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Checklist of liverworts and hornworts of Togo

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Fallen tree covered by bryophytes in cocoa (*Theobroma cacao* L.) plantation, Kpézdina (Togo), Ecological Zone IV. Photo by Abalo-Loko. / Arbre tombé couvert de bryophytes dans une plantation de cacao (*Theobroma cacao* L.) Kpézdina (Togo), Zone écologique IV. Photo de Abala-Loko.

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Checklist of liverworts and hornworts of Togo

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We dedicate this publication to Martin Wigginton, who passed away at the end of August 2019, for everything he brought to bryology, especially to African liverworts. We are grateful for his kind help and contribution to all of us.

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KEY WORDS
Hornworts,
liverworts,
Togo,
West Africa,
African bryophytes,
new records.

ABSTRACT
This updated checklist of Marchantiophyta (liverworts) and Anthocerotophyta (hornworts) of Togo was compiled from the literature, from herbarium and recent collections. A total of 56 species including three infraspecific taxa of liverworts and hornworts are recorded for Togo comprising 55 liverworts and one hornwort in 15 families and 29 genera. 14 species are newly reported for Togo.

MOTS CLÉS
Anthocérotes,
hépatiques,
Togo,
Afrique de l'Ouest,
Bryophytes d'Africaine,
signalements nouveaux.

RÉSUMÉ
Checklist des hépatiques et anthocérotes du Togo.
Cette liste des Marchantiophyta (hépatiques) et Anthocerotophyta (anthocérotes) du Togo a été compilée à partir de la littérature, des échantillons d'herbier et de collectes récentes. Un total de 56 espèces dont trois taxons infraspécifiques d'hépatiques et d'anthocérotes sont citées pour le Togo, comprenant 55 hépatiques et une anthocérote, appartenant à 15 familles et 29 genres. 14 espèces sont signalées pour la première fois du Togo.

INTRODUCTION

Togo is one of the smallest states of West Africa with an area of 56 600 km². Located on the coast of the Gulf of Guinea, Togo is bordered by the Atlantic Ocean to the South, Ghana to the West, Burkina Faso to the North and Benin to the East. Located between 6-11°N and 0-2°E, Togo is in the shape of an elongated rectangle, about 660 km long and 50-120 km wide (mean about 100 km). Togo is a country of plains, with more than half of the country liying below 200 m. Higher ground is formed by the Atakora mountains which cross the country in a 400 km arc that extends South-West to North-East, with faults, depressions and plateaus, and peaks ascending to the highest elevation of 986 m at Mount Agou. Peneplains between 100 and 400 m are present in the North, center and South of the country (Addra 1981) (Fig. 1).

Togo belongs to the dry corridor of Dahomey (the Dahomey Gap) which divides the West African rainforest into two blocks: the forests of Nigeria to Gabon to the east, and those of Ghana to Guinea to the West (White 1983). No primary rain forest remains in Togo, and intact (semi-deciduous) forest covers only 5% of the land area (FAO 2011), most of this forest occurring in the Atakora mountain arc (Akpagana 1989). Togo's National Forest Inventory conducted in 2017 as part of the REDD+ process (http://www.coderedd.org/about-redd/) estimated the country's forest cover at 24.24%, but that report included treed land of all kinds, noting that most Togolese forests are "in a very degraded condition". Despite the very small remaining area of intact forest, losses continue at a rate of about 20 000 hectares per year. That represents an annual deforestation rate of about 3.37% in 1990-2000, and 5.1% in 2005-2010, one of the highest deforestation rates in Africa (FAO 2011). Clearing for agricultural purposes is by far the main cause of deforestation, and the use of wood for fuel and construction are also serious causes of forest degradation and loss.

Considering the physical conditions (relief, soil) and climate, natural vegetation of Togo is divided into five ecological zones (I, II, III, IV and V) numbered from North to South (Ern 1979).

Zone I or Northern plains area, characterized by Sudanese savannas, dry forests, gallery forests and grassland areas around temporary or permanent ponds, under tropical climate;

Zone II or Northern mountains area, characterized by gallery forests, dry and clear forests, woody to grassy savannas and fallow. It is under humid tropical climate at altitude and Sudanian climate on the plains;

Zone III or central plains area, characterized by dense dry forests and Guinean woodlands. This zone is under Guinean climate of plains;

Zone IV or Southern mountains area, characterized by semi-deciduous rainforest intercut by Guinean savannas. It is under Guinean mountain climate;

Zone V or Southern coastal area, characterized by degraded forests, relics of gallery forests, anthropogenic savannas, coastal thickets, halophilic grasslands or marshy, fallows and mangroves. It is under sub-equatorial climate.

In Togo, several studies have been conducted on the major groups of plants, especially on vascular plants (Brunel 1977; Brunel *et al*. 1984). However, the Togolese flora remains poorly known and several groups have not been studied (MERF 2003). Very little work has been done on the bryophytes of Togo and published data are sparse. Indeed, the history of the Togolese bryoflora is not well known. Collectors focused on bryology appear to have been very few: in modern times only P. Hiepko & W. Schultze-Motel in 1973, P. Tixier in 1982 and J. Brunel in 1983-1985. The few other bryophyte collections made from the late 19th century onwards appear to have been made incidentally during surveys of vascular plants or other groups. Most of these collections are kept at the Paris herbarium (PC), with some remaining undetermined.

This paper provides an updated list of liverworts and hornworts of Togo. We hope that this preliminary work will be helpful for other bryologists and will stimulate and facilitate future work on the bryoflora of Togo.

METHODS

This checklist was compiled from the literature, data from Herbarium of the MNHN (Muséum national d'Histoire naturelle), Paris (PC) and recent additional collections by the first author. This work was greatly facilitated by the Checklist and distribution of the liverworts and hornworts of sub-Saharan Africa, including the East African Islands (Wigginton 2018). Identification of additional collections has been achieved through the use of African floras (Chuah-Petiot & Pócs 2003; Perold 1999; Wigginton (ed.) 2004; Fischer 2013). Specific literature has been used for several taxa (Vanden Berghen 1976; Sukkharak & Gradstein 2017).

PRESENTATION OF THE LIST

Families are presented alphabetically within each order. The numbers in brackets against each genus indicate the number of taxa within the genus known from Togo. The synopsis of genera and families follows Söderström *et al.* (2016).

The taxa are arranged alphabetically within the two divisions: Marchantiophyta (liverworts) and Anthocerotophyta (hornworts) and according to each family. Scientific names appear in bold italic font followed by the name of author(s) who described the taxa. New records for Togo are preceded by *. Details for each collection include, where known: locality, geographical coordinates, habitat, altitude, date of collection, collector and specimen number, determinator and herbarium in which the collection is housed. Herbarium abbreviations follow Thiers (2010), and herbarium collections studied by the first author are followed by v.s. (*vidi siccam,* "I have seen dry"). All the species of the recent fieldwork in Togo are housed at the Herbarium of the Departement of Botany Faculty of Science (Université de Lomé, Togo) (TOGO) with some duplicates in PC.

