Chapter 5
The Flora of Angola: Collectors, Richness and Endemism

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Abstract Angola is botanically rich and floristically diverse, but is still very unevenly explored with very few collections from the eastern half of the country. We present an overview of historical and current botanical activity in Angola, and point to some areas of future research. Approximately 6850 species are native to Angola and the level of endemism is around 14.8%. An additional 230 naturalised species have been recorded, four of which are regarded as highly invasive. We draw attention to the paucity of IUCN Red List assessments of extinction risk for Angolan vascular plants and note that the endemic aquatic genus *Angolaea* (Podostemaceae), not currently assessed, is at high risk of extinction as a result of dams built on the Cuanza river for hydro-electric power generation. Recent initiatives to document areas of high conservation concern have added many new country and provincial records and are starting to fill geographic gaps in collections coverage.

Keywords Botanical collectors · Botanical diversity · Botanical history · Gossweiler · Invasive species · Welwitsch

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History of Botanical Exploration in Angola

It appears that the earliest extant botanical collections from Angola date from either 1669 (Exell 1939; Martins 1994) or more probably 1696 (Dandy 1958; Exell 1962; Mendonça 1962; Figueiredo et al. 2008), and were made by Mason in the Luanda region, and by John Kirckwood in Cabinda. These reached Hans Sloane whose plant and insect collections formed the core of the British Museum (now the Natural History Museum), London, via James Petiver who encouraged surgeons on English ships to send him natural history collections from their overseas travels. Other Pre-Linnean collections from Angola in the Sloane Herbarium were made by Gladman and William Browne (Fig. 5.1). The earliest known Portuguese collector was the naturalist Joaquim José da Silva, who collected along the Angolan coast and the western escarpment between 1783 and 1804. This material was taken from Lisbon to Paris, where it now resides, in 1808 during the Napoleonic Peninsula War (Mendonça 1962; Figueiredo et al. 2008).

Mendonça (1962) presents a historical account of plant collectors in Angola, giving helpful insights to the itineraries of a number of early expeditions. A more complete list of collectors is given by Figueiredo et al. (2008), which volume also includes a useful listing of references relevant to the study of the flora of Angola.

Fig. 5.1 One of the earliest herbarium specimens collected in Angola, in 1706 or 1707, by W Browne and now housed in the Sloane Herbarium at the Natural History Museum in London. The New World starch crop – cassava *Manihot esculenta* (Euphorbiaceae)

Most eighteenth and early nineteenth century explorers visited only coastal regions of Angola, but by the 1850s, botanists and explorers were starting to document plants from more elevated parts of the interior. Friedrich Welwitsch, who spent 6 years in Angola, amassed over 8000 collections of plants representing around 5000 species, of which around 1000 were new to science (Albuquerque 2008; Albuquerque et al. 2009; Albuquerque and Figueirôa 2018). He spent his first year in Angola in the coastal zone between the mouth of the Rio Sembo ('Quizembo') just north of Ambriz, and the mouth of the Cuanza. In September 1854 he embarked on a three-year excursion, initially following the Bengo River and reaching Golungo Alto (Cuanza-Norte). He based himself eventually at Sange from where he made excursions to Ndalatando ('Cazengo') and the banks of the Luinha. In October 1856 he arrived at Pungo Andongo (Malange) where he was based for the next eight months, making collections from Pedras Negras, Pedras de Guinga and localities along the Cuanza River – the furthest point he reached upstream was Quissonde, south of Malange. After an extended period back in Luanda, he headed south via Benguela to Namibe ('Little Fish Bay') in June 1859, gradually extending his journeys along the coast to Cabo Negro, the port of Pinda (probably Tômbua) and Baía dos Tigres. In October 1859 he headed inland from Namibe, following the Rio Giraul ('Maiombo river') to Bumbo on the slopes of the Serra da Chela. He was based at Lopollo on the Huíla plateau until 1860. In 1866, José Anchieta moved to Angola and was based at Caconda on the Huíla plateau. And by the 1880s, missionaries such as José Maria Antunes and Eugène Dekindt, and collectors such as Francisco Newton and Henry Johnston were also making significant collections from this region.

