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The snakes of Niger

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***Abstract.*—We present here the results of a study of 1,714 snakes from the Republic of Niger, West Africa, collected from 2004 to 2008 at 28 localities within the country. Based on this data, supplemented with additional museum specimens (23 selected specimens belonging to 10 species) and reliable literature reports, we present an annotated checklist of the 51 snake species known from Niger. *Psammophis sudanensis* is added to the snake fauna of Niger. Known localities for all species are presented and, where necessary, taxonomic and biogeographic issues discussed.**

Key words. Reptilia; Squamata; Ophidia; taxonomy; biogeography; species richness; venomous snakes; Niger Republic; West Africa

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Introduction

Few studies have been dedicated to the snake fauna of the Republic of Niger, the largest country of West Africa with 1,267,000 km^2 between latitudes 11° and 24°N, and longitudes 0° and 16°E (Fig. 1). The northern part of the country is Saharan (Fig. 2), the central and southeastern parts Sahelian (Fig. 3–4), and the southcentral and southwestern parts Soudanian (Fig. 5). Elevation is low in most parts of the country, ranging from 200 m to 700 m, the highest point reaching 2,022 m in Aïr Mountains, an area of special biogeographical interest in the Sahara desert (Fig. 6). Several snake specimens collected during various Saharan expeditions were reported by Pellegrin (1909), Angel (1932, 1936), Angel and Lhote (1938), Villiers (1950a, 1950b) and Joger (1981). The snake fauna of Aïr Mountains was investigated by Villiers (1950a) and Kriska (2001). Important snake collections were made in southwestern Niger by Roman (1974, 1984), and in W National Park by Chirio (2009). Snakes observed in the Termit Massif were reported by Ineich et al. (2014). These specimens and/or additional material from Niger were included in several revisions or regional studies, in particular by Papenfuss (1969), Leviton and Anderson (1970), Roman (1972, 1974, 1977, 1984), Roux-Estève (1974), Hughes (1976, 1983, 1998), Hahn and Roux-Estève (1979), Broadley (1984), Chirio and Ineich (1991), Hahn and Wallach (1998), Trape (2002), Broadley and Hughes (2000), Wüster and Broadley (2003), Trape and Mané (2006a, 2006b), Trape et al. (2006, 2009, 2012), Crochet et al. (2008), Chirio et al. (2011), and Sindaco et al. (2013).

Materials and Methods

In January 2004 and February–March 2005, we deposited cans or buckets half filled with formaldehyde or ethanol in 22 villages in Niger. Cans or buckets—one per village—were housed by the chief of the village. We asked the villagers to deposit in these containers the snakes they killed when they were occasionnaly encountered in the vicinity of their village. A modest award (300 CFA, i.e., approximately 0.6 US $) was given for each preserved specimen. In most parts of Niger—as in most parts of Africa—all species of snakes are feared and systematically killed when they are encountered. Thus, the objective of the award was to acknowledge the effort of carrying killed snakes from surrounding fields to the village, this without encouraging snake search and killing. Visits to the villages were organized in February–March

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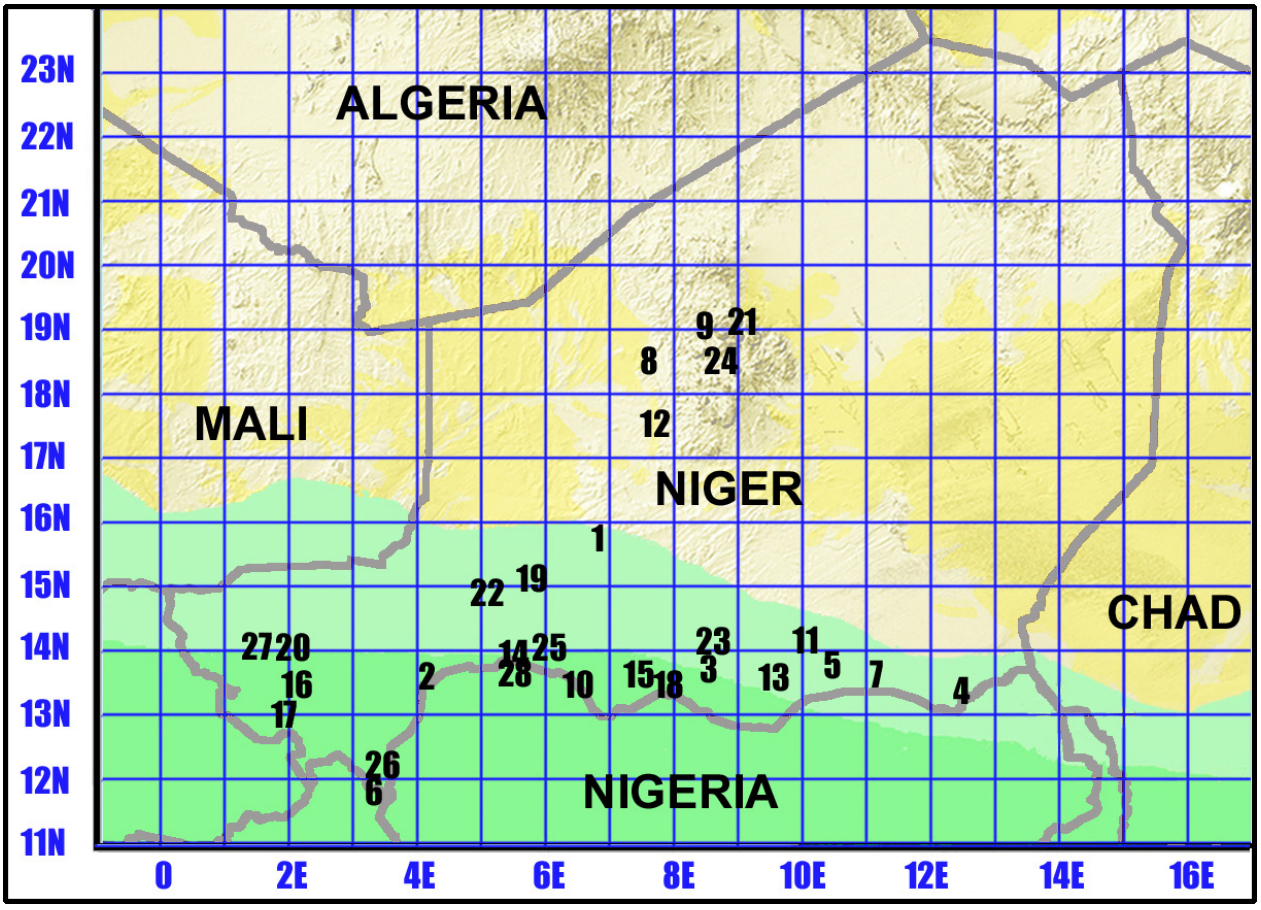

Fig. 1. Map of Niger with location of collection localities. See Table 1 for locality numbers. Colors for vegetation areas: Sudanian / Sahelo-Sudanian: green; Sahelian: light green; Saharan: yellow for sandy areas, white for stony areas, grey for rocky and mountainous areas.

2005, September–October 2005, and January 2008 to retrieve the specimens. During travels we also collected snakes at six additional localities. The 28 collecting localities (Table 1 and Fig. 1) were distributed either in the southern part of the country (11°52'N–14°52'N: 21 localities), where average annual rainfall ranges from 800 to 300 mm with a South-North gradient, or in the northern arid part of the country (15°06'N–19°07'N: 7 localities), including Aïr Mountains, where rains range from 250 to less than 50 mm (Mahé et al. 2012).

Most specimens were deposited at the Institut de Recherche pour le Développement (Dakar, Senegal; acronym: IRD), but some specimens—including those of *Rhagerhis moilensis* used for comparison with the type series of *Rhamphiophis maradiensis*—were donated to the Museum national d'Histoire naturelle (Paris, France; acronym: MNHN). We also examinated selected specimens from Niger from the Institut Fondamental d'Afrique Noire in Dakar (acronym: IFAN), the Laboratoire de Bioécologie des Vertébrés in Montpellier (acronym: BEV), MNHN and Laurent Chirio private collection.

Specimens were identified to species according to classical identification keys for West African snakes (Trape and Mané 2006b, Chippaux 2006), recent revisions of several genera (Trape et al. 2009, Trape et al. 2012) and further taxonomic analysis (Trape et al., unpublished). For recent changes in snake generic names, we usually follow those adopted in the reptile database of Uetz and Hošek (http://www.reptile-database.org/).

Results

We collected a total of 1,714 specimens and examined 23 selected additional specimens from IFAN (two specimens), MNHN (17 specimens), BEV (one specimens) or Chirio's private collection (three specimens). They belonged to 43 species. Eight additional species are known with certainty from Niger but were not represented among the specimens we examined.

Family Typhlopidae Gray, 1845

Afrotyphlops lineolatus (Jan, 1864)
Material: One specimen.
Locality: Téla (1).
Literature records: Gaya (Chirio 2009, in error).
Remark: Our Téla specimen, the first known from Niger, was quoted in error from Gaya by Chirio (2009).

Table 1. Collection localities of snakes in Niger (this study). *A: January 2004 – February 2005; B: March 2005 – October 2005; C: November 2005 – January 2008; D: occasional encounters during travels.