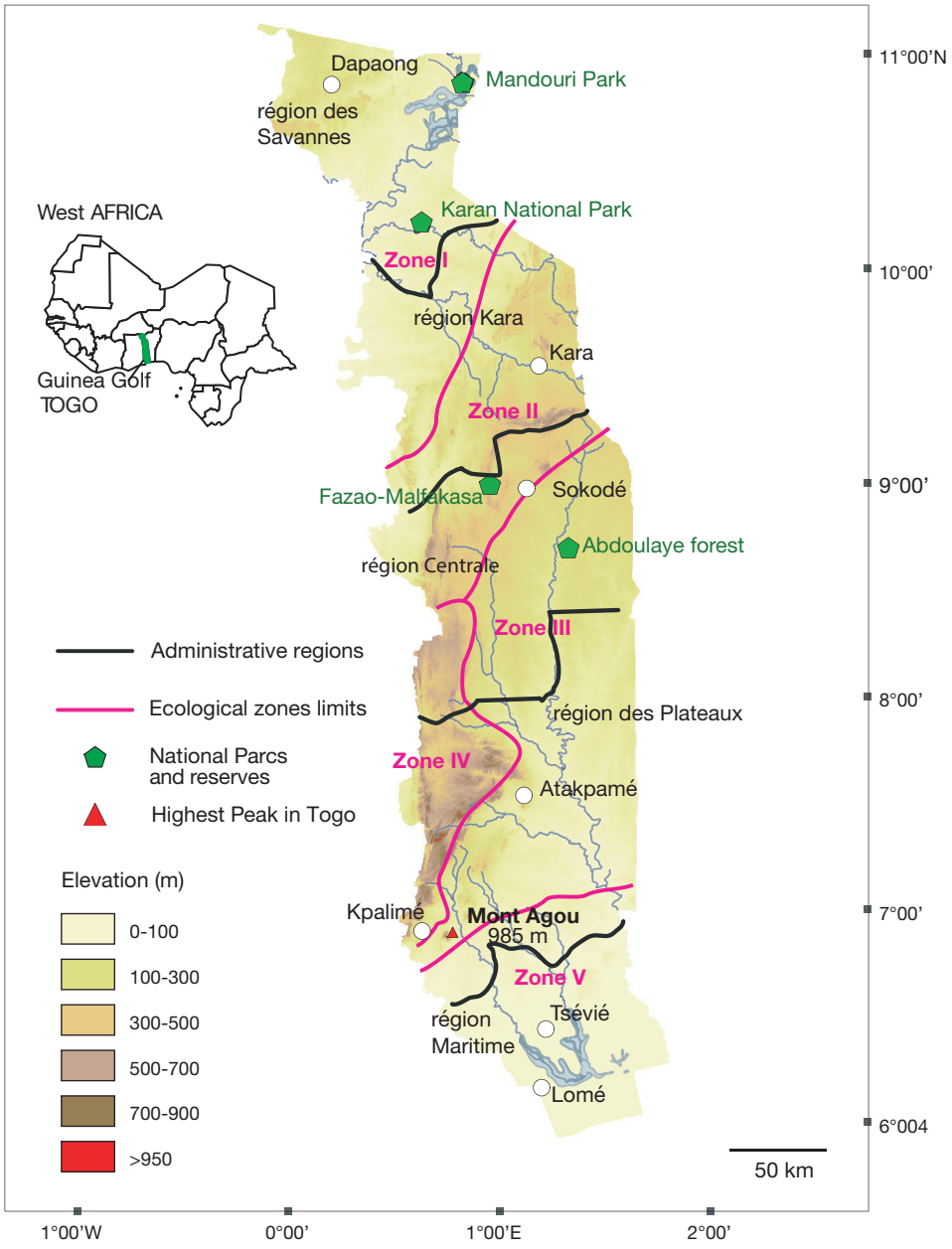

Fig. 1. — Elevation map of Togo showing the five ecological zones and the main Natural parcs.

SYNOPSIS OF THE FAMILIES AND THE GENERA OF LIVERWORTS AND HORNWORTS

MARCHANTIOPHYTA (LIVERWORTS)
ANEURACEAE
Riccardia Gray (2)
CEPHALOZIACEAE
Fuscocephaloziopsis Fulford (1).
CEPHALOZIELLACEAE
Cylindrocolea R.M.Schust. (1)
CYATHODIACEAE
Cyathodium Kunze (2)
FOSSOMBRONIACEAE
Fossombronia Raddi (1)
FRULLANIACEAE
Frullania Raddi (8)
LEJEUNEACEAE
Acrolejeunea (Spruce) Schiffn. (1)
Dibrachiella (Spruce) X.Q.Shi, R.L.Zhu et Gradst. (1)
Caudalejeunea Schiffn. (1)
Cheilolejeunea (Spruce) Steph. (1)
Cololejeunea (Spruce) Steph. (2)
Lejeunea Lib. (6)
Microlejeunea (Spruce) Steph. (1)

Leptolejeunea (Spruce) Steph. (1)
Lopholejeunea (Spruce) Steph. (2)
Marchesinia Gray (1)
Schiffneriolejeunea Verd. (1)
Spruceanthus Verd. (1)
Thysananthus Lindenb. (2)
LEPIDOZIACEAE
Telaranea Spruce ex Schiffn. (1)
LOPHOCOLEACEAE
Cryptolophocolea L.Söderstr. (1)
Heteroscyphus Schiffn. (1)
Lophocolea (Dumort.) Dumort. (2)
MARCHANTIACEAE
Marchantia L. (2)
PLAGIOCHILACEAE
Plagiochila (Dumort.) Dumort (4)
PORELLACEAE
Porella L. (1)
RADULACEAE
Radula Dumort. (1)
RICCIACEAE
Riccia L. (6)

ANTHOCEROTOPHYTA (HORNWORTS)
ANTHOCEROTACEAE
Anthoceros L. (1)

LIVERWORTS REPORTED FROM TOGO

Family ANEURACEAE H.Klinggr.
Genus *Riccardia* Gray

Riccardia limbata (Steph.) E.W.Jones

In Transactions of the British Bryological Society 3 (1): 79 (1956). — *Aneura limbata* Steph. *Hedwigia* 30: 203 (1891).

SPECIMEN. — **Région des Plateaux**: Entre Kouma Konda et Kouma Adamé, X.1984, *Brunel 9018* (PC) det. Tixier (Tixier 1989).

Remarks
Riccardia limbata has fallen into synonymy under *Riccardia longispica* (Reeb & Gradstein in press).

****Riccardia longispica*** (Steph.) Pearson

In Forhandlinger i Videnskabs-Selskabet i Kristiania 1892 (14): 4 (1893). — *Aneura longispica* Steph. *Botanical Gazette* 15: 281 (1890).

SPECIMEN. — **Région des Plateaux**. Kpédzina, 7°29'57"N, 0°37'10.4"E, sur bois mort en pourrissement, plantation de cacao, forêt semi-décidue, 614 m, 23.X.2016, *Abalo-Loko 346* (TOGO); Tomégbé, 7°30'59.3"N, 0°35'50.8"E, sur bois mort en pourrissement, plantation de cacao, forêt semi-décidue, 248 m, 23.X.2016, *Abalo-Loko 360* (PC, TOGO). All det. C. Reeb and S. Abalo-Loko.

Family CEPHALOZIACEAE Mig.
Genus *Fuscocephaloziopsis* Fulford

Fuscocephaloziopsis connivens (Dicks.) Váňa & L.Söderstr. subsp. ***fissa*** (Steph.) Váňa & L.Söderstr.

In Phytotaxa 112 (1): 9 (2013b). — *Cephalozia connivens* subsp. *fissa* (Steph.) Váňa. *Leg. Büttner*, det. F. Stephani, BM. (Váňa 1988). — *Cephalozia fissa* Steph., *Hedwigia* 30: 204 (1891).

Family CEPHALOZIELLACEAE Douin
Cylindrocolea R.M. Schust.

****Cylindrocolea abyssinica*** (Gola) Váňa

In Phytotaxa 112 (1): 2 (2013). — *Cephaloziella abyssinica* Gola, *Annali di Botanica* 13: 68 (1914).

Cylindrocolea atroviridis (Sim) Váňa, *Lejeunia*; *Revue de Botanique*, *Nouvelle série* 98: 7 (1979).

SPECIMEN. — **Région des Plateaux**. Kpédzina, 07°29'57.1"N, 0°37'10.4"E, sur bois pourri, plantation de cacao, forêt semi-décidue, 614 m, 23.X.2016, *Abalo-Loko 342* (TOGO); Tomégbé, 7°30'59.3"N, 0°35'50.8"E, sur bois mort pourri, plantation de cacao, forêt semi-décidue, 248 m, 23.X.2016, *Abalo-Loko 360* (TOGO). All det: Abalo-Loko S.

Family CYATHODIACEAE Stotler & Crand.-Stotl.
Genus *Cyathodium* Kunze ex Lehm.

****Cyathodium aureonitens*** (Griff.) Mitt.

In Journal of the Linnean Society, Botany 22 (146): 298-329 (1886). — *Synhymenium aureonitens* Griff., *Notulae ad plantas asiaticas* 2: 344 (1849).

SPECIMEN. — **Région de la Kara**. Bounako (Parc Fazao-Malfakassa), 9°10'34.2"N, 0°53'46"E, terricole, forêt claire, 375 m, 02.VI.2016, *Abalo-Loko 111* (PC, TOGO). — **Région des Plateaux**. Aklowa, 7°30'55.5"N, 0°36'59.4"E, terricole, forêt semi-décidue, 336 m, 22.X.2016, *Abalo-Loko 314* (TOGO); Kpédzina, 7°30'26.6"N, 0°36'55.1"E, rupicole, plantation de cacao, forêt semi-décidue, 381 m, 23.X.2016, *Abalo-Loko 336* (PC, TOGO). All det. Reeb C. and Abalo-Loko S.

