The riddle of *Trypophloeus discedens* Palm, 1950 (Coleoptera, Curculionidae, Scolytinae) – nomenclature, taxonomy, and the first record in Norway.

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The first record in Norway of *Trypophloeus discedens* Palm, 1950 (Coleoptera, Curculionidae, Scolytinae) from 2019 is presented. Specimens were collected in a pile of aspen twigs beside an agricultural field in Southern Norway. In the same twigs *T. grothii* (Hagedorn, 1904) was found in large numbers. The history of the taxonomic confusion in *T. discedens* and *T. palmi*, date back to 1932 when Eggers labelled the specimens collected by Butovitsch and Trägårdh in Sweden as *Trypophloeus discedens* n. sp. Eggers never published a description of this new species. At the end of 1940s Palm collected specimens in Northern Sweden, which he compared with specimens labelled by Eggers. These specimens are kept at the Swedish University of Agricultural Sciences (SLU). Palm labelled them *T.? discedens* Eggers and wrote a comprehensive description on the species. The Danish coleopterologist, Victor Hansen was asked by Palm to describe the species. The species was named *T. palmi* Hansen, 1956 in honor of Thure Palm. According to the International Code of Zoological Nomenclature (ICZN 1999) Palm's description is valid, and the species should be named *T. discedens* Palm, 1950. A male labeled *T. discedens* is designated as the lectotype. 23 other specimens from the series collected by Palm and preserved in MZLU are designated as paralectotypes.

Key words: Coleoptera, Curculionidae, Scolytinae, *Trypophloeus discedens*, *Trypophloeus palmi*, Norway, taxonomy, nomenclature, faunistics.

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Introduction

The minute species of the genus *Trypophloeus* Fairmaire, 1864 (Coleoptera; Curculionidae; Scolytinae) is a taxonomic challenge on species level as well as on higher taxonomic levels (cf. Kvamme & Lindelöw 2014, Kvamme et al. 2021). The genus has often been placed in the tribe Cryphalini Lindemann, 1876 (*cf.* Wood & Bright 1992B, Pfeffer 1995, Silfverberg 2010, Knížek 2011). Johnson et al. (2020) resurrected the tribe Trypophloeini Nüsslin, 1911 on the basis of morphology as well as DNA studies and the genus *Trypophloeus* is allocated to this tribus.

Nomenclature of the North European *Trypophloeus* species is often confusing and

used in an inconsistent way. As an example, the nomenclature applied on species present in Europe is very inconsistently used (Knížek 2011, Kvamme & Lindelöw 2014). *Trypophloeus bispinulus* Eggers, 1927, which is a common species in Scandinavia is not recognized in Central Europe. On the other hand, the close related *Trypophloeus granulatus* (Ratzeburg, 1837) seems to be widely distributed in central Europe, but not found in Scandinavia (*cf.* Razowski 1991, Voolma et al. 2000, Telnov, 2004, Knizek 2011, Zahradník 2017). According to these catalogues the range of these two species do not overlap anywhere although both species are found in the same *Populus* species (Koch, 1992). Another problem is the status of *T. grothii* (Hagedorn, 1904) (sensu lato) and how the name is applied (*cf.* Kvamme & Lindelöw 2014). This last example raises a question about the taxonomy behind the names. These examples illustrate some of the still unanswered taxonomic, nomenclatural and faunistic problems. Therefore, the genus is in a strong need of a modern revision including morphological and DNA data.

The aim of the presented paper is a clarification of problems related to the species *T. discedens* Palm, 1950 (sensu lato) and *T. palmi* Hansen, 1956 and to uncover the history behind the confusion. The first record of *T. discedens* from Norway is also presented.

Material and methods

In order to understand the history of *T. discedens* sensu lato and *T. palmi* Hansen, 1956, we have compiled information from available correspondence, literature, and other written sources. In addition, we have corresponded with specialists at many institutions trying to locate types or other specimens examined by Eggers, Palm, and Hansen in their taxonomic studies. Of particular interest is the *T. discedens* sensu lato specimens studied and labelled by Hans Eggers. These specimens were collected by Butovitsch and Trägårdh in 1932. Most of the specimens are preserved at Swedish university of agricultural sciences (SLU).

