

Short scientific noteSubmitted: October 18th, 2016 - Accepted: November 7th, 2016 - Published: December 31st, 2016**Italian account for *Stephanopachys linearis* (Kugelann, 1792), a species listed in Annex II of the Habitats Directive (Coleoptera: Bostrichidae)**Gianluca NARDI^{1,2,*}, Paolo AUDISIO²¹ MiPAAF, Corpo Forestale dello Stato, Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale "Bosco Fontana", Sede di Bosco Fontana - Strada Mantova 29, I-46045 Marmirolo (Mantova), Italy - l_nardi@hotmail.com² Università degli Studi di Roma "Sapienza", Dipartimento di Biologia e Biotecnologie "Charles Darwin" - Via Alfonso Borelli 50, I-00161 Roma, Italy - gianluca.nardi@uniroma1.it; paolo.audisio@uniroma1.it

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Abstract

Three old specimens of *Stephanopachys linearis* (Kugelann, 1792) from NE Italy, Udine Province (Friuli-Venezia Giulia Region) are recorded. This is the first certain record of this species for Italy since the only previous records, from South Tyrol, were doubtful. This new record is of high conservation value, since this species is protected by the Habitats Directive in the European Union. Distributional and biological data on *S. linearis* are summarized and it is documented that the previous, doubtful literature records from South Tyrol are erroneous.

Key words: Bostrichidae, new record, European Union Habitats Directive, Italy, Friuli-Venezia Giulia Region, Slovenia, coniferous trees.

Introduction

Stephanopachys linearis (Kugelann, 1792) is formally protected at EU level, being listed in Annex II of the Habitats Directive (cf. Brustel et al. 2013; Trizzino et al. 2013). Its presence in Italy was considered doubtful (cf. Audisio et al. 1995; Trizzino et al. 2013; Genovesi et al. 2014; Nardi et al. 2014, 2015; Audisio et al. 2015), since based only on an old literature record from South Tyrol. In reality, this literature record refers to a congeneric species (see further on), so the aim of this paper is to provide the first true Italian records of *S. linearis*.

Material and methods

The beetles were identified following the works of Borowski & Węgrzynowicz (2012), McCaffrey (2012) and Brustel et al. (2013). The distribution pattern of the species is expressed also by a chorotype, following Vigna Taglianti et al. (1999). The conservation status of this species in Italy was evaluated according to IUCN (2014). The botanical systematics and nomenclature follow The Plant List (2013). Interpolations are given in square brackets. The following abbreviations are used in the text: ex =

specimen/s; tff = translation from French; tfg = translation from German; tfi = translation from Italian.

Acronyms of specimen depositories:

- CFA F. Angelini collection, c/o Museo di Storia Naturale, Sezione di Zoologia "La Specola", Università degli Studi di Firenze, Florence, Italy
CPL P. Luigioni collection, c/o Museo Civico di Zoologia, Rome, Italy
MCSG Museo Civico di Storia Naturale, Genoa, Italy (R. Poggi, pers. comm., 2016)

Results***Stephanopachys linearis* (Kugelann, 1792)**

Apate linearis Kugelann, 1792: 495.

Apate elongatus Paykull, 1800: 143.

Material examined. Italy: Friuli [(Udine)], Carnia, Tolmezzo, XI.[19]37, A. Falzoni [leg.], ex coll. Fiori [= former collection Fiori], 2 ex (MCSG); [(Udine), Carnia], Tolmezzo, XI.1937, unknown collector, 1 ex (CFA).

Chorotype and distribution. Sibero-European (boreo-alpine in Europe). This species occurs in: Armenia, Austria,

Azerbaijan, Belarus, NE China (Heilongjiang), Denmark, Estonia, Finland, France (Corsica, Hautes-Alpes, Pyrénées-Orientales), Georgia, Germany, NE Italy (mainland), Iran, Latvia, Lithuania, Mongolia, Norway, Poland, Czech Republic, Russia (Central European Territory, Northern European Territory, West Siberia, East Siberia, Far East), Slovenia, Sweden, Switzerland and Ukraine (cf. Sainte-Claire Deville 1902; Lesne 1903, 1909; Sainte-Claire Deville 1910; Lundberg 1995; Köhler & Klausnitzer 1998; Nardi 2004; Borowski 2007; Brustel et al. 2013; Müller et al. 2013; Brustel 2014; Brustel & Aberlenc 2014; Ranius et al. 2014; Audisio et al. 2015; Liu et al. 2016). According to Borowski & Węgrzynowicz (2007), this species may be introduced with timber into various regions of the world, but it needs of low temperature for its development, so its acclimatization in warm countries is improbable.