Cyathodium cavernarum Kunze

In Novarum et Minus Cognitarum Stirpium Pugillus 6: 18 (1834).

SPECIMEN. — **Région des Plateaux**. Bord de Kra, près de Kpegnon Atchikiti, VI.1984, *Brunel 8321* det. Tixier; Cascade de Misahohé, s.d., *Brunel s.n.* (Tixier 1989, as *C. africanum* Mitt.).

Family FOSSOMBRONIACEAE Hazsl.
Genus *Fossombronia* Raddi

Fossombronia indica Steph.

In Species Hepaticarum 6: 73 (1917).

Fossombronia occidento-africana S. W.Arnell, *Botaniska Notiser* 105: 317 (1952).

Specimen. — **Région des Plateaux**. Forêt de Kamina, reste de termitière, IX.1984, *Brunel 8838* (PC), det. Tixier (Tixier 1989).

Family Frullaniaceae Lorch
Genus *Frullania* Raddi

**Frullania angulata* Mitt. var. *angulata*

In Journal of the Proceedings of the Linnean Society, Botany 7 (27): 169 (1863).

Specimen. — **Région des Plateaux**. Entre Kouma-Tokpli et Kouma-Apoti, 7°71'27.9"N, 2°32'62.2"E, épiphyte, forêt semi-décidue, 539 m, 09.VI.2013, *Abalo-Loko 17* (TOGO), det. Gradstein S. R. and Abalo-Loko S.

**Frullania depressa* Mitt.

In Journal of the Proceedings of the Linnean Society, Botany 7 (27): 168 (1863).

Specimen. — **Région Centrale**. Fazao (Parc Fazao-Malfakassa), 8°40'53.3"N, 0°45'26.13"E, épiphyte, forêt claire, 679 m, 10.VI.2016, *Abalo-Loko 200* (TOGO), det. Abalo-Loko S.

Frullania diptera (Lehm.) Drège

In Flora oder Botanische Zeitung, Beig. 26: 186 (1843). — *Jungermannia diptera* Lehm., *Linnaea* 9: 425 (1835).

Specimen. — **Région Centrale**. Malfakassa (Parc Fazao-Malfakassa), 9°09'51.8"N, 0°58'39.8"E, épiphyte, forêt claire, 627 m, 04.VI.2016, *Abalo-Loko 136* (TOGO), det. S. Abalo-Loko. — **Région des Plateaux**. Monastère de Dzogeba, en forêt galerie, 680 m, 23.III.1982, *Tixier 13189*, (PC) v.s., det. Tixier (Tixier 1983).

Frullania ericoides (Nees) Mont.

In Annales des Sciences naturelles, Botanique (sér. 2) 12 (1): 51 (1839). — *Jungermannia ericoides* Nees, *Flora Brasiliensis seu Enumeratio Plantarum* 1: 346-347 (1833).

Specimen. — **Région des Plateaux**. Région de Kloto, V.1985, *Brunel 9237* (PC) v.s., det. Tixier (Tixier 1989); Kpédzina, 7°29'57.1"N, 0°37'10.4"E, sur bois pourri, plantation de cacao, forêt semi-décidue, 614 m, 23.X.2016, *Abalo-Loko 340* (TOGO), specimen *Abalo-Loko* det. C. Reeb et S. Abalo-Loko.

**Frullania obscurifolia* Mitt.

In Philosophical Transactions of the Royal Society of London 168: 400 (1879).

Specimen. — **Région Centrale**. parc Fazao Malfakassa (1er point d'eau), 8°42'58"4N, 0°46'35"1E, épiphyte, forêt claire, 536 m, 11.VI.2016, *Abalo-Loko 231* (TOGO) det. Abalo-Loko.

Frullania rio-janeirensis (Raddi) Ångstr.

In Öfversigt af Kongl. Vetenskaps-Akademiens Förhandlingar 33 (7): 88 (1876 [1877]). — *Frullanoides riojaneirensis* Raddi, *Crittogame Brasiliane* 13 (1822).

Specimen. — **Région des Plateaux**. Daye Dzogeba, en forêt galerie, 680 m, 23.III.1982, *Tixier 13189* (PC) v.s., det. Tixier (Tixier 1983); Entre Kouma-Tokpli et Kouma-Apoti, 7°71'27.9"N, 2°32'62.2"E, épiphyte, forêt semi-décidue, 539 m, 09.VI.2013, *Abalo-Loko 16* (TOGO); Okou, 7°34'28.5"N, 0°51'22.6"E, épiphyte, savane boisée, 716 m, 15.VII.2013, *Abalo-Loko 27* (TOGO). All specimens *Abalo-Loko* det. C. Reeb and S. Abalo-Loko.

Frullania spongiosa Steph.

In Hedwigia 33 (3): 147 (1894).

Specimen. — **Région des Plateaux**. Dayes Koudjara, corticole en vieilles plantations, 680 m, 22.III.1982, *Tixier 13129* (PC), det. Tixier (Tixier 1983); Dayes Atriga, forêt dense, 700 m, 22.III.1982, *Tixier 13148* (PC) v.s., det. Tixier (Tixier 1983); Kouma-Konda, 7°69'68.8"N, 2°33'29.6"E, épiphyte, forêt semi-décidue, 740 m, 08.VI.2013, *Abalo-Loko 10* (TOGO); Entre Kouma-Tokpli et Kouma-Apoti, 7°71'27.9"N, 2°32'62.2"E, épiphyte, forêt semi-décidue, 539 m, 09.VI.2013, *Abalo-Loko 16* (TOGO); Odokpa, 7°30'46.7"N, 0°36'35.0"E, épiphyte, plantation de cacao, forêt semi-décidue, 283 m, 24.X.2016, *Abalo-Loko 368* (TOGO). — **Région Centrale**. Fazao (parc National Fazao-Malfakassa), 8°40'53.3"N, 0°45'26.13"E, épiphyte, forêt claire, 679 m, 10.VI.2016, *Abalo-Loko 200* (TOGO). — **Région de la Kara**. Agbamassomou (National parc Fazao-Malfakassa), 8°36'54.N, 0°37'54.1"E, épiphyte, forêt claire, 739 m, 19.VI.2016, *Abalo-Loko 271* (TOGO); Souroukou (National parc Fazao-Malfakassa), 8°45'02.2"N, 0°45'20.23"E, épiphyte, forêt claire, 654 m, 20.VI.2016, *Abalo-Loko 302* (PC, TOGO). All specimens *Abalo-Loko* det. C. Reeb and S. Abalo-Loko.

Frullania trinervis (Lehm.) Drège

In Flora oder Botanische Zeitung, Beig. 26: 186 (1843). — *Jungermannia trinervis* Lehm., *Linnaea* 9: 426 (1835).

