



Report at a Glance

Source: A Rapid Biological Assessment of North Lorma, Gola and Grebo National Forests, Liberia: 10

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A RAPID BIOLOGICAL ASSESSMENT OF NORTH LORMA, GOLA AND GREBO NATIONAL FORESTS, LIBERIA

Expedition Dates

13 November – 11 December 2005

Area Description

North Lorma National Forest consists of seasonal moist evergreen and semi-deciduous forest and some open riverine forest habitat. It is situated in northwestern Liberia near the border with Guinea and lies between the Wologizi and the Wonegizi Mountains. Many smaller streams were present within a slightly hilly landscape. Further from the river but at a higher elevation the vegetation quickly changed to lower forest with large scattered trees. This site had the least amount of disturbance with the presence of an old overgrown logging road the only noticeable sign.

Gola National Forest is also seasonal moist evergreen and semi-deciduous forest and is situated between the Gola Strict Nature Reserve in Sierra Leone and Kpelle National Forest in Liberia. The terrain has steep slopes with small, rocky streams and the vegetation was dense in most areas although large lianas were present. Illegal small-scale diamond mining was observed just inside the forest.

Grebo National Forest is a wet evergreen forest situated in the southeast of the country and is contiguous with the Forêt Classée du Cavally in Côte d'Ivoire. It consists of mature secondary forest that is open with isolated huge trees. Aquatic sites within the area were medium sandy streams with a few stones and rocks as well as large ponds. Logging occurred in this area roughly twenty years ago.

Reason for the Expedition

This survey was part of the larger Liberia Forest Initiative (LFI), an initiative supporting efforts to rehabilitate and reform the forest sector in Liberia and harmonize activities associated with these efforts. In addition to collecting data on the sites to strengthen and expand conservation efforts in Liberia, the RAP survey worked to build scientific capacity within the FDA, University of Liberia and local NGOs. Efforts were also made to increase the Liberian public's awareness of their rich flora and fauna.

Major Results

	All RAP sites in this survey	North Lorma	Gola	Grebo
Number of species recorded	969	526	486	520
Species of conservation concern	60	29	27	41
New species discovered	6	—	5	4
New records for Liberia	18	7	7	3
Species endemic to Upper Guinea	147	61	81	70

Number of Species Recorded:

Plants	548 species
Dragonflies & damselflies	93 species
Amphibians	At least 40 species
Reptiles	17 species
Birds	211 species
Bats	22 species
Small terrestrial mammals	9 species
Large mammals	29 species

New Species Discovered:

Plants (3)	
	<i>Drypetes</i> sp. nov.
	<i>Leptoderris</i> sp. nov.
	<i>Rhaphiostylis</i> sp. nov.
Dragonflies and damselflies (1)	
	<i>Eleuthemis</i> sp. nov.
Amphibians (1?)	possibly <i>Phrynobatrachus</i> cf. <i>annulatus</i>
Bats (1?)	possibly <i>Neoromicia</i> aff. <i>grandidieri</i>

New Records for Liberia:

Plants (3)	
	<i>Elytraria ivorensis</i>
	<i>Gardenia nitida</i>
	<i>Zanthoxylum psammophilum</i>
Dragonflies and damselflies (7)	
	<i>Nesciothemis minor</i>
	<i>Palpopleura deceptor</i>
	<i>Palpopleura portia</i>
	<i>Paragomphus nigroviridis</i>
	<i>Tetrathemis polleni</i>
	<i>Tramea limbata</i>
	<i>Trithemis monardi</i>
Amphibians (5)	
	<i>Africalus nigeriensis</i>
	<i>Astylosternus occidentalis</i>
	<i>Bufo superciliaris</i>
	<i>Chiromantis rufescens</i>
	<i>Phrynobatrachus villiersi</i>
Bats (3)	
	<i>Neoromicia</i> aff. <i>grandidieri</i>
	<i>Neoromicia guineensis</i>
	<i>Rhinolophus landeri</i>

Species of Conservation Concern:

Dragonflies and damselflies (2)	
	<i>Sapho fumosa</i> (NT)
	<i>Trithemis africana</i> (NT)
Amphibians (17)	
	<i>Amnirana occidentalis</i> (EN)
	<i>Phrynobatrachus annulatus</i> (EN)
	<i>Phrynobatrachus</i> cf. <i>annulatus</i> (EN)
	<i>Conraua alleni</i> (VU)
	<i>Phrynobatrachus villiersi</i> (VU)
	<i>Africalus nigeriensis</i> (NT)
	<i>Bufo togoensis</i> (NT)
	<i>Hyperolius chlorosteus</i> (NT)
	<i>Leptopelis macrotis</i> (NT)
	<i>Leptopelis occidentalis</i> (NT)
	<i>Petropedetes natator</i> (NT)
	<i>Phrynobatrachus alleni</i> (NT)
	<i>Phrynobatrachus guineensis</i> (NT)
	<i>Phrynobatrachus liberiensis</i> (NT)
	<i>Phrynobatrachus phyllophilus</i> (NT)
	<i>Ptychadena superciliaris</i> (NT)
	<i>Bufo superciliaris</i> (CITES I)
Reptiles (5)	
	<i>Osteolaemus tetraspis</i> (CITES I)
	<i>Kinixys eros</i> (CITES II)
	<i>Kinixys homeana</i> (CITES II)
	<i>Python sebae</i> (CITES II)
	<i>Varanus ornatus</i> (CITES II)
Birds (14)	
	<i>Malimbus ballmanni</i> (EN)
	<i>Agelastes meleagrides</i> (VU)
	<i>Bleda eximius</i> (VU)
	<i>Criniger olivaceus</i> (VU)
	<i>Lobotos lobatus</i> (VU)
	<i>Melaenornis annamarulae</i> (VU)
	<i>Picathartes gymnocephalus</i> (VU)
	<i>Bathmocercus cerviniventris</i> (NT)
	<i>Bycanistes cylindricus</i> (NT)
	<i>Ceratogymna elata</i> (NT)
	<i>Illadopsis rufescens</i> (NT)
	<i>Lamprotornis cupreocauda</i> (NT)
	<i>Malaconotus lagdeni</i> (NT)
	<i>Melignomon eisentrauti</i> (DD)

Bats (5)*Rhinolophus hillorum* (VU)*Hipposideros fuliginosus* (NT)*Scotonycteris zenkeri* (NT)*Hypsugo (crassulus) bellieri* (n.a.)*Neoromicia aff. grandidieri* (n.a.)**Large Mammals (17)***Hexaprotodon liberiensis* (EN)*Cercopithecus diana* (EN)*Pan troglodytes verus* (EN)*Piliocolobus badius* (EN)*Loxodonta africana cyclotis* (VU)*Cephalophus jentinki* (VU)*Syncerus caffer* (LR/cd)*Cephalophus dorsalis* (LR/nt)*Cephalophus maxwelli* (LR/nt)*Cephalophus niger* (LR/nt)*Cephalophus ogilbyi* (LR/nt)*Cephalophus silvicultor* (LR/nt)*Cercocebus atys* (LR/nt)*Colobus polykomos* (LR/nt)*Procolobus verus* (LR/nt)*Tragelaphus euryceros* (LR/nt)*Panthera pardus* (CITES I)

The IUCN Red List categorizes species based on the degree to which they are threatened. Categories, from less threatened to most threatened, include: Data Deficient (DD, not enough is known to make an assessment), Lower Risk (LR) which includes Conservation Dependent (cd), Near Threatened (nt), and Least Concern (lc, listed but not threatened), Vulnerable (VU), Endangered (EN), and Critically Endangered (CR) (IUCN 2006); n.a.: not assessed by IUCN but likely to be threatened.

CITES Appendices I, II and III list species afforded different levels or types of protection from over-exploitation (see <http://www.cites.org/eng/app/index.shtml>).

CONSERVATION RECOMMENDATIONS

North Lorma, Gola and Grebo National Forests all contain a wealth of biodiversity and a significant number of species of conservation concern and each qualifies as an Important Bird Area. Large numbers of the recorded species are restricted to the forests of Upper Guinea. Over 40% of the remaining Upper Guinea forest lies within Liberia and it includes several large tracts of contiguous forest making these among the last refuges for large migrating mammals. For these reasons it is recommended to:

- Raise the status of Grebo National Forest to National Park. Grebo National Forest's close proximity to both Taï National Park in Côte d'Ivoire and Sapo National Park offers an opportunity to create a biological corridor between the two parks.
- Raise the status of North Lorma National Forest to National Park. It is suggested that Wonegizi and Wologizi Mts. also be included in such a park and that the area should be contiguous to the Biosphere Reserve of the Massif du Ziama in Guinea.
- Raise the status of Gola National Forest to National Park and create a transboundary biological corridor with the Gola Forest in Sierra Leone.
- Create a mechanism within which all potential protected areas, especially Grebo, North Lorma and Gola National Forests, can be given blanket protective coverage to allow time for gradual biological, socio-economic and other relevant studies to occur.
- Involve all stakeholders, especially local communities, at an early stage in an open, transparent manner, when establishing forest management plans for these sites.

Appendix 1

Plant species recorded in North Lorma, Gola and Grebo National Forests.

Carel C.H. Jongkind

Herb. =	Voucher deposited in National Herbarium Nederland - Wageningen University
-X- =	Notes only taken in the field
Photo =	Photograph and notes taken
Bold =	Endemic to the Upper Guinea forest block
<u>Bold & Underlined</u> =	Endemic to Liberia

Species' IUCN and CITES status are not listed because for western African plant species these lists are incomplete and represent only a small number of the plant species that are actually threatened. Combining the IUCN/CITES data with the list below would give a wrong indication for the sites we visited during this RAP survey.

Family	Species	North Lorma	Gola	Grebo
Acanthaceae	<i>Asystasia scandens</i> (Lindl.) Hook.		Herb.	
Acanthaceae	<i>Asystasia vogeliana</i> Benth.		Herb.	
Acanthaceae	<i>Brillantaisia lamium</i> (Nees) Benth.	Herb.		
Acanthaceae	<i>Elytraria ivorensis</i> Dokosi			Herb.
Acanthaceae	<i>Elytraria marginata</i> Vahl	Herb.		
Acanthaceae	<i>Eremomastax speciosa</i> (Hochst.) Cufod.	Herb.		
Acanthaceae	<i>Justicia extensa</i> T.Anderson	Herb.		
Acanthaceae	<i>Justicia flava</i> (Forssk.) Vahl	Herb.		
Acanthaceae	<i>Justicia tenella</i> (Nees) T.Anderson	Herb.		
Acanthaceae	<i>Lankesteria brevior</i> C.B.Clarke		Herb.	
Acanthaceae	<i>Lepidagathis alopecuroides</i> (Vahl) R.Br. ex Griseb.	Herb.	Herb.	
Acanthaceae	<i>Mendoncia combretoides</i> (A.Chev.) Benoist		Herb.	Herb.
Acanthaceae	<i>Physacanthus batanganus</i> (J.Braun & K.Schum.) Lindau		Herb.	
Acanthaceae	<i>Physacanthus nematosiphon</i> (Lindau) Rendle & Britten		Herb.	
Acanthaceae	<i>Rhinacanthus virens</i> (Nees) Milne-Redh.	Herb.		
Acanthaceae	<i>Ruellia primuloides</i> (T.Anderson ex Benth.) Heine	Herb.	Herb.	Herb.
Acanthaceae	<i>Staurogyne capitata</i> E.A.Bruce	Herb.		Herb.
Acanthaceae	<i>Thunbergia chrysops</i> Hook.	Herb.		
Acanthaceae	<i>Whitfieldia colorata</i> C.B.Clarke ex Stapf		Herb.	Herb.
Acanthaceae	<i>Whitfieldia lateritia</i> Hook.	Herb.		Herb.
Adiantaceae	<i>Adiantum vogelii</i> Mett. ex Keyserl.	Herb.		Herb.
Adiantaceae	<i>Pellaea doniana</i> Hook.	Herb.		