Abbreviations of persons, collections and institutions: CMK = The private collection of Miloš Knížek; CÅL = The private collection of Åke Lindelöw; NIBIO = Norwegian Institute of Bioeconomy Research; NHMD = Natural History Museum of Denmark; MZLU = Biological Museum at Lunds University; NHMV = Natural History Museum Vienna; FRI = Forest Research Institute 1902–1950. In the 1950s the Royal College of Forestry (1914–1977) and Forest Research Institute were merged and since 1977 a faculty of SLU; SLU = Swedish university of agricultural sciences; NAS = National Archive of Sweden

The Norwegian *T. discedens* specimens

Two exx. Viken County (former Buskerud County), Lier Municipality: Sylling (59.881717, 10.299056), 24.VII.2019, Leg. Åke Lindelöw; 1 ex. the same data, Leg. Miloš Knížek. Adults found were conserved in 70% ethanol until closer examination under microscope. All *T. discedens* specimens have been identified according to the description of Palm. One specimen each of *T. discedens* found in Norway are kept in the private collection of Knížek (CMK) and Lindelöw (CÅK), while the third specimen is donated to NIBIO.

Other specimens of *T. discedens* examined (all from Sweden)

Uppland, Östhammar: Gimo, 9.7.1932, 1 ex. Leg. Butovitsch. *Trypophloeus discedens* n. sp. cotype Eggers Det. 1933/♂/166/2. (SLU); Uppland, Östhammar: Gimo, 1932, 1 ex. Leg. Butovitsch. *Trypophloeus discedens* n. sp. cotype Eggers Det. 1933/♀/166/2. (SLU); Östhammar 9.7.1932, 1 ex. Asp (=*Populus tremula*), Butovitsch Leg. (SLU). Additional 14 exx. are only labelled 166/2 (SLU); Uppland, Östhammar: Gimo, 9.7.1932, 1 ex. Leg. Butovitsch. 166/2. Coll. T-E Leiler, (NRM); Jämtland, Fors socken, 1.7.1948, 1 ex. Leg. Thure Palm. *T.?discedens* ♂ Egg. Det. Thure Palm. (SLU); Jämtland, Fors socken, 20.6.1948, 4 exx. Leg. Thure Palm. *palmi* Paratypes V. Hansen det. (MZLU); Jämtland, Fors socken, x.x.1948, 24 exx. Leg. Thure Palm. (MZLU); Ombergstrakten, Dags mosse, 1 ex. Leg. Thure Palm//*palmi* Victor Hansen det.// Paratypus *T. palmi* V. Hans. (on red

rectangular card, in black ink)// *Trypophloeus discedens* Palm. Det. Å. Lindelöw (MZLU); Jd. Fors. Sn (=Province of Jämtland, parish of Fors). 4 exx. Leg. T. Palm.// *palmi* Victor Hansen det. // blue rectangular card // Paratypus *T. palmi* V. Hans. (on red rectangular card, in black ink)// *Trypophloeus discedens* Palm, Det. Å. Lindelöw, (MZLU); Småland, Kalmar, 1932, 1 ex. Leg. Trägårdh & Butovitsch. *Trypophloeus discedens* n. sp. cotype Eggers Det. 1933/♀/166/1. *grothi* Haged., Victor Hansen det. Additional 20 exx. are labelled 166/1. (SLU); Schweden, Kalmar 1932, 1 ex. Leg. Butovitsch. *Trypophloeus discedens* n. sp. ♂ Type. Eggers Det. 1943. White label, *Trypophloeus granulatus* (Ratzeburg, 1837) det. Mandelshtam 2006 (NHMV); Schweden, Kalmar 1932, 1 ex. Leg. Butovitsch. *Trypophloeus discedens* n. sp. ♀ Type. Eggers Det. 1943. White label, *Trypophloeus granulatus* (Ratzeburg, 1837) det. Mandelshtam 2006 (NHMV); Schweden, Kalmar 1932, 1 ex. Leg. Butovitsch. *Trypophloeus discedens* n. sp. ♂ Cotype. Eggers Det 1943. White label, *Trypophloeus granulatus* (Ratzeburg, 1837) det. Mandelshtam 2006 (NHMV); Schweden, Kalmar 1932, 1 ex. Leg. Butovitsch. *Trypophloeus discedens* n. sp. ♀ Cotype. Eggers Det. 1943. White label, *Trypophloeus granulatus* (Ratzeburg, 1837) Det. Mandelshtam 2006 (NHMV);

