



World Scientific News

An International Scientific Journal

WSN 106 (2018) 1-11

EISSN 2392-2192

Materials to the knowledge of Bostrichidae (Coleoptera) of The Republic of Gambia

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ABSTRACT

Expedition to Gambia in 2013 resulted in collecting 22 species of Bostrichidae, including 13 new to this country, 3 new to West Africa and one not recorded previously in Africa at all; moreover, the description of one species new to science (*Amintinus gambianus* sp. n.) and two synonymizations – *Sinoxylon doliolum* Lesne syn. n. of *S. rufobasale* Fairm. and *Xyloperthella guineensis* Roberts syn. n. of *X. picea* (Oliv.) – are provided.

Keywords: Coleoptera, Bostrichidae, taxonomy, *Amintinus gambianus* sp. n., new synonyms, faunistics, Gambia, West Africa

The Official Registry of Zoological Nomenclature

urn:lsid:zoobank.org:act:681FC295-690C-49DC-B6B0-DC9A7561F804

1. INTRODUCTION

The Republic of Gambia is a small West African country totally encircled by much larger Senegal. The hitherto published information on the occurrence of horned powder-post beetles in Gambia are extremely scarce, almost all gathered in monumental work on Bostrichidae of the French West Africa by P. Lesne (1924), in which he provides the data on 3 species *Heterobostrychus brunneus*, *Bostrychoplites cornutus* and *Xylopertha picea* (now *Xyloperthella picea*) collected in „Haute Gambie” and one *Bostrychoplites dicerus* from

„Gambie” without details. Some entomologists used the term „Senegambia”, what should be understood in the geographic sense: as referring to the catchment area of the rivers Gambia and Senegal, *i.e.* not only all the Gambia but also northern and eastern Senegal; Lesne (1924) reports from „Senegambia” further two species: *Xylopertha scutula* (now *Xyloperthella scutula*) and *Xylion senegambianus*. No other information appeared for the next 90 years, until Węgrzynowicz & Borowski (2015) described a new species, *Lichenophanes vespertinus*, with Central Gambia (Tendaba) as *locus typicus*.

In the course of his entomological expedition, from 30 XI to 13 XII 2013, the author collected beetles at few localities in the western, maritime parts of Gambia. Late November and early December is a dry period in Gambia, with the temperature oscillating around 30 °C, when the observed beetle biodiversity is low in relation to the rainy season. For bostrichids it is the time of “hibernation”, with most species at the stage of young generation of imagines: the beetles having already abandoned the place of their development and looking for the wood material in which to wait until the time of proper (for most species) swarming, *i.e.* the rainy season: in this area from May to June (Borowski & Węgrzynowicz 2012). Besides the adults, in November and December also feeding larvae can be found: these represent the species of longer cycle of development, appearing as imagines of young generation in February and March; here belong large beetles of the subfamilies Apatinae and Bostrichinae.

During the expedition 22 species belonging to 11 genera of 4 subfamilies of horned powder-post beetles have been collected; one of them proved new to science. Commented species list and the description of *Amintinus gambianus* n. sp. are given below.