continued

Family	Species	North Lorma	Gola	Grebo
Amaranthaceae	<i>Cyathula prostrata</i> (L.) Blume	Herb.		
Amaryllidaceae	<i>Crinum natans</i> Baker		-X-	
Anacardiaceae	<i>Trichoscypha arborea</i> (A.Chev.) A.Chev.			Herb.
Anacardiaceae	<i>Trichoscypha barbata</i> Breteler		Herb.	
Anacardiaceae	<i>Trichoscypha bijuga</i> Engl.	Herb.	Herb.	
Anacardiaceae	<i>Trichoscypha linderi</i> Breteler		Herb.	
Anacardiaceae	<i>Trichoscypha lucens</i> Oliv.			Herb.
Ancistrocladaceae	<i>Ancistrocladus barteri</i> Scott-Elliot			Herb.
Anisophylleaceae	<i>Anisophyllea meniaudii</i> Aubrév. & Pellegr.		Herb.	
Annonaceae	<i>Annickia polycarpa</i> (DC.) Setten & Maas			Herb.
Annonaceae	<i>Artabotrys oliganthus</i> Engl. & Diels		Herb.	
Annonaceae	<i>Artabotrys</i> sp.	Herb.		
Annonaceae	<i>Cleistopholis patens</i> (Benth.) Engl. & Diels		Herb.	Herb.
Annonaceae	<i>Friesodielsia</i> sp.	Herb.		
Annonaceae	<i>Greenwayodendron oliveri</i> (Engl.) Verdc.	Herb.		
Annonaceae	<i>Monanthes taxidis</i> sp. 1	Herb.		
Annonaceae	<i>Monanthes taxidis</i> sp. 2	Herb.		
Annonaceae	<i>Monanthes taxidis</i> sp. 3		Herb.	
Annonaceae	<i>Monocyclanthus vignei</i> Keay		Herb.	
Annonaceae	<i>Monodora myristica</i> (Gaertn.) Dunal			Herb.
Annonaceae	<i>Neostenanthera gabonensis</i> (Engl. & Diels) Exell		Herb.	
Annonaceae	<i>Piptostigma fasciculatum</i> (De Wild.) Boutique	Herb.		Herb.
Annonaceae	<i>Piptostigma fugax</i> A.Chev. ex Hutch. & Dalziel		Herb.	
Annonaceae	<i>Uvaria baumannii</i> Engl. & Diels			Herb.
Annonaceae	<i>Uvaria</i> sp. 1		Herb.	
Annonaceae	<i>Uvaria</i> sp. 2			Herb.
Annonaceae	<i>Uvaria</i> sp. 3			Herb.
Annonaceae	<i>Uvariastrum pierreanum</i> Engl. & Diels	Herb.		Herb.
Annonaceae	<i>Uvariopsis</i> sp.	Herb.		
Annonaceae	<i>Xylopiacutiflora</i> (Dunal) A.Rich.	Herb.	Herb.	
Annonaceae	<i>Xylopiacutiflora</i> Pellegr.	Herb.		Herb.
Annonaceae	<i>Xylopiacutiflora</i> Chipp	Herb.		
Apocynaceae	<i>Alstonia boonei</i> De Wildeman		-X-	
Apocynaceae	<i>Ancylbotrys scandens</i> (Schumach. & Thonn.) Pichon			Herb.
Apocynaceae	<i>Baisea baillonii</i> Hua	Herb.		
Apocynaceae	<i>Callichilia subsessilis</i> (Benth.) Stapf	Herb.	Herb.	
Apocynaceae	<i>Hunteria simii</i> (Stapf) H.Huber	Herb.	Herb.	Herb.
Apocynaceae	<i>Landolphia dulcis</i> (R.Br. ex Sabine) Pichon		Herb.	
Apocynaceae	<i>Landolphia incerta</i> (K.Schum.) J.G.M.Pers.			Herb.
Apocynaceae	<i>Landolphia nitidula</i> J.G.M.Pers.			Herb.
Apocynaceae	<i>Landolphia owariensis</i> P.Beauv.			Herb.
Apocynaceae	<i>Oncinotis gracilis</i> Stapf	Herb.		
Apocynaceae	<i>Orthopichonia</i> sp.	Herb.		
Apocynaceae	<i>Pleiocarpha mutica</i> Benth.		Herb.	

continued

Family	Species	North Lorma	Gola	Grebo
Apocynaceae	<i>Tabernaemontana psorocarpa</i> (Pierre ex Stapf) Pichon		Herb.	
Araceae	<i>Amorphophallus</i> sp.	-X-		
Araceae	<i>Anubias gigantea</i> A.Chev. ex Hutch.	Herb.		
Araceae	<i>Anubias gracilis</i> A.Chev. ex Hutch.	Herb.	Herb.	
Araceae	<i>Cercestis afzelii</i> Schott	Herb.		-X-
Araceae	<i>Cercestis dinklagei</i> Engl.	Herb.		Herb.
Araceae	<i>Cercestis</i> sp.	Herb.		
Araceae	<i>Culcasia angolensis</i> Welw. ex Schott	Herb.		
Araceae	<i>Culcasia sapinii</i> De Wild.	Herb.		Herb.
Araceae	<i>Culcasia scandens</i> P.Beauv.	Herb.		Herb.
Araceae	<i>Rhaphidophora africana</i> N.E.Br.	Herb.		
Asclepiadaceae	<i>Periploca nigrescens</i> Afzel.			Herb.
Asclepiadaceae	<i>Tylophora cuspidata</i> (K.Schum.) Meve & Omlor			Herb.
Aspleniaceae	<i>Asplenium africanum</i> Desv.	Herb.	Herb.	
Aspleniaceae	<i>Asplenium anisophyllum</i> Kunze	Herb.		
Aspleniaceae	<i>Asplenium barteri</i> Hook.	Herb.	Herb.	
Aspleniaceae	<i>Asplenium formosum</i> Willd.	Herb.		
Aspleniaceae	<i>Asplenium unilaterale</i> Lam.	Herb.		
Aspleniaceae	<i>Asplenium variabile</i> Hook.		Herb.	Herb.
Begoniaceae	<i>Begonia cavallyensis</i> A.Chev.		Herb.	
Begoniaceae	<i>Begonia fusialata</i> Warb. var. <i>fusialata</i>	Herb.		Herb.
Begoniaceae	<i>Begonia polygonoides</i> Hook.f.	Herb.		
Begoniaceae	<i>Begonia quadrialata</i> Warb. subsp. <i>quadrialata</i>	Herb.		
Bignoniaceae	<i>Newbouldia laevis</i> (P.Beauv.) Seeman ex Bureau	Herb.		
Bombacaceae	<i>Ceiba pentandra</i> (L.) Gaertn.	-X-		
Burmanniaceae	<i>Burmannia congesta</i> (Wright) Jonker		Herb.	
Burmanniaceae	<i>Gymnosiphon longistylus</i> (Benth.) Hutch.	Herb.	Herb.	
Burseraceae	<i>Dacryodes klaineana</i> (Pierre) H.J.Lam		Herb.	-X-
Capparaceae	<i>Euadenia eminens</i> Hook.f.			Herb.
Capparaceae	<i>Ritchiea capparoides</i> (Andr.) Britten		Herb.	Herb.
Celastraceae	<i>Salacia lehmbachii</i> Loes.		Herb.	
Celastraceae	<i>Salacia owabiensis</i> Hoyle			Herb.
Celastraceae	<i>Salacia</i> sp.		Herb.	
Celastraceae	<i>Salacia staudtiana</i> Loes.	Herb.		
Chrysobalanaceae	<i>Afrolicania elaeosperma</i> Mildbr.	Herb.		
Chrysobalanaceae	<i>Dactyladenia hirsuta</i> (A.Chev. & De Wild.) Prance & F.White		Herb.	
Chrysobalanaceae	<i>Dactyladenia whytei</i> (Stapf) Prance & White		Herb.	
Chrysobalanaceae	<i>Magnistipula zenkeri</i> Engl.			Herb.
Chrysobalanaceae	<i>Marantbes aubrevillei</i> (Pellegri.) Prance	Herb.		Herb.
Chrysobalanaceae	<i>Marantbes glabra</i> (Oliv.) Prance	Herb.		
Chrysobalanaceae	<i>Parinari excelsa</i> Sabine	Herb.		Herb.
Combretaceae	<i>Combretum aphanopetalum</i> Engl. & Diels			Herb.
Combretaceae	<i>Combretum comosum</i> G.Don			Herb.

continued

Family	Species	North Lorma	Gola	Grebo
Combretaceae	<i>Combretum oyemense</i> Exell	Herb.		
Combretaceae	<i>Strephonema pseudocola</i> A.Chev.	Herb.	Herb.	Herb.
Combretaceae	<i>Terminalia ivorensis</i> A.Chevalier	-X-		
Combretaceae	<i>Terminalia superba</i> Engler & Diels			-X-
Commelinaceae	<i>Buforrestia obovata</i> Brenan	Herb.		
Commelinaceae	<i>Commelina capitata</i> Benth.	Herb.	Herb.	Herb.
Commelinaceae	<i>Floscopa africana</i> (P.Beauv.) C.B.Clarke		Herb.	Herb.
Commelinaceae	<i>Palisota bracteosa</i> C.B.Clarke	Herb.		Herb.
Commelinaceae	<i>Pollia condensata</i> C.B.Clarke	Herb.		Herb.
Commelinaceae	<i>Polyspatha paniculata</i> Benth.	Herb.		
Commelinaceae	<i>Stanfieldiella imperforata</i> (C.B.Clarke) Brenan	Herb.		
Compositae	<i>Adenostemma perrottetii</i> DC.		Herb.	
Compositae	<i>Chromolaena odorata</i> (L.) R.M.King & H.Rob.	Herb.		
Compositae	<i>Vernonia titanophylla</i> Brenan	-X-		
Connaraceae	<i>Agelaea paradoxa</i> Gilg var. <i>microcarpa</i> Jongkind	-X-		Herb.
Connaraceae	<i>Agelaea pentagyna</i> (Lam.) Baill.	-X-	Herb.	Herb.
Connaraceae	<i>Cnestis bomiensis</i> Lemmens		Herb.	
Connaraceae	<i>Connarus africanus</i> Lam.	Herb.		
Connaraceae	<i>Manotes expansa</i> Sol. ex Planchon		-X-	
Connaraceae	<i>Manotes macrantha</i> (Gilg) Schellenb.		Herb.	
Connaraceae	<i>Rourea minor</i> (Gaertn.) Alston		Herb.	Herb.
Connaraceae	<i>Rourea solanderi</i> Baker		Herb.	Herb.
Connaraceae	<i>Rourea thomsonii</i> (Baker) Jongkind			Herb.
Convolvulaceae	<i>Bonamia thunbergiana</i> (Roem. & Schult.) F.N.Williams			Herb.
Convolvulaceae	<i>Calycobolus africanus</i> (G.Don) Heine	Herb.		
Convolvulaceae	<i>Calycobolus heudelotii</i> (Baker ex Oliv.) Heine	Herb.		
Convolvulaceae	<i>Ipomoea aitonii</i> Lindl.	Herb.		
Convolvulaceae	<i>Ipomoea obscura</i> (L.) Ker Gawl.	Herb.		
Convolvulaceae	<i>Neuropeltis acuminata</i> (P.Beauv.) Benth.			Herb.
Convolvulaceae	<i>Stictocardia beraviensis</i> (Vatke) Hallier f.	Herb.		
Costaceae	<i>Costus deistelii</i> K.Schum.	Herb.		
Costaceae	<i>Costus</i> sp.	-X-	-X-	
Cucurbitaceae	<i>Momordica charantia</i> L.	Herb.		
Cucurbitaceae	<i>Momordica foetida</i> Schumach.			Herb.
Cyatheaceae	<i>Cyathea camerooniana</i> Hook.	Herb.		
Cyperaceae	<i>Hypolytrum heteromorphum</i> Nelmes	Herb.		
Cyperaceae	<i>Hypolytrum purpurascens</i> Cherm.	Herb.		
Cyperaceae	<i>Hypolytrum</i> sp. 1	Herb.		
Cyperaceae	<i>Hypolytrum</i> sp. 2			Herb.
Cyperaceae	<i>Mapania ivorensis</i> (Raynal) Raynal		Herb.	
Cyperaceae	<i>Mapania linderi</i> Hutch. ex Nelmes	Herb.	Herb.	
Cyperaceae	<i>Scleria boivinii</i> Steud.		-X-	
Cyperaceae	<i>Scleria naumanniana</i> Boeckeler		Herb.	