From NHMD only images and e-mail, specimens not examined by us.

Trypophloeus discedens Palm, 1950. Jmt. Fors sn. (=Province of Jämtland, parish of Fors) 1 ex. Leg. Palm (printed label//TYPE (printed on red rectangular card//*palmi* ♂ (in Hansen´s handwriting) Victor Hansen det.//Dania (crossed) Coll. Victor Hansen (printed)// yellow rectangular card (NHMD). Lectotype *Trypophloeus discedens* Palm, 1950, designated by Mandelshtam 2008" (Figure 1) (printed on red rectangular card) (Victor Hansens coll. (NHMD); *Trypophloeus discedens* Palm, 1950. Jmt. Fors sn. (=Province of Jämtland, parish of Fors) 1 ex. Leg. Palm (printed label//ALLOTYPE (printed on red rectangular card//*palmi* ♀ (in Hansen´s handwriting) Victor Hansen det.//Dania (crossed) Coll. Victor Hansen (printed)// yellow rectangular card. Paralectotype *Trypophloeus discedens* Palm, 1950, designated by Mandelshtam 2008" (Figure 2) (printed on red rectangular card) (Victor Hansens coll. (NHMD).

Letters and other written communication

The correspondence between Thure Palm and Victor Hansen is kept at ZMUC and MZUL.

Notebook of Spessivtseff "*Katalog över Ent. avd, barkborrar*". [Catalogue of the bark beetles at the Department of Entomology] is kept at SLU.

Results

The Norwegian *T. discedens* record

During a field trip in Southern Norway, three specimens of *T. discedens* were collected manually 24.vii.2019 at Sylling in Lier Municipality, Viken County (former Buskerud County). All specimens were sampled from piles of aspen (*Populus tremula*) branches along the border of an agricultural field. The host material was cut in the winter 2018-19 or early spring 2019. Entrance holes were found and by removing bark, nuptial chambers were uncovered. Usually, two individuals of *Trypophloeus* were found therein, presumable a male and a female. Eggs and larvae were also observed in the galleries. Diameter of the branches varied from 1 to 3 cm in diameter. Specimens of *Trypophloeus grothii* (Hagedorn, 1904) were totally dominating, but three specimens were determined to *Trypophloeus discedens* Palm, 1950.

The history of *Trypophloeus discedens*

In SLU, there are 17 specimens of *Trypophloeus* collected by Trägårdh and Butovitsch in 1932. The specimens were found in *Populus tremula* near Gimo, Östhammar, Uppland, Sweden. Two specimens (♀, ♂) were examined by Eggers and labelled *T. discedens* n. sp., cotype Eggers 1933. One specimen is labelled Östhammar 9.vii.1932, Asp (=*Populus tremula*), Butovitsch coll. The remaining 14 specimens are labelled 166/2 by Paul Spessivtseff (1866-1938) which refer to his unpublished notebook. In 1932, Trägårdh and Butovitsch also collected *Trypophloeus* in Kalmar, Småland, Sweden. 22 specimens are preserved at SLU. One specimen is labelled by Eggers with the

FIGURE 1. The labels of the Type (Holotype) of *Trypophloeus palmi* Hansen, 1956 in Victor Hansen's collection in Copenhagen (NHMD). Michail Mandelshtam's labels from his designation in 2008 of the lectotype of *Trypophloeus discedens* Palm, 1950. Photo: Aslak Kappel Hansen.