Three nineteenth century German expeditions to the Congo travelled through Angola – Pechuël-Lösche's 1873 Loango Expedition with Paul Güssfeldt and Hermann Soyaux started from Cabinda; Pogge, Buchner and Wissmann's Cassai Expedition made collections from Malange and the Lundas (Mona Quimbundo, Saurimo, Cuango River) in 1876; while Teucsz and Mechow's Cuango Expedition made collections from Dondo (Cuanza-Norte), Pungo Andongo and Malange (Malange), and the Cuango river (Uíge) in 1879–1881. A fourth German expedition, the Kunene-Sambesi Expedition, left Namibe on 11 August 1899 and travelled east, through present-day Cunene and Cuando Cubango provinces, reaching the Cuando River in March 1900 before returning to Namibe in June of that year. Over 1000 collections were made on this expedition by the botanist Hugo Baum (Warburg 1903; Figueiredo et al. 2009b).

The first half of the twentieth century was dominated by the efforts of Kew-trained Swiss botanist John Gossweiler who in the course of 50 years' work collected in all of Angola's provinces, and amassed over 14,000 collections. His final 2 years' collections, in 1946 and 1948, were from the remote northeast of the country, and formed the basis of Cavaco's Flora of Lunda (Cavaco 1959). Other significant colonial era collectors included Portuguese and British participants of the *Missões Botânicas* such as Luiz Carrisso, Francisco Mendonça, Arthur Exell and Francisco de Sousa (as well as John Gossweiler), whose work formed the basis of early parts of the *Conspectus Florae Angolensis*, and the first vegetation map of Angola

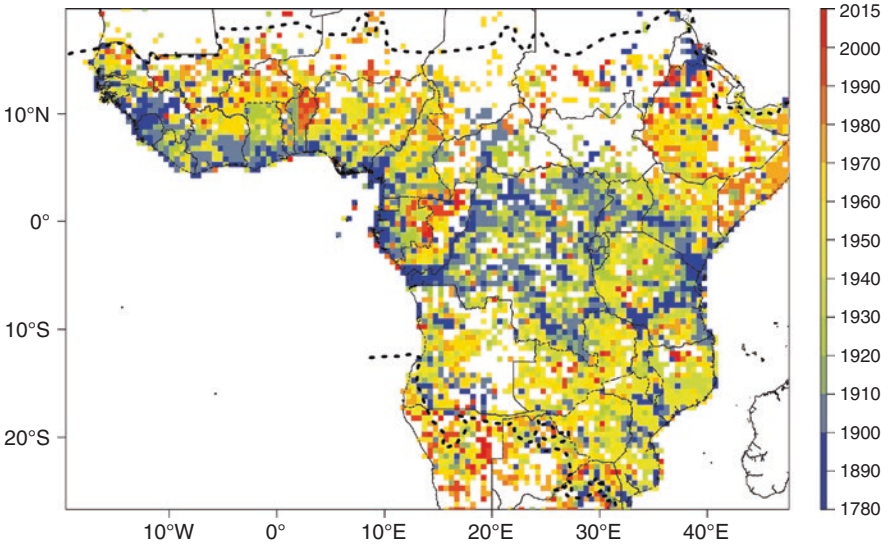

Fig. 5.2 Time lapse of botanical collecting history across tropical Africa. The map represents the date of the first botanical collection made within each 0.5° sampling unit. Dashed lines represent the limits for tropical Africa as defined by Sosef et al. (Used with permission from Sosef et al. 2017: http://rainbio.cesab.org)

(Gossweiler and Mendonça 1939). There are too many other collectors from 1950–1975 to list (see Figueiredo et al. 2008), but two specialist collections are here noted – Hans Hess's aquatic and wetland plants from many of the rivers of western Angola in 1950–1952 are now housed principally in Zurich, and Larry Leach and IC Cannell who travelled up the arid and semi-arid coastal plain between 1967 and 1973, focussed mostly on the succulent flora. After Angolan independence in 1975 and the commencement of the long-running civil war, collection of plants essentially ground to a halt until the end of the twentieth century. Several recent collecting programmes will be described in a later section of this paper. Despite Gossweiler and his successor Brito Teixeira's efforts to survey little known regions of Angola, plant collection coverage and intensity is skewed heavily to the western half of the country, and large parts of Moxico, Cuando Cubango, the Lundas and Uíge are still devoid of collections (Sosef et al. 2017: Fig. 5.2; http://rainbio.cesab.org).

