

**Two new species of *Otiorhynchus* GERMAR, 1822 subgenus  
*Lixorrhynchus* REITTER, 1914 from Morocco (Coleoptera:  
Curculionidae: Otiorhynchini)**

PIOTR Z. BIAŁOOKI<sup>1</sup>, CHRISTOPH GERMANN<sup>2,3</sup>, JEAN PELLETIER<sup>4</sup>

<sup>1</sup>State Plant Health and Seed Inspection, Gdańsk, Na Stoku 48, PL-80-874 Gdańsk, Poland,  
e-mail: og-gdynia@piorin.gov.pl, pbialooki@poczta.onet.pl

<sup>2</sup>Natur-Museum Luzern, Kasernenplatz 6, CH-6003 Lucerne, Switzerland

<sup>3</sup>Naturhistorisches Museum der Burgergemeinde Bern, Bernastrasse 15, CH-3005 Bern,  
Switzerland, e-mail: germann.christoph@gmail.com

<sup>4</sup>5 rue de la Saulaie, F-37380 Monnaie, France, e-mail: jzz.pelletier@wanadoo.fr

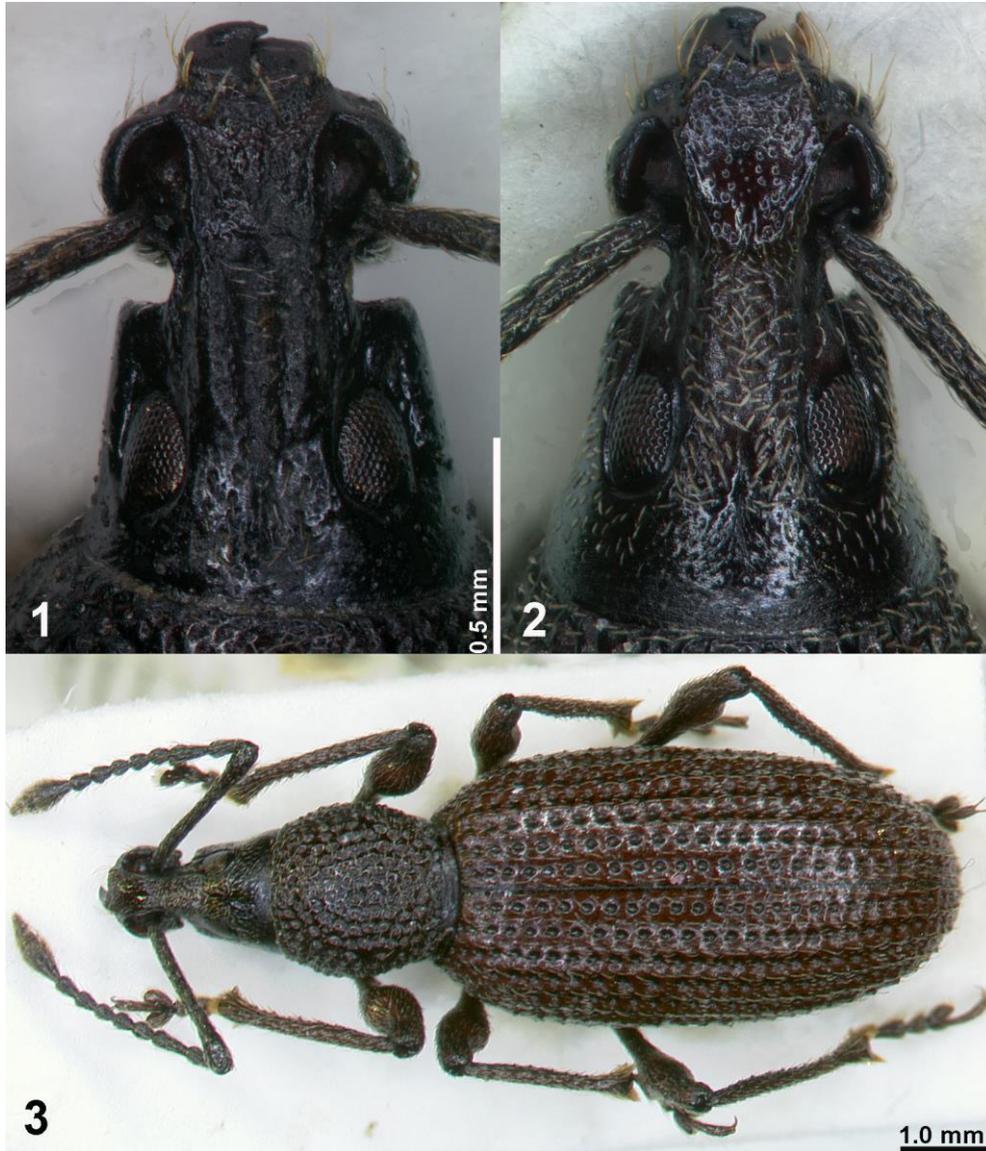
**ABSTRACT.** *Otiorhynchus (Lixorrhynchus) deceptorius* sp. n. and *O. (L.) incisus* sp. n. from northern Morocco are described and illustrated. Both new species are superficially similar to *Mirrorhynchus bellus* MAGNANO, 2003 based on the conspicuously laterally incised rostrum. The erroneous indication of *M. bellus* from Cyprus is corrected here to Crete.