FIGURE 2. The labels of the allotype of *Trypophloeus palmi* Hansen, 1956 in Victor Hansen's collection in Copenhagen (NHMD). Michail Mandelshtam's labels from his designation in 2008 of the paralectotype of *Trypophloeus discedens* Palm, 1950. Photo: Sree Gayathree Selvantharan.

TABLE 1. Publications in chronological order showing the use of *T. discedens* Palm, 1950 and *T. palmi* Hansen, 1956. Note that 1955 is wrong and that the description was published in 1956. The variation in spelling of names and abbreviations is due to differences in the literature cited.

Reference and year	Species name used	Synonym mentioned	Comments
Hellén, 1939	*discedens* Egg. in.litt.		Only written on labels Anton Janson
Hellén, 1947	*discedens* Egg. i. l.		Axel Olsson
Palm, 1950	*?discedens* Egg. i. l.		
Pfeffer 1955	*discendens*		Miss spelling
Hansen 1956A	*palmi* Hansen, 1956		Original description in Hansen, 1956
Hansen 1956B Danmarks fauna	*grothi* Hagedorn, 1904	*discedens* Egg. nomen nudum	Eggers mislabeled male and female 1933 T. *discedens* syn. to *grothi* Haged.
Lindroth & Sjöberg 1960	*palmi* Hansen		*T. discedens* not mentioned, but *T. grothi* Hagedorn is mentioned as a valid species
Klefbeck, 1962	*Palmi*		T. *discedens* Egg. i.l. syn. to *grothi* Haged.
Schedl, 1969	*Palmi*		T. *discedens* Eggers in literis syn. to *asperatus* Två ex T. *palmi* (det Hansen) syn to *granulatus*
Lekander et al., 1977	*palmi* Hansen		
Silfverberg, 1979	*discedens* Palm, 1950	*palmi* Hansen, 1955	
Schedl, 1981	*asperatus* Gyllenhal	*palmi* Hansen, 1956	
Schedl, 1981	*asperatus* Gyllenhal	*discedens* Eggers i. l.	Mention *T. grothi* Hagedorn, 1904 and other species as synonyms of *asperatus*

TABLE 1. *continued*

Reference and year	Species name used	Synonym mentioned	Comments
Lundberg, 1986	*discedens* Palm, 1950	*palmi* Hansen, 1955	
Wood & Bright, 1992A	*palmi Hansen 1956*		"Probably a syn. of *granulatus*"
Pfeffer, 1994	*palmi* Hansen		In Käfer Mitteleuropas
Pfeffer, 1995	*discendens* [Egg. In lit.]		Miss spelling
Pfeffer, 1995	*palmi* Hansen, 1955	*discedens* Eggers, nom. nud. in Palm, 1950: 142	Referred to as *discedens* Eggers nom. nudum Palm 1950: 142.
Pfeffer, 1995	*palmi* Hansen, 1955	*granulatus* Schedl, 1969: 134	Nec *granulatus* (Ratzeburg, 1837)
Lundberg & Gustafsson, 1995	*discedens* Palm, 1950	*palmi* Hansen, 1955	
Süda, 1996	*discedens* Palm	*palmi* Hansen	
Voolma et al. 1997	*discedens* Palm, 1950		
Mandelshtam & Popovichev 2000	*palmi* Hansen, 1955	(= *T. discedens* Eggers, nom. nud. in Palm, 1950)	
Voolma et al. 2000	*discedens* Palm, 1950		
Bright & Skidmore 2002	*discedens*		
Silfverberg, 2004	*discedens* Palm, 1950	*palmi* Hansen, 1955	
Telnov, 2004	*palmi* Hansen, 1955		
Voolma et al., 2004	*discedens,* Palm		
Vlasov, 2005	*palmi, Hansen*	*discedens* Palm, 1950	
Silfverberg, 2010	*discedens* Palm, 1950	*palmi* Hansen 1955	
Knizek, 2011	*palmi* Hansen, 1956		*T. discedens* not mentioned
Tamutis, 2011	*discedens* Palm, 1950	=*palmi* Hansen, 1955	
Bright 2014	*discedens*, Palm		
Bright 2014	*palmi,* Hansen		
Rassi et al., 2015	*discedens* Palm, 1950	*palmi* Hansen, 1956	
Bright 2021	*discredens* Palm		Miss spelling
Bright 2021	*palmi, Hansen*		