continued

Family	Species	North Lorma	Gola	Grebo
Dennstaedtiaceae	<i>Microlepia speluncae</i> (L.) Moore			Herb.
Dichapetalaceae	<i>Dichapetalum angolense</i> Chodat			Herb.
Dichapetalaceae	<i>Dichapetalum heudelotii</i> (Planch. ex Oliv.) Baill.		Herb.	
Dichapetalaceae	<i>Dichapetalum</i> sp.			Herb.
Dichapetalaceae	<i>Dichapetalum toxicarium</i> (G.Don) Baill.			Herb.
Dilleniaceae	<i>Tetracera alnifolia</i> Willd.		-X-	-X-
Dioncophyllaceae	<i>Triplophyllum peltatum</i> (Hutch. & Dalziel) Airy Shaw		Herb.	Herb.
Dioscoreaceae	<i>Dioscorea</i> sp.	Herb.		
Dracaenaceae	<i>Dracaena aubryana</i> Brongn. ex C.J.Morren	Herb.	-X-	Herb.
Dracaenaceae	<i>Dracaena camerooniana</i> Baker			Herb.
Dracaenaceae	<i>Dracaena cristula</i> W.Bull			Herb.
Dracaenaceae	<i>Dracaena ovata</i> Ker Gawl.		Herb.	
Dracaenaceae	<i>Dracaena surculosa</i> Lindl. var. <i>maculata</i> Hook.f.			Herb.
Dracaenaceae	<i>Sansevieria liberica</i> Gér. & Labr.	-X-		
Dryopteridaceae	<i>Callipteris prolifera</i> (Lam.) Bory			Herb.
Dryopteridaceae	<i>Tectaria</i> sp.	Herb.		
Dryopteridaceae	<i>Triplophyllum buchholzii</i> (Kuhn) Holttum		Herb.	
Dryopteridaceae	<i>Triplophyllum</i> sp. 1	Herb.		
Dryopteridaceae	<i>Triplophyllum</i> sp. 2		Herb.	
Dryopteridaceae	<i>Triplophyllum</i> sp. 3		Herb.	
Ebenaceae	<i>Diospyros chevalieri</i> De Wild.		Herb.	Herb.
Ebenaceae	<i>Diospyros ferrea</i> (Willd.) Bakh.		Herb.	
Ebenaceae	<i>Diospyros gabunensis</i> Gürke		Herb.	
Ebenaceae	<i>Diospyros heudelotii</i> Hiern	Herb.		
Ebenaceae	<i>Diospyros mannii</i> Hiern	Herb.	Herb.	Herb.
Ebenaceae	<i>Diospyros sanza-minika</i> A.Chev.			Herb.
Ebenaceae	<i>Diospyros soubreana</i> F.White			Herb.
Ebenaceae	<i>Diospyros</i> sp.	Herb.		
Erythroxylaceae	<i>Erythroxylum mannii</i> Oliv.			Herb.
Euphorbiaceae	<i>Alchornea cordifolia</i> (Schum. & Thonning) Muell.Arg.		-X-	-X-
Euphorbiaceae	<i>Antidesma</i> sp.			Herb.
Euphorbiaceae	<i>Crotonogyne caterviflora</i> N.E.Br.		Herb.	
Euphorbiaceae	<i>Discoglypemma caloneura</i> (Pax) Prain			Herb.
Euphorbiaceae	<i>Macaranga heterophylla</i> (Muell.Arg.) Muell.Arg.	-X-	-X-	
Euphorbiaceae	<i>Macaranga hurifolia</i> Beille			-X-
Euphorbiaceae	<i>Maesobotrya barteri</i> (Baillon) Hutch.	-X-		
Euphorbiaceae	<i>Manniophyton fulvum</i> Müll.Arg.	-X-	-X-	-X-
Euphorbiaceae	<i>Mareya micrantha</i> (Benth.) Müll.Arg.		Herb.	
Euphorbiaceae	<i>Phyllanthus kerstingii</i> Brunel	Herb.		
Euphorbiaceae	<i>Phyllanthus profusus</i> N.E.Br.	Herb.		
Euphorbiaceae	<i>Plesiatropha paniculata</i> (Pax) Breteler	Herb.		
Euphorbiaceae	<i>Spondianthus preussii</i> Engler			-X-
Euphorbiaceae	<i>Tragia spathulata</i> Benth.	Herb.		

continued

Family	Species	North Lorma	Gola	Grebo
Euphorbiaceae	<i>Uapaca paludosa</i> Aubrév. & Léandri			Herb.
Flacourtiaceae	<i>Oncoba brevipes</i> Stapf		-X-	
Flacourtiaceae	<i>Oncoba echinata</i> Oliv.	Herb.		
Gentianaceae	<i>Anthocleista nobilis</i> G.Don		-X-	
Gentianaceae	<i>Voyria primuloides</i> Baker		Herb.	
Gleicheniaceae	<i>Dicranopteris linearis</i> (Burm.) Underwood		-X-	-X-
Gramineae	<i>Acroceras gabunense</i> (Hack.) Clayton	Herb.		
Gramineae	<i>Centotheca lappacea</i> (L.) Desv.	Herb.	Herb.	
Gramineae	<i>Guaduella oblonga</i> Hutch. ex W.D.Clayton	Herb.	Herb.	
Gramineae	<i>Leptaspis zeylanica</i> Nees ex Steud.	Herb.		
Gramineae	<i>Olyra latifolia</i> L.	Herb.		
Gramineae	<i>Oplismenus hirtellus</i> (L.) P.Beauv.	Herb.		
Gramineae	<i>Panicum laxum</i> Sw.		Herb.	
Gramineae	<i>Pseudechinolaena polystachya</i> (Kunth) Stapf	Herb.		
Gramineae	<i>Setaria megaphylla</i> (Steud.) Dur. & Schinz	Herb.		
Gramineae	<i>Streptogyna crinita</i> P.Beauv.	Herb.		Herb.
Grammitidaceae	<i>Cochlidium serrulatum</i> (Swartz) L.E. Bishop		Herb.	
Guttiferae	<i>Garcinia epunctata</i> Stapf			Herb.
Guttiferae	<i>Harungana madagascariensis</i> Lamarck ex Poiret		-X-	-X-
Guttiferae	<i>Mammea africana</i> Sabine			-X-
Guttiferae	<i>Pentadesma butyracea</i> Sabine	-X-	-X-	-X-
Humiriaceae	<i>Sacoglottis gabonensis</i> (Baill.) Urb.		Herb.	Herb.
Hymenophyllaceae	<i>Hymenophyllum hirsutum</i> (L.) Sw.		Herb.	
Hymenophyllaceae	<i>Trichomanes chamaedrys</i> Taton		Herb.	
Hymenophyllaceae	<i>Trichomanes fallax</i> Christ	Herb.		
Hymenophyllaceae	<i>Trichomanes guineense</i> Afzel. ex Sw.		Herb.	
Icacinaceae	<i>Desmostachys vogelii</i> (Miers) Stapf		Herb.	
Icacinaceae	<i>Iodes liberica</i> Stapf			Herb.
Icacinaceae	<i>Pyrenacantha acuminata</i> Engl.	Herb.		
Icacinaceae	<i>Pyrenacantha glabrescens</i> (Engl.) Engl.			Herb.
Icacinaceae	<i>Pyrenacantha klaineana</i> Pierre ex Exell & Mendonça		Herb.	
Icacinaceae	<i>Rhaphiostylis cordifolia</i> Hutch. & Dalziel		Herb.	
Icacinaceae	<i>Rhaphiostylis</i> sp. nov.		Herb.	Herb.
Irvingiaceae	<i>Irvingia gabonensis</i> (Aubry-Lecomte) Baillon			-X-
Labiatae	<i>Achyropermum oblongifolium</i> Baker	Herb.		Herb.
Labiatae	<i>Plectranthus epilithicus</i> B.J.Pollard	Herb.		
Labiatae	<i>Plectranthus</i> sp.	Herb.		
Lecythidaceae	<i>Napoleonaea vogelii</i> Hook. & Planch.			Herb.
Lecythidaceae	<i>Petersianthus macrocarpus</i> (P.Beauv.) Liben	-X-		
Leguminosae-Caes.	<i>Afzelia</i> sp.		-X-	
Leguminosae-Caes.	<i>Anthonotha crassifolia</i> (Baill.) J.Léonard	Herb.		
Leguminosae-Caes.	<i>Anthonotha fragrans</i> (Baker f.) Exell & Hillcoat	Herb.	Herb.	
Leguminosae-Caes.	<i>Bussea occidentalis</i> Hutch. ex Chipp.	Herb.		

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Family	Species	North Lorma	Gola	Grebo
Leguminosae-Caes.	<i>Copaifera salikounda</i> Heckel	Herb.	-X-	Herb.
Leguminosae-Caes.	<i>Cryptosepalum tetraphyllum</i> Benth.	Herb.		
Leguminosae-Caes.	<i>Daniella thurifera</i> Bennett	-X-		
Leguminosae-Caes.	<i>Dialium aubrevillei</i> Pellegr.	Herb.	Herb.	Herb.
Leguminosae-Caes.	<i>Distemonanthus benthamianus</i> Baillon	-X-		
Leguminosae-Caes.	<i>Erythrophleum ivorense</i> A.Chev.			Herb.
Leguminosae-Caes.	<i>Gilbertiodendron aylmeri</i> (Hutch. & Dalziel) J.Léonard		Herb.	
Leguminosae-Caes.	<i>Gilbertiodendron preussii</i> (Harms) J.Léonard	-X-	Herb.	Herb.
Leguminosae-Caes.	<i>Griffonia simplicifolia</i> (Vahl ex DC.) Baillon			-X-
Leguminosae-Caes.	<i>Guibourtia leonensis</i> J.Léonard	Herb.		
Leguminosae-Caes.	<i>Paramacrolobium coeruleum</i> (Taub.) J.Léonard	Herb.		
Leguminosae-Caes.	<i>Plagiosiphon emarginatus</i> (Hutch. & Dalziel) J. Léonard	Herb.	Herb.	
Leguminosae-Caes.	<i>Senna podocarpa</i> (Guill. & Perr.) Lock	Herb.		
Leguminosae-Caes.	<i>Senna tora</i> (L.) Roxb.	Herb.		
Leguminosae-Caes.	<i>Stachyothyrsus stapfiana</i> (A.Chev.) J.Léonard & Voorhoeve		Herb.	
Leguminosae-Caes.	<i>Tessmannia baikiaeooides</i> Hutch. & Dalziel	Herb.		
Leguminosae-Mim.	<i>Calpocalyx brevibracteatus</i> Harms		Herb.	
Leguminosae-Mim.	<i>Newtonia duparquetiana</i> (Baill.) Keay	Herb.		
Leguminosae-Mim.	<i>Newtonia</i> sp.			Herb.
Leguminosae-Mim.	<i>Parkia bicolor</i> A.Chev.	Herb.	-X-	
Leguminosae-Mim.	<i>Pentaclethra macrophylla</i> Bentham	-X-		-X-
Leguminosae-Mim.	<i>Piptadeniastrum africanum</i> (Hooker f.) Brenan			-X-
Leguminosae-Mim.	<i>Xylia evansii</i> Hutch.	Herb.		
Leguminosae-Pap.	<i>Abrus fruticosus</i> Wall. ex W. & A.	Herb.		
Leguminosae-Pap.	<i>Amphimas pterocarpoides</i> Harms			Herb.
Leguminosae-Pap.	<i>Baphia capparidifolia</i> Baker subsp. <i>polygalacea</i> Brummitt	Herb.		
Leguminosae-Pap.	<i>Baphia nitida</i> Lodd.			Herb.
Leguminosae-Pap.	<i>Dalbergia adamii</i> Berhaut	Herb.		
Leguminosae-Pap.	<i>Dalbergia afzeliana</i> G.Don			Herb.
Leguminosae-Pap.	<i>Dalbergia heudelotii</i> Stapf	Herb.		
Leguminosae-Pap.	<i>Dalbergia oblongifolia</i> G.Don	Herb.		Herb.
Leguminosae-Pap.	<i>Dalbergia</i> sp.		Herb.	
Leguminosae-Pap.	<i>Leptoderris sassandrensis</i> Jongkind			Herb.
Leguminosae-Pap.	<i>Leptoderris</i> sp. nov.			Herb.
Leguminosae-Pap.	<i>Millettia chrysophylla</i> Dunn	Herb.		Herb.
Leguminosae-Pap.	<i>Millettia lane-polei</i> Dunn	Herb.		
Leguminosae-Pap.	<i>Millettia liberica</i> Jongkind			Herb.
Leguminosae-Pap.	<i>Millettia lucens</i> (Scott-Elliot) Dunn	Herb.		
Leguminosae-Pap.	<i>Millettia</i> sp.	Herb.		
Leguminosae-Pap.	<i>Millettia warneckei</i> Harms var. <i>porphyrocalyx</i> (Dunn) Hepper	Herb.		
Leguminosae-Pap.	<i>Platysepalum hirsutum</i> (Dunn) Hepper			Herb.
Leguminosae-Pap.	<i>Vigna gracilis</i> (Guill. & Perr.) Hook.f.	Herb.		Herb.
Liliaceae	<i>Asparagus drepanophyllus</i> Welw.	Herb.		