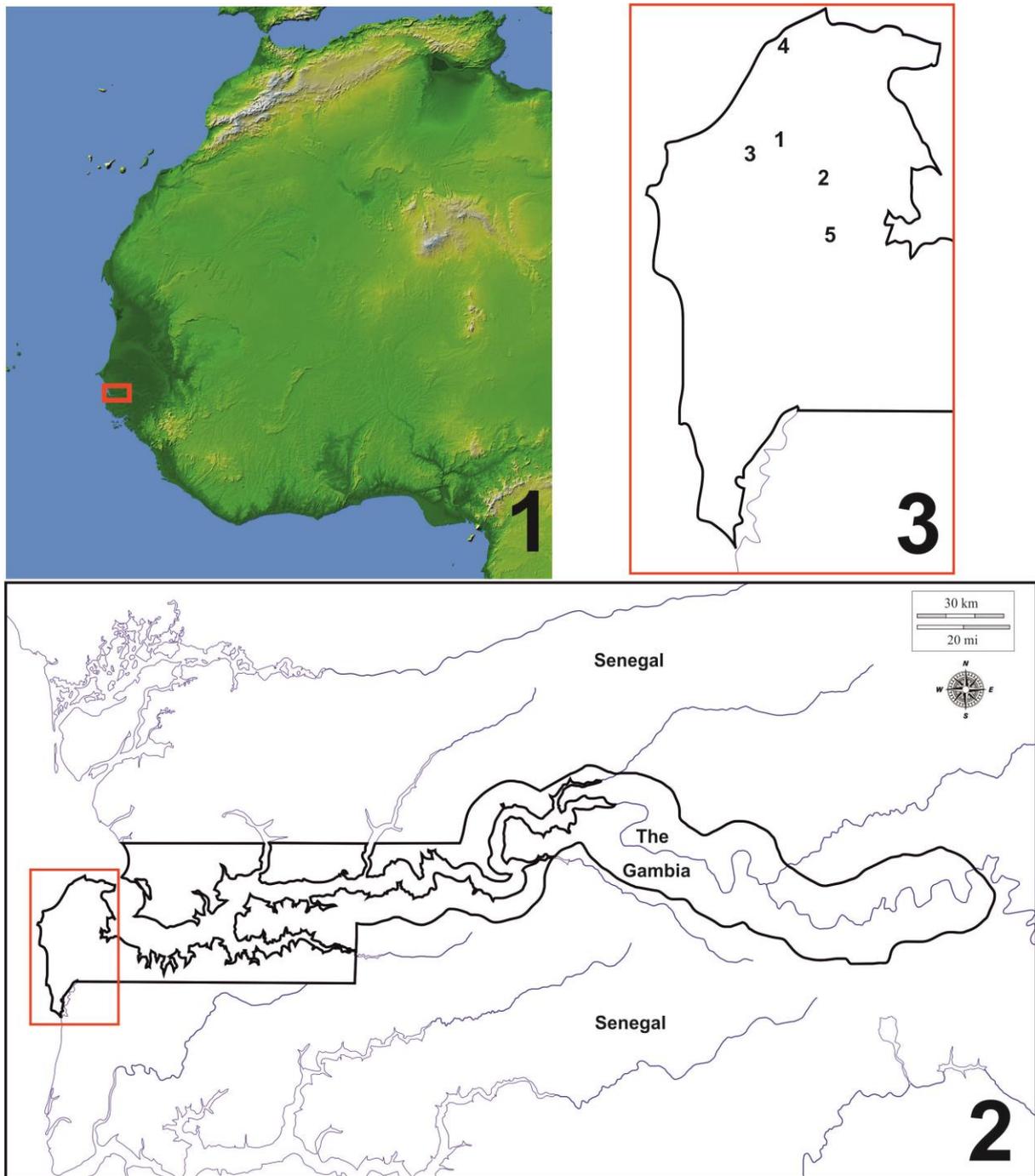
2. MATERIALS AND METHODS

All bostrichids have been collected at the following 5 localities (Figs 1-3) in western Gambia:

- 1) Salagi Forest (13°22'N, 16°43'W) – plantations of various fast-growing trees used by the native people mainly for fuel;
- 2) Surroundings of airport (13°21'N, 16°40'W) – savannah environment around the international airport; sparse *Acacia* spp. and small clumps of fast-growing trees intensively cut down for fuel;
- 3) Brufut (13°22'N, 16°45'N) – plantations of various fast-growing trees used by the native people mainly for fuel;
- 4) Kotu vicinity (13°27'N, 16°42'W) – swampy, poorly urbanized area near Kotu; cattle pastures, sparse bushes and cultivated fields, some mangroves;
- 5) Plantations of various fast-growing trees between Busumbala and Brikama (13°18'N, 16°40'W) – various trees and bushes used by the native people mainly for fuel.

Adult bostrichids have been extracted from various branches lying on roadsides and from the timber used mainly for fuel or as the raw material for making furniture; some specimens have been found on freshly cut trees, under bark or in the wood, a few came to light of 250W mercury bulb; at last, some species emerged from branches infested with larvae. All have been collected by the author, and voucher specimens are preserved in the collection of the Department of Forest Protection and Ecology SGGW, Warsaw, Poland.

Systematic arrangement follows the world catalogue (Borowski & Węgrzynowicz 2007) and vol. I of the monograph of world Bostrichidae (Borowski & Węgrzynowicz 2012).



Figs 1-3. Maps showing collecting locality. 1 – A part of West Africa with The Gambia marked (red rectangle); 2 – Outline of The Gambia with the collecting area (red rectangle); 3 – Collecting localities in West Gambia (the location numbers on the map correspond to the location numbers in the text).