following information: *Trypophloeus discedens* n. sp., ♀ cotype Eggers det. 1933. This specimen, plus another additional specimen, are both labelled *T. grothii* Haged., Victor Hansen det. Examination of all 22 specimens showed that all are *T. grothii* Hagedorn 1904, except one specimen which is actually *T. discedens* Palm 1950. They are all labelled 166/1 by Spessivtseff and in his notebook is written: *"196. discedens Eggers: i lit "Kalmar, ex. Populus tremula 1932 T-dh o. Butovitsch (=Trägårdh and Butovitsch) Coll., Eggers det. (Type!)"*. However, there is no specimen labelled as Type! in SLU collection. In Vienna four specimens in Schedl's collection are labelled: *"Schweden, Kalmar 1932. Leg. Butovitsch. Trypophloeus discedens n. sp. male Type Eggers det. 1943"*. Two specimens are labelled Cotype. Added white label: *Trypophloeus granulatus* (Ratzeburg, 1837) det, Mandelshtam 2006. These specimens are mentioned by Schedl (1979). At the end of the 1940s, Thure Palm collected 75 specimens of *Trypophloeus* from *Populus tremula* in Jämtland, Sweden. He determined them as *T.?discedens* Egg, i. l. (*cf.* Palm 1950) by comparing his specimens with those labelled *T. discedens* by Eggers and kept at SLU.

Already Hellén (1939) mentioned *Trypophloeus discedens* Egg. i. l. In Hellén (1947) the same name is used. Silfverberg (1979) is the first to use the name *T. discedens* Palm, 1950. During the period 1970-2021, *T. discedens* Palm, 1950 and *T. palmi* Hansen, 1956 are used interchangeably in different publications (Table 1). Note that the year of Hansen's description of *T. palmi* is inconsistent. The correct year is 1956. The confusion is a result of the paper published in two parts. The first part about *Hylastes* was published in 1955 and the second part about *Trypophloeus* was printed 1956.

We conclude that the information written on the labels by Eggers: *T. discedens* n. sp., cotype Eggers 1933 is why in. lit. was used by e.g. Hellén (1939). Anton Jansson and Axel Olsson supported Hellén with data about species occurring in Sweden. Most probably Anton Jansson saw the specimens in Swedish Forest Research Institute (FRI) and included *T. discedens* Egg. in litt. in the catalogue.

Palm assumed that Eggers had not published the description of the species and wrote (Palm, 1950) *"Beskrivningen på discedens torde ännu ej ha publicerats."* [The description of *discedens* has most likely not yet been published.]. No description by Eggers has been found in literature. Hellén (1939, 1947 and others) uses *discedens* Egg. i. l. (= in litteris). In litteris means *with letters* and in this case refers to the labels by Eggers. In several publications is mentioned this name as a nomen nudum (Hansen 1956B, Pfeffer 1955).

In his paper, Palm (1950) gives a precise description of *T. discedens.* However, Palm assumed that it was the same species as Eggers' *discedens* and did not make a final conclusion in his publication (Palm 1950). One reason was that Palm did not have any male of *T. granulatus* available for comparison of the aedeagus.

Hans Eggers died in 1947. We have not found anything published on *T. discedens* by Eggers, except the labels of the specimens mentioned above. No additional specimens are known to exist in Schedl's Collection (Vienna) (Schillhammer pers. com.) or in Smithsonian Museum (Washington DC) (Chamorro pers. com.). No notes or letters from Butovitsch to Eggers could be found in the Swedish National Archive, indicating any written communication between Butovitsch and Eggers related to *Trypophloeus discedens* Eggers sp. n. . Butovitsch obviously had some contacts with Eggers. However, he was not married to his daughter as stated in Wood and Bright (1992A). Eggers had two daughters and neither of them was married to Butovitsch (Viol pers. com.). We have been in contact with the children of Butovitsch, but no correspondence between Butovitsch and Eggers or any other written documents are left that could clarify the contacts between them.