N°	Locality	Latitude	Longitude	Elevation	Region	No of specimens	No of species	Sampling period*
1	Aborah	15°53'N	06°53'E	510 m	Central	3	2	B
2	Aholé	13°33'N	04°01'E	225 m	South Central	150	9	A, B, C
3	Baboul	13°42'N	08°35'E	454 m	South Central	62	8	A, B
4	Chétimari	13°12'N	12°25'E	314 m	South East	60	6	A, B, C
5	Cissia	13°52'N	10°25'E	390 m	South East	80	13	A, B, C
6	Gaya	11°52'N	03°26'E	170 m	South West	1	1	D
7	Goudoumaria	13°42'N	11°11'E	348 m	South East	10	3	B
8	Gougaram	18°27'N	07'48'E	503 m	Aïr	1	1	A
9	Iférouane	19°03'N	08°25'E	660 m	Aïr	1	1	A
10	Karosofoua	13°37'N	06°37'E	316 m	South Central	91	10	A, B, C
11	Kéllé	14°16'N	10°06'E	456 m	South East	9	9	B, C
12	Korri Solomi	17°37'N	07°40'E	467 m	Aïr	2	2	A
13	Kusa	13°42'N	09°34'E	406 m	South Central	19	8	A, B
14	Malbaza	13°57'N	05°30'E	324 m	South Central	51	5	B, C
15	Maradi	13°47'N	07°26'N	411 m	South Central	1	1	D
16	Niamey (airport)	13°28'N	02°10'E	226 m	South West	1	1	D
17	Piliki	13°08'N	01°57'E	210 m	South West	159	15	B, C
18	Saboulayi	13°30'N	07°50'E	440 m	South Central	70	8	A, B, C
19	Saouna	15°07'N	05°42'E	401 m	Central	1	1	B
20	Simiri (vicinity)	14°02'N	02°05'E	244 m	South West	1	1	D
21	Taghmert (6 km N)	19°06'N	09°02'E	794 m	Aïr	1	1	D
22	Tahoua	14°52'N	05°16'E	387 m	South Central	2	1	D
23	Tarka Dakouara	14°12'N	08°49'E	465 m	South Central	315	10	A, B, C
24	Tchintoulous	18°34'N	08°47'E	826 m	Aïr	1	1	A
25	Tékhé	14°01'N	06°01'E	323 m	South Central	209	11	B, C
26	Téla	12°08'N	03°28'E	193 m	South Central	170	21	A, B, C
27	Toundi Farkia	14°02'N	01°32'E	208 m	South West	20	5	B, C
28	Tounga Yacouba	13°55'N	05°26'E	306 m	South Central	223	10	A, B, C

Afrotyphlops punctatus (Leach, 1819)
Material: One specimen.
Locality: Birni N'Konni (1, coll. MNHN).
Literature records: Birni N'Konni (Pellegrin 1909, Papenfuss 1969, Roux-Estève 1974); SW Niger (Roman 1974: One specimen).

Family Leptotyphlopidae Stejneger, 1892

Myriopholis adleri (Hahn and Wallach, 1998)
Material: Two specimens.
Locality: Gaya (2, coll. Chirio).
Literature records: Gaya (Chirio 2009).
Remarks: Despite the rarity of records, this species now appears to occupy the whole sudano-sahelian belt from Senegal to Chad but avoids the more sahelian areas contrary to *Myriopholis boueti* (Trape 2006b, Trape, in preparation).

Myriopholis algeriensis (Jacquet, 1895)
Material: One specimen.
Locality: Agadez (1, coll. MNHN).
Literature records: Agadez (Angel 1932, as *Leptotyphlops macrorhynchus*), Agadez (Angel and Lhote 1938, Villiers 1950a, as *Leptotyphlops macrorhynchus*); Aïr (Kriska 2001, as *Leptotyphlops macrorhynchus*); Agadez (Trape 2002, as *Leptotyphlops algeriensis*).

Myriopholis boueti (Chabanaud, 1917)
Material: Two specimens.
Locality: Kéllé (1), Gaya (1, coll. Chirio).
Literature records: Gaya (Chirio 2009).

Myriopholis cairi (Duméril and Bibron, 1844)
Material: Eight specimens.
Locality: Bilma (8, coll. MNHN).

Fig. 2. The Ténéré desert near Adrar Chiriet (19°17'N, 09°14'E).

Literature records: Bilma (Angel 1936, Angel and Lhote 1938, as *Leptotyphlops macrorhynchus bilmaensis*; Hahn and Roux-Estève 1979, Hahn and Wallach 1998, Trape 2002, as *Leptotyphlops cairi*); Téouar (Villiers 1950a, 1950b, as *Leptotyphlops macrorhynchus bilmaensis*).
Remarks: IFAN 47-4-38 from Téouar (Aïr Mountains) is apparently lost: we have been unable to find it in Dakar or Paris. However, data on this specimen provided by Villiers (1950b) exclude *Myriopholis algeriensis*, *Myriopholis boueti*, *Myriopholis adleri*, and *Myriopholis lanzai*, and fit well with *Myriopholis cairi*.

Tricheilostoma bicolor (Jan, 1860)
Material: One specimen.
Locality: Niamey Airport (1).
Literature records: Niamey, Tapoa (Hahn and Roux-Estève 1979, Hahn and Wallach 1998, as *Leptotyphlops bicolor*); Gaya, Campement Nigercar (Chirio 2009).

Family Boidae Gray, 1825

Eryx colubrinus (Linnæus, 1758)
Material: Three specimens.
Localities: Cissia (1), Tarka Dakouara (2).
Literature records: Agadez, Tabello (Villiers 1950a, 1950b, Papenfuss 1969); Aïr (Kriska 2001).
Remarks: In Niger this species was known from Aïr Mountains and Tamesna, i.e., 300 km north of Tarka Dakouara and Cissia, but not from the southern part of the country. Since Cissia is only 60 km from northeastern Nigeria and shares similar sahelian vegetation, our data suggest that this species may also reach this country where it has never been mentioned.

Eryx muelleri Boulenger, 1892
Material: 104 specimens.
Localities: Aborach (1), Aholé (17), Baboul (2), Chetimari (4), Cissia (2), Karosofoua (2), Kéllé (1), Kusa (1), Maradi (1), Saboulayi (8), Tarka Dakouara (30), Tékhé (9), Téla (17), Toundi Farkia (2), Tounga Yacouba (7).
Literature records: SW Niger (Roman 1974: 27 specimens); Aïr (Kriska 2001); Alambaré, Gaya, Gourgou, Kouré (Chirio 2009); Termit (Ineich et al. 2014).

Family Pythonidae Fitzinger, 1826

Python regius (Shaw, 1802)
Material: No specimen collected.
Literature records: SW Niger (Roman 1974: Two specimens); Alambaré (Chirio 2009).

Python sebae (Gmelin, 1788)
Material: No specimen collected.
Literature records: SW Niger (Roman 1974: Four specimens); 11 km NW of Niamey (Broadley 1984); Gaya, Mekrou-Direct (Chirio 2009).
Remarks: In Sahelo and Sahelo-Soudanian areas, this species is associated with perennial rivers, lakes, and marshlands. None of our study villages was located near the Niger River (Fig. 7), Lake Chad or other perennial waters.

Family Lamprophiidae Fitzinger, 1843

Subfamily Atractaspidinae Bourgeois, 1968

Atractaspis micropholis Günther, 1872
Material: 11 specimens.

Fig. 3. A typical view of the Sahel north of Niamey (14°05'N, 01°42'E).

Localities: Kusa (1), Maradi (1, coll. MNHN), Saboulayi (9).
Literature records: Kusa, Saboulayi, Maradi (Trape et al. 2006); Gaya (Chirio 2009).

Atractaspis watsoni Boulenger, 1908
Material: 33 specimens.
Localities: Birni N'Konni (1, coll. MNHN), Chetimari (2), Cissia (1), Karosofoua (5), Malbaza (1), Piliki (6), Saboulayi (1), Tékhé (16).
Literature records: Birni N'Konni (Pellegrin 1909, as *Atractaspis nigra* (holotype), see Trape et al. 2006); Birni N'Konni (Laurent 1950, Papenfuss 1969, as *Atractaspis microlepidota micropholis*); SW Niger (Roman 1974, as *Atractaspis microlepidota micropholis*); Karosofoua, Ader de Tahoua (Trape et al. 2006); Gourgou (Chirio 2009).

Subfamily Lamprophiinae Fitzinger, 1843

Boaedon fuliginosus (Boie, 1827)
Material: 16 specimens.
Localities: Chetimari (1), Cissia (2), Karosofoua (1), Piliki (2), Tékhé (8), Téla (2).
Literature records: SW Niger (Roman 1974: Nine specimens); Alambaré, Dagaraga, Tapoa (Chirio 2009).

Boaedon lineatus Duméril, Bibron and Duméril, 1854
Material: Three specimens.
Locality: Téla (3).
Literature records: SW Niger (Roman 1974: Four specimens); Gaya (Chirio 2009).

Gonionotophis granti (Günther, 1863)
Material: No specimen examined.
Literature records: Gourgou (Chirio 2009).

Lycophidion semicinctum (Duméril, Bibron and Duméril, 1854)
Material: One specimen.
Locality: Téla (1).
Literature records: Gayia (Chirio 2009).

Mehelya crossi (Boulenger, 1895)
Material: 11 specimens.
Locality: Téla (11).
Literature records: Gayia (Chirio 2009).
Remarks: The Téla records were plotted on the grid map in Trape and Mané (2006b). Recently, Kelly et al. (2011) dumped several file snakes into the genus *Gonionotophis*. However, on the basis of dentition and osteology there appear to be several genera involved (D.G. Broadley, in litt.) and thus we prefer to provisionally keep all the West African file snakes in the genus *Mehelya*.