3. RESULTS / FAUNISTICS AND TAXONOMY

1. *Minthea obsita* (Wollaston, 1867)

Materials: Gambia, airport env., 06 XII 2013, 4 ex.; Gambia, Salagi Forest, 02 XII 2013, 10 ex.

Numerous on two localities, often together with *Dinoderus bifoveolatus* (Woll.) and many representatives of Nitidulidae and Silvanidae. Typically inhabits stubs of freshly cut trees or basal parts left after freshly cut thick branches. Polyphagous, found on various trees like *Acacia* spp., *Mango* sp. or *Anacardium occidentale*.

Remarks. Known from almost entire Ethiopian Region, but until now not reported from Gambia. Occasionally introduced to other continents with woodwork, but as yet nowhere managed to acclimatize.

2. *Dinoderus (Dinoderus) bifoveolatus* (Wollaston, 1858)

Materials: Gambia, airport env., 06 XII 2013, 5 ex.; Gambia, Salagi Forest, 02 XII 2013, 1 ex. Abundant on 2 localities, polyphagous, found in the same habitats as *Minthea obsita*. Numerous young beetles have been extracted from pupal chambers, placed just under the surface of wood showing slight, dark mouldy overcolouration, in a thick trunk of felled dry *Acacia* sp.

Remarks. Typically tropical species, most frequent in Africa, introduced to various continents but much less frequently than other representatives of the genus *Dinoderus*. New to Gambia.

3. *Dinoderus (Dinoderus) minutus* (Fabricius, 1775)

Materials: Gambia, Kotu env., 30 XI – 13 XII 2013, 9 ex.

Nine specimens have been collected near Kotu, in a roadside workshop making bamboo furniture. Beetles were caught in flight or picked when trying to gnaw into the bamboo elements.

Remarks. Oriental species, spread with bamboo throughout the world and acclimatized in many tropical or subtropical countries. New to Gambia.

4. *Dinoderus (Dinoderus) ocellaris* Stephens, 1830

Materials: Gambia, Kotu env., 30 XI – 13 XII 2013, 1 ex.

Single dead specimen extracted from a bamboo element supporting the roof of the workshop mentioned above.

Remarks. Oriental species, introduced – even if less frequently than *D. minutus* – with bamboo to many countries in the world. New to Gambia.

5. *Bostrychoplites cornutus* (Olivier, 1790)

Materials: Gambia, airport env., 06 XII 2013, 1 ex.; Gambia, Kotu env., 30 XI – 13 XII 2013, 2 ex.

All specimens have been extracted from pupal chambers at the ends of larval galleries in 5-10 mm. thick twigs of deciduous trees lying on ground in sunny places. Larvae had eaten the wood of the twigs totally away, leaving only the layer of bark; the twigs were easily broken.

Remarks. Species widely distributed in almost all countries south of Sahara, including Gambia (Lesne 1924), but more frequent in savannah areas than in tropical rainforests. Introduced with timber to many countries.

6. *Heterobostrychus brunneus* (Murray, 1867)

Materials: Gambia, airport env., 06 XII 2013, 38 ex.; Gambia, Salagi Forest, 02 XII 2013, 88 ex.; Gambia, Kotu env., 30 XI – 13 XII 2013, 12 ex.; Gambia, Busumbala env., 08 XII 2013, 42 ex., Gambia, Brufut env., 31 ex.

Abundant at all localities, found frequently in groups under detached bark on stumps of freshly cut trees. Six specimens from Salagi Forest were attracted to light.

Remarks. Common species known from almost all subsaharan Africa, reported from Gambia by Lesne (1924). With timber (most frequently wooden wrappings) introduced to many countries.

7. *Heterobostrychys aequalis* (Waterhouse, 1884)

Materials: Gambia, airport env., 06 XII 2013, 12 ex.

Collected only on one locality, near the international airport, where imagines and pupae were extracted from pupal chambers in the surface layer of wood of lying thick *Acacia* sp., together with *Dinoderus bifoveolatus*, *Minthea obsita*, *Sinoxylon ruficorne* and *Sinoxylon senegalense*.

Remarks. Common polyphagous oriental species introduced with woodwork and bamboo to various continents and easily acclimatized in tropical countries, especially in areas with humid air, e.g. along sea-shores. This is the first record from Africa; the development in natural environment may suggest successful acclimatization

8. *Micrapate neglecta* Lesne, 1906

Materials: Gambia, Kotu env., 30 XI – 13 XII 2013, 7 ex.