Palm's original description of *T. discedens*

Palm (1950) gives the following description (in Swedish) of what he calls "*T.? discedens* Egg. i. l.": *"Större art, 1,8 – 2,2 mm. Översida mindre glänsande än hos övriga arter. Halssköldens bakre del tätt och kraftigt punkterad. Täckvingar med mycket tydliga, grovt punkterade fåror, högvälvda, bakkanten avrundad utan tillsmalning, borst något kortare och grövre än hos bispinulus och tätare än hos asperatus, mellanrummens fjällhår som hos bispinulus. ♂. Täckvingarnas sluttning börjar långt bakom deras mitt, normalt med två tänder på vardera sidan."* [Larger species, 1.8 – 2.2. mm. Less shining dorsally than the other species. Posterior part of pronotum dense and strongly punctured. Elytral striae clearly visible with coarse punctures, interstriae highly vaulted, apex rounded not narrowing, scales slightly shorter and thicker compared to *bispinulus* and denser compared to *asperatus*, recumbent fine hair-like scales on interstriae similar to *bispinulus*. ♂. The posterior slope starts behind middle point of elytra, commonly with two spines each.].

The history of *Trypophloeus palmi* Hansen, 1956

Victor Hansen described *T. palmi* in 1956 based on specimens he was given by Thure Palm who found them in the end of the 1940s in Jämtland, Northern Sweden. This is clearly mentioned in the correspondence between Palm and Hansen. In a letter (1954-04-01), Palm inform Hansen that he has sent some specimens of *Trypophloeus,* stating that there are three valid species and Hansen may keep the material. In Hansen´s reply letter (1954-11-14) is written "*your discedens* is

a new easy recognized species". In (1954-11-18) Palm wrote that he had sent additional specimens of *Trypophloeus* (*asperatus*, *bispinulus* and *discedens*) including males to be examined by Hansen, especially male genitalia. He regretted that different species may occur on the same mounting card, because he collected the three species in the same aspen tree. He also gives information about distribution of the species in Sweden and doubt the information about *T. granulatus* presence in Sweden.

After Palm´s visit to Swedish Forest Research Institute (FRI) to study the specimens of "*T. discedens* Eggers" he presumed the species was not yet described. Palm wrote to Hansen (1954-11-18): *"I hope you will describe it, also because presence in Denmark is possible. Eggers has not described the species, but he gave FRI a cotype (I presume you have gotten it from K-J Heqvist as a loan). Eggers also examined other Trypophloeus specimens from Sweden and identified several Swedish specimens as discedens. These are the specimens I have seen, eventually also including the cotype*". Note: Karl-Johan Heqvist changed his name to Hedqvist between 1961 and 1962 (Forshage et al. 2016). Unfortunately, the correspondence from Hansen to Karl-Johan Hedqvist is not complete. Hansen borrowed an unspecified number of specimens of *Trypophloeus granulatus* Ratzburg, 1837 and one specimen of *Trypophloeus asperatus* Gyll., collected in Finland from FRI conveyed by K-J Heqvist (letter from K-J Heqvist 1954-11-15). Hansen had access to the specimens of *Trypophloeus* collected in Kalmar by Trägårdh and Butovitsch and he concluded that Eggers made a mistake by labelling one specimen as *Trypophloeus discedens* n. sp ♀, cotype Eggers det. 1933, Kalmar, Sweden., Leg. Trägårdh & Butovitsch 1932. This specimen, and another one, are both labelled *T. grothii* Haged., Victor Hansen det. In a letter to Palm, Hansen asked for more specimens of the new species collected by Palm and for additional information (*cf*. letter from Hansen, dated 1954-11-14). According to the correspondence between Palm and Hansen, Palm express his gratitude that the species was named after him.