Specimen. — **Région Centrale**. Bounako (Parc national Fazao-Malfakassa), 9°10'35.3"N, 0°53'46.2"E, épiphyte, forêt claire, 281 m, 15.VI.2014, *Abalo-Loko 104* (TOGO); Fazao (Parc national Fazao-Malfakassa), 8°40'53.7"N, 0°45'25.1"E, épiphyte, forêt claire, 694 m, 10.VI.2016, *Abalo-Loko 213* (TOGO); Fazao, 1er point d'eau (Parc national Fazao-Malfakassa), 8°43'02"N, 0°45'20.9"E, épiphyte, forêt claire, 538 m, 11.VI.2016, *Abalo-Loko 242* (PC, TOGO); Agbamassomou (Parc national Fazao-Malfakassa), 8°36'51.6"N, 0°45'20.15"E, épiphyte, forêt claire, 684 m, 19.VI.2016, *Abalo-Loko 270* (TOGO). — **Région des Plateaux**: Monastère de Dzogreagan, corticole dans les jardins, 700 m, 23.III.1982, *Tixier 13169* (PC) v.s., det. Tixier (Tixier 1983); Entre Kouma-Tokpli et Kouma-Apoti, 7°71'27.9"N, 2°32'62.2"E, épiphyte, forêt semi-décidue, 539 m, 09.VI.2013, *Abalo-Loko 17* (TOGO); Tomégbé, 7°69'73.9"N, 2°30'52.4"E, épiphyte, forêt semi-décidue, 467 m, 09.VI.2013, *Abalo-Loko 25* (TOGO); Kougnowou, 7°40'24.8"N, 0°47'61.8"E, épiphyte, forêt semi-décidue, 580 m, 15.VII.2013, *Abalo-Loko 33* (TOGO); Bena-Ola, 7°33'13.7"N, 0°52'49.6"E, épiphyte, forêt semi-décidue, 758 m, 18.VII.2013, *Abalo-Loko 43* (TOGO); Aklowa, 7°30'91.1"N, 0°36'96.1"E, épiphyte, forêt semi-décidue, 353 m, 01.XI.2013, *Abalo-Loko 46* (TOGO); Kpédzina, 7°30'56.3"N, 0°37'00.2"E, épiphyte, champ de cacao, forêt semi-décidue, 362 m, 23.X.2016, *Abalo-Loko 327* (TOGO); Odokpa,

7°30’46.6”N, 0°36’36.4”E, épiphyte, plantation de cacao, forêt semi-décidue, 282 m, 24.X.2016, *Abalo-Loko 369* (TOGO). All specimens *Abalo-Loko* det. C. Reeb and S. Abalo-Loko.

Family Lejeuneaceae Cavers
Genus *Acrolejeunea* (Spruce) Steph.

****Acrolejeunea emergens*** (Mitt.) Steph.

In Die Pflanzenwelt Ost-Afrikas: 65 (1895a). — *Phragmicoma emergens* Mitt., *Philosophical Transactions of the Royal Society of London* 168 [extra vol.]: 397 (1879).

Specimen. — **Région des Plateaux**. Entre Kouma-Tokpli et Kouma-Apoti, 7°71’55.6”N, 2°30’74.6”E, épiphyte, forêt semi-decidue, 582 m, 09.VI.2013, *Abalo-Loko 21* (TOGO); Okou, 7°34’28.5”N, 0°51’22.6”E, épiphyte, savane boisée, 716 m, 15.VII.2013, *Abalo-Loko 27* (TOGO); Kpédzina, 7°29’57.1”N, 0°37’10.4”E, sur bois pourri, plantation de cacao, Forêt semi-décidue, 614 m, 23.X.2016, *Abalo-Loko 342* (TOGO). — **Région Centrale**. Fazao (parc national Fazao-Malfakassa), 8°41’39.8”N, 0°46’31.5”E, épiphyte, forêt claire, 551 m, 09.VI.2014, *Abalo-Loko 94* (TOGO); Hézoudè (parc national Fazao-Malfakassa), 8°27’08.3”N, 0°52’11”E, épiphyte, forêt claire, 440 m, 16.VI.2016, *Abalo-Loko 260* (TOGO); Mont Mazala (Parc national Fazao-Malfakassa), 8°35’51”N, 0°45’20.1”E, épiphyte, forêt claire, 630 m, 09.VI.2016, *Abalo-Loko 174* (TOGO); Kalahari (Parc national Fazao-Malfakassa), 8°52’42.1”N, 0°57’53.7”E, épiphyte, forêt claire, 545 m, 12.VI.2014, *Abalo-Loko 99* (TOGO); Agbamassomou (Parc national Fazao-Malfakassa), 8°36’53”N, 0°45’20.12”E, épiphyte, forêt claire, 647 m, 19.VI.2016, *Abalo-Loko 267* (TOGO); Souroukou (Parc national Fazao-Malfakassa), 8°36’53.5”N, 0°45’20.20”E, épiphyte, forêt claire, 660 m, 20.VI.2016, *Abalo-Loko 294* (TOGO); Malfakassa (Parc national Fazao-Malfakassa), 9°09’56.3”N, 0°58’43.3”E, épiphyte, forêt claire, 594 m, 04.VI.2016, *Abalo-Loko 133* (TOGO); Bounako (Parc national Fazao-Malfakassa), forêt claire, 9°10’36.3”N, 0°53’46.1”E, épiphyte, forêt claire, 375 m, 02.VI.2016, *Abalo-Loko 112* (TOGO). All det. S.R. Gradstein et S. Abalo-Loko.

Archilejeunea sp.

Specimen. — **Région des Plateaux**. Dayes Atriga, corticole en forêt dense, 23.III.1982, *Tixier 13149* (PC), det. Tixier (Tixier 1983). This collection is presumed to belong to *Dibrachiella* sp.

Genus *Caudalejeunea* Schiffn.

****Caudalejeunea hanningtonii*** (Mitt.) Schiffn.

In Hepaticae ... aus Engler-Prantl: 129 (1893). — *Lejeunea hanningtonii* Mitt., *Journal of the Linnean Society, Botany* 22: 324 (1886 [1887]).

Specimen. — **Région des Plateaux**. Kpédzina, 7°30’28”1”N, 0°36’528”E, épiphyte, plantation de cacao, forêt semi-décidue, 372 m, 23.X.2016, *Abalo-Loko 331* (TOGO), det: S.R. Gradstein et S. Abalo-Loko.

Genus *Cheilolejeunea* (Spruce) Steph.

Cheilolejeunea trifaria (Reinw., Blume & Nees) Mizut.

In Journal of the Hattori Botanical Laboratory 27: 132 (1964). — *Jungermannia trifaria* Reinw., Blume & Nees, *Nova Acta Physico-medica Academiae Caesareae Leopoldino-Carolinae Naturae Curiosorum Exhibentia Ephemerides sive Observationes Historias et Experimenta* 12: 226 (1825).

Specimen. — **Région des Plateaux**. Bena-plateau, 7°32’317”N, 0°54’696”E, épiphyte, savane boisée, 759 m, 17.VII.2013, *Abalo-Loko 41* (TOGO), det. S. Abalo-Loko.

Genus *Cololejeunea* (Spruce) Steph.

Cololejeunea nigerica (E.W.Jones) R.M.Schust.

In Beihefte zur Nova Hedwigia 9: 177 (1963). — *Leptocolea nigerica* E.W. Jones*, Transactions of the British Bryological Society* 2: 150 f. 2 (1953).

Specimen. — **Région des Plateaux**. Dayes Atriga, épiphylle en forêt près du cimetière, 700 m, 23.III.1982, *Tixier 13127* (PC) det. Tixier (Tixier 1983).

Cololejeunea pusilla Steph.

In Hedwigia 34 (5): 251 (1895b).

Specimen. — **Région des Plateaux**. Dayes Atriga, épiphylle en forêt près du cimetière, 700 m, 23.III.1982, *Tixier 13158* (PC) v.s., det. Tixier (Tixier 1983).

Genus *Dibrachiella* (Spruce) X.Q. Shi, R.L. Zhu & Gradst.

Dibrachiella elobulata
(Steph.) X.Q.Shi, R.L.Zhu & Gradst.

In Taxon 64 (5): 888 (2015). — *Archilejeunea elobulata* Steph., *Species Hepaticarum* 4: 707 (1911).

Specimen. — **Région des Plateaux**. Berges du Mono, près de Kolopé, III.1982, *Brunel 7337* (PC) v.s., det. Tixier (Tixier 1989, as *Archilejeunea linguifolia* Steph.).

Remarks
The Togo record of *Archilejeunea linguifolia* (*Brunel 7337*) was erroneously assigned to *Dibrachiella brevilobula* (Steph.) X.Q.Shi, R.L.Zhu & Gradst. in Wigginton (2018).

Genus *Lejeunea* Lib.

****Lejeunea aphanes*** Spruce

In Journal of Botany, British and Foreign 19: 36 (1881).

Lejeunea autoica R.M.Schust., *Journal of the Hattori Botanical Laboratory* 25: 6. f. 51-52 (1962).

Lejeunea filipes Spruce*, Transactions and Proceedings of the Botanical Society of Edinburgh* 15: 275 (1884).

Specimen. — **Région des Plateaux**. Kpédzina, 7°30'34.2"N, 0°37'31.8"E, épiphyte, forêt semi-décidue, 650 m, 02.XI.2013, *Abalo-Loko 72* (TOGO). — **Région Centrale**. Agbamassomou (Parc Fazao-Malfakassa), 8°36'53.1"N; 0°37'48.5"E, épiphyte, forêt claire, 650 m, 19.VI.2016, *Abalo-Loko 284* (TOGO). All det. S.R. Gradstein and S. Abalo-Loko.