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Family	Species	North Lorma	Gola	Grebo
Liliaceae	<i>Chlorophytum alismaefolium</i> Baker	Herb.		
Liliaceae	<i>Chlorophytum comosum</i> (Thunb.) Jacq. var. <i>sparsiflorum</i> (Baker) A.D.Poulsen & Nordal	Herb.	Herb.	
Linaceae	<i>Hugonia</i> sp.	-X-		
Linaceae	<i>Ochthocosmus africanus</i> Hook.f.	Herb.		
Loganiaceae	<i>Strychnos aculeata</i> Solereder		-X-	
Loganiaceae	<i>Strychnos afzelii</i> Gilg	Herb.		Herb.
Loganiaceae	<i>Strychnos barteri</i> Soler.			Herb.
Loganiaceae	<i>Strychnos camptoneura</i> Gilg & Busse		Herb.	
Loganiaceae	<i>Strychnos densiflora</i> Baill.		Herb.	
Loganiaceae	<i>Strychnos icaja</i> Baill.	Herb.		Herb.
Loganiaceae	<i>Strychnos splendens</i> Gilg	Herb.		
Loganiaceae	<i>Strychnos usambarensis</i> Gilg		Herb.	
Lomariopsidaceae	<i>Bolbitis acrostichoides</i> (Afzel. ex Sw.) Ching	Herb.		
Lomariopsidaceae	<i>Bolbitis salicina</i> (Hook.) Ching	Herb.	Herb.	
Lomariopsidaceae	<i>Bolbitis</i> sp.		Herb.	
Lomariopsidaceae	<i>Elaphoglossum</i> sp. 1		Herb.	
Lomariopsidaceae	<i>Elaphoglossum</i> sp. 2		Herb.	
Lomariopsidaceae	<i>Lomariopsis guineensis</i> (Underw.) Alston		Herb.	Herb.
Lomariopsidaceae	<i>Lomariopsis palustris</i> (Hook.) Mett. ex Kuhn	Herb.		Herb.
Loxogrammataceae	<i>Loxogramme abyssinica</i> (Baker) M.G.Price	Herb.		
Lycopodiaceae	<i>Lycopodiella cernua</i> (L.) Pichi Sermolli			Photo
Malpighiaceae	<i>Acridocarpus longifolius</i> (G.Don) Hook.f.			Herb.
Malpighiaceae	<i>Acridocarpus plagiopterus</i> Guill. & Perr.			Herb.
Malpighiaceae	<i>Flabellaria paniculata</i> Cav.	Herb.		
Malvaceae	<i>Wissadula amplissima</i> (L.) R.E.Fr. var. <i>rostrata</i> (Schumach. & Thonn.) R.E.Fr.	Herb.		
Marantaceae	<i>Halopogon azurea</i> (K.Schum.) K.Schum.	Herb.	Herb.	
Marantaceae	<i>Marantochloa cuspidata</i> (Rosc.) Milne-Redh.	Herb.		
Marantaceae	<i>Marantochloa filipes</i> (Benth.) Hutch.	Herb.		
Marantaceae	<i>Marantochloa leucantha</i> (K.Schum.) Milne-Redh.			Herb.
Marantaceae	<i>Sarcophrynium brachystachyum</i> (Benth.) K.Schum.		Herb.	Herb.
Marattiaceae	<i>Marattia fraxinea</i> J.Sm.		Herb.	
Medusandraceae	<i>Soyauxia floribunda</i> Hutch.	Herb.		
Melastomataceae	<i>Calvoa monticola</i> A.Chev. ex Hutch. & Dalziel	Herb.		
Melastomataceae	<i>Dicellandra barteri</i> Hook.f.		Herb.	
Melastomataceae	<i>Dichaetanthera africana</i> (Hook.f.) Jacq.-Fél.			Herb.
Melastomataceae	<i>Guyonia ciliata</i> Hook.f.		Herb.	
Melastomataceae	<i>Melastomastrum theifolium</i> (G.Don) A.Fern. & R.Fern.	Herb.		
Melastomataceae	<i>Memecylon lateriflorum</i> (G.Don) Bremek.		Herb.	
Melastomataceae	<i>Memecylon</i> sp.	Herb.		
Melastomataceae	<i>Ochthocharis dicellandroides</i> (Gilg) C.Hansen & Wickens			Herb.
Melastomataceae	<i>Tristemma akeassii</i> Jacq.-Fél.			Herb.
Melastomataceae	<i>Tristemma coronatum</i> Benth.	Herb.	Herb.	

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Family	Species	North Lorma	Gola	Grebo
Melastomataceae	<i>Warneckea cinnamomoides</i> (G.Don) Jacq.-Fél.		Herb.	
Melastomataceae	<i>Warneckea golaensis</i> (Baker f.) Jacq.-Fél.	Herb.		
Melastomataceae	<i>Warneckea memecyloides</i> (Benth.) Jacq.-Fél.			Herb.
Melastomataceae	<i>Warneckea</i> sp.		Herb.	
Meliaceae	<i>Carapa procera</i> DC.	Herb.		
Meliaceae	<i>Entandrophragma angolensis</i> (Welwitsch) DC.	-X-		
Meliaceae	<i>Entandrophragma utile</i> (Dawe & Sprague) Sprague	-X-		
Meliaceae	<i>Khaya</i> sp.			-X-
Menispermaceae	<i>Albertisia ferruginea</i> (Diels) Forman		Herb.	
Menispermaceae	<i>Kolobopetalum leonense</i> Hutch. & Dalziel		Herb.	
Menispermaceae	<i>Penianthus patulinervis</i> Hutch. & Dalziel	Herb.		
Menispermaceae	<i>Tiliacora leonensis</i> (Scott-Elliot) Diels			Herb.
Moraceae	<i>Antiaris toxicaria</i> (Rumph. ex Pers.) Leschen.			-X-
Moraceae	<i>Ficus barteri</i> Sprague			Herb.
Moraceae	<i>Ficus elasticoides</i> De Wild.			Herb.
Moraceae	<i>Ficus leonensis</i> Hutch.		Herb.	
Moraceae	<i>Ficus lingua</i> Warb. ex De Wild. & T.Durand subsp. <i>lingua</i>			Herb.
Moraceae	<i>Ficus natalensis</i> Hochst. subsp. <i>leprieurii</i> (Miq.) C.C.Berg	Herb.		
Moraceae	<i>Ficus pachyneura</i> C.C.Berg		Herb.	
Moraceae	<i>Ficus sansibarica</i> Warb.	Herb.		
Moraceae	<i>Ficus saussureana</i> DC.		Herb.	
Moraceae	<i>Ficus umbellata</i> Vahl			Herb.
Moraceae	<i>Ficus vogeliana</i> (Miq.) Miq.			Herb.
Moraceae	<i>Milicia regia</i> (A.Chev.) C.C.Berg		Herb.	
Moraceae	<i>Musanga cecropioides</i> F.Br.	-X-	-X-	-X-
Moraceae	<i>Myrianthus libericus</i> Rendle	Herb.		
Moraceae	<i>Streblus usambarensis</i> (Engl.) C.C.Berg	Herb.		
Moraceae	<i>Treulia africana</i> Decne.	Herb.		Herb.
Moraceae	<i>Trilepisium madagascariense</i> Thouars ex DC.	Herb.		
Myristicaceae	<i>Pycnanthus angolensis</i> (Welwitsch) Warb.	-X-		-X-
Ochnaceae	<i>Campylopermum amplexens</i> (Stapf) Farron		Herb.	
Ochnaceae	<i>Campylopermum congestum</i> (Oliv.) Farron	Herb.		
Ochnaceae	<i>Campylopermum duparquetianum</i> (Baill.) Tiegh.			Herb.
Ochnaceae	<i>Campylopermum glaberrimum</i> (P.Beauv.) Farron		Herb.	
Ochnaceae	<i>Campylopermum schoenleinianum</i> (Klotzsch) Farron	Herb.	Herb.	Herb.
Ochnaceae	<i>Campylopermum subcordatum</i> (Stapf) Farron	Herb.	Herb.	
Ochnaceae	<i>Lophira alata</i> Banks ex Gaertn.		-X-	-X-
Ochnaceae	<i>Ochna membranacea</i> Oliv.	Herb.		
Ochnaceae	<i>Rhabdophyllum calophyllum</i> (Hook.f.) Tiegh.	Herb.		
Olacaceae	<i>Coula edulis</i> Baill.			Herb.
Olacaceae	<i>Heisteria parvifolia</i> Sm.		-X-	Herb.
Olacaceae	<i>Olax gambecola</i> Baill.	Herb.		
Olacaceae	<i>Ptychopetalum anceps</i> Oliv.		Herb.	Herb.

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Family	Species	North Lorma	Gola	Grebo
Oleaceae	<i>Strombosia pustulata</i> Oliv.		Herb.	Herb.
Oleaceae	<i>Jasminum pauciflorum</i> Benth.	Herb.		
Oleandraceae	<i>Arthropteris palisotii</i> (Desv.) Alston			Herb.
Oleandraceae	<i>Nephrolepis biserrata</i> (Sw.) Schott	Herb.		
Orchidaceae	<i>Angraecum birrimense</i> Rolfe	Herb.		
Orchidaceae	<i>Angraecum distichum</i> Lindl.		Herb.	
Orchidaceae	<i>Angraecum podochiloides</i> Schltr.		Herb.	
Orchidaceae	<i>Angraecum subulatum</i> Lindl.	Herb.		
Orchidaceae	<i>Bulbophyllum magnibracteatum</i> Summerh.		Herb.	
Orchidaceae	<i>Bulbophyllum oreonastes</i> Rchb.f.		Herb.	
Orchidaceae	<i>Calyptrochilum christyanum</i> (Rchb.f.) Summerh.			Herb.
Orchidaceae	<i>Chamaeangis odoratissima</i> (Rchb.f.) Schltr.			Herb.
Orchidaceae	<i>Habenaria macrandra</i> Lindl.	Herb.		
Orchidaceae	<i>Nervilia</i> sp.	Photo		
Orchidaceae	<i>Oeceoclades maculata</i> (Lindley) Lindley	Photo		
Orchidaceae	<i>Polystachya</i> Hook.			Herb.
Orchidaceae	<i>Polystachya polychaete</i> Kraenzl.		Herb.	
Orchidaceae	<i>Tridactyle bicaudata</i> (Lindl.) Schltr.		Herb.	
Orchidaceae	<i>Vanilla africana</i> Lindl.	Herb.		
Palmae	<i>Eremospatha</i> sp.		-X-	
Palmae	<i>Laccosperma</i> sp.		-X-	
Palmae	<i>Raphia hookeri</i> Mann & Wendl.			-X-
Palmae	<i>Raphia palma-pinus</i> (Gaertn.) Hutch.	-X-		
Pandaceae	<i>Microdesmis keayana</i> J.Léonard	Herb.		-X-
Pandaceae	<i>Panda oleosa</i> Pierre			Herb.
Passifloraceae	<i>Adenia cissampeloides</i> (Planch. ex Benth.) Harms			Herb.
Passifloraceae	<i>Adenia lobata</i> (Jacq.) Engler			-X-
Passifloraceae	<i>Adenia mannii</i> (Mast.) Engl.			Herb.
Passifloraceae	<i>Androsiphonia adenostegia</i> Stapf		Herb.	
Passifloraceae	<i>Crossostemma laurifolium</i> Planch. ex Benth.	Herb.		
Passifloraceae	<i>Smeathmannia pubescens</i> Sol. ex R.Br.	Herb.		
Piperaceae	<i>Peperomia rotundifolia</i> (L.) H.B.& K.	Herb.		
Piperaceae	<i>Piper guineense</i> Schum. & Thonning	-X-	-X-	-X-
Piperaceae	<i>Piper umbellatum</i> L.			-X-
Polygalaceae	<i>Carpolobia alba</i> G.Don	Herb.		
Polygonaceae	<i>Afrobrunnichia erecta</i> (Asch.) Hutch. & Dalziel	-X-		Herb.
Polypodiaceae	<i>Drynaria laurentii</i> (Christ) Hieronymus			-X-
Polypodiaceae	<i>Microgramma lycopodioides</i> (L.) Copel.			Herb.
Polypodiaceae	<i>Microsorium punctatum</i> (L.) Copeland	-X-		-X-
Polypodiaceae	<i>Phymatosorus scolopendria</i> (Burm.f.) Pic.Serm.			Herb.
Polypodiaceae	<i>Platyterium stemaria</i> (P.Beauv.) Desvaux	-X-		Photo
Pteridaceae	<i>Pityrogramma calomelanos</i> (L.) Link			-X-
Pteridaceae	<i>Pteris burtonii</i> Baker		Herb.	