Floristic Diversity and Endemism

Under the leadership of Estrela Figueiredo and Gideon Smith, thirty-two authors from around the world compiled the first checklist of vascular plants for Angola (Figueiredo and Smith 2008; Smith and Figueiredo 2017). A total of 6735 native species were recorded with an additional 226 non-native species. The exotic flora of

Angola was documented by Gossweiler (1948, 1949, 1950). Four of these alien species pose particular threats as they are highly invasive in Angola (Rejmánek et al. 2017). Forty-four additional species have been described or entered onto the International Plant Names Index since publication of Figueiredo and Smith (2008), and inventories in Lunda-Norte (see below) and elsewhere added a further 70 or so species to the Angolan list. So the current estimate of the vascular plants native to Angola is around 6850 species. Current accepted nomenclature for plants can be checked on the African Plants Database (2018), and local plant names in Gossweiler (1953) and Figueiredo and Smith (2012).

Figueiredo et al. (2009a) reported that 997 species (14.8%) are endemic to the country. This percentage is considerably lower than the estimate of 27.3% by Exell and Gonçalves (1973) based on a limited sample of the flora, or studies of individual families of plants where 19% of both Rubiaceae (Figueiredo 2008) and legume species (Soares et al. 2009) were recorded as endemics. Several genera are endemic to Angola, including *Calanda* K.Schum. and *Ganguelia* Robbr. (Rubiaceae); *Carrissoa* Baker f. (Leguminosae); and *Angolaea* Wedd. (Podostemaceae) – the latter now possibly extinct as it was described from the Cambambe rapids on the now heavily dammed Cuanza River.

Legumes (934 spp.), grasses (526 spp.), Compositae (463 spp.) and Rubiaceae (444 spp.) are the most diverse families in the flora, and *Crotalaria* L. and *Euphorbia* L. each have more than 40 Angolan endemic species.

Two of the six tropical African centres of endemism identified by Linder (2001) fall partially or entirely within Angola. A recent analysis of RAINBIO data (Droissart et al. 2018) identifies the western Angolan highlands as a distinct floristic bioregion, although the limited data preclude statements on the remainder of the country. The Huíla plateau consistently stands out as being rich in endemic species (Exell and Gonçalves 1973, Brenan 1978: 472, Linder 2001) and Soares et al. (2009) record 83 endemic legumes from the province. For Rubiaceae, Cabinda has the highest level of diversity with 175 species, but Huíla possesses the most endemics (Figueiredo 2008). Figueiredo (2008) also demonstrates that for Rubiaceae, Huíla is the most intensively collected province. However, our experience is that many of these collections have not necessarily been well studied. Clark et al. (2011) state that the western highlands of Angola comprise the least well-documented stretch of the Great Escarpment of southern Africa.

The western margin of the Huíla Plateau reaches its highest elevation along the Lubango Escarpment of the Serra da Chela and runs in a southwesterly direction from near Tundavala c. 15 km NW of Lubango to Bimbe c. 20 km NW of Humpata. It reaches a height of just over 2200 m and Goyder et al. (in prep.) estimate around 200 species are endemic to this area. However, as other mountains further to the north are surveyed botanically, some of these supposed local endemics may prove to be more widely distributed than currently thought.

Linder's (2001) second area of high species diversity and endemism, the Zambezi-Congo watershed, encompasses eastern Angola, northern Zambia and the Katanga region of the DR Congo. This area has not been well documented in Angola.

Biogeography, Regional Centres of Endemism and Vegetation

With its extremes of landform, climate and rainfall, Angola is host to six of White's (1983) phytochoria, or regional centres of endemism.

Outliers of the Guineo-Congolian forests in Cabinda, Uíge and Cuanza-Norte are progressively smaller in area to the south, ending in the isolated coffee forests of Gabela and Cumbira in Cuanza-Sul. The northward-draining tributaries of the Cuango and Cassai rivers in Uíge and Lunda-Norte have fingers of pure Congolian forest along them. However, much of northern Angola forms a transition zone between Guineo-Congolian vegetation and Zambezian – the latter covers the rest of the country with the exception of the fragmented Afromontane centre of endemism at higher elevations, and the more arid Karoo-Namib and Kalahari-Highveld zones in the southwest.

Geologically, the eastern half of Angola is notable for its deep deposits of Kalahari sand, while to the west crystalline rocks predominate. Marine sediments and recent sands cover the coastal plain (Huntley and Matos 1994; Huntley 2019). The coastal plain is arid in the south due to the cold, upwelling Benguela current, and semi-arid further to the north. Most of the rainfall occurs on the escarpment and the plateau, again with a steady increase to the north. Central Angolan headwaters of major river systems drain into the Okavango (Cuito and Cubango), the Indian Ocean (Cuando, Lungué Bungo and Zambezi) and the Atlantic (Cassai, Cuango, Cuanza and Cunene).