Lejeunea conformis Nees & Mont.

In Annales des Sciences naturelles, Botanique (sér. 2) 19: 260 (1843). — *Taxilejeunea conformis* (Nees & Mont.) Steph., *Botanical Gazette* 15: 283 (1890).

Specimen. — **Région des Plateaux**. Mont Agou, s.d., *Brunel 5584* (PC) v.s., det. Tixier (Tixier 1989).

Lejeunea eckloniana Lindenb.

In Synopsis Hepaticarum 3: 381 (1845).

Specimen. — **Région des Plateaux**. Tsadomé, X.1985, *Brunel 9055* (PC) det. Tixier (Tixier 1989); Entre Kouma Konda et Adamé, sur écorce, X.1984, *Brunel 9055, 8991, 9000, 9002, 9004, 9022, 9025, 9027 & 9009* (PC) v.s., det. Tixier (Tixier 1989).

Lejeunea flava (Sw.) Nees

In Naturgeschichte der Europäischen Lebermoose 3: 277 (1838). — *Jungermannia flava* Sw.*, Nova Genera et Species Plantarum seu Prodromus* 144 (1788).

Specimen. — **Région des Plateaux**. Danyi, corticole en forêt ripicole, 700, 23.III.1982, *Tixier 13166* (PC) det. Tixier, (Tixier 1983); Monastère de Dzogreagan, corticole sur arbres d'avenu, 700 m, 23.III.1982, *Tixier 13173* (PC) v.s., det. Tixier (Tixier 1983); Kouma-Apéyémé, 7°71'71.7"N, 2°30'02"E, épiphyte, forêt semi-décidue, 696 m, 09.VI.2013, *Abalo-Loko 24* (TOGO), det. S.R. Gradstein and S. Abalo-Loko.

Lejeunea pulchriflora (Pearson) G.E.Lee, Bechteler, Pócs, Schäf.-Verw. & Heinrichs

In Organisms, Diversity & Evolution 16 (1): 16 (2015). — *Taxilejeunea pulchriflora* Pearson, *Arkiv för Botanik* 19 (5): 15 (1924 [1925]).

Specimen. — **Région des Plateaux**. Campement de Klouto, 720 m, sandstone, *Hiepko & Schultze-Motel 464*, B (Jones & Harrington 1983).

Lejeunea ramosissima Steph.

In Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie 8 (2): 88 (1886).

Specimen. — **Région des Plateaux**. Kpimé, XII.1978, *Brunel 6225* (PC); Kloto, sur rochers, 11.1971, *Kiffer 7, 8* (PC) v.s., det. Tixier (Tixier 1989).

Remarks

This species refers to the complex *Lejeunea flava* (Sw) Nees, and the characters of the different species of the group are not very obvious (Tixier 1989).

Lejeunea cf. ***wilmsii*** Steph.

In Hedwigia 31: 124 (1892).

Specimen. — **Région des Plateaux**. Danyi Elevanyo, corticole en forêt dense dégradée, alt. 700 m, 23.III.1982, *Tixier 13181* (Tixier 1983). This collection may belong to *L. eckloniana* Lindenb.

Genus *Leptolejeunea* (Spruce) Steph.

Leptolejeunea maculata (Mitt.) Schiffn.

In Conspectus Hepaticarum Archipelagi Indici: 275 (1898). — *Lejeunea maculata* Mitt.*, Journal of the Proceedings of the Linnean Society, Botany* 5: 118 (1861).

Specimen. — **Abobo**. Sur *Citrus* sp., 4.I.1948. *A. Chevalier* (PC).

Genus *Lopholejeunea* (Spruce) Steph.

Lopholejeunea nigricans (Lindenb.) Schiffn.

In Conspectus Hepaticarum Archipelagi Indici: 293 (1898). — *Lejeunea nigricans* Lindenb.*, Synopsis Hepaticarum:* 316 (1845).

Lopholejeunea fragilis Steph., *Species Hepaticarum* 5: 65 (1912).

Specimen. — **Région Centrale**. Berges du Mono, entrée de la forêt d'Abdoulaye, XI.1984, *Brunel 9073, 9079* (PC) det. Tixier (Tixier 1989); Kavarè (Parc Fazao Malfakassa), 8°52'52.1"N, 0°58'15.2"E, épiphyte, forêt claire, 524 m, 11.VI.2014, *Abalo-Loko 98* (TOGO). — **Région des Plateaux**. Kouma-Konda, 7°69'44.9"N, 2°33'00.3"E, épiphyte, forêt semi-decidue, 749 m, 08.VI.2013, *Abalo-Loko 1* (TOGO); Entre Kouma-Tokpli – Kouma-Apoti, 7°71'24.5"N, 23°2'41.6"E, épiphyte, forêt semi-décidue, 522 m, *Abalo-Loko 12* (TOGO); Kougnowou, 7°40'24.8"N, 0°47'61.8"E, épiphyte, forêt semi-décidue, 580 m, 15.VII.2013, *Abalo-Loko 32* (TOGO); Bena-plateau, 7°31'37.2"N, 0°54'03.7"E, épiphyte, savane boisée, 754 m, 16.VII.2013, *Abalo-Loko 36* (TOGO); Aklowa, 7°30'91.1"N, 0°36'96.1"E, épiphyte, forêt semi-décidue, 353 m, 01.XI.2013, *Abalo-Loko 47* (TOGO). — **Région de la Kara**. Bounako (Parc Fazao Malfakassa), 9°10'35.3"N, 0°53'46.2"E, épiphyte forêt claire, 281 m, 15.VI.2014, *Abalo-Loko 104* (TOGO). All specimens *Abalo-Loko* det. S.R. Gradstein and S. Abalo-Loko.

Lopholejeunea subfusca (Nees) Schiffn.

In Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie 23 (5): 593 (1897). — *Jungermannia subfusca* Nees*, Enumeratio Plantarum Cryptogamicarum Javae* 36: (1830).

Specimen. — **Région des Plateaux**. Dayes Atriga, forêt dense, 700 m, 23.III.1982, *Tixier 13147*; Dayes Dzogeba, corticole en forêt ripicole, 680 m, 23.III.1982, *Tixier 13192* (Poor and sterile samples), (Tixier 1983); Mont Agou, IV.1978, *Brunel 4912, 4914*;

Agougadzèfé, XII.1978, *Brunel 6234* (Tixier 1989); Entre Kouma-Tokpli et Kouma-Apoti, 7°71'24.5,"N, 02°32'41.6"E, épiphyte, forêt semi-décidue, 522 m, 09.VI.2013, *Abalo-Loko 12* (TOGO); Kougnowou, 7°40'24.8"N, 0°47'61.8"E, épiphyte, forêt semi-décidue, 580 m, 15.VII.2013, *Abalo-Loko 32* (TOGO); Aklowa, 7°30'91.1"N, 0°36'96.1"E, épiphyte, forêt semi-décidue, 353 m, 01.XI.2013, *Abalo-Loko 48* (TOGO). All specimens *Abalo-Loko* det. S.R. Gradstein and S. Abalo-Loko.

Genus *Marchesinia* Gray

Marchesinia excavata (Mitt.) Schiffn.

In Hepaticae … aus Engler-Prantl: 128 (1893). — *Lejeunea excavata* Mitt.*, Transactions of the Linnean Society of London* 23: 58 (1860 [1862]).

Specimen. — **Région des Plateaux**. Agougadzépé, station de chemin de fer près d'Agounioplo, XII.1978, *Brunel 6232, 6235* (PC) v.s., det. Tixier (Tixier 1989); Kpédzina, 07°30'29.9"N, 0°37'69.1"E, épiphyte, forêt semi-décidue, 674 m, 10.VI.2016, *Abalo-Loko 73* (TOGO), det. S. Abalo-Loko.

Genus *Microlejeunea* (Spruce) Steph.

Microlejeunea africana Steph.

In Hedwigia 27 (2): 61 (1888). — *Lejeunea ulicina* subsp. *africana* (Steph.) Vanden Berghen, *Explor. Hydrobiol. Bassin Lac Bangweolo Luapula Résultats Sci.* 8 (1): 130 (1972).