Subfamily Prosymininae Kelly, Barker, Villet and Broadley, 2009

Prosymna greigerti collaris (Sternfeld, 1908)
Material: Five specimens.
Localities: Piliki (2), Téla (2), Tounga Yacouba (1).

Fig. 4. Field in the Sahel near Chetimari in southwestern Niger during the dry season (13°15'N, 12°28'E).

Literature records: SW Niger (Roman 1974, as *Prosymna meleagris*: Two specimens); Alambaré, Gaya, La Tapoa (Chirio 2009); Alambaré, Kouré, La Tapoa, Malbaza (in error), Piliki, Tounga Yacouba, Téla (Chirio et al. 2011).

Subfamily Psammophiinae Dowling, 1967

Hemirhagerrhis nototaenia (Günther, 1864)
Material: One specimen.
Locality: Maradi (1, coll. MNHN).
Literature records: Maradi (Chirio and Ineich 1993, Broadley and Hughes 2000; picture of the Maradi specimen in Trape and Mané 2006b).

Psammophis aegyptius Marx, 1958
Material: Three specimens.
Localities: Korri Solomi (1), Adrar Bous (1, BEV coll.), Oued Er Roui (1, MNHN coll.).
Literature records: Agadez (Villiers 1950a, 1950b, Papenfuss 1969, as *Psammophis schokari*); cliff of Tiguidit (Dragesco-Joffé 1993, as *Psammophis schokari*), Termit (Ineich et al. 2014).
Remarks: It is unclear if *P. schokari* also occurs in Niger (see Dragesco-Joffé 1993), but all specimens we examined had the high number of ventrals of *P. aegyptius* (Trape and Mané 2006b).

Psammophis elegans (Shaw, 1802)
Psammophis elegans univittatus Perret, 1961
Material: 32 specimens, including four *univittatus*.
Localities: Baboul (3 + 1 *univittatus*), Cissia (3), Goudoumaria (6), Kellé (1), Kusa (1), Piliki (6 + 3 univittatus), Téla (8).
Literature records: SW Niger (Roman 1974); Gaya, La Tapoa (Chirio 2009).
Remarks: The satus of *univittatus* initially described from northern Cameroon is unclear. Hughes (circa 1998, unpublished document) reports specimens from Mali, Niger (La Tapoa, Garin, Maradi, Soku), Nigeria, Cameroon, and Central African Republic). This taxon is characterized by a single vertebral brown line, and lacking those usually present on the flanks in *elegans*. It appears sympatric with *elegans* in Niger and is also distributed in Burkina Faso where five specimens from Bam area (13°20'N, 01°30'W) of Roman's collection are attributable to *univittatus* (J.-F. Trape, unpublished). Molecular studies are needed to clarify whether *univittatus* deserves taxonomic recognition or is simply intraspecific variation.

Psammophis lineatus (Duméril, Bibron, and Duméril, 1854)
Material: No specimen examined.
Literature records: SW Niger (Roman 1974, as *Dromophis lineatus*: 23 specimens); Point triple (Chirio 2009).

Psammophis praeornatus (Schlegel, 1837)
Material: Ten specimens.
Localities: Cissia (5), Kéllé (1), Malbaza (1), Piliki (1), Tékhé (1), Téla (1).

Fig. 5. View of the Sudan savanna in W National Park in southwestern Niger during the dry season (12°25'N, 02°30'E).

Literature records: SW Niger (Roman 1974, as *Dromophis praeornatus*: 13 specimens); Gaya, La Tapoa (Chirio 2009).

Psammophis sibilans (Linnæus, 1758)
Material: 622 specimens.
Localities: Aholé (52), Baboul (22), Chetimari (42), Cissia (50), Goudoumaria (3), Karosofoua (64), Kéllé (1), Kusa (6), Malbaza (30), Piliki (28), Saboulayi (30), Saouna (1), Tarka Dakouara (100), Tékhé (80), Téla (20), Toundi Farkia (4), Tounga Yacouba (89).
Literature records: Azzel (Villiers 1950a, 1950b, Papenfuss 1969); SW Niger (Roman 1974: 101 specimens); Alambaré, Dagaraga, Gaya, Gourgou, Kouré, La Tapoa, Moli Haoussa, campement Nigercar (Chirio 2009).
Remarks: We attribute these specimens to *P. sibilans* (type locality: Egypt) pending a comprehensive molecular study that incorporates specimens from the full range of the *P. sibilans* complex. Such specimens are characterized by five infralabials in contact with the first pair of mentals, a divided anal, and a more-or-less striped dorsal pattern, with at least a black and white chain on the scales of the vertebral line (this chain is occasionally absent in the Sahel, but always present in Sudan and Guinea savanna areas).

Psammophis sudanensis Werner, 1919
Material: One specimen.
Locality: Tarka Dakouara (1).
Remarks: First record for Niger. This species is characterized by four infralabials in contact with the first pair of mentals and a typical head pattern, with a median yellow line starting from the back of the rostral and reaching the front of the parietals, i.e., crossing the median part of the frontal contrary to *P. sibilans*.

Rhagerhis moilensis (Reuss, 1834)
Material: 18 specimens.
Localities: Aholé (4), Baboul (1), Chetimari (1), Cissia (6), Gari'n Bakwai (3, MNHN coll.), Kellé (1), Kusa (1), Tarka Dakouara (3), Tounga Yacouba (1).
Literature records: Between Aïr and Adrar (Angel and Lhote 1938); Gari'n Bakwai (Chirio and Ineich 1991, as *Rhamphiophis maradiensis*); Termit (Dragesco-Joffé 1993); Aïr, Tamesna (Kriska 2001); Termit (Ineich et al. 2014).
Remarks: Chirio and Ineich (1991), when describing *Rhamphiophis maradiensis* on the basis of three specimens from Gari'n Bakwai near Maradi (Niger), unfortunately omitted to compare their new species with *Rhagerhis moilensis*. We have examined the types of *Rhamphiophis maradiensis* that are preserved in MNHN. We consider the two species to be synonymous as they have the same head shape, body color pattern, and meristic data. Ventral counts ranged from 166 to 172 in males and from 165 to 182 in females for our material from Niger. To facilitate further comparisons, our material is now deposited in MNHN.

Rhamphiophis oxyrhynchus (Reinhardt, 1843)
Material: 26 specimens.

Fig. 6. View of Aïr Mountains in northern Niger (19°06'N, 08°54'E).

Localities: Aholé (1), Karosofoua (1), Simiri (1), Tékhé (5), Téla (3), Tounga Yacouba (15).
Literature records: SW Niger (Roman 1974: three specimens); Dogondoutchi, Maradi, Sakabal, Gari'n Bakwai (Chirio and Ineich 1991).

Family Colubridae Oppel, 1811

Subfamily Colubrinae Oppel, 1811

Crotaphopeltis hotamboeia (Laurenti, 1768)
Material: 14 specimens.
Localities: Aholé (4), Piliki (1), Tarka Dakouara (1), Téla (5), Tounga Yacouba (5).
Literature records: Bebeye, Birni N'Konni (Pellegrin 1909, as *Leptodira hotamboeia*); Birni N'Konni (Papenfuss 1969); SW Niger (Roman 1974: 34 specimens); Alambaré, La Tapoa, Mekrou-Direct, Point triple (Chirio 2009).

Dasypeltis gansi Trape and Mané, 2006
Material: Three specimens.
Localities: Cissia (1), Piliki (1), Téla (1).
Literature records: Cissia, Piliki, Téla (Trape and Mané 2006a); Alambaré, Gaya, La Tapoa, Point triple (Chirio 2009).

Dasypeltis sahelensis Trape and Mané, 2006
Material: 70 specimens.
Localities: Aholé (2), Baboul (2), Cissia (3), Karosofoua (4), Piliki (15), Korri Solomi (1), Saboulayi (1), Tarka Dakouara (31), Tékhé (1), Téla (5), Tounga Yacouba (5).
Literature records: Aholé, Baboul, Karosofoua, Piliki, Korri Solomi, Saboulayi, Tarka Dakouara (Trape and Mané 2006a); Gaya (Chirio 2009).

Lytorhynchus diadema (Duméril, Bibron, and Duméril, 1854)
Material: No specimen examined.
Literature records: 39 miles N of Tanout (Leviton and Anderson 1970).

Meizodon coronatus (Schlegel, 1837)
Material: Two specimens.
Localities: Karosofoua (1), Téla (1).
Literature records: Gaya (Chirio 2009).
Remark: The Téla specimen, the first known from Niger, appeared in the distribution map of Trape and Mané (2006b).

Philothamnus irregularis (Leach, 1819)
Material: Nine specimens.
Locality: Téla (9).
Literature records: SW Niger (Roman 1974: seven specimens); Gaya, Gourgou (Chirio 2009).

Philothamnus semivariegatus smithi Bocage, 1882
Material: Four specimens.
Locality: Téla (4).
Remarks: Trape and Mané (2006b) attributed West African populations of *P. semivariegatus* to a distinct subspecies "*P. semivariegatus* ssp."—differing from the nominal subspecies by its dorsal coloration: almost uniformly green in West Africa, versus green with black crossbars

Fig. 7. The Niger River near Ayorou in eastern Niger (14°42'N, 00°55'E).

in southern, eastern, and central Africa. Trape and Baldé (2014) revived *smithi* Bocage, 1882, for this subspecies.
Literature records: Gourgou (Chirio 2009).
Remark: The Téla specimens, the first known from Niger, appeared in the distribution map of Trape and Mané (2006b).