**KEY WORDS:** Curculionidae, Entiminae, Otiorhynchini, new species, Morocco.

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## INTRODUCTION

Despite a long-lasting entomological exploration of Morocco, where the Otiorhynchini were treated specifically in recent years (see the summary in MAGNANO et al. 2004), its fauna is still insufficiently known. Just recently, new species were described from this country by GERMANN (2004), MAGNANO (2006) and MAGNANO & GERMANN (2008). Here we present further new discoveries from a subgenus not yet recorded from Africa.



Figs 1-3. Heads of **1.** *Mirrorhynchus bellus* MAGNANO, 2003, **2.** *Otiorrhynchus deceptorius* sp. n., **3.** Habitus dorsal of *O. deceptorius* sp. n.

## METHODS

The body length is taken from the anterior margins of the eyes to the apex of the elytra. The width of the rostrum is defined as the pterygial span (the distance between the outer margins of the pterygia).

Abbreviations used: BEHN – Lutz BEHNE, SDEI, Müncheberg, Germany; BIAL – Piotr BIALOOKI, Sopot, Poland; NMBE – Naturhistorisches Museum der Burgergemeinde Bern, Switzerland; PELL – Jean PELLETIER, Monnaie, France; SDEI – Senckenberg Deutsches Entomologisches Institut Müncheberg, Germany.

## RESULTS

Subfamily Entiminae

Tribe Otiorhynchini

Genus *Otiorhynchus* GERMAR, 1822

Subgenus *Lixorrhynchus* REITTER, 1914

### Diagnoses

Although the peculiar transformation of the head and rostrum (enormous enlargement of basal ventral sulcus separating the head and rostrum) is basically similar in all three species discussed here, it certainly took place independently twice: once in *Mirrorhynchus* MAGNANO, 2003 and once in *Lixorrhynchus*, as the investigated morphological characters indicate. The two groups (i.e. *Mirrorhynchus bellus* vs. *Otiorhynchus deceptorius* and *O. incisus*) are completely disparate and the modification of the head is certainly homoplasious.

Both *O. deceptorius* sp. n. (Fig. 2) and *O. incisus* sp. n. differ from *Mirrorhynchus bellus* (Fig. 1; holotype examined) in the following characters: anterior part of dorsal wall (anterior of the antennal insertions) of the rostrum strongly divergent and declivent (Figs 3, 8-9); hind portion of the dorsal wall of the rostrum flat; structure of spiculum ventrale (Figs 4-5) and spermatheca (Figs 6-7); punctures in elytral striae well delimited, with steep walls, weakly decreased towards elytral apex; apical declivity subperpendicular; entire body brown; eyes situated just below frons level, hardly impressed; anterior part of mesoventrite covered with microsculpture, devoid of big punctures filled with scales.