The standard work for vegetation is Barbosa's (1970) *Carta Fitogeográfica de Angola* which recognises 32 vegetation types ranging from desert to moist evergreen and swamp forests. Huntley and Matos (1994) present a concise summary. Barbosa's vegetation map built on the painstaking pioneering work of Gossweiler and Mendonça (1939) – a major contribution that reached a wider audience through the extended English summary by Airy-Shaw (1947).

Angola has a diverse seaweed flora and 169 species have been recorded (Lawson et al. 1975; Anderson et al. 2012). Biogeographically, Angola's marine algae group with those of tropical West Africa, but with a well-developed southern element from around 13°S comprising mainly cooler-water species from the Benguela Marine Province of Namibia and western South Africa.

Recent Botanical Survey Initiatives

In 1968, Angola had only three National Parks (Quiçama, Cameia and Iona) and two Nature reserves (Mupa and Luando), plus a number of forest and game reserves (Teixeira 1968a). Between 1971 and 1975 a programme of field surveys was undertaken to identify areas of high importance for biodiversity conservation (Huntley 1973, 1974; Huntley and Matos 1994). These were supplemented by fieldwork in Huíla, Namibe, Cuanza-Sul and Huambo (Huntley 2009; Mills et al.

2011), and synthesised into an 'Angolan Protected Area Expansion Strategy – APAES' (Huntley 2010). The APAES report was submitted to the Angolan Ministry of Environment in 2010, and formed the basis for the proposals approved by the Angolan *Conselho do Ministros* on 28th April 2011 (GoA 2011).

Much of the recent botanical activity in Angola has focused on the eleven areas highlighted in this conservation planning document. The areas proposed for protection were: Maiombe (Cabinda), Serra do Pingano (Uíge), Lagoa Carumbo (Lunda-Norte), Serra Mbango (Malange), Gabela and Cumbira Forests (Cuanza-Sul), Morro Namba (Cuanza-Sul), Morro Moco (Huambo) Serra da Neve (Namibe), Serra da Chela (Huíla) and Luiana (Cuando Cubango). A listing of post-Independence botanical collectors in Angola is given in Appendix, following the format used for earlier collectors used by Figueiredo et al. (2008).

A collaborative Rapid Biodiversity Assessment and training expedition to the Huíla Plateau and to Iona National Park, with 30 scientific participants from 10 countries and with 15 Angolan students, was convened in 2009. Over 2700 botanical collections were made and deposited in the National Herbarium, Pretoria with duplicates deposited in the ISCED-Huíla Herbarium in Lubango (Huntley 2009).

In northern Angola botanical surveys have been initiated in the moist coffee forests of Serra do Pingano, and more widely in Uíge Province, by a team from Dresden in cooperation with the Universidade Kimpa Vita (Lautenschläger and Neinhuis 2014; Neinhuis and Lautenschläger 2014). These have resulted in a revised list of bryophytes for Angola (Müller 2014; Müller et al. 2018), the description of new species of vascular plant (Abrahamczyk et al. 2016), and ethnobotanical assessments (Göhre et al. 2016; Mawunu et al. 2016; Heinze et al. 2017; Lautenschläger et al. 2018). In total, about 820 species were identified; several of these are new records for Angola.

Lagoa Carumbo and the Luxico, Luele and Lovua valleys were surveyed by a team from Kew, the Ministry of the Environment and Agostinho Neto University, Luanda in 2011, and again in 2013, trebling the known flora of Lunda-Norte as compared to Cavaco (1959) – the combined report documents 752 taxa including 72 additions to the flora of Angola, and 22 potential new species (Darbyshire et al. 2014; Cheek et al. 2015). This part of Lunda-Norte has Congolian swamp forest in the river valleys, moist miombo woodland on the slopes, and Zambezian savanna grasslands on the plateau.

The isolated patch of Guineo-Congolian forest at Cumbira was the subject of a rapid botanical assessment with more than a hundred botanical specimens collected, including new Guineo-Congolian records for Angola and species potentially new to science (Gonçalves and Goyder 2016).

Plants collected from Mount Namba are currently being studied by the Kew/Lubango team – this work may inform studies on the Lubango Escarpment further to the south. Both share a mosaic of Afromontane forest, grassland and miombo woodland habitats, although most of Lubango's woody vegetation is now heavily degraded. Comparisons with the much better preserved vegetation on Mount Namba might inform habitat restoration initiatives in the area.