Seven specimens have been collected near Kotu, extracted from 2-5 mm. thick twigs lying in sunny places on ground.

Remarks. Hitherto known only from the type series collected in Sierra Leone. New to Gambia.

9. *Sinoxylon lesnei* Vrydagh, 1955

Materials: Gambia, Salagi Forest, 07 XII 2013, 1 ex.

Very rarely found, usually in singles. One specimen has been extracted from a branch intended for fuel, on strongly insolated forest edge.

Remarks. Western African species, known only from Guinea Bissau and Togo. New for Gambia.

10. *Sinoxylon ruficorne* Fähræus, 1871

Materials: Gambia, airport env., 06 XII 2013, 15 ex.; Gambia, Salagi Forest, 02 XII 2013, 38 ex.

Found in numbers on two localities. Imagines – accompanied by *Dinoderus bifoveolatus*, *Minthea obsita*, *Heterobostrychus aequalis* and *Sinoxylon senegalense* – have been extracted

from pupal chambers in outer layers of wood of thick lying *Acacia* sp.; in Salagi Forest it was one of the most numerous species coming to light.

Remarks. The commonest representative of the genus in the Ethiopian Region, characteristic of the savannah areas where it develops most frequently in dead trunks of arborescent *Acacia* spp. New to Gambia.

11. *Sinoxylon rufobasale* Fairmaire, 1888

Sinoxylon doliolum Lesne, 1906 **syn. n.**

Materials: Gambia, Kotu env., 10 XII 2013, 1 ex.; Gambia, Salagi Forest, 03 XII 2013, 3 ex.

Four specimens have been extracted on two localities from freshly cut branches of *Anacardium occidentale*.

Remarks. Widely distributed in savannah zones of East Africa down to its southern and southwestern parts. Described by Fairmaire (1888) from what is now Namibia, and somewhat later as *S. doliolum* by Lesne (1906) from the present Tanzania. Verification of the types from Fairmaire's collection, and materials in the Museum National d'Histoire Naturelle in Paris identified by Lesne as *S. doliolum*, has shown that the latter is a junior synonym of *S. rufobasale*. New to West Africa.

12. *Sinoxylon senegalense* Karsch, 1881

Materials: Gambia, airport env., 06 XII 2013, 23 ex.; Gambia, Salagi Forest, 02 XII 2013, 15 ex.; Gambia, Kotu env., 30 XI – 13 XII 2013, 9 ex.; Gambia, Busumbala env., 08 XII 2013, 11 ex., Gambia, Brufut env., 24 ex.

Numerous on all localities. Imagines have been extracted from pupal chambers in outer layers of wood of thick lying *Acacia* sp., together with *Dinoderus bifoveolatus*, *Minthea obsita*, *Heterobostrychus aequalis* oraz *Sinoxylon senegalense*; additionally some have been found in thick branches of *Anacardium occidentale*. In Salagi Forest it came to light.

Remarks. Common species, especially in savannah and semidesertic areas of northern half of Africa between Senegal and Soudan, known also from the Arabian Peninsula. New to Gambia. Develops preferentially in dead trunks and thick branches of *Acacia* spp.

13. *Sinoxylon succisum* Lesne, 1895

Materials: Gambia, airport env., 06 XII 2013, 34 ex.

Found only at a single place near the international airport, where numerous beetles have been extracted from dead, 1-2 cm. thick, twigs of *Acacia* spp.; besides imagines numerous larvae of this species were also seen in the twigs.

Remarks. Rather uncommon, characteristic of savannah and semidesertic areas of West Africa. New to Gambia.

14. *Sinoxylon transvaalense spathiferum* Lesne, 1906

Materials: Gambia, airport env., 06 XII 2013, 4 ex.; Gambia, Salagi Forest, 02 XII 2013, 3 ex.; Gambia, Busumbala env., 08 XII 2013, 17 ex., Gambia, Brufut env., 14 ex.

Found in numbers in thin twigs of *Anacardium occidentale*; in Salagi Forest 3 ex. came to light.

Remarks. Subspecies inhabiting West Africa, most frequently collected between Senegal and Gulf of Guinea. New to Gambia.