In *Mirrorhynchus bellus* the anterior part of the dorsal wall of the rostrum is subparallel-sided, even with the hind part longitudinally widely and deeply excavated (Fig. 1); lamina of spiculum ventrale with well-developed sclerotized margo basalis, spermatheca with strongly inflated corpus, both ramus and nodulus obsolete; punctures in elytral striae

unclearly delimited, funnel-like, strongly decreased posteriad; apical declivity slanted; elytra oval shaped; legs strong with very strongly swollen femora and very long teeth on protibiae; body entirely black; eyes located well below the level of frons, impressed; anterior part of mesoventrite covered with moderately dense big punctures bearing scales. MAGNANO (2003) placed *Mirrorhynchus* in section 3 of his earlier paper on the intrageneric relationships of the subgenera (MAGNANO 1998), whereas *Lixorrhynchus* stands in section 2.

The two new species of *Lixorrhynchus* can be separated based on the following traits: i) prothorax of *O. deceptorius* gracile, slightly longer than wide (in *O. incisus* robust and transverse); ii) elytra of *O. deceptorius* less parallel, definitely arcuate in last third (in *O. incisus* parallel to last fourth); iii) ventral and inner margins of profemora of *O. deceptorius* with longer, acute spines (in *O. incisus* these spines are small and blunt); iv) the vestiture of prothorax and elytra of *O. deceptorius* consists of recumbent, hair-like scales (in *O. incisus* spots of metallic shining, fan-shaped scales are present); v) differences in the female genital organs illustrated in Figs 4-7. In its general habitus *O. deceptorius* is smaller and more gracile, whereas *O. incisus* is bigger and more robust.

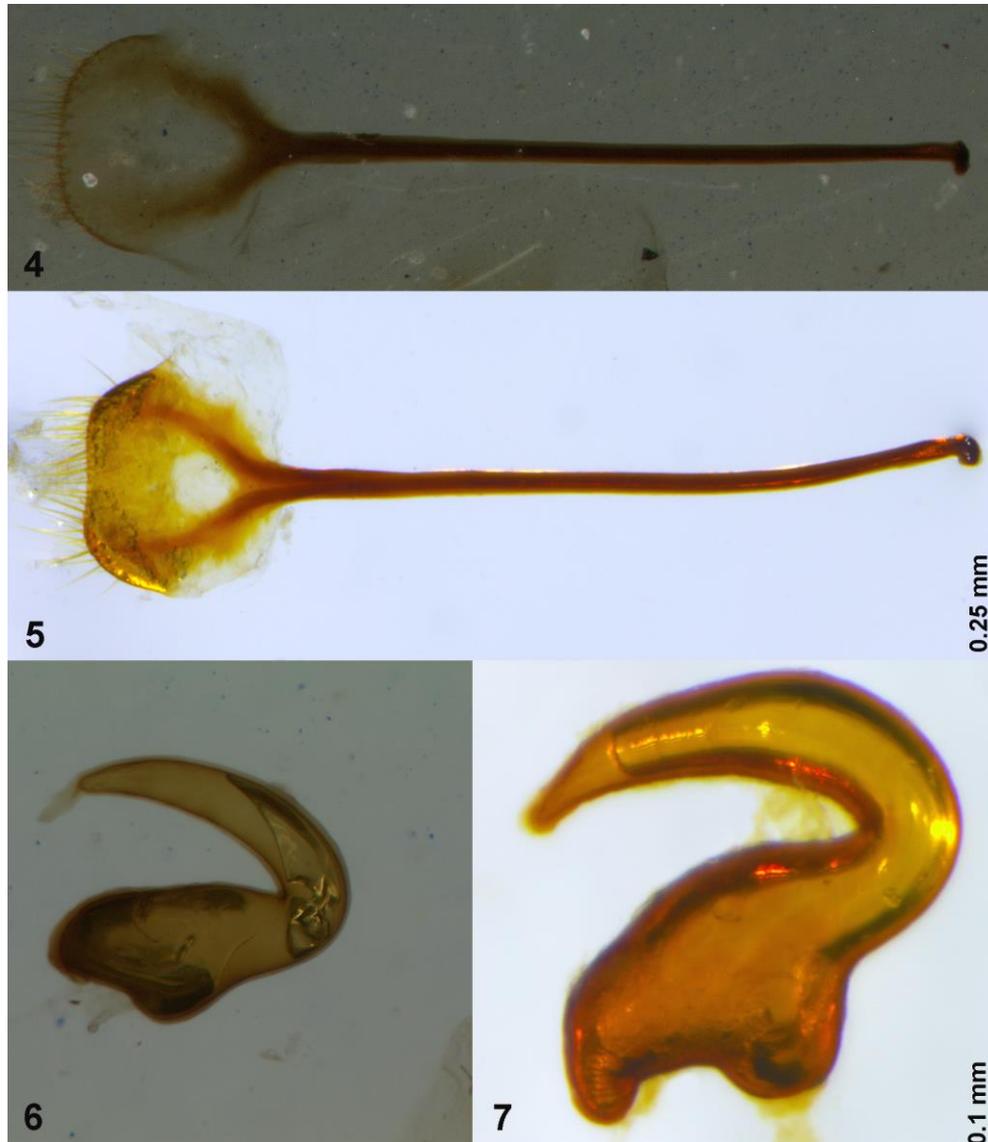
No other species in the whole tribe Otiorhynchini can be confused with the new species. All the characters mentioned here suggest a placement of both new species in the subgenus *Lixorrhynchus*.

