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A new species of the genus *Bryaxis* from the Northern Cottian Alps (Coleoptera, Staphylinidae, Pselaphinae)

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A b s t r a c t : *Bryaxis cialanciaensis* nov.sp. from Italy (Piemonte, Torino, Alpi Cozie) is described and illustrated. The current distribution is mapped and pictures of the species habitat are shown.

K e y w o r d s : Coleoptera, Staphylinidae, Pselaphinae, *Bryaxis*, Italy, Alpi Cozie, new species.

Introduction

In recent years, collaborative efforts between the Tyrolean State Museums and the administrations of the nature parks in the Cottian Alps have led to numerous lepidopterological and coleopterological excursions. Specifically, expeditions to explore the beetle fauna in alpine elevations in 2021 and 2022 took place in the "Conca Cialancia" Nature Park. The park is located in the northern part of the alpine range west of Turin and Pinerolo, southward branching off from Val Germanasca in the municipality of Perrero. This area, is characterized by extensive silicate block fields, and includes vegetation-rich sections used for extensive alpine farming.

While sifting *Salix* and *Rhododendron* litter in gaps between rock blocks on June 28, 2021, and July 17, 2022, a total of 9 specimens of a *Bryaxis* species were found at three closely spaced locations. This species seemed closely related to *Bryaxis gallicus* (REITTER, 1887) from the French and Italian Maritime Alps but is distinguishable by antennal characteristics. Subsequently, Pselaphinae specialist Volker Brachat and the first author studied these specimens and concluded that they represent a new species.

The highly diverse genus *Bryaxis* comprises approximately 385 known species in the Palaearctic region, whereas numerous representatives of this genus are found in the Alpine region (LÖBL & LÖBL 2015). The Alps are home to 55 endemic *Bryaxis* species (BESUCHET 1959, 1983, 2002; DAFFNER 1986; POGGI 2021).The species are usually distinguishable from each other based on the male genital structures and specific antenna characteristics.

Materials and Methods

The examined material is deposited at following collection:

TLMF .....Tyrolean State Museums Ferdinandeum, Natural History Collection, Austria.

Morphological examinations were conducted using a Wild MC3 stereomicroscope with a

measuring ocular. Habitus and genital illustrations were made using Olympus SZX 10 & Olympus BH-2 microscopes, Helicon Focus 8, and Adobe Photoshop CS6 software. The aedeagi are embedded in Euparal. All specimens were collected by sifting *Salix* and *Rhododendron* litter in the gaps between rocks using a beetle sieve following Reitter and subsequent selection in a Berlese extraction apparatus. To differentiate, self-collected material of *Bryaxis gallicus* from the French and Italian Maritime Alps (det. / vid. Brachat V.), as well as the work of JEANNEL 1950, were used, including detailed drawings of this species.

Description

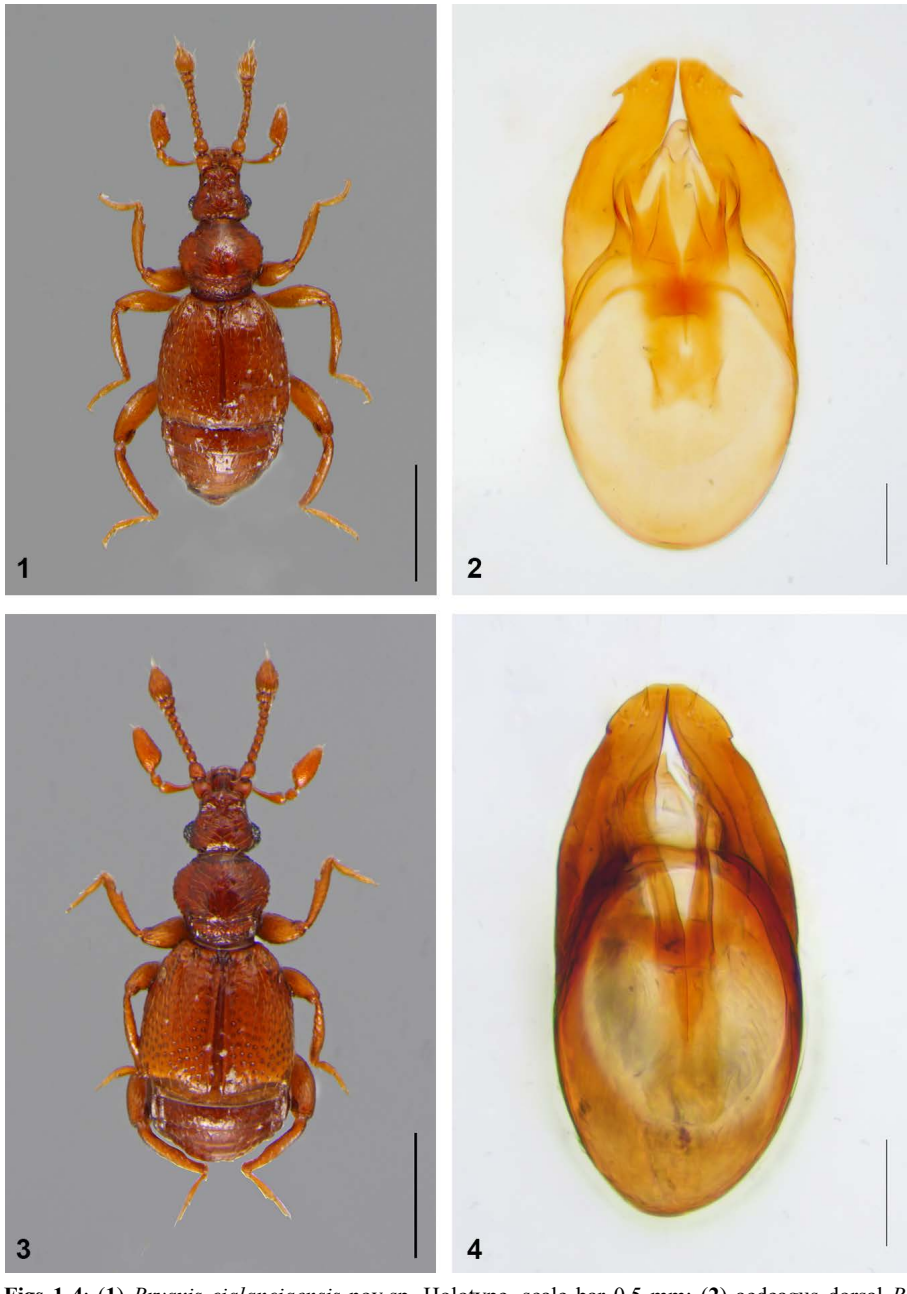
Bryaxis cialanciaensis nov.sp. (Figs 1-2)