Specimen. — **Région des Plateaux**. Dayes Atriga, forêt dense, corticole, 700 m, 22.III.1982, *Tixier 13137, 13146* (Tixier 1983); Entre Kouma-Tokpli et Kouma Apoti, 7°71'55.6"N, 2°30'74.6"E, épiphyte, forêt semi-décidue, 582 m, 09.VI.2013, *Abalo-Loko 21* (TOGO); Bena-Plateau, 7°31'37.2"N, 0°54'03.7"E, épiphyte, savane boisée, 754 m, 16.VII.2013, *Abalo-Loko 37* (TOGO); Kpédzina, 7°30'28.1"N; 0°36'52.8"E, épiphyte, plantation de cacao, forêt semi-décidue, 372 m, 23.X.2016, *Abalo-Loko 329* (TOGO). — **Région Centrale**. Agbamassomou (Parc Fazao-Malfakassa), 8°36'53.1"N, 0°37'48.5"E, épiphyte forêt claire, 650 m, 19.VI.2016, *Abalo-Loko 283* (TOGO). All specimens *Abalo-Loko* det. S.R. Gradstein and S. Abalo-Loko.

Genus *Schiffneriolejeunea* Verd.

****Schiffneriolejeunea polycarpa*** (Nees) Gradst.

In Journal of the Hattori Botanical Laboratory 38: 335 (1974). — *Jungermannia polycarpa* Nees*, Flora Brasiliensis seu Enumeratio Plantarum* 1: 350 (1833).

Specimen. — **Région des Plateaux**. Kouma-Konda, 7°70'12.8"N, 2°33'74.7"E, épiphyte, forêt semi-décidue, 740 m, 08.VI.2013, *Abalo-Loko 11* (TOGO); Entre Kouma-Tokpli et Kouma Apoti, 7°71'27.9"N, 2°32'62.2"E, épiphyte, forêt semi-décidue, 539 m, 09.VI.2013, *Abalo-Loko 17* (TOGO); Kougnowou, 7°40'24.8"N, 0°47'61.8"E, épiphyte, forêt semi-décidue, 580 m, 15.VII.2013, *Abalo-Loko 30* (TOGO); Aklowa, 7°30'88.4"N, 0°37'00.3"E, épiphyte, forêt semi-décidue, 387 m, 01.XI.2013, *Abalo-Loko 56* (TOGO); Kpédzina, 7°30'28.1"N, 0°36'52.8"E, épiphyte, plantation de cacao, forêt semi-décidue, 372 m, 23.X.2016, *Abalo-Loko 329* (TOGO). All det. S.R. Gradstein and S. Abalo-Loko.

Genus *Spruceanthus* Verd.

Spruceanthus floreus (Mitt.) Sukkharak & Gradst.

In Phytotaxa 326 (2): 102 (2017). — *Phragmicoma florea* Mitt., *Journal of the Linnean Society, Botany* 22: 323 (1887 [1886]).

Mastigolejeunea florea (Mitt.) Paris, *Revue bryologique* 33: 42 (1906).

Specimen. — **Région des Plateaux**. Dayes Atriga, corticole en forêt dense, 700 m, 22.III.1982, *Tixier 13136* (PC[PC0738689]) v.s. det. Tixier (Tixier 1983); Dayes Dzogeba, corticole en forêt ripicole, 600 m, 23.III.1982, *Tixier 13190* (PC[PC0738692]) v.s. det. Tixier (Tixier 1983); Sur écorce de Ceiba pentandra, XI.1971, *Kiffer 5* (Tixier 1989); Kouma-Konda, 7°70'12.8"N, 2°33'74.7"E, épiphyte, forêt semi-décidue, 740 m, 08.VI.2013, *Abalo-Loko 11* (TOGO); Tomégbé, 7°30'98.6"N, 0°35'86.4"E, épiphyte, forêt semi-décidue, 352 m, 01.XI.2013, *Abalo-Loko 45* (TOGO); Aklowa, 7°30'92.9"N, 0°37'05.4"E, épiphyte, forêt semi-décidue, 352 m, 01.XI.2013, *Abalo-Loko 59* (TOGO); Kpédzina, 7°30'51.0"N, 0°37'18.5"E, épiphyte, forêt semi-décidue, 576 m, 02.XI.2013, *Abalo-Loko 68* (TOGO); Adomi-Bra, 7°30'24.9"N (TOGO), 0°32'20.9"E, épiphyte, forêt semi-décidue, 225 m, 03.XI.2013, *Abalo-Loko 76* (TOGO); Hada, 7°29'99.3"N; 0°32'60.9"E, épiphyte, forêt semi-décidue, 252 m, 03.XI.2013, *Abalo-Loko 78* (TOGO). All specimens *Abalo-Loko* det.: S.R. Gradstein et S. Abalo-Loko.

Genus *Thysananthus* Lindenb.

Thysananthus auriculatus (Wilson) Sukkharak & Gradst. var. ***auriculatus***

In Phytotaxa 326 (2): 102 (2017). — *Jungermannia auriculata* Wilson & Hook.*, Musci Americani; or, Specimens of Mosses, Jungermanniae, & c. collected by the Late Thomas Drummond, in the Southern States of North America:* 170 (1841).

Mastigolejeunea auriculata (Wilson & Hook.) Steph., *Botanical Gazette* 17 (6): 171 (1892).

Specimen. — **Région des Plateaux**. Dayes Koudjara, en vieilles cacaoyères, 680 m, 22.III.1982, *Tixier 13127* (PC[PC0738706]) v.s. det. Tixier (Tixier 1983); Dayes Atriga, corticole en forêt, 700 m, 22.III.1982, *Tixier 13155*; Monastère de Dzogreagan, corticole dans les jardins, 700 m, 23.III.1982, *Tixier 13169, 13172* (PC[PC 0738710]) v.s det. Tixier (Tixier 1983); Pkimé, en cacaoyères, 280 m, 23.III.1982, *Tixier s.n.* (Tixier 1983); Kpégnon Atchikita, bord de Kra,.VI.1984, *Brunel 8324* (Tixier 1989); forêt de Kémini, corticole, IX.1984, *Brunel 8836* (Tixier 1989); Entre Kouma Konda à Adamé, X.1984, *Brunel 8969, 9001, 9007* (Tixier 1989); Katchanké, IX.1984, *Brunel 8730* (PC[PC 078728]) det. Tixier (Tixier 1989). — **Région de Kloto.** V.1985, *Brunel 9238 (*PC[PC 0738731]) det. Tixier (Tixier 1989)*;* Entre Kouma-Tokpli et Kouma-Apoti, 7°71'27.9"N, 2°32'62.2"E, épiphyte, forêt semi-décidue, 539 m, 09.VI.2013, *Abalo-Loko 16* (TOGO); Kouma-Apoti, 7°72'06.2"N, 2°30'26.7"E, épiphyte, forêt semi-décidue, 686 m, 09.VI.2013, *Abalo-Loko 23* (TOGO); Okou, 7°34'28.5"N, 0°51'22.6"E, épiphyte, savane boisée, 716 m, 15.VII.2013, *Abalo-Loko 27* (TOGO); Kougnowou, 7°40'24.8"N, 0°47'61.8"E, épiphyte, forêt semi-décidue, 580 m, 15.VII.2013, *Abalo-Loko 32* (TOGO); Bena-plateau, 7°32'31.7"N, 0°54'69.6"E, épiphyte, savane boisée, 759 m, 17.VII.2013, *Abalo-Loko 41* (TOGO); Bena-Ola, 7°33'13.7"N, 0°52'49.6"E, épiphyte, forêt semi-décidue, 758 m, 18.VII.2013, *Abalo-Loko 43* (TOGO); Tomégbé, 7°30'98.6"N, 0°35'86.4"E, épiphyte, forêt semi-décidue, 352 m, 01.XI.2013, *Abalo-Loko 45* (TOGO); Kpédzina, 7°30'48.2"N, 0°37'11"E,

épiphyte, forêt semi-décidue, 576 m, 02.XI.2013, *Abalo-Loko 70* (TOGO); Hada, 7°29'99.3"N, 0°32'60.9"E, épiphyte, forêt semi-décidue, 252 m, 03.XI.2013, *Abalo-Loko 79* (TOGO). — **Région Centrale**. Fazao (Parc Fazao-Malfakassa), 8°40'53.3"N, 0°45'26.13"E, épiphyte, forêt claire, 679 m, 10.VI.2016, *Abalo-Loko 205* (TOGO). All specimens *Abalo-Loko* det. S.R. Gradstein and S. Abalo-Loko.