*Otiorhynchus (Lixorrhynchus) deceptorius* sp. n.  
(Figs 2-4, 6)

#### Material examined

Holotype female, dissected (right fore onychium missing): Morocco: Rif. 10 km W Ketama. N34 57 40 W04 40 51. 1600m/ *Cedrus*, *Prunus*, 10.05.2009, leg. BEHNE -35- with red label: Holotype female *Otiorhynchus (Lixorrhynchus) deceptorius* sp. n. des. BIALOOKI, GERMANN & PELLETIER 2015 [BEHN/DEI]. Paratypes: 1 female with same data as holotype [BIAL]. 1 female (fragment; an abdomen where part of the right elytra and the last three sternites are missing): Morocco: Rif. 10 km W Ketama. N34 57 40 W04 40 51. 1600m/ *Cedrus*, *Prunus*, 10.05.2009, leg. C. GERMANN [NMBE]. All paratypes with red label: Paratype ♀ *Otiorhynchus (Lixorrhynchus) deceptorius* sp. n. des. BIALOOKI, GERMANN & PELLETIER 2015.

**Head** rectilinearly tapered together with basal portion of rostrum, 1.4 x broader than its distal end. Ventral side of head shining, covered with sparse minute wrinkles and punctures and minute recumbent thin scales. Its antero-ventral angle expanded outwards, eyes entirely visible from above. Gular suture very thin but well visible; temples subequally long as the



Figs 4-7. **4.** Spiculum ventrale of *O. deceptorius* sp. n. **5.** Ditto of *O. incisus* sp. n. **6.** Spermatheca of *O. deceptorius* sp. n. **7.** Ditto of *O. incisus* sp. n.

longer diameter of eye, its relief and vestiture resemble that of the head venter; frons fused with vertex into uniform structure, weakly, though clearly separated from rostrum. Frons fovea situated at the level of posterior margins of eyes, large, deep, strikingly bigger than

surrounding punctation, elongate, extended both distally and proximally into shallow sulci along body axis. Frons covered with subtle, thin wrinkles and small, moderately sparse punctures, and with moderately long, somewhat raised, moderately dense thin, elongate scales directed to the centre of frons fovea. Scales posteriorly of frons fovea much smaller, recumbent and sparser than those located anterior to frons fovea; anterior portion somewhat convex, thus well separated from flat posterior part of the rostrum; moreover, the former is covered with microsculpture, whereas frons is shining; eye moderately big, its longer diameter 1.25 x narrower than frons, almost flat, distinctly elongate horizontally, situated just below frons level, not impressed, though surrounded by well-developed wrinkles, entirely visible from above.

### **Description**

Body length 7.6-8.3 mm (holotype 8.3 mm); entirely rather light-brown.