From the notebook of Paul Spessivtseff, we can find the following lines: *"196. discedens Eggers i lit. 166/1 Kalmar. Ex. Populus tremula 1932 T-dh o. Butovitsch Coll. Eggers det. (Type!); 166/2 Östhammar, Gimo 9.VII.1932 T-dh o. Butovitsch Coll. Eggers det. (Cotype!)"*. Spessivtseff was employed as an assistant to Ivar Trägårdh at FRI from1920 until retirement 1931-12-31. As a part of his work, he listed all bark beetles in the insect collection in FRI and gave them a serial number. The finding of Trägårdh and Butovitsch was made in 1932 and some other specimens in his notebook are collected in 1934. Spessivtseff made notes also after his retirement. During 1920s Spessivtseff was very active, describing new bark beetle species and published a key to the Swedish bark beetles (Spessivtseff 1922).

Schedl (1969) concluded that male/female Types and male/female Cotype of *T. discedens* from Kalmar, Ex. *Populus tremula* 1932 T-dh (=Trägårdh) and Butovitsch Coll., Eggers det., in his possession (from Eggers' collection?) are synonyms to *T. asperatus*.

A part of Eggers' collection was sold to The Smithsonian Institution in Washington DC. However, Schedl picked out many types and other specimens before shipping to Washington DC, which ended up in Schedl´s collection in Vienna (*cf.* Wood & Bright 1992B).

Hansen's original description of *T. palmi*

"Very closely allied to bispinulus but separated by the characters given in the key. From granulatus, which also has the elytral striae complete (not shortened behind), it is easily distinguished by the broad recumbent scales on the front part of the back of the elytra and the much shorter, rather broad, and somewhat truncate raised setae. Length 1.6 – 2.2 mm. - ♂: The shape of the endplates of aedeagus intermediate between bispinulus and granulatus, the sides being a little less convex than in granulatus, and the hind outer-angles a little less rounded than in bispinulus, very slightly obtuse-angled.".

Hansen also writes: *"The type and allotype are in my collection"*. His collection was donated to the Natural History Museum in Copenhagen (NHMD), where his correspondence also is kept. In Palm's collection (now in the museum of Lund,

Sweden) there are four paratypes of *T. palmi*.

Diagnose

A large (1,6–2,2 mm), robust species with coarse punctuation posteriorly on pronotum, similar as in *T. bispinulus*. In *T. grothii* and *T. binodulus* (with *asperatus* as synonym) the punctures are smaller and separated and thus the surface is more shining. Stria on elytra deep and complete, thus more clearly visible than in *T. bispinulus*. The surface (integument) is matt black.

Biology and faunistics

T. discedens prefers dead branches of standing or lying aspen trees (Ehnström & Axelsson 2002). The flight period is not precisely known, but newly established adults can be found in May-June. Entrance is made by female, later joined by a male in a cave-like nuptial chamber. After mating the male is sitting close to the entrance, guarding, and cleaning it. The female lay eggs in a batch. Young larvae feed and pupate in the phloem. Adults emerge through round exit holes. Maturation feeding is not observed, but as in other *Trypophloeus* species, bark of living trees is most probable. Hibernation as larvae and imagines.

FIGURE 3. *Trypophloeus discedens* Palm, 1950. Photo: Krister Hall

Distribution

In the Palearctic catalogue (Knizek 2011) *T. discedens* is listed under the name *T. palmi,* which is the junior synonym of *T. discedens*. So far it is known from Sweden, Finland, Estonia, Latvia, and Russia (North European Territory), but not yet known from Denmark. In 2010 *T. discedens* was discovered in Lithuania (Lindelöw 2010, Tamutis et al 2011). Together with the record presented from Norway it shows a rather northern distribution orientation.

Discussion

T. discedens has been expected to occur in Norway and is probably distributed in lowland and coastal areas of south-eastern Norway. In Sweden *T. discedens* is considered rare and is listed as NT (near threatened) in the national red list (SLU Artdatabanken 2020). *Trypophloeus* spp. are often overlooked, and more studies are needed to conclude what status *T. discedens* rightfully should have in Norway.