Thysananthus humilis (Gottsche) Sukkharak & Gradst.

In Phytotaxa 326 (2): 102 (2017). — *Phragmicoma humilis* Gottsche, *Synopsis Hepaticarum* 299 (1845).

Mastigolejeunea humilis (Gottsche) Schiffn., *Hepaticae* ... aus Engler-Prantl 129 (1893).

Specimen. — **Région des Plateaux**. Kpégnoa Atchikita, bord du Kra, VI.1984, *Brunel 8324* (PC[PC0738730]) det. (Tixier 1989); Kouma-Konda, 7°69'68.8"N, 2°33'29.6"E, épiphyte, forêt semi-décidue, 740 m, 08.VI.2013, *Abalo-Loko 10* (TOGO); Entre Kouma-Tokpli et Kouma-Apoti, 7°71'55.6"N, 2°30'74.6"E, épiphyte, forêt semi-décidue, 582 m, 09.VI.2013, *Abalo-Loko 21* (TOGO); Bena-Plateau, 7°31'37.2"N, 0°54'03.7"E, épiphytes, savane boisée, 754 m, 16.VII.2013, *Abalo-Loko 38* (TOGO); Bena-Ola, 7°33'13.7"N, 0°52'49.6"E, épiphyte, forêt semi-décidue, 758 m, 18.VII.2013, *Abalo-Loko 43* (TOGO); Aklowa, 7°30'89.2"N, 0°36'97.5"E, épiphyte, forêt semi-décidue (près de la cascade), 354 m, 01.XI.2013, *Abalo-Loko 51* (TOGO); Kpédzina, 7°30'34.2"N, 0°37'31.8"E, épiphyte, forêt semi-décidue, 650 m, 02.XI.2013, Abalo-Loko 72 (TOGO). All specimens *Abalo-Loko* det. S.R. Gradstein and S. Abalo-Loko.

Remarks
Mastigolejeunea humilis was removed from synonymy with *M. auriculata* by Sukkharak & Gradstein (2017).

Family Lepidoziaceae Limpr.
Genus *Telaranea* Spruce ex Schiffn.

Telaranea nematodes (Gottsche ex Austin) M.Howe

In Bulletin of the Torrey Botanical Club 29 (5): 284 (1902). — *Cephalozia nematodes* Gottsche ex Austin, *Bulletin of the Torrey Botanical Club* 6 (52): 302 (1879).

Remarks
Augier (1985), included Togo in a list of West African countries in which *T. nematodes* has been reported. However, details of the record are unknown.

Family Lophocoleaceae Vanden Berghen
Genus *Cryptolophocolea* L. Söderstr., Crand.-Stotl., Stotler & Váňa

Cryptolophocolea martiana (Nees) L.Söderstr., Crand.-Stotl. & Stotler

In Phytotaxa 112 (1): 20 (2013). — *Lophocolea martiana* Nees, *Synopsis Hepaticarum:* 152-153 (1845).

Specimen. — **Région des Plateaux**. Entre Kouma Konda et Adamé, X.1984, *Brunel 9030* (PC) v.s. det. Tixier (Tixier 1989).

Genus *Heteroscyphus* Schiffn.

Heteroscyphus dubius (Gottsche) Schiffn.

In Oesterreichische Botanische Zeitschrift 60 (5): 172 (1910). — *Chiloscyphus dubius* Gottsche, *Abh. Naturwiss. Vereins Bremen* 7: 346 (1882).

Specimen. — **Région des Plateaux**. Danyi, forêt ripicole, 700 m, 23.III.1982, *Tixier 13164* (Tixier 1983); Dayes Koudjara, thalweg sec en forêt, 400 m, *Tixier 13194* (Tixier 1983).

Genus *Lophocolea* (Dumort.) Dumort.

Lophocolea concreta Mont.

In Annales des Sciences naturelles, Botanique (sér. 3) 4: 350 (1845). — *Chiloscyphus concretus* (Mont.) J.J.Engel & R.M.Schust., *Nova Hedwigia* 39: 413 (1984).

Specimen. — **Région des Plateaux**. Entre Kouma-Konda et Kouma-Adamé, X.1984, *Brunel 8986* det. Tixier (Tixier 1989); Kpédzina, 7°29'57.1"N, 07°29'57.1"E, sur bois pourri, forêt semi-décidue, 614 m, 23.X.2016, *Abalo-Loko 338* (TOGO); Tomégbé, 7°30'59.3"N, 0°35'50.8"E, sur bois pourri, plantation de cacao, forêt semi-décidue, 248 m, 23.X.2016, *Abalo-Loko 360* (TOGO). All specimens *Abalo-Loko* det. C. Reeb and S. Abalo-Loko.

Lophocolea difformis Nees

In Synopsis Hepaticarum 2: 166 (1845). — *Chiloscyphus difformis* (Nees) J.J.Engel & R.M.Schust., *Nova Hedwigia* 39: 414 (1984).

Specimen. — **Région des Plateaux**. Entre Kouma-Konda et Kouma-Adamé, X.1984, *Brunel 8984, 8985* det. Tixier (Tixier 1989); Kpédzina, 7°29'52.8"N, 0°37'20.4"E, sur bois pourri, champ de cacao, forêt semi-décidue 362 m, 23.X.2016, *Abalo-Loko 347* (TOGO); det. C. Reeb and S. Abalo-Loko.

Family Marchantiaceae Lindl.
Genus *Marchantia* L.

Marchantia debilis K.I.Goebel

In Organographie der Pflanzen, *ed. 2*, 2 (1): 901 (1915).

Specimen. — Bismarckburg, Jeggebach 1890, *Buettner s.n.*, (G)

Marchantia pappeana Lehm. subsp. ***pappeana***

In Novarum et Minus Cognitarum Stirpium Pugillus 10: 21 (1857).

Specimen. — Bismarckburg, *Büttner s.n.* (BM)

Family Radulaceae Müll.Frib.
Genus *Radula* Dumort.

Radula boryana (F.Weber) Nees ex Mont.

In Annales des Sciences naturelles, Botanique (sér. 2) 18: 13 (1842). — *Jungermannia boryana* F. Weber, *Historiae Muscorum Hepaticorum Prodromus (Weber):* 58 (1815).

Specimen. — **Région des Plateaux**. Cascade d'Yikpa, 1973-1974, *Brunel 1364* (PC) v.s., det. Tixier (Tixier 1989).

Family Plagiochilaceae Müll.Frib.
Plagiochila (Dumort.) Dumort.

Plagiochila barteri Mitt.

In Journal of the Linnean Society Botany 22 (146): 320 (1886).

Specimen. — **Région des Plateaux**. Danyi Elavagnon, X.1978, *Brunel 5475* (PC) v.s., det. Tixier (Tixier 1989).

Plagiochila fusifera Taylor

In London Journal of Botany 5: 268 (1846).

Specimen. — **Région des Plateaux**. Dayes Koudjara, corticole en forêt, 680 m, 22.III.1982, *Tixier 13130* (Tixier 1983); Dayes Atriga, corticole en forêt, 700 m, 23.III.1982, Tixier s.n (Tixier 1983); Danyi, forêt ripicole, 700 m, 23.III.1982, *Tixier 13165* (PC) v.s. (Tixier 1983); Monastère de Dzogreaban, sur tronc, 700 m, 23.III.1982, *Tixier 13171* (Tixier 1983); Cascade de Séva, XII.1978, *Brunel 6220* (PC), (Tixier 1989); Sur rocher, XI.1971, *Kiffer 13* (PC), (Tixier 1989); Kouma-konda, 7°69'81.5"N, 2°33'16.2"E, épiphyte, forêt semi-décidue, 741 m, 08.VI.2013, *Abalo-Loko 4* (TOGO); Entre Kouma-Tokpli et Kouma-Apoti, 7°71'24.5"N, 2°32'41.6"E, épiphyte, forêt semi-décidue, 522 m, 09.VI.2013, *Abalo-Loko 12* (TOGO); Kougnowou, 7°40'24.8"N 0°47'61.8"E, épiphyte, forêt semi-décidue, 580 m, 15.VII.2013, *Abalo-Loko 29* (TOGO); Aklowa, 7°30'92.9"N, 0°37'05.4"E, épiphyte, forêt semi-décidue, 352 m, 01.XI.2013, *Abalo-Loko 59* (TOGO). All specimens *Abalo-Loko* det. C. Reeb and S. Abalo-Loko.