**Rostrum** 1.1 x longer than wide; anterior part of the dorsal wall of rostrum (anterior of antennal insertions) parallel-sided, strongly declivent, devoid of microsculpture, matt; pterygia strongly projecting, 1.85 x broader than rostrum at its minimal width (due to extremely deep excision), 2.7 x than min. width of dorsal wall of the rostrum, and 2.1 x than frons; hind part of the dorsal wall of rostrum (posterior of antennal insertions) moderately divergent backwardly, narrow, at antennal insertion 1.3 x narrower than frons, covered with punctures bigger than that on frons, rather dense, interspaces with microsculpture, semi-dull; vestiture consists of sparse, recumbent, thin scales, shorter than longest frontal ones, directed obliquely backwardly towards body axis; lateral margins sharply expressed, slightly elevated; epistome rather unclearly developed; epistomal setae strongly reduced. Antennae long and robust; scape almost straight, apical portion rather weakly swollen; covered with rather sparse, long, arcuate, somewhat raised hair-like scales; first two funicular segments equally long and broad, 2.5 x longer than broad each; segments 3-7 weakly elongated; club spindle-shaped, symmetrical, broadest at midlength, 2.75 x longer than broad, as long as almost 4 distal funicular segments combined.

**Prothorax** indistinctly broader than long, small; anterior margin subequally broad as basis, sides evenly, moderately rounded, broadest at midlength; disc covered with large, dense, moderately convex, in part fused tubercles bearing weakly raised hair-like scales directed to the median portion of midline; impunctate area not expressed.

**Elytra** long, 1.85 x longer than wide, at sides regularly, weakly arcuate; middle portion subparallel-sided; broadest at midlength, weakly expanded at shoulders; basis indistinctly broader than basis of prothorax, rather strongly arcuate; longitudinally evenly minutely convex, its middle portion almost flat; apical declivity moderately strongly vaulted, subperpendicular, apex visible from above; striae consist of rather big (subequally big as pronotal tubercles), circular, deep punctures; interstriae somewhat narrower than striae, flat,

shining, with single row of minute (3-4 x narrower than diameter of strial punctures) tubercles bearing long (somewhat longer than diameter of strial punctures), arcuate, semierect, predominantly non-overlapping hair-like scales; outer portions of elytra covered exclusively with minute recumbent thin scales.

**Legs** long and slender; all femora unarmed though strongly swollen; ventral and inner margins of tibiae covered with acute spines, distinctly bigger on hind tibiae; corbels of hind tibiae simple; each tibia with well-developed mucro, in part obscured by tibial brush rather weakly developed; dorsal margin of fore tibiae straight, apical part of ventral margin strongly expanded ventrally; all tarsi normally developed, moderately robust.

**Ventral part** of the body shining covered with subtle superficial wrinkles and rather sparse, moderately big punctures bearing rather short, semierect hair-like scales; mesosternal process thin, slanted, somewhat convex; hind coxae moderately distant from each other; anal ventrite 1.65 x broader than long, slightly evenly convex.

**Genitalia.** Lamina of spiculum ventrale (Fig. 4) subcircular, margo apicalis slightly truncate, with long dense hairs; ovipositor weakly sclerotized, with microscopic, almost apical styli bearing several long hairs; spermatheca (Fig. 6) with cornu long and thin, corpus shorter, much thicker, ramus short, large, nodulus strikingly smaller than ramus.

**Male** unknown.

#### Ecology

*Otiorhynchus deceptorius* sp. n. was collected by Lutz BEHNE and the second author together with *Otiorhynchus ketamaensis* MAGNANO & GERMANN, 2008 by sifting ground litter under *Prunus lusitanica* LINNAEUS, 1753 in a cedar forest.

#### Etymology

The Latin adjective *deceptorius* means “deceptive”; an allusion to the phylogenetically misleading similarity of the rostrum of the new species with the genus *Mirrorhynchus*.

*Otiorhynchus (Lixorrhynchus) incisus* sp. n.  
(Figs. 5, 7-11)

#### Material examined

Holotype: female: [Morocco, Rif Mountains] Sap. Tallassentam [Parc National Talassemtane], Piège vitre no. 3, 15.V.2014, CRF Maroc Rabat. Y. BENYAHIA, N. MAATOUF, L. VALLADERES, H. BRUSTEL leg. Red label: Holotype ♀ *Otiorhynchus (Lixorrhynchus) incisus* sp. n. BIALOOKI, GERMANN & PELLETIER des. 2015 [NMBE]. Paratype: 1 female, same label data. Red label: Paratype ♀ *Otiorhynchus (Lixorrhynchus) incisus* sp. n. BIALOOKI, GERMANN & PELLETIER des. 2015 [PELL].