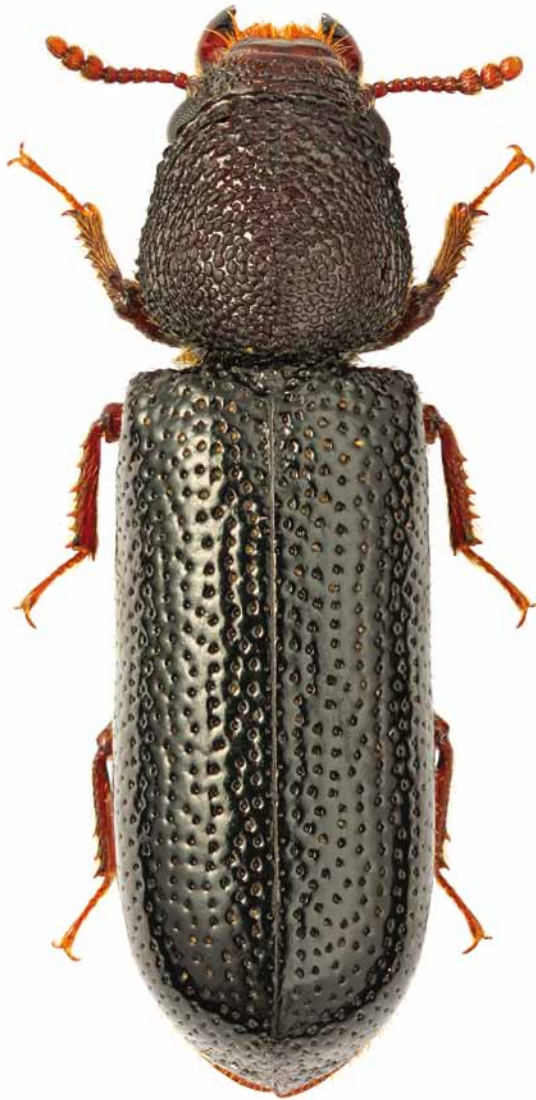


Fig. 1 – *Stephanopachys linearis* (body length: 5.2 mm) from Central Russia, Ivanovo area, city environs, bank of river Volga – Uvod channel, on *Picea* (photo by Maxim E. Smirnov).

Ecology. *Stephanopachys linearis* develops on coniferous trees, usually damaged by fire but still living; all host plants belong to the family Pinaceae: *Abies alba* Mill., *Larix europaea* DC. (= *L. decidua* Mill.), *L. gmelinii* (Rupr.) Kuzen., *Picea abies* (L.) H.Karst., and *Pinus sylvestris* L. (cf. Lesne 1901, as *S. elongatus* Paykull; Simon 1952, as *S. elongatus* Payk.; Geis 2002; Johansson et al. 2011; Borowski & Węgrzynowicz 2012; Brustel et al. 2013; Ranius et al. 2014; Liu et al. 2016). The larvae of the *Stephanopachys* species are specialized feeders on gymnosperms (Liu et al. 2008); nevertheless, those of *S. linearis* may exceptionally feed also in old *Quercus* wood (Koch 1992). Asmuss (1836, as *Apate elongata* Payk.) recorded a specimen of this species in Estonia, together with a specimen of *S. substriatus* (Paykull, 1800) in an opening on a *Sorbus domestica* L. tree (Rosaceae); this record is very probably accidental and this tree has since never been recorded as a host of these beetles.

Notes. Tyrol is a historical region of Eastern Alps, now split between Western Austria and Northern Italy (South Tyrol). *Stephanopachys linearis* was not recorded from Tyrol by Gredler (1866), who recorded only the closely related *S. substriatus* from a site of South Tyrol (Gredler 1866: 265, as *Dinoderus substriatus* Payk.). In spite of this, some subsequent authors included Tyrol in the distribution of *S. linearis*, attributing these records to Gredler as follows:

- “according to Gredler in Tyrol [tfg]” (Kiesenwetter 1877: 31, as *D. elongatus*);
- “and from Tyrol (Gredler sec. [= according to] Kiesenwetter [(1877)]. These indications need to be confirmed [tff]” (Lesne 1897: 335, footnote, as *S. elongatus* Paykull);
- “Tyrol (Gredler sec. [= according to] Kiesenwetter [(1877)])” (Lesne 1901: 92, as *S. elongatus* Paykull);
- “Hamburg, Styria and Tyrol [tfg]” (Schilsky 1899: XXX-VI. 99);
- “species that is known to occur in Tyrol and Corsica [tff]” (Lesne 1909: 103, as *S. linearis* Kug.);
- “St [= Styria (Brancsik, Grimmer, Kodermann, R. Weber)] Ti [= Tyrol (Gredler, Halbherr, Rosenhauer)] Ha [= Hamburg (Endrulat and Tessin, Koltze, Preller, v. Sydow, Wimmel)] Pr [= Prussia (East- and West Prussia) (Lentz, Vorbringer)] [tfg]” (Schilsky 1909: 115, as *S. elongatus* Payk.);
- “Tyrol [tfi]” (Porta 1929: 413, as *S. elongatus* Payk.);
- “South Tyrol [(Italy)] (Gredler 1866; Porta 1929) [tfg]” (Horion 1961: 177, as *S. linearis* Kug.);
- “from Germany, Italy (South Tyrol) and France (Schilsky 1909) [tfg]” (Paill 2005: 548, as *S. linearis* (Kugelann, 1792)).