Plagiochila pinniflora Steph.

In Hedwigia 30 (5): 212 (1891).

Specimen. — **Région des Plateaux**. Djindi Kopé, sur *Theobroma cacao* L., s.d., *Brunel 5480* (PC), det. Tixier (Tixier 1989); Danyi Elevagnon, sur *Theobroma cacao* L. s.d., *Brunel 5480* (PC), det. Tixier (Tixier 1989); Campement de Kloto (Pied mâle), IV.1980, *Brunel 2184* (PC) v.s., det. Tixier (Tixier 1989); Aklowa, 7°30'89.6"N, 0°36'98.2"E, épiphyte, forêt semi-décidue (proche de la cascade), 336 m, 01.XI.2013, *Abalo-Loko 52* (TOGO), det. C. Reeb and S. Abalo-Loko.

Plagiochila strictifolia Steph.

In Hedwigia 30 (5): 210 (1891).

Specimen. — **Région des Plateaux**. Danyi Elevanyo, corticole en lambeau de forêt dense, 700 m, 23.III.1982, *Tixier 13180* (Tixier 1983); Dayes Dzogeba, forêt ripicole, 700 m, 23.III.1982, *Tixier 13191* (Tixier 1983); Adélé, galerie forestière au sud-ouest de Tinkoro, 540 m, s.d., *Brunel 8220* (Schafer leg.), (Tixier 1989); Entre Kouma Konda et Adamé, X.1984, *Brunel 8966, 8977, 8990, 9018, 9023* (PC) v.s., det. Tixier (Tixier 1989); Tsadomé, X.1984, *Brunel 9054* (Tixier 1989) — **Région de Kloto**. Sur *Mangifera indica* L., V.1985, *Brunel 9231* (Tixier 1989); Kougnowou, 7°40'24.8"N, 0°47'61.8"E, épiphyte, forêt semi-décidue, 580 m, 15.VII.2013, *Abalo-Loko 30* (TOGO); Bena-Plateau, 7°31'04.4"N, 0°53'74.2"E, épiphyte, savane boisée, 825 m, 15.VII.2013, *Abalo-Loko 33* (TOGO); Aklowa, 7°30'89.6"N, 0°36'97.7"E, épiphyte, forêt semi-décidue, 369 m, 01.XI.2013, *Abalo-Loko 53*, (TOGO). All specimens *Abalo-Loko* det. C. Reeb and S. Abalo-Loko.

Family Porellaceae Cavers
Genus *Porella* L.

Porella subdentata (Mitt.) Steph. var. ***subdentata***

In Hedwigia 30 (5): 203 (1891).

Specimen. — **Région des Plateaux**. Mont Agou, corticole, IV.1978, *Brunel 4915* (PC) (Tixier 1989); Aklowa (prêt de la cascade), 7°30'89.6"N, 0°36'97.7"E, épiphyte, forêt semi-décidue, 369 m, 01.XI.2013, *Abalo-Loko 53* (TOGO), det. C. Reeb and S. Abalo-Loko.

Family Ricciaceae Rchb.
Genus *Riccia* L.

****Riccia atropurpurea*** Sim

In Transactions of Royal Society of South Africa 15 (1): 11 (1926).

Specimen. — **Région Centrale**. Fazao (Parc Fazao-Malfakassa), 8°44'48.5"N, 0°19'27"E, terricole, forêt claire, 500 m, 06.VI.2014, *Abalo-Loko 81* (TOGO), det. C. Reeb and S. Abalo-Loko.

****Riccia congoana*** Steph.

In Bulletin de l'Herbier Boissier 6 (4): 328 (20) (1898).

Specimen. — **Région Centrale**. Hézoudè (Parc Fazao-Malfakkassa), 8°27'08.3"N, 0°52'11.9"E, terricole, forêt claire, 433 m, 16.VI.2016, *Abalo-Loko 264* (TOGO), det. C. Reeb and S. Abalo-Loko.

****Riccia discolor*** Lehm. & Lindenb.

In Novarum et Minus Cognitarum Stirpium Pugillus 4: 1 (1832).

Specimen. — **Région Centrale**. Hezoudè, 8°27'08.3"N, 0°52'12.3"E, terricole, forêt claire, 416 m, 16.VI.2016, *Abalo-Loko 257* (PC, TOGO); Mont Mazala (Parc Fazao Malfakassa), 8°35'51"N, 0°45'20.1"E, terricole, forêt claire, 630, 09.VI.2016, *Abalo-Loko 169* (TOGO). All det. C. Reeb and S. Abalo-Loko.

Riccia fluitans L.

In Species Plantarum 1: 1139 (1753).

Specimen. — **Région Centrale**. Bord de rivière près du Mont Balam, route de Pagala gare à Pagala village, XI.1984, *Brunel 9144* (PC), det. Tixier (Tixier 1989).

****Riccia nigerica*** E.W.Jones

In Transactions of the British Bryological Society 3:225 (1957).

Specimen. — **Région Centrale**. Hezoudè, 8°27'08.3'N, 0°52'12.3"E, terricole, forêt claire, 416 m, 16.VI.2016, *Abalo-Loko 257* (PC, TOGO); Mont Mazala (Parc Fazao-Malfakassa), 8°35'51"N, 0°45'20.1"E, 630 m, 09.VI.2016, *Abalo-Loko 173* (TOGO). All det. C. Reeb and S. Abalo-Loko (PC, TOGO).

Riccia stricta (Lindenb.) Perold

In Bothalia 20: 197 (1990). — *Riccia fluitans* var. *stricta* Lindenb., *Nova Acta Physico-medica Academiae Caesareae Leopoldino-Carolinae Naturae Curiosorum Exhibentia Ephemerides sive Observationes Historias et Experimenta* 18 (1): 444 (1836[1837]).

Specimen. — **Région de la Kara**. Basari-La Mode, Savanna, *F. Schroeder 153* (BM), (Perold 1995).

Remarks

Riccia stricta has fallen into synonymy under *Riccardia longispica*.

HORNWORTS REPORTED FROM TOGO

Family Anthocerotaceae Dumort.
Genus *Anthoceros* L.

Anthoceros buettneri Steph.

In Species Hepathicarum 5: 997 (1916).

Remarks

There are only two published collections of this species, both from West Africa: from Bismarckburg (Togo) and from Legon Botanic Garden, Ghana.

An annotation by J. Hasegawa (1993) on the type specimen (G00045041) from Togo as follows: "in this packet I found only solid thalli and broken, short capsules with yellowish spores. *Phaeoceros buettneri* (Steph.) comb. nov." However, the new combination has not been published.

DISCUSSION AND CONCLUSION

A total of 55 liverworts and one hornwort are reported for Togo, including 14 new records of liverworts. They belong to 15 families and 29 genera. The most represented families are those of Lejeuneaceae (21 species), Frullaniaceae (eight species), Ricciaceae (six species) and Plagiochilaceae (four species). Likewise, the most represented genera are those of *Frullania* (eight species), *Riccia* (six species), *Lejeunea* (six species) and *Plagiochila* (four species). Only one species of hornworts (*Anthoceros buettneri* Steph.) is reported for Togo. The lack of hornworts species would not be explained by their absence in Togo but by the lack of collections. In this checklist, 14 liverworts (including four new genera and one new family) are newly reported for Togo and they are all reported from recent collections by the first author.

Bryological exploration are not recent, fragmented and focus only on some areas in Togo. Currently, we no longer know the dynamics of the group because of the anthropogenic destruction of their habitats for farming and logging. Many of the sites which were frequented by early bryologists have been lost due to human activities. New inventories of intact and unexplored habitats in Togo should prove invaluable for verifying many of the old records presented in this checklist and will undoubtedly reveal many new and interesting records. Exploration should especially target little known groups such as hornworts because they are almost unknown in Togo.
In Togo, much work remains to be done to improve knowledge of diversity and distribution of liverworts and hornworts.

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