15. *Sinoxylon unidentatum* (Fabricius, 1801)

Materials: Gambia, airport env., 06 XII 2013, 1 ex.; Gambia, Salagi Forest, 02 XII 2013, 1 ex. Two specimens have been extracted from very dry wood of 3-5 cm. thick fuel branches.

Remarks. Pantropical species, probably of Oriental origin. Frequently introduced with woodwork (wooden paletts, wrapping boxes, &c.) to various countries on all continents, and often acclimatized where the climate is appropriate. New for West Africa.

16. *Xyloperthodes nitidipennis* (Murray, 1867)

Gambia, Kotu env., 30 XI – 13 XII 2013, 12 ex.; Gambia, Salagi Forest, 03 XII 2013, 9 ex. All collected specimens of this species have been extracted from freshly cut branches (2-3 cm. thick) of *Anacardium occidentale*.

Remarks. Typical inhabitant of African rainforests, the most frequently encountered representative of the genus on the continent. New to Gambia.

17. *Xyloperthodes orthogonius* Lesne, 1906

Materials: Gambia, airport env., 06 XII 2013, 2 ex.; Gambia, Salagi Forest, 02 XII 2013, 7 ex. Found on similar localities and habitats as *X. nitidipennis*. Extracted from freshly cut thin (1-2 cm.) twigs of *Anacardium occidentale*.

Remarks. Like *X. nitidipennis* typically inhabits rainforests, being however much less commonly found. New to Gambia, where it may be considered as a relict of natural rainforest entomofauna.

18. *Amintinus gambianus* sp. n. (figs 4-6)

Materials. Holotype, male: Gambia, airport env., 06 XII 2013; Paratypes: 1♀ the same locality as holotype; 5♂♂, Salagi Forest, 02 XII 2013.

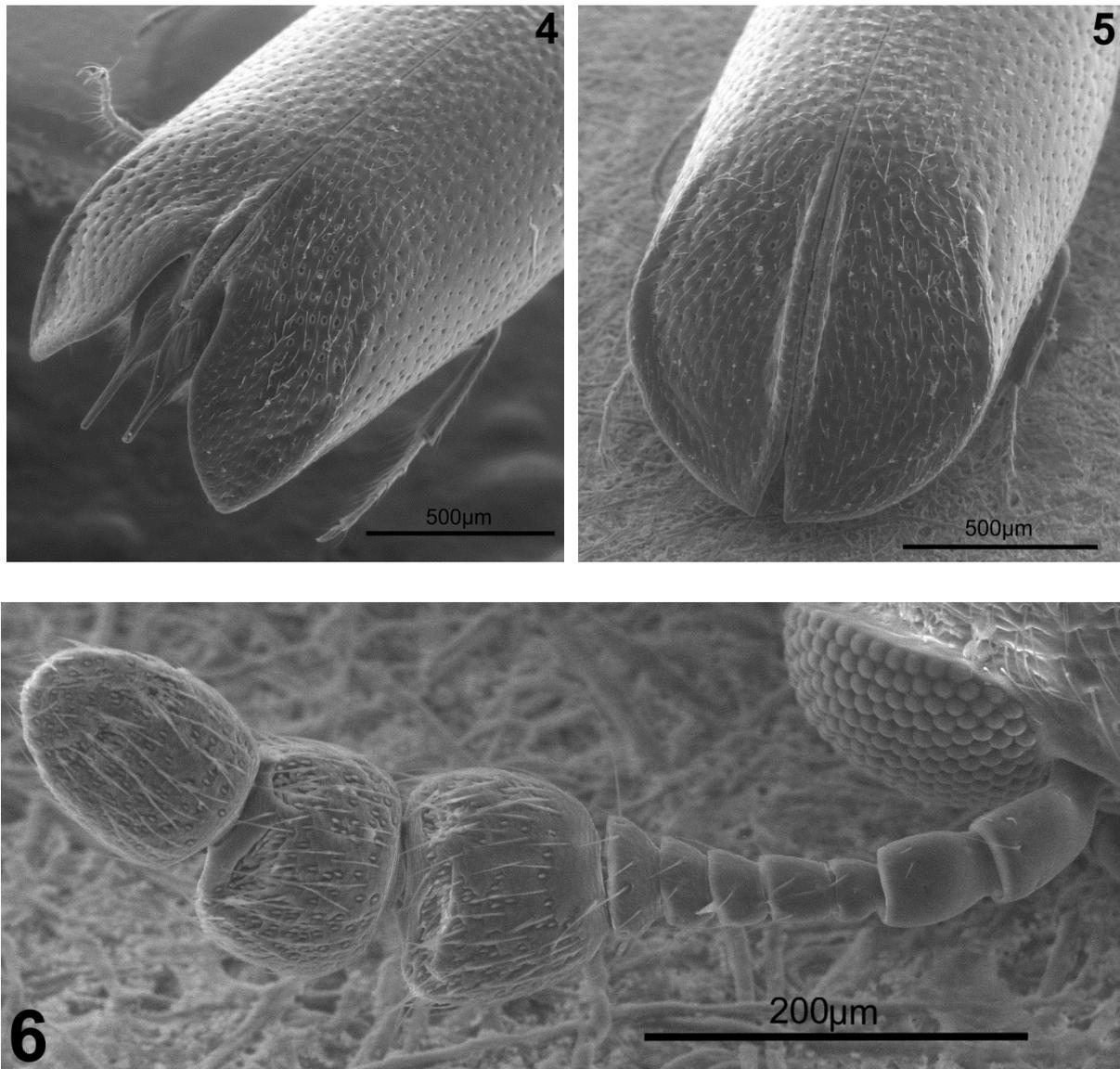
Etymology. Named according to the country of the origin of the type-series.