continued

Family	Species	North Lorma	Gola	Grebo
Putranjivaceae	<i>Drypetes gilgiana</i> (Pax) Pax & K.Hoffm.	Herb.	Herb.	
Putranjivaceae	<i>Drypetes inaequalis</i> Hutch.	Herb.		
Putranjivaceae	<i>Drypetes</i> sp. nov.			Herb.
Rapateaceae	<i>Maschalocephalus dinklagei</i> Gilg & K.Schum.		Herb.	
Rhamnaceae	<i>Lasiodiscus fasciculiflorus</i> Engl.	Herb.	Herb.	
Rhamnaceae	<i>Lasiodiscus mannii</i> Hook.f.		Herb.	
Rhamnaceae	<i>Ventilago africana</i> Exell			Herb.
Rhizophoraceae	<i>Cassipourea nialatou</i> Aubrév. & Pellegr.			Herb.
Rubiaceae	<i>Argocoffeopsis afzelii</i> (Hiern) Robbr.	Herb.		
Rubiaceae	<i>Argostemma pumilum</i> Benn.		Herb.	
Rubiaceae	<i>Bertiera bracteolata</i> Hiern			Herb.
Rubiaceae	<i>Bertiera breviflora</i> Hiern.	Herb.		
Rubiaceae	<i>Bertiera racemosa</i> (G.Don) K.Schum.			Herb.
Rubiaceae	<i>Bertiera spicata</i> (C.F.Gaertn.) K.Schum.		Herb.	
Rubiaceae	<i>Cephaelis micheliae</i> J.-G.Adam		Herb.	
Rubiaceae	<i>Chassalia afzelii</i> (Hiern) K.Schum.			Herb.
Rubiaceae	<i>Chassalia corallifera</i> (A.Chev. ex De Wild.) Hepper		Herb.	
Rubiaceae	<i>Chassalia</i> sp. nov.		Herb.	
Rubiaceae	<i>Corynanthe pachyceras</i> K.Schum.			Herb.
Rubiaceae	<i>Craterispermum caudatum</i> Hutch.			Herb.
Rubiaceae	<i>Cremaspora triflora</i> (Thonn.) K.Schum.			Herb.
Rubiaceae	<i>Gaertnera longevaginalis</i> (Hiern) E.M.A.Petit	Herb.		
Rubiaceae	<i>Gaertnera</i> sp.		Herb.	
Rubiaceae	<i>Gardenia nitida</i> Hook.	Herb.		
Rubiaceae	<i>Geophila afzelii</i> Hiern	Herb.		Herb.
Rubiaceae	<i>Geophila obvallata</i> (Schumach.) F.Didr.	Herb.		
Rubiaceae	<i>Heinsia crinita</i> (Afzel.) G.Taylor	-X-	Herb.	-X-
Rubiaceae	<i>Hutchinsonia barbata</i> Robyns		Herb.	
Rubiaceae	<i>Hymenocoleus neurodictyon</i> (K.Schum.) Robbr.	Herb.		
Rubiaceae	<i>Hymenocoleus</i> sp. 1		Herb.	
Rubiaceae	<i>Hymenocoleus</i> sp. 2		Herb.	
Rubiaceae	<i>Ixora aggregata</i> Hutch.			Herb.
Rubiaceae	<i>Ixora nimbana</i> Schnell	Herb.		
Rubiaceae	<i>Keetia bridsoniae</i> Jongkind	Herb.		
Rubiaceae	<i>Keetia leucantha</i> (Krause) Bridson			Herb.
Rubiaceae	<i>Keetia obovata</i> Jongkind		Herb.	
Rubiaceae	<i>Keetia rufivillosa</i> (Robyns ex Hutch. & Dalziel) Bridson	Herb.		Herb.
Rubiaceae	<i>Keetia</i> sp.		Herb.	
Rubiaceae	<i>Lasianthus batangensis</i> K.Schum.	Herb.	Herb.	
Rubiaceae	<i>Lasianthus repens</i> Hepper	Herb.		
Rubiaceae	<i>Massularia acuminata</i> (G.Don) Bullock ex Hoyle	Herb.		
Rubiaceae	<i>Mussaenda chippii</i> Wernham		Herb.	
Rubiaceae	<i>Mussaenda grandiflora</i> Benth.			Herb.

continued

Family	Species	North Lorma	Gola	Grebo
Rubiaceae	<i>Nauclea diderrichii</i> (De Wild. & Th.Dur.) Merrill	-X-		-X-
Rubiaceae	<i>Nauclea vanderguchtii</i> (De Wild.) Petit		Herb.	
Rubiaceae	<i>Nichallea soyauxii</i> (Hiern) Bridson			Herb.
Rubiaceae	<i>Oxyanthus formosus</i> Hook.f. ex Planch.	Herb.		
Rubiaceae	<i>Parapentas setigera</i> (Hiern) Verdc.	Herb.		
Rubiaceae	<i>Pauridiantha sylvicola</i> (Hutch. & Dalziel) Bremek.	Herb.	Herb.	Herb.
Rubiaceae	<i>Pavetta</i> sp.		Herb.	
Rubiaceae	<i>Poecilocalyx stipulosa</i> (Hutch. & Dalziel) N.Hallé		Herb.	
Rubiaceae	<i>Psychotria biaurita</i> (Hutch. & Dalziel) Verdc.	Herb.		
Rubiaceae	<i>Psychotria gabonica</i> Hiern			Herb.
Rubiaceae	<i>Psychotria kwewonii</i> Jongkind ined.			Herb.
Rubiaceae	<i>Psychotria ombrophila</i> (Schnell) Verdc.		Herb.	
Rubiaceae	<i>Psychotria peduncularis</i> (Salisb.) Verdcourt			-X-
Rubiaceae	<i>Psychotria</i> sp. 1	Herb.		
Rubiaceae	<i>Psychotria</i> sp. 2			Herb.
Rubiaceae	<i>Psychotria</i> sp. 3			Herb.
Rubiaceae	<i>Psychotria</i> sp. 4			Herb.
Rubiaceae	<i>Psychotria yapoensis</i> (Schnell) Verdc.			Herb.
Rubiaceae	<i>Rothmannia whitfieldii</i> (Lindl.) Dandy		Herb.	
Rubiaceae	<i>Rytigynia canthioides</i> (Benth.) Robyns			Herb.
Rubiaceae	<i>Sabicea ferruginea</i> Benth.		-X-	Herb.
Rubiaceae	<i>Sabicea rosea</i> Hoyle			Herb.
Rubiaceae	<i>Schizocolea linderi</i> (Hutch. & Dalziel) Bremek.	Herb.	Herb.	
Rubiaceae	<i>Sericanthe adamii</i> (N.Hallé) Robbr.		Herb.	
Rubiaceae	<i>Sherbournia calycina</i> (G.Don) Hua			Herb.
Rubiaceae	<i>Stelechantha ziamaeana</i> (Jacq.-Fél.) N.Hallé	Herb.	Herb.	Herb.
Rubiaceae	<i>Tarenna fusco-flava</i> (K.Schum.) S.Moore			Herb.
Rubiaceae	<i>Tarenna</i> sp.		Herb.	
Rubiaceae	<i>Tricalysia pallens</i> Hiern			Herb.
Rubiaceae	<i>Tricalysia reflexa</i> Hutch.		Herb.	
Rubiaceae	<i>Tricalysia</i> sp. nov.		Herb.	
Rubiaceae	<i>Trichostachys aurea</i> Hiern	Herb.		-X-
Rubiaceae	<i>Uncaria africana</i> G.Don		-X-	-X-
Rubiaceae	<i>Virectaria procumbens</i> (Sm.) Bremek.		Herb.	Herb.
Rubiaceae	<i>Virectaria</i> sp.		Herb.	
Rutaceae	<i>Vepris</i> sp.		Herb.	
Rutaceae	<i>Vepris verdoorniana</i> (Exell & Mendonça) W.Mziray	Herb.		
Rutaceae	<i>Zanthoxylum psammophilum</i> (Aké Assi) Waterman		Herb.	
Rutaceae	<i>Zanthoxylum</i> sp.	-X-		
Sapindaceae	<i>Allophylus</i> sp.		Herb.	
Sapindaceae	<i>Chytranthus carneus</i> Radlk.	Herb.	Herb.	Herb.
Sapindaceae	<i>Chytranthus</i> sp.	Herb.		
Sapindaceae	<i>Eriocoelum racemosum</i> Baker		Herb.	

continued

Family	Species	North Lorma	Gola	Grebo
Sapindaceae	<i>Pancovia</i> sp.	Herb.		
Sapindaceae	<i>Paullinia pinnata</i> Linné	-X-		
Sapindaceae	<i>Placodiscus pseudostipularis</i> Radlk.		Herb.	
Sapotaceae	<i>Chrysophyllum africanum</i> A.DC.	Herb.	Herb.	Herb.
Sapotaceae	<i>Chrysophyllum subnudum</i> Baker	Herb.		
Sapotaceae	<i>Chrysophyllum welwitschii</i> Engl.	Herb.		Herb.
Sapotaceae	<i>Delphydora gracilis</i> A.Chev.		Herb.	
Sapotaceae	<i>Englerophytum</i> sp.		Herb.	
Sapotaceae	<i>Gluema ivorensis</i> Aubrév. & Pellegr.		Herb.	
Sapotaceae	<i>Ituridendron bequaertii</i> De Wild.			Herb.
Sapotaceae	<i>Manilkara</i> sp.		Herb.	
Sapotaceae	<i>Neolemonniera</i> sp. Heine	Herb.		
Sapotaceae	<i>Pouteria aningeri</i> Baehni	Herb.		Herb.
Scytopetalaceae	<i>Scytopetalum tieghemii</i> Hutch. & Dalziel			Herb.
Selaginellaceae	<i>Selaginella cathedriformis</i> Spring	Herb.	Herb.	
Selaginellaceae	<i>Selaginella myosurus</i> (Swartz) Alston			-X-
Selaginellaceae	<i>Selaginella soyauxii</i> Hieron.	Herb.		
Selaginellaceae	<i>Selaginella versicolor</i> Spring	Herb.		
Simaroubaceae	<i>Hannoa klaineana</i> Pierre ex Engl.	Herb.		
Solanaceae	<i>Solanum terminale</i> Forssk.	Herb.		
Sterculiaceae	<i>Cola buntingii</i> Baker f.		Herb.	Photo
Sterculiaceae	<i>Cola caricifolia</i> (G.Don) K.Schum.			-X-
Sterculiaceae	<i>Cola heterophylla</i> (P.Beauv.) Schott. & Endl.	Herb.		
Sterculiaceae	<i>Cola lateritia</i> K.Schum.			-X-
Sterculiaceae	<i>Cola</i> sp.	Herb.		
Sterculiaceae	<i>Heritiera utilis</i> Sprague	Herb.	Herb.	-X-
Sterculiaceae	<i>Leptonychia occidentalis</i> Keay			Herb.
Sterculiaceae	<i>Sterculia</i> sp.			Herb.
Sterculiaceae	<i>Triplochiton scleroxylon</i> K.Schum.			-X-
Thelypteridaceae	<i>Cyclosorus striatus</i> (Schum.) Ching	Herb.		
Thymelaeaceae	<i>Dicranolepis</i> sp.	-X-		-X-
Tiliaceae	<i>Desplatsia chrysochlamys</i> (Mildbr. & Burret) Mildbr. & Burret	Herb.		Herb.
Tiliaceae	<i>Grewia malacocarpa</i> Mast.	Herb.		
Tiliaceae	<i>Grewia pubescens</i> P.Beauv.	Herb.		
Urticaceae	<i>Urena</i> sp.	-X-		
Verbenaceae	<i>Vitex phaeotricha</i> Mildbr. ex W.Piep.			Herb.
Violaceae	<i>Decorsella paradoxa</i> A.Chev.		Herb.	Herb.
Violaceae	<i>Rinorea brachypetala</i> (Turcz.) Kuntze	Herb.		
Violaceae	<i>Rinorea breviracemosa</i> Chipp	Herb.	Herb.	
Violaceae	<i>Rinorea ilicifolia</i> (Welw. ex Oliv.) Kuntze	Herb.		Herb.
Violaceae	<i>Rinorea microdon</i> M.Brandt	Herb.	Herb.	
Violaceae	<i>Rinorea oblongifolia</i> (C.H.Wright) Marquand ex Chipp	Herb.		
Violaceae	<i>Rinorea</i> sp.			Herb.