Spalerosophis diadema cliffordi (Schlegel, 1837)
Material: 86 specimens.
Localities: Aholé (18), Tchintoulous (1), Baboul (8), Cissia (1), Karosofoua (3), Kéllé (1), Kusa (3), Saboulayi (7), Tarka Dakouara (33), Tékhé (5), Tounga Yacouba (6).
Literature records: Vicinity of Agadez (Angel and Lhote 1938, as *Coluber diadema*); Agadez, Tabello (Villiers 1950a, 1950b, as *Coluber diadema*); Agadez, Tabello (Papenfuss 1969); SW Niger (Roman 1974: 18 specimens); Aïr (Kriska 2001).

Telescopus tripolitanus (Werner, 1909)
Material: 73 specimens.
Localities: Aholé (22), Baboul (1), Karosofoua (2), Kéllé (1), Malbaza (5), Piliki (7), Saboulayi (1), Tarka Dakouara (5), Tékhé (18), Téla (2), Toundi Farkia (2), Tounga Yacouba (7).
Literature records: Tahoua (Angel and Lhote 1938, Papenfuss 1969, as *Taborphis variegatus*); Agadez, Tabello (Villiers 1950a, 1950b, Papenfuss 1969, as *Taborphis obtusus*); Niamey (Villiers 1951, Papenfuss 1969, as *Taborphis variegatus*); Agadez (Papenfuss 1969); SW Niger (Roman 1974, as *Telescopus obtusus*: 19 specimens); SW Niger (Roman 1977: six mapped localities); Aïr (Kriska 2001, as *Telescopus obtusus*); Agadez, Tabelot, Maradi, Piliki, Téla, Aholé, Tounga Yacouba, Malbaza, Tékhé, Karosofoua, Saboulayi, Baboul, Kéllé, Tondi Farkia (Crochet et al. 2008); Gaya, Kouré (Chirio 2009).

Subfamily Grayiinae Kelly, Barker and Villet, 2003

Grayia smithi (Leach, 1818)
Material: One specimen.
Localities: Gaya (1).
Literature records: SW Niger (Roman 1974: 24 specimens).
Remarks: No specimen was collected by Chirio (2009) in W National Park, but Roman's collection comprised 24 specimens from southwestern Niger, most of them probably collected along the Niger River or its perennial and semi-perennial tributaries.

Family Natricidae Boie, 1827

Natriciteres olivacea (Peters, 1854)
Material: No specimen examined.
Literature records: southwestern Niger, without locality (Roman 1984).
Remarks: Roman (1984) also reported *Natriciteres fuliginoides* (Günther, 1858) from Niger, but it was probably a misidentified *N. olivacea* since he confused the two species in Burkina Faso (see Trape 2005). The rare, confirmed records of *N. fuliginoides* in West Africa are all located close to rainforest areas (Trape, in preparation).

Family Elapidae Boie, 1827

Elapsoidea semiannulata moebiusi (Werner, 1897)
Material: One specimen.

Locality: Téla (1).
Literature records: SW Niger (Roman 1974: one specimen); Gayia, La Tapoa (Chirio 2009).

Naja haje (Linnæus, 1758)
Material: Eight specimens.
Localities: Cissia (3), Tahoua (2), Tékhé (3).
Literature records: Agadez (Villiers 1950a, Papenfuss 1969); SW Niger (Roman 1974: one specimen probably attributable to *Naja senegalensis*); Aïr, Tamesna (Kriska 2001); Cissia, Tékhé, Tahoua, Zinder (Trape et al. 2009); Gayia (Chirio 2009).

Naja melanoleuca Hallowell, 1857
Material: No specimen examined.
Literature records: SW Niger (Roman 1974: four specimens).

Naja nigricollis Reinhardt, 1843
Material: 66 specimens.
Localities: Goudoumaria (1), Kusa (4), Piliki (14), Téla (39), Toundi Farkia (8).
Literature records: SW Niger (Roman 1974: 19 specimens); Dagaraga, Gayia, La Tapoa, Moli Haoussa, Point triple (Chirio 2009).

Naja nubiae Wüster & Broadley, 2003
Material: Two specimens.
Locality: Irabellaben (2, coll. IFAN).
Literature records: Irabellaben (Villiers 1950a, 1950b, Papenfuss 1969, as *Naja nigricollis*, Wüster and Broadley 2003, Trape and Mané 2006b); Aïr (Kriska 2001, as *Naja nigricollis*).

Naja senegalensis Trape, Chirio, and Wüster, 2009
Material: Three specimens.
Localities: Karosofoua (2), Téla (1).
Literature records: Karosofoua, Téla (Trape et al. 2009); campement Nigercar (Chirio 2009).

Family Viperidae Oppel, 1811

Bitis arietans (Merrem, 1820)
Material: Four specimens.
Localities: Cissia (2), Kusa (2).
Literature records: Kimbouloua (Pellegrin 1909); Agadez, Azzel, Dabaga, Tassesset (Villiers 1950a, as Bitis lachesis); Tassenet (Villiers 1950b, as *Bitis lachesis*); Tassesset (Papenfuss 1969), SW Niger (Roman 1974: four specimens); Aïr (Kriska 2001); Gaya, Mekrou-Direct (Chirio 2009).

Causus maculatus (Hallowell, 1842)
Material: One specimen.
Locality: Piliki (1).
Literature records: SW Niger (Roman 1974: six specimens); Dagaraga, Gaya, La Tapoa, Moli Haoussa (Chirio 2009).

Cerastes cerastes (Linnæus, 1758)
Material: Three specimens.
Locality: Aborah (2), Iférouane (1).
Literature records: Dungas, Nguigmi (Pellegrin 1909, as *Cerastes cornutus*); Agadez, Kaouar, Chirfa, Djado (Angel and Lhote 1938); Agadez, Dabaga, Oued In Kakane near In Gall, Kori Tessouba (Villiers 1950a, Papenfuss 1969); Agadez (Villiers 1950b); 120 km SE of Arlit (Joger 1981); Aïr, Tamesna (Kriska 2001); Termit (Ineich et al. 2014). See also Trape and Mané (2006b) and Sindaco et al. (2013).
Remark: The Iférouane specimen had no "horns."

Cerastes vipera (Linnæus, 1758)
Material: One specimen.
Locality: Six km N of Taghmert (1).
Literature records: Erg of Bilma, erg of Ténéré, cliff of Tiguidit, Termit (Dragesco-Joffé 1993); Aïr (Kriska 2001); Termit (Ineich et al. 2014). See also Trape and Mané (2006b) and Sindaco et al. (2013).

Echis leucogaster Roman, 1972
Material: 446 specimens.
Localities: Aholé (29), Baboul (22), Chetimari (10), Karosofoua (6), Kéllé (1), Malbaza (14), Piliki (62), Saboulayi (13), Tarka Dakouara (110), Tékhé (64), Téla (19), Toundi Farkia (4), Tounga Yacouba (92).
Literature records: Tabello (Villiers 1950a, 1950b, as *Echis carinatus*); route de Dosso, Oualam, Boubon, Niamey, five km W of Niamey, 10 km N of Niamey, 15 km NW of Niamey, 27 km S of Niamey, Tondikouaré, Koutéré, Hamdallaye, Kouré, Sarandobéni, Tagabati, Saguia, Tiourridi, Sargadji, Doulgou, Malgorou, Kolo, Sokorbé (Roman 1972); SW Niger (Roman 1974: 82 specimens); Boubon, Lido (Roman 1976); Agadez, Tabello, Boubon, Doulgou, Kouré, Malgorou, Niamey, Sargadji, Tin Akof, Tiourdi (Hughes 1976); 10 km N of Dabnou, Dogon-Doutchi (Joger 1981); Gaya, Kouré (Chirio 2009); Termit (Ineich et al. 2014). See also Trape and Mané (2006b) and Sindaco et al. (2013, as *Echis pyramidum*).

Echis ocellatus Stemmler, 1970
Material: 25 specimens.
Localities: Piliki (9), Téla (17).
Literature records: Bebeye (Pellegrin 1909, as *Echis carinatus*); Boubon, Gaya, Tiouridi (Roman 1972); SW Niger (Roman 1974: seven specimens); Boubon, Lido (Roman 1976); Bebeye, Boubon, Gaya, Tiouridi (Hughes 1976); Alambaré, Gaya (Chirio 2009).

Table 2. Checklist of snake species of Niger.