Serra da Neve and Serra da Chela were visited briefly in 2013 as part of a wider floristic survey of the Angolan Escarpment led by a team from Rhodes University in South Africa, ISCED-Huíla in Lubango, and Kew. One or two new species have been published from these collections (Hind and Goyder 2014), but wider analysis of the flora is still on-going. Through the German-funded Southern African Science Service Centre for Climate Change and Adaptive Land Management (SASSCAL) project, researchers at the Lubango Herbarium are working on vegetation classification of the woodlands of Huíla Province, towards a new vegetation map for the region (Chisingui et al. 2018). A checklist of the Huíla flora is one of the expected early outputs.

In addition to the Protected Areas Expansion Strategy sites mentioned above, three cross-border initiatives have focused on the catchment of the Okavango system in Angola, Namibia and Botswana in recent years. Botswana's flagship wetland ecosystem – the Okavango Delta – is dependent entirely on the two main Angolan tributaries (Cuito and Cubango) for its hydrology. The Southern Africa Regional Environmental Program (SAREP) and OKACOM organised fieldwork in Cuando Cubango in 2013 with botanists from Kew and the University of Botswana. About 350 collections were made from the southeast corner of Angola, as far east as the Cuando river, thus contributing to the documentation of the Luiana proposed protected area. The Future Okavango (TFO) project led by a research team from Hamburg focused on two research sites in Angola (Cusseque, Bié Province; Caiundo, Cuando Cubango Province) both in the more westerly Cubango catchment, one in Namibia (Mashare), and Seronga in Botswana. This project contributed significantly to a better understanding of Angolan miombo and *Baikiaea-Burkea* woodlands in terms of recovery following disturbance caused by shifting cultivation (Wallenfang et al. 2015, Gonçalves et al. 2018, Gonçalves et al. 2017). A checklist of woody species and geoxylic suffrutices in the grasslands of south-central Angola was provided, documenting potential new species and new records for the country (Gonçalves et al. 2016; Revermann et al. 2017, 2018). Further vegetation and ecological studies are published in Oldeland et al. (2013).

The easterly Cuito and Cuanavale catchment has been the focus of the National Geographic Okavango Wilderness Project from 2015 onwards. Surveys in the upper Cubango were initiated in 2017. To date, over 1300 plant collections have been made by a Kew, South African and Angolan team, who have recorded 417 species of vascular plant from the high-rainfall upper Cuito and Cuanavale drainage system, and 176 from the lower rainfall zones further south (e.g., Fig. 5.3). Over 100 new provincial records were reported for Moxico, with a further 24 for Cuando Cubango, underlining how poorly documented and understood this vast and sparsely inhabited part of Angola is, even now (Goyder et al. 2018). Baseline botanical collection data such as these feed into wider biodiversity assessments of the area and provide vital evidence in building a case to protect the headwaters of not only the Okavango system, but other major river systems originating in central Angola (NGOWP 2018).

Fig. 5.3 Some plants collected during recent fieldwork in central and eastern Angola as part of the National Geographic Okavango Wilderness Project. Top to bottom, left to right: *Protea poggei* subsp. *haemantha* (Proteaceae); *Clerodendrum baumii* (Lamiaceae); *Erythrina baumii* (Leguminosae); *Monotes gossweileri* (Dipterocarpaceae); *Gloriosa sessiliflora* (Colchicaceae); *Raphionacme michelii* (Apocynaceae). All photos: David Goyder

Future Botanical Work

Almost every botanical survey made in recent years in Angola has revealed undescribed species and new country or provincial records. Eastern and northern provinces are in most need of collecting programmes and botanical documentation. Most national parks lack basic botanical inventories. To give one example, Teixeira's (1968b) work on plant diversity in Bicuar National Park (Huíla Province) resulted in the recognition of six vegetation types in the park. But recent SASSCAL-funded surveys revealed species unaccounted for by Figueiredo and Smith (2008), underlining the need for more botanical surveys in both existing and newly proposed areas of conservation concern.

Analysis of the collections from recent surveys is starting to reveal little-documented areas of endemism. The Lubango Escarpment is one obvious focus, but so too is the highly leached high-rainfall Kalahari sand system of Moxico Province and adjacent area that has its own peculiar and little-understood flora.

Only 399 species of vascular plant in Angola have been formally assessed for extinction risk through the IUCN Red List system (IUCN 2018), and a mere 36 of these appear in threatened categories. None of the genera listed in an earlier section of this paper as Angolan endemics have been assessed. Much work is needed in this area.