continued

Family	Species	North Lorma	Gola	Grebo
Vitaceae	<i>Cissus diffusiflora</i> (Baker) Planch.	Herb.		
Vitaceae	<i>Cissus miegei</i> Tchoumé			Herb.
Vitaceae	<i>Cissus producta</i> Afzel.			Herb.
Vitaceae	<i>Cissus smithiana</i> (Baker) Planch.			Herb.
Vitaceae	<i>Cissus</i> sp.	Herb.		
Vitaceae	<i>Leea guineensis</i> G.Don			-X-
Vittariaceae	<i>Antrophyum mannianum</i> Hook.	Herb.		
Vittariaceae	<i>Vittaria guineensis</i> Desv.	Herb.		
Zingiberaceae	<i>Aframomum</i> sp.		-X-	
Zingiberaceae	<i>Reinealmia longifolia</i> K.Schum.		Herb.	

Appendix 2

Checklist of Odonata recorded from Liberia and neighboring areas.

Klaas-Douwe B. Dijkstra

RL: Unpublished global or western African (between brackets) Red List assessment made by the author (assessed May, evaluated August 2006).

Biology (preferences are inferred from observations during the fieldwork, augmented with previous experience):

B: biogeography of the species. **A:** all over tropical Africa including savannahs, **G:** confined to Guineo-Congolian forest, **N:** associated with northern African savannah (Senegal to Ethiopia), **U:** confined to Upper Guinean forest (Sierra Leone to Togo), **W:** confined to western Africa forest (Senegal to Cameroon).

L: preferred landscape. **F:** forest, **O:** open habitats.

W: preferred water type. **R:** running; **S:** standing.

Liberian records (type locality lies in Liberia if species marked with asterisk):

NL, Go, Gr: North Lorma, Gola and Grebo National Forests.

A: adult voucher obtained; **L:** larval voucher obtained; **S:** adults caught for identification or seen only; records obtained nearby but outside the national forest are given between brackets.

Li: country records after Lempert (1988) and current survey. **1:** species found in current survey (! indicates new national record), **2:** found by Lempert, **3:** found by Lempert, but identification requires confirmation, **4:** literature record listed by Lempert; **5:** not listed by Lempert, but by Pinhey (1984). Species with old or dubious records (probable misidentifications) that are removed from the list until confirmed are: *Sapho orichalcea* McLachlan, 1869; *Umma puella* (Sjöstedt, 1917); *Ceriagrion ignitum* Campion, 1914; *Trithemis nuptialis* Karsch, 1894.

Neighboring areas (type locality lies in stated area if species marked with asterisk):

SL: Sierra Leone records after Carfi and D'Andrea (1994) and Marconi and Terzani (2006). **1:** authors' material; **2:** authors' material, identification requires confirmation; **3:** Aguesse (1968) records; **4:** other literature records. Omitted are: *Stenocnemis pachystigma* (Selys, 1886); *Elatoneura pruinosa* (Selys, 1886); *Agriocnemis forcipata* Le Roi, 1915; *Pseudagrion nubicum* Selys, 1876; *Anaciaeschna triangulifera* McLachlan, 1896; *Anax speratus* Hagen, 1867; *Diastomma* sp. Gambles, 1987; *Phyllogomphus aethiops* Selys, 1854; *Phyllomacromia monoceros* (Förster, 1906); *Orthetrum caffrum* (Burmeister, 1839); *Orthetrum machadoi* Longfield, 1955; *Porpax asperipes* Karsch, 1896; *Trithemis dorsalis* (Rambur, 1842).

MN: Mt Nimba (Guinean side) records after Legrand (2003). **1:** author's material; **2:** author's material, identification requires confirmation; **3:** uncertain records, mostly personal communication P. Aguesse. Omitted are: *Lestes tridens* McLachlan, 1895; *Phyllomacromia aequatorialis* Martin, 1907; *Trithemis furva* Karsch, 1899.

Si: Simandou (Guinea) records after Legrand and Girard (1992). **1:** identification reliable; **2:** identification requires confirmation.

TF: Tai Forest (Côte d'Ivoire) records after Legrand and Couturier (1985): **1.**

Taxa	Notes	RL	Biology			Liberian records				Neighboring areas			
			B	L	W	NL	Go	Gr	Li	SL	MN	Si	TF
Calopterygidae													
<i>Phaon camerunensis</i> Sjöstedt, 1900	1.		G	F	R	A		A	1	2	1	1	1
<i>Phaon iridipennis</i> (Burmeister, 1839)			A	O	R	A	A		1	1	1	1	1
<i>Sapho bicolor</i> Selys, 1853			G	F	R	A	A	S	1	1	1	1	1
<i>Sapho ciliata</i> (Fabricius, 1781)			W	F	R	A	A	A	1	1	1	1	1
<i>Sapho fumosa</i> Longfield, 1932	2.	NT	U	F	R		A		1	3*	1		
<i>Umma cincta</i> (Hagen in Selys, 1853)			G	F	R	A	A	S	1		1	1	1
Chlorocyphidae													
<i>Chlorocypha curta</i> (Hagen in Selys, 1853)			G	O	R				2	1	1	1	
<i>Chlorocypha dispar</i> (Palisot de Beauvois, 1807)			G	F	R	A	A	A	1	1	1	1	1
<i>Chlorocypha luminosa</i> (Karsch, 1893)	3.		U	F	R				2		1		
<i>Chlorocypha pyriformosa</i> Fraser, 1947	4.		G	F	R	A		S	1	1			1
<i>Chlorocypha radix</i> Longfield, 1959	5.		W	F	R	A	S	A	1	1	1	1	1
<i>Chlorocypha rubida</i> (Hagen in Selys, 1853)			W	F	R				2	1	3		1
<i>Chlorocypha selysi</i> (Karsch, 1899)			G	F	R	A	A	A	1	1	1	1	1
Lestidae													
<i>Lestes dissimulans</i> Fraser, 1955			A	O	S						1		1
Platycnemididae													
<i>Mesocnemis singularis</i> Karsch, 1891			A	O	R	S	S	A	1	1	1		1
<i>Mesocnemis tisi</i> Lempert, 1992	6.	EN	U	F	R				2*				
<i>Platycnemis guttifera</i> Fraser, 1950			W	F	R	A		A	1				1
<i>Platycnemis sikassoensis</i> (Martin, 1912)			G	O	R				2	1	1	1	1
Protoneuridae													
<i>Chlorocnemis elongata</i> Hagen in Selys, 1863			W	F	R	A	S	A	1	1	1	1	
<i>Chlorocnemis flavipennis</i> Selys, 1863	7.		W	F	R		A	A	1	1	1	1	
<i>Chlorocnemis subnodalis</i> (Selys, 1886)	8.		W	F	R	A	A	A	1	1	1		1
<i>Elattoneura balli</i> Kimmins, 1938			W	F	R	A	A	A	1	1*	1	1	1
<i>Elattoneura dorsalis</i> Kimmins, 1938		VU	U	F	R					1*			
<i>Elattoneura girardi</i> Legrand, 1980	9.		W	F	R				2	1	1		1
<i>Elattoneura nigra</i> Kimmins, 1938			G	O	R					1	1		
<i>Prodasineura villiersi</i> Fraser, 1948			U	F	R	A	A	A	1		1		1
Coenagrionidae													
<i>Aciagrion africanum</i> Martin, 1908			G	O	S				2		1		
<i>Aciagrion gracile</i> (Sjöstedt, 1909)			A	O	S						1		1
<i>Africallagma subtile</i> (Ris, 1921)	10.		A	O	S					1	1	1	
<i>Agriocnemis angustirami</i> Pinhey, 1974		VU	U	?	S				2*	1			
<i>Agriocnemis exilis</i> Selys, 1872			A	O	S				2	1			
<i>Agriocnemis maclachlani</i> Selys, 1877			G	F	S			A	1	3	1		1
<i>Agriocnemis victoria</i> Fraser, 1928	11.		G	O	S				2	1	3		
<i>Agriocnemis zerafica</i> Le Roi, 1915			A	O	S				2				
<i>Argiagrion leoninum</i> Selys, 1876	12.	DD	U	?	?					4*			
<i>Ceriagrion bakeri</i> Fraser, 1941			G	O	S			A	1	1	2		1