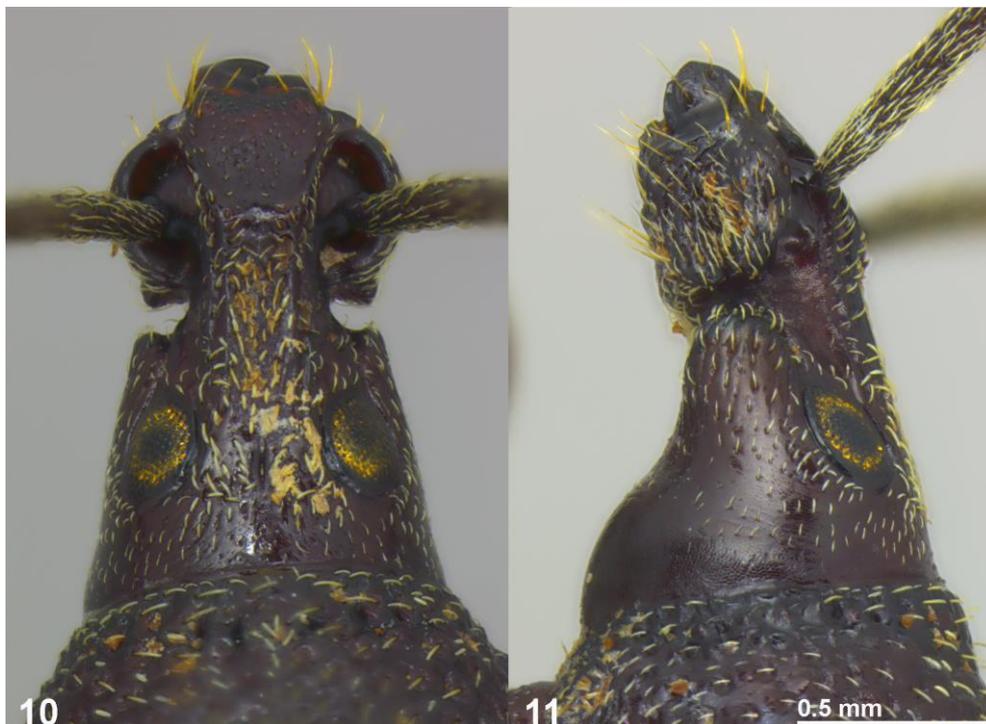
Figs 8-9. **8.** *O. incisus* sp. n. habitus dorsal. **9.** Ditto lateral.

#### **Description**

Body length 8.5-10.0 mm (holotype: 8.5 mm); brownish to auburn.

**Head** rectilinearly tapered together with basal portion of rostrum, about 1.4 x broader than its distal end. Ventral side of head shining, covered with sparse, minute wrinkles and punctures and minute recumbent thin scales. Its antero-ventral angle expanded outwards, thus eyes entirely visible from above. Gular suture thin but visible; temples subequally long as the longer diameter of eye, its relief and vestiture resemble that of the head venter; frons

fused with vertex, weakly, though clearly separated from rostrum. Frons fovea situated behind second half of eyes, narrow, deep, elongate. Frons covered with wrinkles surrounding the eyes and sparse punctures, and with moderately long, somewhat raised, moderately dense thin, elongate scales directed to the centre of frons fovea; scales posteriorly of frons fovea much smaller, recumbent and sparser than those located anteriorly; anterior portion somewhat convex, thus well separated from flat posterior part of the rostrum; moreover, the former is covered with microsculpture, whereas frons is shining; eye moderately big, its longer diameter 1.25 x narrower than frons, almost flat, distinctly elongate horizontally, situated just below frons level, not impressed.



Figs 10-11. **10.** *Otiorhynchus incisus* sp. n., head dorsal. **11.** Head lateral.