Four Angolan institutions are listed in Index Herbariorum (Thiers, continually updated), LUAI (ex-*Centro Nacional de Investigação Cientifica* (CNIC), Luanda), LUA (*Instituto de Investigação Agronómica*, Huambo), LUBA (*Instituto Superior de Ciencias da Educação*, Lubango), and DIA (*Museu do Dundo*). While the Dundo Museum has been refurbished and reopened to the public in 2012, it appears that the herbarium collections formerly housed there no longer exist. The LUA herbarium contains 40,000 collections. It was evacuated to Luanda in 1995, and has now returned to Huambo, but is in poor condition and funds are needed to employ well-trained young staff to conserve, rehabilitate and work on this important collection. LUAI contains 35,000 collections and LUBA around 50,000. There are ongoing digitisation programmes at both institutions that will make these collections more widely accessible.

Outside of Angola, Portuguese institutes in Coimbra (COI) and Lisbon (LISC, LISU) hold the largest collections of Angolan plants, an estimated 90,000 collections (Figueiredo and César 2008). 8700 of Gossweiler's Angolan collections are housed at COI and these are available online. The collections at LISC are also available digitally, and are now being incorporated into the Lisbon University herbarium LISU. Most other herbaria with significant Angolan holdings have only digitised their type collections, although mass digitisation of entire national collections has made material in the Paris Natural History Museum (P) and Leiden's Naturalis (L, WAG, U) accessible. In the UK, the Natural History Museum (BM) and Royal Botanic Gardens, Kew (K) in London – both of which contain significant Angolan holdings, and Royal Botanic Gardens, Edinburgh (E) have plans to follow suit. In Germany, the collection of Technische Universität Dresden (DR) comprises 2400 specimens, kept separately from the main herbarium. The Future Okavango project has augmented Hamburg's (HBG) Angolan collections by around 2000 numbers.

Once these combined resources are available online, georeferencing the Angolan material should be a priority. Such collections data could then be used in a variety of projects or programmes. Georeferenced specimen data underpins IUCN conservation assessments, for example, and these in turn inform Important Plant Area designations (Darbyshire et al. 2017) and other forms of conservation planning.

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Appendix

Post-Independence collectors in Angola. Entries follow a format developed from Figueiredo et al. (2008).

Surname, first names (birth–death); **C:** period when collecting in Angola; **H:** herbaria [abbreviations after Thiers, continuously updated; FC-UAN = Faculdade de Ciências, Universidade Agostinho Neto, Luanda; INBAC = Instituto Nacional da Biodiversidade e Áreas de Conservação of the Ministério do Ambiente, Luanda]; **L:** provinces abbreviated after Figueiredo and Smith 2008: principal localities; **B:** biographical information.

Alcochete, António (1963–)
C: 1991; **H:** K; **L:** CU HI NA; **B:** Angolan botanist, collected with Gerrard, Matos and Newman.

Baragwanath, S.
C: 1994. **H:** PRE.

Barker, Nigel P.(1962-)
C: 2013, 2015, 2017; **H:** GRA, INBAC, K, LUBA, PRE; **L:** CC HI NA: Lubango Escarpment, Mt. Tchivira, Serra da Neve, Mundondo Plateau, Okavango, Cuito and Longa Rivers; **B:** South African Professor of Plant Science at University of Pretoria, formerly at Rhodes University.

Bester, Stoffel Petrus (Pieter) (1969–)
C: 2009, 2015; **H:** GRA, INBAC, K, LUBA, PRE; **L:** CC CU HI NA: Iona, Lubango Escarpment, Bicuar, Okavango, Cuito and Longa Rivers; **B:** South African botanist based at PRE.

Bruyns, Peter Vincent (1957–)
C: 2006, 2007; **H:** BOL, E, K, NBG, PRE; **L:** BE HI NA: Lubango Escarpment and coastal plain; **B:** South African mathematician and botanist with particular interest in succulent plants.

Cardoso, João Francisco (1974–)
C: 2005, 2006; **H:** LISC, LUAI; **L:** HI NA: Serra da Leba, Virei, Caraculo, Cainde; **B:** Agronomist with Agostinho Neto University.

Cheek, Martin Roy (1960–)
C: 2012; **H:** K; **L:** CA; **B:** British botanist at Royal Botanic Gardens Kew, specialist on West African flora.

Clark, Vincent Ralph (1977–)
C: 2013; **H:** GRA, K, LUBA, PRE; **L:** HI NA: Lubango Escarpment, Mt. Tchivira, Serra da Neve; **B:** South African botanist.