continued

Taxa	Notes	RL	Biology			Liberian records				Neighboring areas			
			B	L	W	NL	Go	Gr	Li	SL	MN	Si	TF
<i>Ceriagrion corallinum</i> Champion, 1914			G	O	S		A		1	1*			
<i>Ceriagrion glabrum</i> (Burmeister, 1839)			A	O	S	S	S		1	1	1	1	1
<i>Ceriagrion rubelloccerinum</i> Fraser, 1947			G	F	S	A		A	1	1	1		1
<i>Ceriagrion suave</i> Ris, 1921	13.		A	O	S				3	1	2		
<i>Ceriagrion tricrenaticeps</i> Legrand, 1984		(DD)	G	?	S				2				
<i>Ceriagrion wbellani</i> Longfield, 1952			A	O	S				2	3	1		
<i>Ischnura senegalensis</i> (Rambur, 1842)			A	O	S				2	1			
<i>Pseudagrion aguessei</i> Pinhey, 1964			N	O	R					3*			
<i>Pseudagrion camerunense</i> (Karsch, 1899)	14.		W	O	R				2	1			
<i>Pseudagrion epiphonematicum</i> Karsch, 1891			G	F	R	A	A	A	1	3	1	1	
<i>Pseudagrion gigas</i> Ris, 1936			N	?	R					3	1		
<i>Pseudagrion glaucescens</i> Selys, 1876			A	O	S				2	1	3		
<i>Pseudagrion glaucoideum</i> Schmidt in Ris, 1936			G	F	S	S			1				
<i>Pseudagrion glaucum</i> (Sjöstedt, 1900)	15.		G	O	S				2				
<i>Pseudagrion hamoni</i> Fraser, 1955			A	O	S					1		2	
<i>Pseudagrion hemicolon</i> Karsch, 1899	16.		G	F	R	A	A	A	1	1		1	1
<i>Pseudagrion kersteni</i> Gerstäcker, 1869			A	O	R					1			
<i>Pseudagrion mascagnii</i> Terzani & Marconi, 2004		CR	U	?	?					1*			
<i>Pseudagrion melanicterum</i> Selys, 1876			G	O	R	A	A	A	1	1	1	1	1
<i>Pseudagrion sjoestedti</i> Förster, 1906			A	O	R		A	S	1	1			1
<i>Pseudagrion sublacteum</i> (Karsch, 1893)			A	O	S				2	1		2	1
“ <i>Pseudagrion</i> ” <i>cyathiforme</i> Pinhey, 1973	17.		W	F	R				2	1			
“ <i>Pseudagrion</i> ” <i>malagasoides</i> Pinhey, 1973	18.		W	F	R				2				
Aeshnidae													
<i>Anax chloromelas</i> Ris, 1911			A	O	S					4			
<i>Anax imperator</i> Leach, 1815			A	O	S	S			1			1	
<i>Anax tristis</i> Hagen, 1867			A	O	S				2		3		
<i>Gynacantha africana</i> (Palisot de Beauvois, 1807)			G	F	S								1
<i>Gynacantha bullata</i> Karsch, 1891			G	F	S	S		A	1	1	1	1	1
<i>Gynacantha cylindrata</i> Karsch, 1891			G	F	S				2	1	3		1
<i>Gynacantha manderica</i> Grünberg, 1902			A	O	S					1	3		
<i>Gynacantha nigeriensis</i> (Gambles, 1956)	19.		G	F	S					1			
<i>Gynacantha sextans</i> McLachlan, 1896			G	F	S						1		1
<i>Gynacantha</i> sp. indet.	20.		?	?	?				3				
<i>Gynacantha vesiculata</i> Karsch, 1891			G	F	S				2	1	3		
<i>Heliaeschna fuliginosa</i> Karsch, 1893	21.		G	F	S		A	A	1	1			1
<i>Heliaeschna</i> cf. <i>cynthiae</i> Fraser, 1939	22.		?	?	?				3				
Gomphidae													
<i>Diastomma gamblesi</i> Legrand, 1992	23.		U	F	R				2		1*		
<i>Gomphidia bredoi</i> (Schouteden, 1934)	24.		N	O	R								1
<i>Gomphidia gamblesi</i> Gauthier, 1987			W	F	R			S	1		1		
<i>Ictinogomphus ferox</i> (Rambur, 1842)			A	O	R					1	3		
<i>Ictinogomphus fraseri</i> Kimmins, 1958			W	F	R					1*			

continued

Taxa	Notes	RL	Biology			Liberian records				Neighboring areas				
			B	L	W	NL	Go	Gr	Li	SL	MN	Si	TF	
<i>Lestinogomphus africanus</i> (Fraser, 1926)		DD	?	F	R						4*			
<i>Lestinogomphus matilei</i> Legrand & Lachaise, 2001	25.		U	F	R					2				
<i>Lestinogomphus</i> n. sp. 1	26.		U	F	R					3				
<i>Lestinogomphus</i> n. sp. 2	27.		U	F	R					3				
<i>Lestinogomphus</i> sp. indet.			?	F	R	S		L		1				
<i>Microgomphus jannyae</i> Legrand, 1992			U	F	R							1*		
<i>Microgomphus</i> sp. indet.	28.		?	F	R	A				1				
<i>Onychogomphus xerophilus</i> Fraser, 1956	29.	(DD)	U	F	R						2	2		
<i>Paragomphus genei</i> (Selys, 1841)			A	O	S					2	1			
<i>Paragomphus kiautai</i> Legrand, 1992		DD	U	F	R							1*		
<i>Paragomphus mariannae</i> Legrand, 1992	30.	DD	U	F	R					2		1*		
<i>Paragomphus nigroviridis</i> Cammaerts, 1968			G	F	R		A			1!				
<i>Paragomphus serrulatus</i> (Baumann, 1898)	31.		N	F	R					2	1			
<i>Paragomphus tournieri</i> Legrand, 1992	32.	DD	U	F	R					2		1*		
<i>Paragomphus</i> n. sp. cf. <i>elpidius</i> Ris, 1921	33.		U	F	R					2				
<i>Paragomphus</i> sp. indet.			?	F	R	L	L			1				
<i>Phyllogomphus bartolozzii</i> Marconi, Terzani & Carletti, 2001	34.	DD	U	F	R						1*			
<i>Phyllogomphus helena</i> Lacroix, 1921		DD	U	F	R						4*			
<i>Phyllogomphus moundi</i> Fraser, 1960			W	F	R		A	S	1!			1		
<i>Phyllogomphus</i> n. sp.	35.		U	F	R					2				
<i>Tragomphus christinae</i> Legrand, 1992	36.	DD	U	F	R					2		1*		
<i>Tragomphus</i> sp. indet.			?	F	R		L			1				
Corduliidae														
<i>Idomacromia lieftincki</i> Legrand, 1984			G	F	R					2		1		
<i>Idomacromia provavita</i> Karsch, 1896			G	F	R							1		1
<i>Neophya rutherfordi</i> Selys, 1881			G	F	R					2	1	1		
<i>Phyllomacromia aeneothorax</i> (Nunney, 1895)		(DD)	G	F	R					2	4	1	1	
<i>Phyllomacromia contumax</i> Selys, 1879	37.		A	O	R					2				
<i>Phyllomacromia funicularioides</i> (Legrand, 1983)		NT	U	F	R					2		1*		
<i>Phyllomacromia hervei</i> (Legrand, 1980)			G	F	R	A		A		1				
<i>Phyllomacromia kimminsi</i> (Fraser, 1954)			A	F	R						1*			
<i>Phyllomacromia lamottei</i> (Legrand, 1993)	38.	DD	U	F	R					2		1*		
<i>Phyllomacromia melania</i> (Selys, 1871)	39.		G	F	R	A	A			1	4	1		
<i>Phyllomacromia occidentalis</i> (Fraser, 1954)		(DD)	U	F	R					2				
<i>Phyllomacromia sophia</i> (Selys, 1871)			U	F	R		A			1	4	1		1
Libellulidae														
<i>Acisoma panorpoides</i> Rambur, 1842			A	O	S	S	S	(S)		1	1	1		1
<i>Acisoma trifoldum</i> Kirby, 1889			G	O	S	S	S	(S)		1	1	1		
<i>Aethiothemis bella</i> (Fisher, 1939)	40.	(DD)	G	F	?						3			
<i>Aethiothemis solitaria</i> Martin, 1908			A	O	S						2			
<i>Aethriamanta rezia</i> Kirby, 1889			A	O	S	S	S	S		1		1		
<i>Atoneura luxata</i> Dijkstra, 2006	41.	(VU)	G	F	R						1	1		

continued

Taxa	Notes	RL	Biology			Liberian records				Neighboring areas			
			B	L	W	NL	Go	Gr	Li	SL	MN	Si	TF
<i>Brachythemis lacustris</i> (Kirby, 1889)			A	O	S				2				
<i>Bradynopyga strachani</i> (Kirby, 1900)			N	O	S		A		1	1	3		
<i>Chalcostephia flavifrons</i> Kirby, 1889			A	O	S	S	S	S	1	1	1		
<i>Crocothemis divisa</i> Baumann, 1898	42.		A	O	S				5	1	1		
<i>Crocothemis erythraea</i> (Brullé, 1832)			A	O	S	S	S	(S)	1	1	3		
<i>Crocothemis sanguinolenta</i> (Burmeister, 1839)			A	O	R		(S)		1	1	1	1	
<i>Cyanothemis simpsoni</i> Ris, 1915			G	F	R	A	S	S	1	4*	1		1
<i>Diplacodes deminuta</i> Liefinck, 1969	43.	(DD)	A	O	S				2				
<i>Diplacodes lefebvreii</i> (Rambur, 1842)			A	O	S		A	(S)	1	1	1		
<i>Diplacodes luminans</i> (Karsch, 1893)	44.		A	O	S				2	1	3		
<i>Eleuthemis buettikoferi</i> Ris, 1910			G	F	R			S	1*	2	2		
<i>Eleuthemis</i> n. sp.			U	F	R		A		1				
<i>Hadrothemis camarensis</i> (Kirby, 1889)	45.		G	F	S	S	A	A	1	1	1		1
<i>Hadrothemis coacta</i> (Karsch, 1891)			G	F	S			A	1		3		1
<i>Hadrothemis defecta</i> (Karsch, 1891)			G	F	S	S	A	S	1	1	1		
<i>Hadrothemis infesta</i> (Karsch, 1891)			G	F	S	A	A	S	1	4	1		1
<i>Hadrothemis versuta</i> (Karsch, 1891)			G	F	S	S	A		1		1		
<i>Hemistigma albipunctum</i> (Rambur, 1842)			A	O	S		A		1	1	3		
<i>Lokia incongruens</i> (Karsch, 1893)	46.		W	F	R				2				
<i>Malgassophlebia bispina</i> Fraser, 1958			G	F	R				2		1		
<i>Micromacromia camerunica</i> Karsch, 1890	47.		G	F	R	A			1	4			
<i>Micromacromia zygotera</i> (Ris, 1909)	48.		G	F	R			A	1	1	1		1
<i>Neodythemis campioni</i> Ris, 1915	49.	NT	U	F	R				2	4*	2		
<i>Neodythemis klingi</i> (Karsch, 1890)	50.		G	F	R		A	A	1	1	1		1
<i>Nesciothemis minor</i> Gambles, 1966			N	O	R			(A)	1!	1	1		
<i>Nesciothemis nigeriensis</i> Gambles, 1966			N	O	S					3			
<i>Nesciothemis pujoli</i> Pinhey, 1971	51.		N	O	S				4	1	2		
<i>Notiothemis robertsi</i> Fraser, 1944			G	F	S		S		1		1		
<i>Olpogastra lugubris</i> Karsch, 1895			A	O	R		A	S	1	3	1	1	
<i>Orthetrum abbotti</i> Calvert, 1892			A	O	S	A	A		1	1	1		
<i>Orthetrum africanum</i> (Selys, 1887)			G	F	R				2	4	1		
<i>Orthetrum angustiventre</i> (Rambur, 1842)			A	O	S				2	1			
<i>Orthetrum austeni</i> (Kirby, 1900)			G	O	S	S	S	S	1	1*	1		1
<i>Orthetrum brachiale</i> (Palisot de Beauvois, 1817)			A	O	S		A		1	1	3		1
<i>Orthetrum chrysostigma</i> (Burmeister, 1839)			A	O	S				2	1	3		
<i>Orthetrum guineense</i> Ris, 1910			A	O	R				4	1	1		
<i>Orthetrum hintzi</i> Schmidt, 1951			A	O	S		A	S	1	1	1		1
<i>Orthetrum icteromelas</i> Ris, 1910	52.		A	O	S				2	4			
<i>Orthetrum julia</i> Kirby, 1900			A	O	R	A	A	S	1	1*	1	1	1
<i>Orthetrum latihami</i> Pinhey, 1966	53.		N	O	?					1	1		
<i>Orthetrum microstigma</i> Ris, 1911			G	O	S	A	A	S	1	1	1	1	1
<i>Orthetrum monardi</i> Schmidt, 1951			A	O	S					1			
<i>Orthetrum sagitta</i> Ris, 1915		NT	U	?	?					2*			