It is not known how and when Eggers got access to the specimens collected by Butovitsch & Trägårdh. Anyhow, he studied specimens both from Östhammar and Kalmar since there are specimens labelled by him. Butovitsch and Eggers had regular contacts, both interested in bark beetle taxonomy (Ehnström pers. com.). It cannot be excluded that collected specimens from Gimo and Kalmar have been mixed up. On the other hand, both *T. grothii* and *T. discedens* are known to occur in both areas. These two species have been found in the same tree several times (Lindelöw unpublished records and the record in Norway). Probably Hansen did not have access to specimens collected in Gimo. Palm had seen them and mention his observations to Hansen, but Hansen does not comment on this. He is focused

on the specimens from Kalmar and observed the mistake by Eggers. This may be the reason why he decided to describe a new species. However, Hansen (1956A) does not comment on the fact that one specimen from Kalmar was the same species as Palm suspected to be Eggers' *discedens* n. sp. Probably, Hansen did not examine all specimens collected in Kalmar.

When Hansen described *T. palmi* he obviously did not study the 17 specimens collected by Butovitsch & Trägårdh in Östhammar 1932. Palm had seen them, and assumed Hansen got access to them through Hedqvist. The only letter available from Hequist to Hansen does not mention the specimens collected by Trägårdh and Butovitsch. If Hansen saw these specimens or not, is not known since there were only the labels attached by Eggers *discedens* n. sp.

Trypophloeus discedens Eggers is not a valid name since it is only known from labels on specimens, and no description was published by him. According to Hellen (1939, 1947), Palm (1950), Pfeffer (1995) and others (Table 1), *T. discedens* as used by Eggers is in litteris (i. l.) and also nomen nudum (*cf.* INCZ 1999)

Palm's description of *T. discedens* Palm, 1950 is valid according to the code (ICZN 1999). This is a paradox because Palm (1950) did not make any conclusions about the species. He stated that he could not be sure this is the same species as Eggers' *T. discedens* since Eggers did not publish any description. Also, Palm did not have any available male specimen of *T. granulatus* for comparison. The conclusion is that Palm did not consider his description as a valid one, but preliminary. Palm did not designate any types from the 75 specimens he studied. However, these specimens will automatically be syntypes (*cf.* ICZN 1999: "syntype"). Each specimen of a type series (*q. v.*) from which neither a holotype nor a lectotype has been designated [Arts. 72.1.2, 73.2, 73.2, 74]. The syntypes collectively constitute the name-bearing type."

All names published after 1930 are available if the following requirements are fulfilled (cf. article 13.1): *"To be available, every new name published after 1930 must satisfy the provisions of Article 11 and must 13.1.1 be accompanied by a description or definition that states in words characters that are purported to differentiate the taxon".*

The code also state (*cf.* article 11.5.1) that *"A name proposed conditionally for a taxon before 1961 is not to be excluded on that account alone [Art. 15]".*

T. palmi Hansen, 1956 is a junior synonym of *T. discedens* Palm, 1950. Hansen's specimens, a male Type and a female Allotype, are in the collection of NHMD. They were designated as lectotype and paralectotype respectively of *T. discedens* Palm, 1950 by Michail Mandelshtam in 2008 (Figure 1 and 2). The intention was to stabilize the nomenclature. Mandelshtam (pers. com.) did not publish the designation, which is consequently not valid. New types have been designated, and specimens labelled as *T. discedens* by Palm have been chosen. Our opinion is that it is more logic to choose these specimens, and the new types will not be the same for *T. discedens* Palm, 1950 and *T. palmi* Hansen, 1956.

One of the aims of the presented paper is to stabilize the nomenclature to avoid further nomenclatorial confusion. *Trypophloeus discedens* Palm, 1950 is now preserved as a valid name and *T. palmi* Hansen, 1956 is consequently a junior synonym.

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