Species	First documented report	Ecological zone in Niger
Afrotyphlops lineolatus	Trape and Mané 2015	Sudan savanna
Afrotyphlops punctatus	Pellegrin 1909	Sudan savanna
Atractaspis micropholis	Trape et al. 2006	Sudan savanna / Sahel
Atractaspis watsoni	Trape et al. 2006	Sudan savanna / Sahel
Bitis arietans	Pellegrin 1909	Sudan savanna / Sahel / Aïr
Boaedon fuliginosus	Roman 1974	Sudan savanna / Sahel
Boaedon lineatus	Roman 1974	Sudan savanna
Causus maculatus	Roman 1974	Sudan savanna / Sahel
Cerastes cerastes	Pellegrin 1909	Sahara / Aïr
Cerastes vipera	Dragesco-Joffé 1993	Sahara / Aïr
Crotaphopeltis hotamboeia	Pellegrin 1909	Sudan savanna / Sahel
Dasypeltis gansi	Trape and Mané 2006a	Sudan savanna
Dasypeltis sahelensis	Trape and Mané 2006a	Sudan savanna / Sahel / Aïr
Echis leucogaster	Roman 1972	Sudan savanna / Sahel / Sahara / Aïr
Echis ocellatus	Pellegrin 1909	Sudan savanna
Elapsoidea semiannulata	Roman 1974	Sudan savanna
Eryx colubrinus	Villiers 1950	Sahel / Aïr
Eryx muelleri	Roman 1974	Soudan savanna / Sahel / Aïr
Gonionotophis granti	Chirio 2009	Sudan savanna
Grayia smithi	Roman 1974	Sudan savanna
Hemirhagerrhis nototaenia	Chirio and Ineich 1993	Sudan savanna
Lycophidion semicinctum	Chirio 2009	Sudan savanna
Lytorhynchus diadema	Leviton and Anderson 1970	Sahara
Mehelya crossi	Trape and Mané 2006b	Sudan savanna
Meizodon coronatus	Trape and Mané 2006b	Sudan savanna
Myriopholis algeriensis	Trape 2002	Sahara / Aïr
Myriopholis adleri	Chirio 2009	Sudan savanna
Myriopholis boueti	Chirio 2009	Sudan savanna / Sahel
Myriopholis cairi	Hahn and Roux-Estève 1979	Sahara / Aïr
Naja haje	Villiers 1950a	Sahel / Aïr
Naja melanoleuca	Roman 1974	Sudan savanna
Naja nigricollis	Roman 1974	Sudan savanna / Sahel
Naja nubiae	Wüster and Broadley 2003	Aïr
Naja senegalensis	Trape et al. 2009	Sudan savanna
Natriciteres olivacea	Roman 1984	Sudan savanna
Philothamnus irregularis	Roman 1974	Sudan savanna
Philothamnus semivariegatus	Trape and Mané 2006b	Sudan savanna
Prosymna greigerti	Roman 1974	Sudan savanna
Psammophis aegyptius	Trape and Mane 2006b	Sahara / Aïr
Psammophis elegans	Roman 1974	Sudan savanna / Sahel
Psammophis lineatus	Roman 1974	Sudan savanna
Psammophis praeornatus	Roman 1974	Sudan savanna / Sahel
Psammophis sibilans	Villiers 1950a	Sudan savanna / Sahel / Aïr
Psammophis sudanensis	Trape and Mané 2015	Sudan savanna
Python regius	Roman 1974	Sudan savanna
Python sebae	Roman 1974	Sudan savanna, Sahel
Rhagerhis moilensis	Angel and Lhote 1938	Sahara / Sahel / Aïr
Rhamphiophis oxyrhynchus	Roman 1974	Sudan savanna
Spalerosophis diadema	Villiers 1950a	Sudan savanna / Sahel / Aïr
Telescopus tripolitanus	Roman 1977	Sudan savanna / Sahel / Aïr
Tricheilostoma bicolor	Hahn and Roux-Estève 1979	Sudan savanna

Discussion

Our collection of Nigerian snakes comprises 1,714 specimens belonging to 38 species. With additional museum material that we examined and accepting reliable literature reports the snake fauna of Niger comprises 51 species (Table 2), i.e., 19 species more than the previous checklist established by Roman (1984). The first checklist for Niger (Papenfuss 1969) comprised only 15 species. It is unclear whether *P. schokari* also occurs in Niger, or if only *P. aegyptius* is present. Data points probably in error for *Naja katiensis* and *Atractaspis dahomeyensis* in maps by Chippaux (2006) are not retained here, but these two species may still occur in southwestern Niger since close records exist for Burkina Faso (*Naja katiensis*) and Benin (*Atractaspis dahomeyensis*). As previously mentioned in Trape and Mane (2006b), *Rhamphiophis maradiensis* is a junior synonym of *Rhagheris moilensis*. The occurrence of *Psammophis sudanensis* in Niger, a rare species in West Africa (Trape and Mané 2006b, Trape and Baldé 2014), has not previously been noted.

North of 15°N, in the most arid part of the country (rains < 250 mm), the snake fauna comprises at least 17 species; with six typical Saharan species: *Myriopholis algeriensis*, *Myriopholis cairi*, *Lytorhynchus diadema*, *Psammophis aegyptius*, *Cerastes cerastes*, and *Cerastes vipera*; eight Sahelo-Saharan species: *Eryx colubrinus*, *Eryx muelleri*, *Dasypeltis sahelensis*, *Spalerosophis diadema cliffordi*, *Telescopus tripolitanus*, *Rhagerhis moilensis*, *Naja nubiae*, and *Echis leucogaster*; one Sahelo-Sudanian species: *Naja haje*; and two species widely distributed in West African savannas including the northern Sahel: *Psammophis sibilans* and *Bitis arietans*. In these areas, only nine specimens were collected during our study. Even if the duration of sampling was much lower than south of 15°N for most sites, this may reflect a lower density of snakes. However, it may also reflect more limited participation in the study by nomads contrary to settled agricultural workers. Some specific beliefs may also have played a role, e.g., for some northern populations killing a *Psammophis* is taboo. Our interviews of local populations suggested that at least *Cerastes cerastes* and *Psammophis aegyptius* are common in many areas of northern Niger.

Maximum diversity was observed in the southern part of the country, between 12°00'N and 14°00'N, where the snake fauna comprises at least 43 species, including either: Sahelo-Saharan: *Eryx colubrinus*, *Eryx muelleri*, *Dasypeltis sahelensis*, *Spalerosophis diadema cliffordi*, *Telescopus tripolitanus*, *Rhagerhis moilensis*, and *Echis leucogaster*; Sudanian and Sahelian: *Myriopholis adleri*, *Myriopholis boueti*, *Meizodon coronatus*, *Prosymna greigerti collaris*, *Psammophis praeornatus*, *Psammophis sudanensis*, *Rhamphiophis oxyrhynchus*, *Elapsoidea semiamnnulata moebiusi*, *Naja haje*, and *Naja senegalensis*; or species widely distributed in West African savannas: *Afrotyphlops lineolatus*, *Afrotyphlops punctatus*, *Tricheilostoma bicolor*, *Python regius*, *Python sebae*, *Boaedon fuliginosus*, *Boaedon lineatus*, *Crotaphopeltis hotamboeia*, *Dasypeltis gansi*, *Gonionotophis granti*, *Grayia smithi*, *Hemirhagerrhis nototaenia*, *Lycophidion semicinctum*, *Mehelya crossi*, *Natriciteres olivacea*, *Philothamnus irregularis*, *Philothamnus semivariegatus smithi*, *Psammophis elegans*, *Psammophis lineatus*, *Psammophis sibilans*, *Naja nigricollis*, *Naja melanoleuca*, *Bitis arietans*, *Causus maculatus*, and *Echis ocellatus*.

Despite the relatively high number of species recorded south of 14°N, many species were rarely collected and diversity was low in most areas. Two species represented together almost two-third of the 1,705 snakes that were collected south of 15°N: *Psammophis sibilans* (621 specimens, 36.4 %), and *Echis leucogaster* (446 specimens, 26.2 %). Five additional species represented at least 2% of the snakes that were collected: *Eryx muelleri* (104 specimens, 6.1 %), *Spalerosophis diadema cliffordi* (86 specimens, 5.0 %), *Telescopus tripolitanus* (72 specimens, 4.2%), *Dasypeltis sahelensis* (69 specimens, 4.0 %), and *Naja nigricollis* (66 specimens, 3.9 %). Two species were close to 2%: *Atractaspis watsoni* (33 specimens, 1.9%), and *Psammophis elegans* (32 specimens, 1.9%). In fact, except south of 13°N, snake diversity was low in almost all sampling sites, e.g., only 10 different species in Tarka Dakouara (14°12'N, 08°49'E) despite 315 specimens collected, but 21 species for 170 specimens collected in Téla (12°08'N, 03°28'E), our southernmost study area.

Regarding snakebite management, our data highlight the danger represented by *Echis leucogaster* and *Naja nigricollis*. These two highly venomous species are both abundant and widely distributed in the most populated areas of Niger, particularly *Echis leucogaster* which probably occurs throughout the whole country. Among the other dangerous species, *Cerastes cerastes*, *Cerastes vipera*, *Naja nubiae*, and *Naja haje* are essentially distributed in the most arid regions of the country, and *Echis ocellatus*, *Naja senegalensis*, *Naja melanoleuca*, *Atractaspis watsoni*, and *Atractaspis micropholis* in Sudan savanna areas.

The extensive collections made by Roman (1974, 1984) and Chirio (2009) in southwestern Niger, where rains, permanent surface waters, and biodiversity are the highest, combined with Aïr mountains records by Villiers (1950) have provided a relatively comprehensive overview of the snake fauna of Niger. However, among the species of our collection, five were new for Niger when collected (i.e., *Afrotyphlops lineolatus*, *Myriopholis boueti*, *Meizodon coronatus*, *Philothamnus semivariegatus smithi*, and *Psammophis sudanensis*), three belonged to new species that we described elsewhere (*Dasypeltis gansi*, *D. sahelensis* (Trape and Mané 2006a) and *Naja senegalensis* (Trape et al. 2009), and two belonged to species that we have revived from the synonymy of

Atractaspis microlepidota (i.e., *A. watsoni* and *A. micropholis*).

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Jean-François Trape is a French medical doctor, biologist, and herpetologist with lengthy experience in Africa, where he was born (1949). Since 1980 he has worked continuously in Africa for the Institut de Recherche pour le Développement (IRD, formerly ORSTOM), a French public institution for research in Southern countries. Presently he is Emeritus Research Director at the IRD Laboratory of Malarialogy and Medical Zoology located in Dakar, Senegal. Jean-François has authored or co-authored over 280 peer-reviewed papers and books on tropical medicine and herpetology, including the books "Guide des serpents d'Afrique occidentale. Savane et desert" (2006) and "Lézards, crocodiles et tortues d'Afrique occidentale et du Sahara" (2012). During his career he has authored or co-authored the descriptions of 23 reptile and five tick species. He is also a malaria expert for the World Health Organization, where he has served in several steering committees. In 2010 he received the first IRD prize for research, and in 2013 the Lucien Tartois prize from the French Foundation for Medical Research.