Cooper, C.E.
C: 1997; **H:** PRE.

Crawford, Frances Mary (1981–)
C: 2009, 2011; **H:** INBAC, K, PRE; **L:** HI LN NA: Lucapa, Lagoa Carumbo, Iona, Lubango Escarpment; **B:** British botanist, Curator of WIND herbarium, formerly at Royal Botanic Gardens, Kew; collected with Darbyshire and Goyder in LN.

Daniel, José Maria (1943–2015)
C: 1964–2008; **H:** LUBA, LUA, LUAI, L: Collected in all Angolan Provinces; **B:** Angolan botanist at Lubango Herbarium until his retirement; collected with Huntley, Matos and Gonçalves.

Darbyshire, Iain Andrew (1976–)
C: 2011, 2013; **H:** INBAC, K, LISC; **L:** LN: Lucapa, Lagoa Carumbo; **B:** British botanist at Royal Botanic Gardens, Kew; collected with Crawford, Gomes, Goyder & Kodo.

Dexter, Kyle Graham (1980–)
C: 2017–; **H:** E, COLO, LUBA, WIND; **L:** CU HI NA; **B:** Senior Lecturer at University of Edinburgh and Associate Researcher at Royal Botanic Garden Edinburgh.

Ditsch, Barbara (1961–)
C: 2013, 2015 **H:** DR, LUA; **L:** UI: Serra do Pingano, Municipality of Uíge, Kimbele, Damba, Mucaba; **B:** German botanist at Dresden Botanic Garden.

Finckh, Manfred (1963–)
C: 2011–; **H:** HGB, LUBA, WIND; BI CC HA HI MO: Chitembo (Cusseque), Caiundo, Cachingues, Savate, Cuangar, Bicuar National Park, Cameia National Park, Tundavala Observatory under TFO and SASSCAL Projects; **B:** Ecologist at University of Hamburg, Germany.

Francisco, Domingos Mumbundu (1974–)
C: 2008–; **H:** LISC, LUAI, LUBA; **L:** CA CC LA MA NA ZA: Barra do Cuanza, Iona, Cangandala, Quiçama National Parks; **B:** Angolan botanist at Universidade Agostinho Neto, Centro de Botânica, LUAI Herbarium.

Frisby, Arnold.
C: 2016, 2017; **H:** INBAC, K, LUBA, PRE; **L:** BI CC: Cubango and Cuito Rivers; **B:** South African botanist at University of Pretoria.

Gerrard, Jacqueline
C: 1991; **H:** K; **L:** CU HI NA.

Godinho, Elizeth
C: 2013; **H:** INBAC, K, LISC; **L:** LN: Lagoa Carumbo; **B:** Angolan botanist at INBAC; collected with Darbyshire, Goyder and Kodo.

Göhre, Anne (1990–).
C: 2014–2016; **H:** B, BR, BONN, P; **L:** UI: Municipality of Uíge, Kimbele, Damba, Mucaba; **B:** German botanist at Dresden Botanic Garden.

Gomes, Amândio Luís (1971–).
C: 2010–; **H:** FC-UAN, INBAC, K, LISC, LUAI, LUBA; **L:** BE BI BO CC CN CS HA LN ZA: Lucapa, Lagoa Carumbo, Chitembo (Cusseque), Tundavala Observatory under TFO and SASSCAL Projects; **B:** Angolan botanist at Universidade Agostinho Neto, Luanda; collected with Crawford, Darbyshire and Goyder in LN.

Gonçalves, Francisco Maiato Pedro (1982–).
C: 2008–; **H:** HBG, INBAC, K, LUBA; **L:** BI CC CU CS HA HI LA NA MO: Chitembo (Cusseque), Cumbira forest, Mt. Namba, Lubango Escarpment, Okavango headwaters, Huíla Province SASSCAL Project; **B:** Angolan botanist at Lubango Herbarium, ISCED Huíla, Lubango.

Goyder, David John (1959–)
C: 2011–; **H:** GRA, INBAC, K, LUBA, PRE; **L:** BI CC CS HI LN MO NA: Cumbira, Mt. Namba, Serra da Neve, Lubango Escarpment, Mt. Tchivira, Okavango headwaters, Lucapa, Lagoa Carumbo; **B:** British botanist at Royal Botanic Gardens, Kew; collected with Crawford, Darbyshire, Godinho, Gomes and Kodo in LN, with Barker and Clark on the western escarpment, with Gonçalves in CS and Okavango headwaters, with Barker, Bester, Frisby and Janks in CC.