Holotype ♂: Piemonte/Torino, Parco Naturale Conca Cialancia, Punta Freidour W-Side, 2350 m, 44.875°N, 7.1217°E, 28.6.2021, leg. Kahlen / *Bryaxis cialanciaensis* spec. nov. ♂ det. Kahlen / vid. Brachat / Holotype (TLMF). Paratypes: 1♂, 4♀♀, Piemonte/Torino, Parco Naturale Conca Cialancia, Punta Freidour W-Side, 2350 m, 44.875°N, 7.1217°E, 28.6.2021, leg. Kahlen (TLMF); 1♂ Piemonte/Torino, Parco Naturale Conca Cialancia, Punta Lausarot N-Rücken, 2250 m, 44.8835°N, 7.1216°E, 28.6.2021, leg. Kahlen (TLMF); 1♂, 1♀ Piemonte/Torino, Parco Naturale Conca Cialancia, Lago Lauson Umg., 2030-2050 m, 44.8872°N, 7.1266°E, 17.7.2022, leg. Kahlen (TLMF).

E t y m o l o g y : The specific epithet is derived from the name of the collection area "Conca Cialancia".

D e s c r i p t i o n : Habitus as in Fig. 1. Body length 1.5-1.6 mm. Body, including appendages, uniformly reddish-brown and glossy. Setae sparse, moderately long, and nearly appressed. Head length (from antennal insertion to neck) 0.25 mm, head width (across eyes) 0.32 mm, frons slightly depressed, dull and granular punctate, vertex glossy with widely and finely punctured surface. Pronotum wider than long (W 0.42-0.45 mm, L 0.35-0.37 mm), glossy with very widely spaced punctures, with a sharply marked transverse groove in the last quarter before the base, strongly arched, widest before the middle, slightly heart-shaped. Elytra barely wider than long together (W 0.69-0.70 mm, L 0.67-0.68 mm), glossy and with loose but strong punctation. Abdominal tergites glossy with very widely spaced fine punctation. ♂: Antennal segment 1 exactly square (0.075 mm), only moderately glossy, slightly asymmetrically humped on the upper side, this elevation towards the center or more towards the inner edge; antennal segment 2 strongly spherical (0.07-0.075 mm) slightly longer than wide; segments 3-8 narrower, also spherical, 3 and 4 barely wider than the following ones, broadening from segment 9 towards the club (Fig. 1). Only males with normal leg development are present. Aedeagus ♂: Fig. 2.

C o m p a r a t i v e n o t e s : Based on morphology *Bryaxis cialanciaensis* nov.sp. and *Bryaxis gallicus* are clearly distinguishable in the shape of antennal segments and the aedeagi. Other features (head, pronotum, elytra, abdomen) do not offer consistent distinguishing characteristics. The ♀♀ of the species are distinguishable by measuring the length-width ratio of the 1st antennal segment.



Figs 1-4: (**1**) *Bryaxis cialanciaensis* nov.sp. Holotype, scale bar 0,5 mm; (**2**) aedeagus dorsal *B. cialanciaensis*, scale bar 0,1 mm; (**3-4**) Habitus (scale bar 0,5 mm) and aedeagus (scale bar 0,1 mm) of *B. gallicus*.

Bryaxis cialanciaensis nov.sp.