On the other hand, in the historical catalogues of Italian Coleoptera (Bertolini 1878: 247, as *D. elongatus* Payk.; Bertolini 1904: 77, as *S. elongatus* Payk.; Luigioni 1929:

640, as *S. elongatus* Payk.), *S. linearis* was never recorded from South Tyrol or Tyrol.

Horion (1961), as mentioned above, attributed records of *S. linearis* from South Tyrol to Gredler (1866) and Porta (1929), but this is an error (see also Di Santo & Biscaccianti 2004: 105) since these two authors (see above) did not mention *S. linearis* from this region. Also later, this species was never reported from South Tyrol (cf. Peez & Kahlen 1977; Kahlen 1987; Kahlen et al. 1994; Kahlen & Hellrigl 1996). Paill (2005) was also in error in attributing a record of *S. linearis* from South Tyrol to Schilsky (1909) (see above), who recorded this species only from Tyrol (see above).

The above-listed erroneous records for South Tyrol were the source of the subsequent doubtful citations of *S. linearis* for Italy (cf. Audisio et al. 1995; Nardi 2004, 2005, 2007; Trizzino et al. 2013; Genovesi et al. 2014; Nardi et al. 2014; Audisio et al. 2015; Nardi et al. 2015). Borowski (2007) also recorded this species for Italy (without further data), but his record was probably based on those of Horion (1961).

In this framework, *Stephanopachys linearis* was ultimately considered absent in Italy and it was not included in the recent Italian handbook on animal species of Community Interest (Stoch & Genovesi 2016). However, based on the above, recently examined specimens from Friuli (NE Italy), this species must be added to the Italian fauna.

Stephanopachys linearis is unrecorded from Slovenia (Borowski 2007; Vrezec et al. 2011), but its Italian record suggests that, as its close relative *S. substriatus*, it could occur in the neighbouring Slovenian conifer forests (cf. Jurc et al. 2008; Podlesnik & Jurc 2012).

Moreover, recent records from SE France by Brustel et al. (2013) report the presence of this species in SW Alps, in a mountain area (Hautes Alpes, upper portion of the Guil river valley) just a few kilometers west of the Pellice Valley, NW Italy (Piedmont, Torino Province, Bobbio Pellice municipality).

Discussion

In the IUCN Red List of European saproxylic beetles (Nieto & Alexander 2010), *S. linearis* is classified as “Least concern”, whereas in the Italian Red Lists its status was initially indicated as “Vulnerable” (Bologna 2005; Nardi 2005, 2007) and later as “Endangered” (Nardi et al. 2014, 2015). *S. linearis* is thus far known in Italy only from the above cited locality in Friuli (Tolmezzo), but absence of recent data and of specialized research aimed to collect again the species in this area suggests us to tentatively evaluate it as “Data Deficient (DD)” at Italian regional scale. However, when collected again in the next future in the same locality only, *S. linearis* could be probably considered at the same regional scale as “Critically Endangered (CR)” following the IUCN criteria B1ab(i,ii,iv) (IUCN 2014).

The area of Tolmezzo includes mountain conifer forests where some of the known host trees of *S. linearis* occur (cf. Gasparini & Tabacchi 2011; Nimis et al. 2013). Some of these forests are included in the EU Habitats Directive (cf. Poldini et al. 2006; Biondi et al. 2009; Angelini et al. 2016), and the locality of collection is near some protected areas (Musi 2005; Regione Autonoma Friuli-Venezia Giulia 2015; <http://www.parks.it/regione.friuli.venezia.giulia/map.php?prov=UD>). All of these factors combined have probably allowed the local survival of the species, but this needs to be confirmed by an adequate field survey using the methods (direct collecting, light traps, intercept traps, ex situ emergence traps) usually adopted in the monitoring of the closely related *S. substriatus* and other saproxylic Bostrichidae (cf. Mairhuber & Paill 2005; Paill 2005; Brustel et al. 2013; Trizzino et al. 2013; Redolfi De Zan et al. 2014; Macagno et al. 2015; Mifsud & Nardi 2016; Nardi et al. 2016).

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