Harris, Timothy (1982–)
C: 2013; **H:** K, LUAI, PSUB, WIND; **L:** CC: Okavango, Cuito and Cuando Rivers; **B:** British botanist; collected with Murray-Hudson.

Heinze, Christin (1993–).
C: 2014–2017; **H:** DR, LUA; **L:** CN: all municipalities; **B:** German botanist at Technische Universität Dresden.

Janks, Matthew.
C: 2015; **H:** GRA, INBAC, LUBA, PRE; **L:** CC: Okavango, Cuito and Longa Rivers; **B:** South African botanist; collected with Barker, Bester & Goyder.

Jürgens, Norbert (1953–)
C: 2008–; **H:** HGB, WIND, LUBA; **L:** CU HI NA; **B:** Professor at Institute for Plant Science and Microbiology, University of Hamburg, Germany.

Kodo, Felipe
C: 2013; **H:** INBAC, K, LISC; **L:** LN: Lagoa Carumbo; **B:** Angolan botanist at INBAC; collected with Darbyshire, Godinho and Goyder.

Lautenschläger, Thea (1980–)
C: 2012–2018; **H:** DR, LUA; **L:** UI: Municipality of Uíge, Mucaba, Maquela do Zombo, Quitexe, Milunga, Sanza Pombo, Kimbele, Ambuila, Songo, Bungo, Bembe, Puri, Negage, Altocauale, Damba; **B:** German botanist at Technische Universität Dresden.

Luís, José Camôngua (1984–)
C: 2015–. **H:** K, LUBA; **L:** CS HI: Lubango Escarpment, Mt. Namba; **B:** Angolan botanist.

Maiato, Francisco
See **Gonçalves, Francisco Maiato Pedro**.

Manning, Stephen D.
C: 1986–1998.

Matos, Elizabeth (Liz), Merle (1938–)
C: 1975–; **B:** British botanist, founder and director of Angola's National Plant Genetic Resources Centre, Agostinho Neto University, Luanda. Retired in 2008.

Mawunu, Monizi (1973–)
C: 2013–2018; **H:** DR, LUA; **L:** UI, whole province; **B:** Angolan botanist at Universidade Kimpa Vita.

Müller, Frank (1966–)
C: 2015; **H:** DR, LUA; **L:** UI: Municipality of Uíge, Songo, Mucaba; **B:** German botanist at Technische Universität Dresden.

Murray-Hudson, Frances
C: 2013; **H:** K, LUAI, PSUB, WIND; **L:** CC: Okavango, Cuito and Cuando Rivers; **B:** Volunteer at Peter Smith University of Botswana Herbarium (PSUB); collected with Harris.

Neinhuis, Christoph (1962–)
C: 2012–2018; **H:** DR, LUA; **L:** UI: Municipality of Uíge, Mucaba, Maquela do Zombo, Quitexe, Milunga, Sanza Pombo; **B:** German botanist at Technische Universität Dresden, director of the Botanical Garden TU Dresden.

Newman, Mark Fleming (1959–)
C: 1991; **H:** K; **L:** CU HI NA; **B:** British botanist at Royal Botanic Garden Edinburgh. In 1991, at the Seed Bank, Royal Botanic Gardens, Kew; collected with Alcochete, Gerrard and Matos, mainly for seeds, with herbarium voucher specimens for identification.

Rejmánek, Marcel (Marek/Marc) (1946–)
C: 2014; **H:** LUBA, STE; **L:** BE BO CN CS HA HI MA NA UI; **B:** Czech botanist based at University of California, Davis, working on biological invasions. Conducted a rapid inventory of invasive plants in Angola in 2014 with Huntley, Roux and Richardson.

Revermann, Rasmus (1979–)
C: 2011–; **H:** HGB, WIND, LUBA; **L:** BI CC HA HI: Chitembo (Cusseque), Caiundo, Cachingues, Savate, Cuangar under TFO and SASSCAL Projects; **B:** Ecologist at University of Hamburg, Germany.

Roux, Jacobus Petrus (Koos) (1954–2013)
C: 2001; **H:** PRE; **B:** South African Pteridophyte specialist.

Tripp, Erin Anne (1979–)
C: 2017–; **H:** COLO, E, LUBA, WIND; **L:** CU HI NA; **B:** Researcher at Colorado Herbarium, University of Colorado.

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