Diagnosis. Females of the new species can be easily distinguished from all the remaining representatives of *Amintinus* by unique, characteristically emarginated truncation of elytra (fig. 4); males resemble *A. subtilis* Lesne from southern Africa but are more robustly built. Elytral apices in males are visible from above and distinctly divergent, whereas in *A. subtilis* they are not seen in dorsal aspect and their sutural margins remain contiguous to the tip.

Description. Length 2.4-3.0 mm. Body cylindrical, strongly elongated, pale- to dark-brown with paler antennae, labrum, labium and legs.

Head lustrous, with short, recumbent, inconspicuous setulae. Antennae 10-jointed, club consists of three terminal joints (fig. 6). Two basal joints of club slightly wider than long, apical one narrower and somewhat longer than wide. Eyes small, distinctly protruding from the head outline. Epistome paler in basal part, anterior margin slightly wavy. Front separated from epistome by indistinct narrow line (somewhat more conspicuous at middle), with triangular smooth surface just behind epistome and narrow elongate costulae lateroposteriorly. Pronotum *ca.* as long as wide, slightly rounded on sides, its apical margin markedly arcuately emarginated, with two hooked dents at angles. Anterior half paler than basal, covered with fine denticles, basal part with fine, shallow, sparse punctures, surface between them smooth and lustrous. Basal angles rounded, no lateral carina. Pronotal surface covered with very short recumbent setulae, somewhat better visible near the apical and basal margins. Scutellum

small, ovate, strongly convex. Elytra partly parallelsided, anterior carina distinct, finely wavy and somewhat darker than the remaining surface. Lateral protuberances of elytra small, not prominent. Elytral punctulation fine, irregularly distributed; pubescence inconspicuous, recumbent, somewhat longer and denser backwards; truncation distinctly punctured and recumbently pubescent. Tarsi long, distinctly longer than tibiae, tarsomeres below with long erect setae. Tibiae ending with large hooked dent, anterior and median ones with fine denticles on outer edges.



Figs 4-6. *Amintinus gambianus* sp. n. 4 – female elytral truncation; 5 – male elytral truncation; 6 – antenna.

Sexual dimorphism. Male: elytral truncation forms an uniform surface, its outer carinae distinct, joining lateral margins of elytra. Elytral apices distinctly divergent (fig. 5). Suture markedly elevated in upper and middle part of truncation, posteriorly normal, not emerging above the surface. Apical margin of the last sternite almost straight at middle, with fine centrally placed triangular protrusion.

Female: elytral truncation not forming uniform surface (fig. 4). Outer margins of truncation less arched than in male, laterally connected to lateral margins of elytra. Middle and posterior parts of truncation peculiarly emarginated, with two long, pointed outgrowths paler than remaining surface. Fourth visible sternite with wide, paler, very densely punctured depression and tuft of long, straight, backwards directed setae at middle. Last visible sternite paler than the others, smooth at middle, densely punctured and pubescent on sides, deeply triangularly incised at middle of apical margin.