**Rostrum** 1.1 x longer than wide; anterior part of the dorsal wall of rostrum (anterior of antennal insertions) parallel-sided, strongly declivent, microsculptured thus somewhat dull; pterygia strongly projecting, 1.85 x broader than rostrum at its minimal width, 2.7 x than minimal width of dorsal wall of the rostrum, and 2.1 x than frons; hind part of the dorsal wall of rostrum (posterior of antennal insertions) moderately divergent backwardly, narrow,

at antennal insertion 1.3 x narrower than frons, covered with punctures bigger than those on frons, rather dense, interspaces with microsculpture, semi-dull; vestiture consists of sparse, recumbent, thin scales, shorter than longest frontal ones, directed obliquely backwardly towards body axis; lateral margins sharply expressed, slightly elevated; epistome rather unclearly developed; epistomal setae strongly reduced. Antennae long and robust; scape almost straight, apical part rather weakly swollen; covered with rather sparse, long, arcuate, somewhat raised hair-like scales; first two funicular segments equally long and broad, 2.5 x longer than broad each; segments 3-7 weakly elongated; club spindle-shaped, symmetrical, broadest at midlength, 2.75 x longer than broad, as long as almost 4 distal funicular segments combined.

**Prothorax** transverse (length/width ratio = 0.85), robust; anterior margin subequally broad as basis, sides strongly rounded, broadest at midlength; disc covered with large, dense, moderately convex, in part fused tubercles bearing weakly raised hair-like scales directed to the median portion of midline, and sparsely standing, pearly shimmering fan-shaped scales.

**Elytra** long, 1.8 x longer than wide, parallel sided from first fourth to almost last fourth; broadest just behind first third; basis indistinctly broader than basis of prothorax, rather strongly arcuate; apical declivity strongly vaulted, subperpendicular, apex visible from above; striae consist of rather big, circular, deep punctures; interstriae somewhat narrower than striae, flat, shining, with single row of minute (3-4 x narrower than diameter of striae punctures) tubercles bearing long (somewhat longer than diameter of striae punctures), arcuate, semierect, non-overlapping hair-like scales; additionally groups of fan-shaped, pearly to metallic shining scales are loosely scattered over the elytral surface.

**Legs** long and slender; meso- and metafemora unarmed although strongly swollen; profemora armed with a transverse callosity; ventral and inner margins of tibiae covered with small and blunt spines; corbels of hind tibiae simple; each tibia with well-developed mucro, in part obscured by tibial brush rather weakly developed; dorsal margin of fore tibiae straight, apical portion of ventral margin strongly expanded ventrad; all tarsi normally developed, moderately robust.

**Ventral part** of the body shining covered with superficial wrinkles and rather sparse, moderately big punctures bearing rather short, semierect hair-like scales; mesosternal process thin, slanted, somewhat convex; hind coxae moderately distant from each other; anal ventrite 1.66 x broader than long, slightly evenly convex.

**Genitalia.** Lamina of spiculum ventrale (Fig. 5) subcircular, margo apicalis straight, weakly sinuate, with long dense hairs; ovipositor weakly sclerotized, with microscopic, almost apical styli bearing several long hairs; spermatheca (Fig. 7) with cornu long and strongly bowed, corpus shorter, much thicker, ramus and nodulus of about the same length, nodulus thicker.

**Variation.** The paratype is somewhat bigger than the holotype.

**Male** unknown.

### **Ecology**

The specimens of *Otiorhynchus incisus* sp. n. were both collected in the same window-trap, model Polytrap (BRUSTEL 2012), deployed in an environment of *Abies marocana* TRABUT, 1906. The traps were placed in the Parc National Talassemtane near the following coordinates: N 35°07'59" / W 5°08'22".

### **Etymology**

The new species *Otiorhynchus incisus* is named after its conspicuously shaped rostrum, which is laterally incised. The name “incisus” derives from the Latin verb “incidere” (= incise).

## DISCUSSION

MAGNANO (2003) erroneously gave Cyprus as the country of origin of *Mirrorhynchus bellus* in the original description, when it is actually endemic to Crete. The mistake was unfortunately perpetuated by MAGNANO & ALONSO-ZARAZAGA (2013).

Both new species of *Lixorrhynchus* discovered in the Rif Mountains in northern Africa from localities just 50 km distant from each other show a similarly transformed rostrum as described and illustrated here, which represents a conspicuous synapomorphy. Apart from this character, members of the subgenus *Lixorrhynchus* from the Iberian Peninsula show certain similarities regarding the pronotum, elytra and legs, as e.g. *O. montigena* MARSEUL, 1872 from northern Spain. However, more research and comparative analyses with Iberian *Lixorrhynchus* are needed to clarify these relationships with the Moroccan species.

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