Cuiriri Rivers [1].
Mitjelaga	Michelaga	15.14	20.18	[2]	
Mossamedes	Moçâmedes; Mossamedes; Mossâmedes	15.12	12.09	[3] Sheet no. 353; [2]; [5]; [4] Sheet no. 3	
Mukuma	Mucuma	15.00	13.34	[3] Sheet no. 356; [2]; [5]	
Mundongo	Indungo	14.49	16.16	[3] Sheet no. 341; [2]; [4] Sheet no. 3; [5] Sheet no. 2	
Nambali	R. Bale			[7]	
Napalanka		16.15	18.52	[3] Sheet no. 408	There is no village with this name. Co-ordinates refer to an approximate location considering the course of the rivers mapped on [1].
Nevis	Neves	15.07	12.54	[5] Sheet no. 1; [2]	
Ondongi-Liwingi	Ondongi	15.23	20.17	[2]	
Onjimba		16.36	19.05	[3] Sheet no. 431	Taking into account the course of the rivers on [1], these co-ordinates correspond to approximate location of an unnamed village.
Onschingue					Tributary of Cuito R., south of Campulua [1].
Otjenjau	Otchinjau	16.30	13.55	[3] Sheet no. 420; [2]; [5] Sheet no. 2; [4] Sheet no. 3	
Otjicutsie	Chicusse; Tchicusse	16.22	14.27	[3] Sheet no. 399; [2]; [5] Sheet no. 2; [4] Sheet no. 3	
Palmfontein	Oncôcua; Ongogoa; Fonte das Palmeiras; Uncocua	16.39	13.25	[3] Sheet no. 419; [2]; [5]; [4] Sheet no. 3	
Petri Grande	Pedra Grande	15.00	12.36	[5] Sheet no. 1; [2]	
Pokolo	Pocolo	16.24	15.14	[3] Sheet no. 401; [5] Sheet no. 2	
Port Alexandre	Porto Alexandre	15.48	11.51	[3] Sheet no. 373; [2]; [5]	
Quatiri	R. Cuatir			[7]	
Quiriri	R. Cuiriri			[7]	
Sakkemecho		14.42	18.39	[3] Sheet no. 346	Co-ordinates are for Masseca, in the Micango area. This is based on the actual track [2] which Baum may have followed.
Sambento do Sul	São Bento do Sul	15.48 (15.49)	12.06 (12.06)	[2]; [5] Sheet no. 1	
Subida	Subida	15.22	12.08	[5] Sheet no. 1	
Tjimbanda	Chimbanda	14.59	20.18	[2]	
Tjipelongo	Tchipelongo; Chipelongo	16.29	14.37	[3] Sheet no. 400; [4] Sheet no. 3; [2]; [5] Sheet no. 2	
Tondiva	Tuandiva	16.33	14.44	[3] Sheet no. 422; [5] Sheet no. 2	
Tschiculecandi	Lagoa Chiculecondi	16.53	18.46	[2]	
Umpupe	Ompupa; Umpupa	16.16	13.29	[3] Sheet no. 397; [2]; [5]	
Wolombo		14.39	16.31	[3] Sheet no. 342	Co-ordinates refer to confluence of Vulumba and Cubango Rivers.

\* Publications and maps consulted:

[1] Warburg, O. 1903. *Kunene-Sambesi-Expedition*. H. Baum. Kolonial-Wirtschaftliches Komitee, Berlin.

[2] Carta da Colónia de Angola (Esboço), Ministério das Colónias, Junta das Missões Geográficas e de investigações Coloniais. 1935. Esc. 1: 1.500.000.

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[5] Carta do Sul de Angola, Ministério das Colónias, Comissão de Cartografia. 1929–1932. Esc. 1: 500.000.

[6] Carta dos Districtos de Benguela e Mossamedes, Província de Angola, Comissão de Cartografia. 1895. Esc. 1: 1.000.000.

[7] Carta de Angola, Junta de Investigações do Ultramar. 1973. Esc. 1: 2 000 000.

[8] Angola Gazetteer. USGS.