continued

Taxa	Notes	RL	Biology			Liberian records				Neighboring areas			
			B	L	W	NL	Go	Gr	Li	SL	MN	Si	TF
<i>Orthetrum stemmale</i> (Burmeister, 1839)			A	O	S	A	A		1		3	1	1
<i>Oxythemis phoenicosceles</i> Ris, 1910			G	F	S				2				
<i>Palpopleura deceptor</i> (Calvert, 1899)			A	O	S		A		1!	4			
<i>Palpopleura jucunda</i> (Rambur, 1842)			A	O	S					1			
<i>Palpopleura lucia</i> (Drury, 1773)			A	O	S	S	S	S	1	1	1	1	1
<i>Palpopleura portia</i> (Drury, 1773)	54.		A	O	S	S	A	S	1	1	1	1	1
<i>Pantala flavescens</i> (Fabricius, 1798)			A	O	S	S	S	(S)	1	1	1		
<i>Parazyxomma flavicans</i> (Martin, 1908)			G	O	S	S			1				
<i>Porpax bipunctus</i> Pinhey, 1966		(VU)	G	F	?				2				1
<i>Rhyothemis fenestrina</i> (Rambur, 1842)			A	O	S	S	A	(S)	1	4			
<i>Rhyothemis notata</i> (Fabricius, 1781)			G	O	S			(A)	1	4	1		
<i>Rhyothemis semihyalina</i> (Desjardins, 1832)			A	O	S				2	1			
<i>Sympetrum navasi</i> Lacroix, 1921			A	O	S				2	3			
<i>Tetrathemis camerunensis</i> (Sjöstedt, 1900)	55.		G	F	S	A	A	S	1		3	1	1
<i>Tetrathemis godiardi</i> Lacroix, 1921			W	F	S		A	A	1		1		
<i>Tetrathemis polleni</i> (Selys, 1869)			A	O	S	S			1!				
<i>Thermochoria equivocata</i> Kirby, 1889			G	F	S				2	1	1		1
<i>Tholymis tillarga</i> (Fabricius, 1798)			A	O	S		A	A	1	1	1		1
<i>Tramea basilaris</i> (Palisot de Beauvois, 1817)			A	O	S	S	S	(S)	1	1			
<i>Tramea limbata</i> (Desjardins, 1832)			A	O	S	S	A	(S)	1!	1			
<i>Trithemis aconita</i> Liefstinck, 1969	56.		A	O	R	A	A	A	1	1	1	1	1
<i>Trithemis africana</i> (Brauer, 1867)		NT	U	F	R		A		1	1*			
<i>Trithemis annulata</i> (Palisot de Beauvois, 1807)			A	O	S				2	1	3		
<i>Trithemis arteriosa</i> (Burmeister, 1839)			A	O	S	A	A	S	1	1	1		1
<i>Trithemis basitincta</i> Ris, 1912			W	F	R		A		1				
<i>Trithemis bredoi</i> Fraser, 1953			N	O	S					1			
<i>Trithemis dichroa</i> Karsch, 1893			G	O	R				2	1	1		
<i>Trithemis dejouxi</i> Pinhey, 1978	57.		N	O	R				3				
<i>Trithemis grouti</i> Pinhey, 1961	58.		G	O	R	A	A	S	1	1	1	1	1
<i>Trithemis hecate</i> Ris, 1912	59.		A	O	?				3	1			
<i>Trithemis kalula</i> Kirby, 1900			N	O	?					1*	1		
<i>Trithemis kirbyi</i> Selys, 1891			A	O	S				2		3		
<i>Trithemis monardi</i> Ris, 1931	60.		A	O	S		A		1!	1			
<i>Trithemis pruinata</i> Karsch, 1899			G	F	R						1		
<i>Trithemis stictica</i> (Burmeister, 1839)			A	O	R				2	1			
<i>Urothemis assignata</i> (Selys, 1872)			A	O	S	S			1		1		
<i>Urothemis edwardsii</i> (Selys, 1849)			A	O	S				2	1			
<i>Zygonyx chrysobaphes</i> Ris, 1915			U	F	R			S	1	4*	1		
<i>Zygonyx flavicosta</i> (Sjöstedt, 1900)	61.		G	F	R	L	A		1	1	1		
<i>Zygonyx geminunca</i> Legrand, 1997	62.		U	F	R				3		1*		
<i>Zygonyx torridus</i> (Kirby, 1889)			A	O	R				2	1*	1		
<i>Zyxomma atlanticum</i> Selys, 1889			A	O	S		S	S	1				

Notes:

1. Includes Lempert's (1988) "*Phaon* cf. *fraseri* Pinhey, 1961";
2. The author's study of type specimens of *Sapho fumosa* and *Umma infumosa* Fraser, 1951 in the Natural History Museum in London suggest the two are synonymous;
3. Formerly known as *C. sharpae* Pinhey, 1972;
4. Formerly known as *C. mutans* Legrand & Couturier, 1986, misidentified as *C. neptunus* (Sjöstedt, 1899) by Carfi & D'Andrea (1994);
5. Formerly listed as *C. glauca radix* or just *C. glauca* (Selys, 1879);
6. "*Mesocnemis* sp. nov." in Lempert (1988);
7. *C. rossii* Pinhey, 1969, treated as a good species by Legrand (2003) is considered a synonym of *C. flavipennis* by the author;
8. Formerly placed in *Ismecocnemis*;
9. Misidentified as *E. acuta* Kimmins, 1938 by Carfi & D'Andrea (1994);
10. Formerly placed in *Enallagma*;
11. Misidentified as *A. forcipata* Le Roi, 1915 by Carfi & D'Andrea (1994);
12. Single female holotype from Sierra Leone is unlike any known African species and may pertain to a mislabelling.
13. Includes *C. moorei* Longfield, 1952;
14. Formerly known as *P. angelicum* Fraser, 1947;
15. Formerly known as *P. basicornu* Schmidt in Ris, 1936;
16. Formerly known as *P. flavipes* Sjöstedt, 1899 or *P. f. leonense* Pinhey, 1964;
17. Described as *Aciagrion walteri* by Carfi & D'Andrea (1994);
18. This and the previous species probably belong to an unnamed genus;
19. Formerly known as *G. sevastopuloi* (Pinhey, 1961), identification by Carfi & D'Andrea (1994) confirmed;
20. Lempert's (1988) "*Gynacantha* sp." female could not be assigned to a known species;
21. Misidentified as "*Gynacantha* cf. *usambarica* Sjöstedt, 1909" by Carfi & D'Andrea (1994);
22. Female published by Lempert (1988) as *H. fuliginosa*;
23. "*Diastatomma* sp. nov." in Lempert (1988);
24. Formerly known as *G. madi* Pinhey, 1961;
25. "*Lestinogomphus* sp. 2" in Lempert (1988);
26. "*Lestinogomphus* sp. 1" in Lempert (1988);
27. "*Lestinogomphus* sp. 3" in Lempert (1988);
28. Includes Lempert's (1988) "*Microgomphus* sp." females;
29. Records of *O. quirrkii* Pinhey, 1964 and *O. supinus* Hagen in Selys, 1854 listed under this name, the only one for this type of *Onychogomphus* from West Africa;
30. "*Paragomphus* sp. nov. 3" in Lempert (1988);
31. Formerly known as *P. bredoi* (Schouteden, 1934) includes records by that name and "*Paragomphus* sp. nov. 2" by Lempert (1988) and misidentified as *P. cognatus* (Rambur, 1842) by Carfi & D'Andrea (1994);
32. "*Paragomphus* sp. nov. 4" in Lempert (1988);
33. "*Paragomphus* sp. nov. 1" in Lempert (1988);
34. May be the same as *P. moundi* and *P. helenae*;
35. Lempert's (1988) "*Phyllogomphus* sp." male is unlike known species;
36. Identified as *T. tenaculatus* (Fraser, 1926) by Lempert (1988);
37. Formerly known as *P. bifasciata* Martin, 1912;
38. Lempert's (1988) "*Macromia* sp. nov." is this species;
39. Formerly known as *P. funicularia* (Martin, 1907);
40. Formerly known as *Sleuthemis displacoides* Fraser, 1951 and *Monardithemis leonensis* Aguesse, 1968;
41. Formerly mistaken for *A. biordinata* Karsch, 1899;
42. Misidentified as *C. saxicolor* Ris, 1921 by Carfi & D'Andrea (1994), old Liberian record of that species also included here;
43. Three specimens published by Lempert (1988) as *D. lefebvrii*;
44. Formerly placed in *Philonomon*;
45. Misidentified (partly) as *Lokia incongruens* by Carfi & D'Andrea (1994);
46. Several records accidentally excluded by Lempert (1988);
47. Some records may require reexamination following confusion with *M. zygoptera*;
48. Formerly placed in *Eothemis*;
49. Formerly placed in *Allorrhizucha*, probably misidentified as *Neodythemis scalarum* Pinhey, 1964 by Legrand (2003);
50. Formerly placed in *Allorrhizucha*;
51. All western African specimens of *N. farinosa* (Förster, 1898) examined by author pertained to *N. pujoli*;
52. Single Liberian female among material not noted previously by Lempert (1988);
53. Identification by Carfi & D'Andrea (1994) confirmed;
54. *P. lucia* and *P. portia* were not separated by Lempert (1988), but both present in material;
55. Includes *T. bifida* Fraser, 1941;
56. Misidentified as *T. bifida* Pinhey, 1970 and *T. basitincta* by Carfi & D'Andrea (1994);
57. "*T. donaldsoni* (Calvert, 1899)" in Lempert (1988);
58. Formerly known as *T. ara* Pinhey, 1961, misidentified as *T. nuptialis* Karsch, 1894 by Carfi & D'Andrea (1994);
59. Identification by Marconi & Terzani (2006) confirmed, Lempert's (1988) "*T. cf. hecate*" is probably also correct;
60. Includes *T. imitata* Pinhey, 1961;
61. Includes *Z. fallax* (Schouteden, 1934);
62. Lempert's (1988) "*Zygonyx* sp." may be this species, but the specimen is lost.

Appendix 3

Locality list and short description of habitats investigated in North Lorima National Forest/ Wologizi (WOL), Gola National Forest (GO) and Grebo National Forest (GRE).

Annika Hillers and Mark-Oliver Rödel

Site	Latitude (N)	Longitude (W)	Date	Description
WOL1	8°01.741'	9°44.119'	20.11.2005	Primary forest with small stream
WOL2	8°01.929'	9°44.161'	20.11.2005	Dry primary forest on hill above big river
WOL3	8°01.434'	9°44.414'	21.11.2005	Primary forest, one part slightly swampy area, other part brook, next to big river
WOL4	8°01.523'	9°44.226'	21.11.2005	Dry forest over river, many lianas, thick undergrowth
WOL5	8°02.043'	9°43.970'	22.11.2005	Forest around stream with rocks and stones, further in forest sandy, and slightly swampy area with temporary puddles
WOL6	8°02.023'	9°44.143'	22.11.2005	Forest over river, on one side stream with small waterfall, many shrubs and bushes
WOL7	8°02.509'	9°43.682'	23.11.2005	Dry forest with big rocks and stones
WOL8	8°02.391'	9°43.750'	23.11.2005	Swampy area in forest, with <i>Raffia</i> and <i>Marantaceae</i> , partly open canopy
WOL9	8°01.722'	9°44.124'	24.11.2005	Forest with streams and partly swampy area
GO1	7°27.178'	10°41.522'	28.11.2005 & 1.12.2005	Hilly primary forest with stream, stream with rocks and sand
GO2	7°27.272'	10°41.548'	29.11.2005	Dry forest on hill, with some rocks
GO3	7°27.376'	10°41.736'	29.11.2005 & 1.12.2005	Old diamond mines and ponds within forest, partly open area, and forest around this area
GO4	7°27.293'	10°41.632'	29.11.2005	Dry forest on hill
GO5	7°27.352'	10°41.483'	30.11.2005	Valley within forest with small brook, partly swampy area and forest around, partly on hill
GO6	7°26.781'	10°39.063'	2.12.2005	Big pond near SLC village
GO7	7°26.404'	10°39.150'	2.12.2005	Small pond next to big river Mano, with stones and a few trees
GRE1	5°24.108'	7°44.011'	7.12.2005	Mature secondary forest, partly thick undergrowth, with sandy stream and temporary puddles
GRE2	5°24.358'	7°44.106'	8.12.2005 & 10.12.2005	Swampy area in forest with small stream, with many treefall gaps and lianas, forest around the swampy area
GRE3	5°24.535'	7°44.276'	8.12.2005	Dry forest
GRE4	5°24.285'	7°43.786'	9.12.2005	Swampy area within secondary forest near stream with many lianas and shrubs, thick leaf litter coverage
GRE5	5°24.334'	7°43.631'	9.12.2005	Dry forest on hill
GRE6	5°23.857'	7°42.536'	10.12.2005	Big pond next to old logging road in mature secondary forest
GRE7	5°24.083'	7°42.892'	10.12.2005	Pond next to old logging road in mature secondary forest
GRE8	5°24.286'	7°42.954'	10.12.2005	Small pond next to old logging road in mature secondary forest
GRE9	5°24.127' & 5°23.827'	7°43.965' & 7°44.160'	9.12.2005 & 11.12.2005	On or next to old logging road in mature secondary forest