19. *Enneadesmus masculinus* Lesne, 1936

Materials: Gambia, Kotu env., 30 XI – 13 XII 2013, 1 ex.

One specimen of this species has been extracted from thin twig of fuel wood in Kotu.

Remarks. Members of the genus *Enneadesmus* inhabit savannah and semidesertic areas of North, East and Southwest Africa, with only some species having been rarely encountered in the rainforest zone. The collected specimen is the first representative of the genus found in this part of the continent, although it might have been introduced with wood. *Enneadesmus masculinus* has been described from Namibia and hitherto reported only from there, but the author's collection contains specimens from Namibia, RSA, Mozambique, Zimbabwe, Botswana and Tanzania.

20. *Xyloperthella picea* (Olivier, 1790)

= *Xyloperthella guineensis* Roberts, 1967 **syn. n.**

Materials: Gambia, Salagi Forest, 07 XII 2013, 19 ex.; Materials: Gambia, airport env., 06 XII 2013, 10 ex.

This common species was observed in all localities. In Salagi Forest numerous specimens were extracted from somewhat rotten but still hard wood of various trees and shrubs – *X. picea* usually prefers wood partly decomposed and overcoloured by fungi. Additional 10 ex. have been found in dead lying acacia, where the larvae developed in more shadowy and more humid places than e.g. *Sinoxylon senegalense* or *Heterobostrychus aequalis*.

Remarks. The species is common throughout Africa, on Madagascar, Arabian Peninsula and Near East, being also known from mediterranean islands and Spain; introduced to and probably successfully acclimatized in South America. Reported from Gambia by Lesne (1924).

During my visit in the British Natural History Museum I have examined the types (holotype and 4 paratypes) of *Xyloperthella guineensis* described by Roberts in 1967, as well as further 6 ex. identified by him as *X. guineensis*. All these specimens belong to *X. picea*, so *Xyloperthella guineensis* is a junior synonym of common *Xyloperthella picea* (Olivier, 1790). *Xyloperthella picea*, occurring under various climatic conditions, widely polyphagous and at least partly dependent upon wood-decomposing fungi, is exceptionally versatile, and the characters quoted in the detailed description by Roberts (1967) fit comfortably within the range of its individual variability.

21. *Xyloperthella scutula* (Lesne, 1901)

Materials: Gambia, Kotu env., 30 XI – 13 XII 2013, 4 ex.

Four specimens extracted from bamboo elements of furniture in roadside workshop near Kotu.

Remarks. Rather unfrequently encountered species, inhabiting mainly Africal rainforests but found also in savannahs. From Gambia (without details) reported by Lesne (1924).

22. *Apate monachus* Fabricius, 1775

Materials: Gambia, Kotu env., 30 XI – 13 XII 2013, 3 ex.

Twigs (5-10 mm. thick) of deciduous trees lying on ground in sunny place near Kotu, with large feeding bostrichid larvae, had been taken for cultivation and *ca.* two months later two males and a female emerged. Like in case of *Bostrychoplites cornutus* (Oliv.) larvae had eaten almost completely away the wood of the twigs, leaving only a layer of bark; the twigs were easily broken.

Remarks. This polyphagous species is one of the commonest bostrichids of the subfamily Apatinae. Known from almost entire Africa, southern Europe, Near East and Arabian Peninsula, introduced to Middle America and acclimatized there. New to Gambia.

4. SUMMARY

Two week's collecting in Gambia has proven very fruitful: 22 bostrichid species, out of 80 known from this part of Africa (Borowski & Węgrzynowicz 2007), has been found, including three new to West Africa and one (*Heterobostrychus aequalis*) new to the continent in general – the development under natural condition suggests great adaptability and probable acclimatization of the latter species. Only three large-sized species – *Apate monachus*, *Heterobostrychus brunneus* and *Bostrychoplites cornutus* – have been collected; lack of many species of *Bostrychopsis*, *Apate*, *Phonapate* or *Bostrychoplites* may be a result of specific development and – as a consequence – absence of adults at the time of collecting. Gambia is largely devoid of natural forests, which have been replaced by plantations of fast-growing trees providing fuel for native people – wood for other purposes is being imported to Gambia from abroad; many bostrichids are easily and frequently introduced with timber, and perhaps three of the collected species, *Heterobostrychus aequalis*, *Sinoxylon unidentatum* and *Enneadesmus masculinus*, came to Gambia in this way.

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