Youssouph Mané is a Senegalese biologist and herpetologist born in 1961 in the Casamance Province of southern Senegal. His master dissertation at the University Cheikh Anta Diop of Dakar in 1992 investigated the snake fauna in the vicinity of Dielmo, a well preserved savanna area near the Sine-Saloum National Park in central Senegal. In 1997 Youssouph's doctorate thesis was on the ecology of bees in Casamance. After his thesis, he entered the Institut de Recherche pour le Développement at Dakar, participated in many herpetological field surveys in West Africa, and served as the curator of the IRD reptile collection. Youssouph has authored or co-authored 22 peer-reviewed papers and the book entitled "Guide des serpents d'Afrique occidentale. Savane et desert" (2006, with J-FT). Over his career to date, he has authored or co-authored the description of seven snake and two amphisbaenian species.

APPENDIX: list of specimens examined (IRD collection, Dakar).

***Afrotyphlops lineolatus*. Téla**: TR.4448.

***Atractaspis micropholis*. Kusa**: 5.N; **Saboulayi**: 34.N, 358.N, 375.N, 376.N, 377.N, 378.N, 379.N, 918.N, 930 N.

***Atractaspis watsoni*. Chetimari**: 845.N, 861.N; **Cissia**: 1069.N; **Karosofoua**: 297.N, 298.N, 299.N, 903.N; **Malbaza**: 464.N; **Piliki**: 301.N, 302.N, 352.N, 1407.N, 1444.N, 1450.N; **Saboulayi**: 357.N; **Tékhé**: 686.N, 757.N, 758.N, 762.N, 769.N, 775.N, 781.N, 787.N, 808.N, 815.N, 1274.N, 1282.N, 1290.N, 1303.N, 1336.N, 1353.N.

***Bitis arietans*. Cissia**: 1052.N, 1087.N; **Kusa**: 216.N, 227.N.

***Boaedon fuliginosus*. Chetimari**: 863.N; **Cissia**: 1065.N, 1066.N; **Karosofoua**: 827.N; **Piliki**: 1412.N, 1457.N; **Tékhé**: 1275.N, 1335.N, 1346.N, 1347.N, 1362.N, 1379.N, 1386.N, 698.N; **Téla**: 272.N, 720.N.

***Boaedon lineatus*. Téla**: 264.N, 711.N, 1564.N.

***Causus maculatus*. Piliki**: 349.N.

***Cerastes cerastes*. Aborah**: 356.N, TR.1513.

***Cerastes vipera*. Taghmert**: TR.1548.

***Crotaphopeltis hotamboeia*. Aholé**: 90.N, 91.N, 93.N, 580.N; **Piliki**: 345.N; **Tarka Dakouara**:125.N; **Téla**: 277.N, 286.N, 713.N, 714.N, 717.N; **Tounga Yacouba**: 33.N, 564.N, 1660.N.

***Dasypeltis gansi*. Cissia**: 252.N; Piliki: 331.N; Téla: 273.N.

***Dasypeltis sahelensis*. Aholé**: 1022.N, 587.N; **Baboul**: 394.N, 59.N; **Cissia**: 1051.N, 1071.N, 1083.N; **Karosofoua**: 820.N, 831.N, 899.N, 908.N; **Korri Solomi**: TR.1545; **Piliki**: 1405.N, 1418.N, 1434.N, 1437.N, 1445.N, 1452.N, 1466.N, 1467.N, 1468.N, 1470.N, 1473.N, 1491.N, 305.N, 309.N, 315.N; **Saboulayi**: 189.N; **Tarka Dakouara**: 10.N, 106.N, 115.N, 120.N, 130.N, 133.N, 163.N, 399.N, 400.N, 401.N, 402.N, 423.N, 431.N, 432.N, 433.N, 435.N, 444.N, 1106.N, 1112.N, 1149.N, 1195.N, 1206.N, 1240.N, 1262.N, 1269.N, 1273.N, 1703.N, 1704.N, 1705.N, 1706.N, 1707.N; Tékhé: 1363.N; Téla: 1543.N, 1552.N, 1561.N, 1569.N, 1579.N; **Tounga Yacouba**: 1662.N, 1686.N.

***Echis leucogaster*. Aholé**: 95.N, 570.N, 572.N, 574.N, 593.N, 603.N, 609.N, 611.N, 615.N, 617.N, 623.N, 627.N, 628.N, 972.N, 974.N, 980.N, 990.N, 992.N, 1002.N, 1004.N, 1005.N, 1016.N, 1023.N, 1024.N, 1025.N, 1026.N, 1027.N, 1028.N, 1034.N; **Baboul**: 45.N, 46.N, 52.N, 54.N, 62.N, 63.N, 65.N, 68.N, 69.N, 75.N, 76.N, 80.N, 81.N, 82.N, 83.N, 86.N, 386.N, 390.N, 391.N, 393.N, 395.N, 396.N; **Chetimari**: 233.N, 234.N, 235.N, 236.N, 240.N, 242.N, 243.N, 244.N, 656.N, 847.N; **Karosofoua**: 210.N, 212.N, 214.N, 215.N, 872.N, 878.N; **Kéllé**: 934.N; **Malbaza**: 469.N, 471.N, 472.N, 937.N, 939.N, 944.N, 945.N, 946.N, 949.N, 952.N, 956.N, 958.N, 964.N, 966.N; **Piliki**: 310.N, 311.N, 312.N, 313.N, 314.N, 317.N, 320.N, 321.N, 329.N, 333.N, 334.N, 335.N, 336.N, 337.N, 339.N, 341.N, 342.N, 343.N, 346.N, 700.N, 701.N, 702.N, 703.N, 705.N, 706.N, 707.N, 709.N, 825.N, 1398.N, 1399.N, 1400.N, 1402.N, 1411.N, 1415.N, 1416.N, 1417.N, 1420.N, 1421.N, 1423.N, 1425.N, 1428.N, 1429.N, 1433.N, 1435.N, 1441.N, 1442.N, 1448.N, 1449.N, 1453.N, 1455.N, 1458.N, 1459.N, 1464.N, 1465.N, 1469.N, 1474.N, 1476.N, 1478.N, 1482.N, 1485.N, 1487.N, 1489.N; **Saboulayi**: 179.N, 363.N, 364.N, 366.N, 916.N, 917.N, 922.N, 923.N, 924.N, 925.N, 927.N, 931.N, 932.N; **Tarka Dakouara**: 105.N, 109.N, 114.N, 119.N, 122.N, 132.N, 141.N, 149.N, 152.N, 153.N, 156.N, 161.N, 162.N, 403.N, 404.N, 405.N, 406.N, 415.N, 416.N, 417.N, 418.N, 419.N, 421.N, 424.N, 426.N, 428.N, 436.N, 437.N, 440.N, 441.N, 445.N, 446.N, 451.N, 452.N, 1107.N, 1108.N, 1110.N, 1111.N, 1113.N, 1114.N, 1115.N, 1116.N, 1118.N, 1121.N, 1123.N, 1125.N, 1127.N, 1133.N, 1136.N, 1137.N, 1141.N, 1142.N, 1143.N, 1146.N, 1147.N, 1148.N, 1150.N, 1152.N, 1153.N, 1154.N, 1155.N, 1156.N, 1157.N, 1164.N, 1165.N, 1167.N, 1171.N, 1173.N, 1178.N, 1180.N, 1181.N, 1182.N, 1183.N, 1185.N, 1187.N, 1199.N, 1201.N, 1203.N, 1204.N, 1207.N, 1209.N, 1210.N, 1211.N, 1212.N, 1215.N, 1217.N, 1220.N, 1223.N, 1226.N, 1228.N, 1229.N, 1233.N, 1234.N, 1236.N, 1237.N, 1239.N, 1244.N, 1248.N, 1251.N, 1252.N, 1253.N, 1254.N, 1258.N, 1259.N, 1261.N, 1263.N, 1265.N, 1266.N, 1267.N, 1268.N; **Tékhé**: 685.N, 759.N, 763.N, 764.N, 765.N, 766.N, 767.N, 772.N, 774.N, 782.N, 784.N, 785.N, 790.N, 792.N, 796.N, 799.N, 801.N, 802.N, 803.N, 813.N 1276.N, 1279.N, 1280.N, 1283.N, 1284.N, 1294.N, 1295.N, 1296.N, 1297.N, 1298.N, 1299.N, 1306.N, 1316.N, 1317.N, 1324.N, 1325.N, 1332.N, 1337.N, 1338.N, 1341.N, 1344.N, 1345.N, 1349.N, 1350.N, 1356.N, 1358.N, 1366.N, 1369.N, 1370.N, 1372.N, 1374.N, 1375.N, 1376.N, 1380.N, 1382.N, 1383.N, 1388.N, 1389.N, 1390.N, 1391.N, 1392.N, 1394.N, 1396.N, 1397.N; Téla: 4.N, 276.N, 287.N, 288.N, 292.N, 727.N, 734.N, 735.N, 740.N 1526.N, 1538.N, 1547.N, 1548.N, 1551.N, 1554.N, 1555.N, 1562.N, 1563.N, 1568.N; **Toundi Farkia**: 1044.N, 1045.N, 1047.N, 1049.N; **Tounga Yacouba**: 42.N, 43.N, 44.N, 473.N, 486.N, 487.N, 496.N, 497.N, 502.N, 503.N, 504.N, 505.N, 507.N, 508.N, 509.N, 510.N, 513.N, 520.N, 522.N, 524.N, 525.N, 526.N, 530.N, 531.N, 537.N, 539.N, 541.N, 546.N, 548.N, 549.N, 551.N, 552.N, 554.N, 555.N, 556.N, 557.N, 558.N, 559.N, 560.N, 561.N, 562.N, 563.N, 565.N, 566.N, 1583.N, 1586.N, 1587.N, 1589.N, 1590.N, 1592.N, 1594.N, 1595.N, 1599.N, 1600.N, 1602.N, 1606.N, 1608.N, 1614.N, 1616.N, 1618.N, 1620.N, 1624.N, 1625.N, 1632.N,

1634.N, 1635.N, 1637.N, 1641.N, 1648.N, 1650.N, 1653.N, 1654.N, 1661.N, 1665.N, 1666.N, 1667.N, 1670.N, 1671.N, 1673.N, 1675.N, 1676.N, 1677.N, 1679.N, 1680.N, 1683.N, 1685.N, 1690.N, 1691.N, 1692.N, 1694.N, 1699.N.