Antenna ♂: Antennal segment 1 exactly square (0.075 mm), only moderately glossy, slightly asymmetrically humped on the upper side, this elevation towards the center or more towards the inner edge; Antennal segment 2 almost exactly spherical (0.07-0.075 mm), slightly longer than wide (Fig. 1). Antenna ♀: Antennal segment 1 about half longer than wide (L 0.080-0.087 mm, W 0.055-0.057 mm; 1.53:1.00)

Habitus: Fig. 1

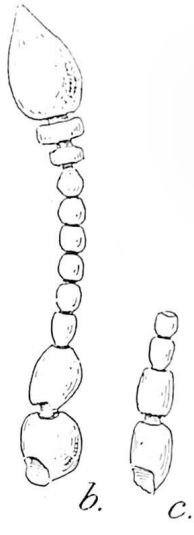
Aedeagus ♂: Fig. 2

Bryaxis gallicus

Antenna ♂: Antennal segment 1 almost square, appearing shorter due to a stronger approach to the antennal pit, distinctly glossy, slightly asymmetrically humped on the upper side, but this elevation is more clearly towards the outer edge; Antennal segment 2 longer than wide (L 0.08-0.087 mm, W 0.065-0.070 mm), strongly asymmetrical (the outer edge curved, the inner edge almost straight and drawn out in a narrow bulge towards the rear (Fig. 3, 5). Antenna ♀: Antennal segment 1 about one-third longer than wide (L 0.075-0.077 mm, W 0.055-0.057 mm; 1.35:1:00)

Habitus: Fig. 3

Aedeagus ♂: Fig. 4, 6



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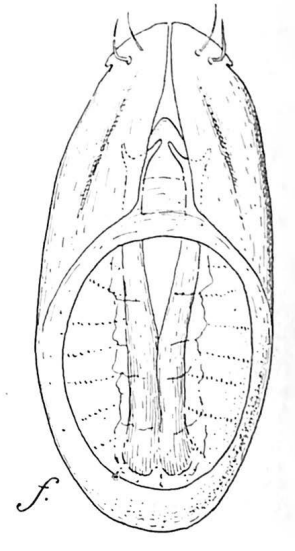

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Figs 5-6: Drawings of antenna and aedeagus of *Bryaxis gallicus* from JEANNEL 1950.

Distribution and habitat: The new species has been found exclusively in the northern Cottian Alps, specifically in the Conca Cialancia Nature Park (Fig 7). The holotype and paratypes were collected by sifting *Salix* and *Rhododendron* litter between rock crevices (Figs 8-9). The species is currently known to be a local endemic of this area.

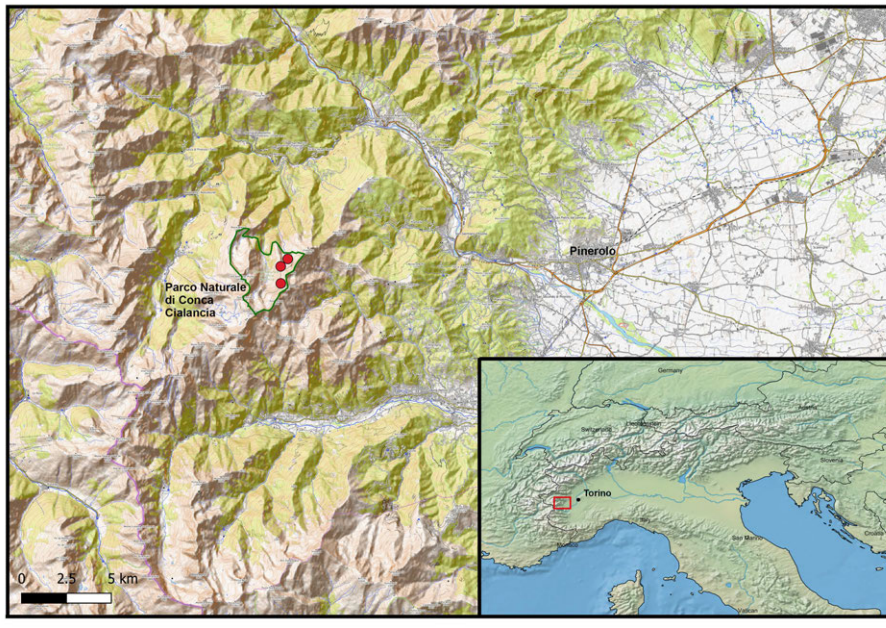

Fig. 7: Distribution map of *B. cialanciaensis*.

Acknowledgments

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Zusammenfassung

Eine neue Art aus der Gattung *Bryaxis* (Staphylinidae, Pselaphinae) aus den nördlichen Cottischen Alpen (Italien) wird beschrieben und abgebildet. Die Art *Bryaxis cialanciaensis* nov.sp. wird differentialdiagnostisch mit der nahe verwandten Art *Bryaxis gallicus* verglichen und mit Angaben über Fundumstände und Verbreitungskarten dargestellt.

Figs 8-9: Habitat pictures of *B. cialanciaensis*. (**8**) Punta Freidour W-Side and (**9**) Lago Lauson.

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