***Echis ocellatus*. Piliki**: 323.N, 324.N, 1451.N, 1475.N, 1479.N, 1480.N, 1481.N, 1483.N, 1484.N; **Téla**: 716.N, 729.N, 733.N, 744.N, 750.N 1502.N, 1516.N, 1525.N, 1529.N, 1539.N, 1541.N, 1542.N, 1553.N, 1558.N, 1577.N, 1580.N.

***Elapsoidea semiannulata moebiusi*. Téla**: 747.N.

***Eryx colubrinus*. Cissia**: 1089.N; **Tarka Dakouara**: 1190.N, 1224.N.

***Eryx muelleri*. Aborah**: 355.N; **Aholé**: 87.N, 94.N, 577.N, 578.N, 588.N, 590.N, 595.N, 610.N, 612.N, 616.N, 977.N, 998.N, 999.N, 1000.N, 1700.N, 1701.N, 1702.N; Baboul: 77.N, 392.N; **Chetimari**: 230.N, 231.N, 834.N, 854.N; **Cissia**: 1081.N, 1086.N; **Karosofoua**: 873.N, 890.N; **Kéllé**; 642.N; **Kusa**: 226.N; **Maradi**: TR.4450; **Saboulayi**: 174.N, 362.N, 368.N, 369.N, 381.N, 914.N, 919.N, 920.N; **Tarka Dakouara**: 128.N, 129.N, 147.N, 407.N, 411.N, 414.N, 425.N, 427.N, 438.N, 448.N, 449.N, 453.N, 1124.N, 1126.N, 1132.N, 1144.N, 1168.N, 1179.N, 1191.N, 1200.N, 1205.N, 1208.N, 1214.N, 1216.N, 1218.N, 1242.N, 1250.N, 1255.N, 1257.N, 1272.N; **Tékhé**: 770.N, 783.N, 798.N, 1285.N, 1288.N, 1320.N, 1354.N, 1364.N, 1393.N; **Téla**: 294.N, 295.N, 715.N, 723.N, 724.N, 725.N, 726.N, 732.N, 736.N, 1505.N, 1506.N, 1513.N, 1528.N, 1550.N, 1557.N, 1560.N, 1575.N; **Toundi Farkia**: 372.N, 1050.N; **Tounga Yacouba**: 495.N, 499.N, 533.N, 1597.N, 1631.N, 1663.N, 1698.N.

***Lycophidion semicinctum*. Téla**: 1532.N.

***Mehelya crossi*. Téla**: 271.N, 282.N, 285.N, 293.N, 710.N, 730.N, 1495.N, 1500.N, 1507.N, 1511.N, 1535.N.

***Meizodon coronatus*. Karosofoua**: 882.N; **Téla**: 722.N.

***Myriopholis boueti.* Kéllé**: 936.N.

***Naja haje*. Cissia**; 246.N, 248.N, 672.N; **Tahoua**: TR.4442, 832.N; **Tékhé**: 60.N, 690.N, 1395.N.

***Naja nigricollis*. Goudoumaria**: 661.N; **Kusa**: 218.N, 220.N, 221.N, 223.N; **Piliki**: 303.N, 306.N, 307.N, 326.N, 338.N, 340.N, 348.N, 351.N, 1408.N, 1409.N, 1431.N, 1439.N, 1446.N, 1447.N; **Téla**: 265.N, 266.N, 267.N, 268.N, 269.N, 270.N, 278.N, 289.N, 291.N, 737.N, 738.N, 739.N, 741.N, 742.N, 743.N, 745.N, 746.N, 751.N, 752.N, 753.N, 754.N 1496.N, 1497.N, 1498.N, 1499.N, 1501.N, 1503.N, 1508.N, 1519.N, 1520.N, 1521.N, 1524.N, 1534.N, 1549.N, 1571.N, 1574.N, 1576.N, 1578.N, 1581.N; **Toundi Farkia**: 1035.N, 1036.N1037.N, 1038.N, 1040.N, 1041.N, 1042.N, 1046.N.

***Naja senegalensis*. Karosofoua**: 201.N, 910.N; **Téla**: 1504.N.

***Philothamnus irregularis*. Téla**: 274.N, 275.N, 279.N, 280.N, 283.N, 290.N, 296.N, 712.N 1523.N.

***Philothamnus semivariegatus smithi*. Téla**: 755.N, 1527.N, 1537.N.

***Prosymna greigerti collaris*. Piliki**: 347.N, 1472.N; **Téla**: 1531.N, 1545.N; **Tounga Yacouba**: 536.N.

***Psammophis aegyptius*. Korri Solomi**: TR.4449.

***Psammophis elegans*. Baboul**: 73.N, 78.N, 85.N; **Cissia**: 262.N, 263.N, 674.N; **Goudoumaria**: 662.N, 663.N, 664.N, 665.N, 666.N, 669.N; **Kéllé**: 935.N; **Kusa**: 648.N, **Piliki**: 308.N, 316.N, 318.N, 1422.N, 1443.N, 1454.N; **Téla**: 719.N, 1514.N, 1518.N, 1522.N, 1546.N, 1556.N, 1570.N, 1573.N.

***Psammophis elegans univittatus*. Baboul**: 388.N; **Piliki**: 1432.N, 1436.N, 1471.N.

***Psammophis praeornatus*. Cissia**: 253.N, 257.N, 260.N, 261.N, 675.N; **Kéllé**: 641.N, **Malbaza**: 467.N; **Piliki**: 1490.N; **Tékhé**: 1378.N; **Téla**: 1572.N.

***Psammophis sibilans*. Aholé**. 88.N, 89.N, 92.N, 567.N, 568.N, 569.N, 571.N, 573.N, 576.N, 579.N, 581.N, 582.N, 583.N, 584.N, 586.N, 594.N, 596.N, 598.N, 599.N, 601.N, 602.N, 608.N, 613.N, 618.N, 619.N, 620.N, 622.N, 624.N, 630.N, 631.N, 632.N, 970.N, 973.N, 976.N, 981.N, 983.N, 984.N, 985.N, 986.N, 987.N, 988.N, 996.N, 997.N, 1001.N, 1008.N, 1014.N, 1017.N, 1018.N, 1020.N, 1029.N, 1031.N, 1032.N; Baboul: 47.N, 48.N, 49.N, 53.N, 56.N, 57.N, 58.N, 60.N, 61.N, 64.N, 66.N, 67.N, 70.N, 71.N, 72.N, 74.N, 79.N, 84.N, 385.N, 387.N, 397.N, 398.N; **Chetimari**: 229.N, 232.N, 237.N, 238.N, 239.N, 241.N, 649.N, 650.N, 651.N, 652.N, 653.N, 654.N, 655.N, 657.N, 658.N, 659.N, 660.N, 833.N, 835.N, 836.N, 837.N, 838.N, 839.N, 840.N, 841.N, 842.N, 843.N, 844.N, 846.N, 848.N, 849.N, 850.N, 851.N, 852.N, 853.N, 855.N, 856.N, 858.N, 859.N, 860.N, 862.N, 864.N; Cissia: 245.N, 247.N, 249.N, 250.N, 251.N, 254.N, 255.N, 256.N, 258.N, 259.N, 671.N, 673.N, 1053.N, 1054.N, 1055.N, 1056.N, 1057.N, 1058.N, 1059.N, 1060.N, 1061.N, 1062.N, 1063.N, 1064.N, 1067.N, 1068.N, 1072.N, 1073.N, 1074.N, 1075.N, 1076.N,

1077.N, 1078.N, 1082.N, 1084.N, 1085.N, 1088.N, 1090.N, 1091.N, 1092.N, 1095.N, 1096.N, 1097.N, 1098.N, 1099.N, 1100.N, 1101.N, 1102.N, 1103.N, 1104.N,; **Goudoumaria**: 667.N, 668.N, 670.N; **Karosofoua**: 190.N, 191.N, 192.N, 193.N, 194.N, 195.N, 196.N, 197.N, 198.N, 199.N, 200.N, 202.N, 203.N, 204.N, 205.N, 206.N, 207.N, 208.N, 211.N, 213.N, 817.N, 818.N, 819.N, 821.N, 822.N, 823.N, 824.N, 826.N, 828.N, 829.N, 830.N, 65.N, 866.N, 867.N, 868.N, 869.N, 870.N, 874.N, 875.N, 876.N, 877.N, 879.N, 880.N, 881.N, 883.N, 884.N, 885.N, 886.N, 888.N, 891.N, 892.N, 894.N, 895.N, 896.N, 897.N, 898.N, 901.N, 904.N, 905.N, 906.N, 907.N, 909.N, 911.N, 912.N; **Kéllé**: 640.N; **Kusa**: 217.N, 222.N, 224.N, 225.N, 644.N, 646.N; **Malbaza**: 454.N, 455.N, 456.N, 457.N, 458.N, 460.N, 461.N, 462.N, 463.N, 465.N, 466.N, 470.N, 938.N, 940.N, 941.N, 942.N, 943.N, 947.N, 948.N, 950.N, 954.N, 955.N, 957.N, 960.N, 961.N, 962.N, 963.N, 967.N, 968.N, 969.N; **Piliki**: 300.N, 304.N, 319.N, 322.N, 325.N, 327.N, 328.N, 330.N, 353.N, 704.N,1403.N, 1404.N, 1406.N, 1410.N, 1413.N, 1414.N, 1419.N, 1424.N, 1426.N, 1427.N, 1430.N, 1438.N, 1440.N, 1462.N, 1463.N, 1477.N, 1486.N, 1488.N; **Saboulayi**: 165.N, 166.N, 167.N, 169.N, 170.N, 171.N, 172.N, 173.N, 175.N, 176.N, 177.N, 178.N, 180.N, 182.N, 184.N, 185.N, 186.N, 187.N, 188.N, 359.N, 360.N, 365.N, 380.N, 384.N, 913.N, 915.N, 921.N, 928.N, 929.N, 933.N; **Saouna**: 354.N; **Tarka Dakouara**: 96.N, 97.N, 98.N, 99.N, 100.N, 101.N, 102.N, 103.N, 104.N, 107.N, 108.N, 110.N, 111.N, 112.N, 113.N, 116.N, 117.N, 118.N, 121.N, 124.N, 126.N, 127.N, 131.N, 134.N, 135.N, 136.N, 137.N, 138.N, 139.N, 140.N, 142.N, 143.N, 144.N, 145.N, 146.N, 148.N, 150.N, 151.N, 154.N, 155.N, 157.N, 158.N, 160.N, 164.N, 408.N, 410.N, 412.N, 434.N, 439.N, 442.N, 443.N, 447.N, 450.N, 1105.N, 1109.N, 1120.N, 1128.N, 1129.N, 1130.N, 1131.N, 1135.N, 1138.N, 1145.N, 1151.N, 1159.N, 1160.N, 1161.N, 1162.N, 1166.N, 1169.N, 1170.N, 1172.N, 1175.N, 1176.N, 1177.N, 1189.N, 1193.N, 1194.N, 1196.N, 1197.N, 1198.N, 1202.N, 1213.N, 1222.N, 1225.N, 1227.N, 123.N, 1230.N, 1232.N, 1235.N, 1238.N, 1241.N, 1243.N, 1245.N, 1247.N, 1249.N, 1256.N, 1260.N, 1270.N, 1271.N; **Tékhé**: 676.N, 677.N, 678.N, 679.N, 680.N, 681.N, 682.N, 683.N, 684.N, 687.N, 688.N, 689.N, 691.N, 692.N, 693.N, 694.N, 695.N, 696.N, 697.N, 699.N, 756.N, 761.N, 768.N, 771.N, 773.N, 776.N, 777.N, 780.N, 793.N, 797.N, 800.N, 809.N, 814.N, 816.N 1277.N, 1281.N, 1286.N, 1287.N, 1291.N, 1300.N, 1301.N, 1302.N, 1304.N, 1305.N, 1307.N, 1308.N, 1309.N, 1310.N, 1312.N, 1313.N, 1314.N, 1319.N, 1322.N, 1323.N, 1327.N, 1328.N, 1329.N, 1330.N, 1331.N, 1333.N, 1334.N, 1339.N, 1340.N, 1342.N, 1348.N, 1351.N, 1352.N, 1355.N, 1357.N, 1360.N, 1361.N, 1365.N, 1367.N, 1368.N, 1371.N, 1373.N, 1381.N, 1384.N, 1387.N; **Téla**: 718.N, 721.N, 728.N, 748.N, 1492.N, 1493.N, 1494.N, 1509.N, 1510.N, 1512.N, 1515.N, 1517.N, 1530.N, 1533.N, 1540.N, 1544.N, 1559.N, 1565.N, 1566.N, 1567.N; **Toundi Farkia**: 370.N, 373.N, 1039.N, 1043.N; **Tounga Yacouba**: 36.N, 37.N, 38.N, 39.N, 41.N, 374.N, 474.N, 475.N, 476.N, 477.N, 478.N, 479.N, 480.N, 481.N, 482.N, 485.N, 489.N, 490.N, 492.N, 500.N, 501.N, 506.N, 511.N, 512.N, 514.N, 515.N, 516.N, 517.N, 518.N, 519.N, 523.N, 527.N, 528.N, 529.N, 532.N, 534.N, 535.N, 542.N, 543.N, 544.N, 550.N, 553.N, 642.N, 1585.N, 1591.N, 1593.N, 1596.N, 1598.N, 1603.N, 1604.N, 1605.N, 1607.N, 1609.N, 1610.N, 1612.N, 1613.N, 1615.N, 1617.N, 1619.N, 1621.N, 1623.N, 1626.N, 1628.N, 1629.N, 1630.N, 1633.N, 1638.N, 1639.N, 1643.N, 1644.N, 1645.N, 1646.N, 1649.N, 1651.N, 1652.N, 1655.N, 1656.N, 1657.N, 1658.N, 1659.N, 1668.N, 1672.N, 1674.N, 1681.N, 1684.N, 1687.N, 1689.N, 1693.N, 1695.N.

***Psammophis sudanensis*. Tarka Dakouara**: 17.N.

***Rhagerhis moilensis*. Aholé**: 636.N, 1012.N, 1019.N, 1033.N; **Baboul**: 389.N; **Chetimari**: 857.N; **Cissia**: 1.N, 2.N, 3.N, 1080.N, 1093.N, 1094.N; **Kéllé**: 639.N; **Kusa**: 645.N, **Tarka Dakouara**: 409.N, 1158.N, 1174.N; **Tounga Yacouba**: 1588.N.

***Rhamphiophis oxyrhynchus*. Aholé**: 1013.N; **Karosofoua**: 209.N; **Simiri**: TR.270: **Tékhé**: 811.N 1315.N, 1318.N, 1321.N, 1343.N; **Téla**: 281.N, 284.N, 731.N; **Tounga Yacouba**: 40.N, 484.N, 488.N, 491.N, 498.N, 1582.N, 1584.N, 1601.N, 1622.N, 1627.N, 1640.N, 1647.N, 1664.N, 1669.N, 1678.N.

***Spalerosophis diadema cliffordi*. Aholé**: 6.N, 7.N, 575.N, 591.N, 597.N, 600.N, 605.N, 606.N, 607.N, 621.N, 625.N, 635.N, 637.N, 979.N, 989.N, 994.N, 995.N, 1011.N; **Baboul**: 26.N, 27.N, 28.N, 29.N, 30.N, 50.N, 51.N, 55.N; **Cissia**: 1070.N; **Karosofoua**: 871.N, 889.N, 900.N; **Kéllé**: 638.N; **Kusa**: 219.N, 228.N, 647.N; **Saboulayi**: 168.N, 181.N, 183.N, 361.N, 382.N, 383.N, 926.N; **Tarka Dakouara**: 8.N, 9.N, 11.N, 12.N, 13.N, 14.N, 15.N, 16.N, 18.N, 19.N, 20.N, 21.N, 22.N, 23.N, 24.N, 25.N, 159.N, 413.N, 420.N, 422.N, 429.N, 430.N, 1119.N, 1134.N, 1139.N, 1140.N, 1163.N, 1184.N, 1186.N, 1188.N, 1192.N, 1219.N, 1221.N; **Tchintoulous**: TR.4453; **Tékhé**: 786.N, 789.N, 795.N, 807.N, 1359.N; **Tounga Yacouba**: 483.N, 494.N, 545.N, 547.N, 1688.N, 1697.N.

***Telescopus tripolitanus*. Aholé**: 1003.N, 1006.N, 1007.N, 1009.N, 1010.N, 1015.N, 1021.N, 1030.N, 585.N, 589.N, 592.N, 604.N, 614.N, 626.N, 629.N, 633.N, 634.N, 971.N, 975.N, 978.N, 982.N, 991.N, 993.N; **Baboul**: 31.N; **Gayia**: TR.2351; **Karosofoua**: 35.N, 902.N; **Kéllé**: 643.N; **Malbaza**: 459.N, 468.N, 951.N, 953.N, 965.N; **Piliki**: 332.N, 350.N, 708.N, 1401.N, 1456.N, 1460.N, 1461.N; **Saboulayi**: 367.N; **Tarka Dakouara**: 1117.N, 1122.N, 1231.N, 1246.N, 1264.N, **Tékhé**: 778.N, 779.N, 788.N, 791.N, 794.N, 804.N, 805.N, 806.N, 810.N, 812.N, 1278.N, 1289.N, 1292.N, 1293.N, 1311.N, 1326.N, 1377.N, 1385.N; **Téla**: 749.N; **Toundi Farkia**: 371.N, 1048.N; **Tounga Yacouba**: 32.N, 493.N, 521.N, 538.N, 540.N 1636.N, 1682.N.

***Tricheilostoma bicolor*. Niamey (airport)**: TR.4451.