

NOTES ON DISTRIBUTION OF *PITYOGENES CALCARATUS* (EICHHOFF, 1878) (COLEOPTERA: CURCULIONIDAE, SCOLYTINAE) IN GEORGIA

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ABSTRACT

The paper presents data on the occurrence and ecology of *Pityogenes calcaratus* (Eichh.), provides new data on the occurrence of this species in Georgia, and illustrates the beetle morphology and galleries.

Keywords: *Pityogenes*, *Pinus nigra*, pine bark beetles, fauna, Georgia, Borjomi

INTRODUCTION

Pityogenes calcaratus (Eichh.) is a species belonging to the group *Pityogenes bistridentatus* Eichh. that includes 6 East Palaearctic species with well-developed spines (1–3) on the male elytral declivity, where a pair of sutural spines is clearly visible, the second is crooked, whilst the third is conical. Females have a tuft of hair or a pit in the centre of the frons (Pfeffer, 1994).

Pityogenes calcaratus occurs in the Mediterranean Basin – from western Portugal, through Spain, France, Italy, Croatia and Greece to Crimea, Syria and Palestine; in North Africa it is listed in Algeria, Morocco and Tunisia (Mifsud and Knížek, 2009; Pfeffer, 1994). In Central and Eastern Europe it is reported in Hungary, Ukraine and Russia (Knížek, 2011). Also it is also noted in the Mediterranean islands – Sardinia, Corsica and Malta (Mifsud and Knížek, 2009). In Turkey the species has been observed in the south-western part of the country (Sarıkaya and Avcı, 2011).

Pityogenes calcaratus develops mainly on pines: *Pinus halepensis*, *P. brutia*, *P. pinaster*, *P. sylvestris* (Pfeffer, 1994), *P. maritima*, *P. radiata* and *P. pinea*

(Mendel et al., 1985), but also on Douglas fir *Pseudotsuga menziesii* (Mifsud and Knížek, 2009). In the forests of northern Israel it is more common on *Pinus halepensis* than *Pinus brutia* (Buse et al., 2010), and together with *Orthotomicus erosus* they are the most important bark beetles of pines in that country (Bise et al., 2010; Halperin and Holzschuh, 1984). Numerous occurrences of these species in the forests of Israel are associated with droughts and high temperatures during the summer (Halperin and Holzschuh, 1984).

Larvae of *P. calcaratus* develop mainly under the bark of young, 5–8 year old pines and under the smooth bark of older trees (Mendel, 1988; Mendel et al., 1985). A detailed description of the gallery structure and biology of the species in Israel conditions was presented by Mendel et al. (1985) – the stellate, multiramous system of galleries, with the nuptial chamber marked on the xylem surface, and 2–8 larval galleries. The development takes place from February until November, during this time they bring 5–7 generations, although the number of sister broods has

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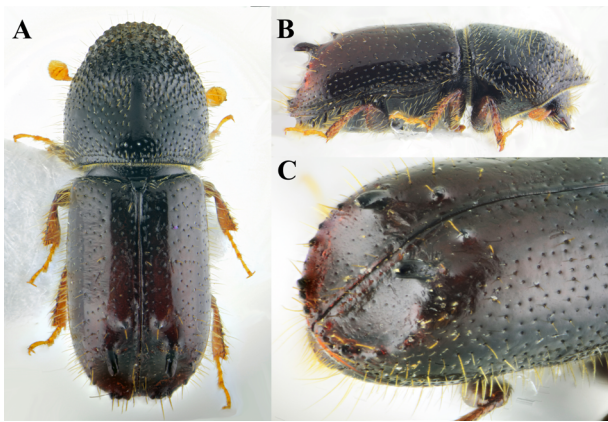


Fig. 1. *Pityogenes calcaratus* (Eichh.) male: A – habitus, dorsal view; B – habitus, lateral view; C – elytral declivity (photo R. Witkowski)

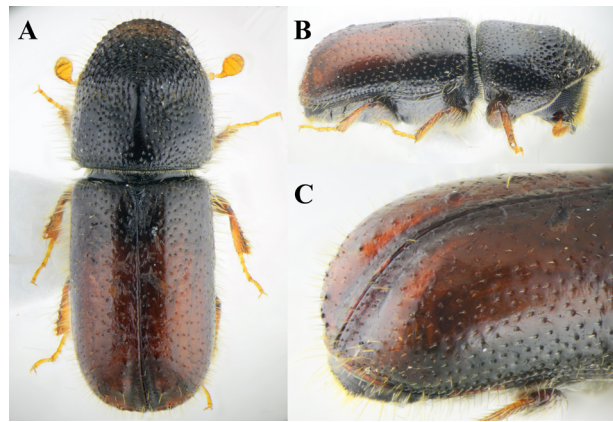


Fig. 2. *Pityogenes calcaratus* (Eichh.) female: A – habitus, dorsal view; B – habitus, lateral view; C – elytral declivity (photo R. Witkowski)



Fig. 3. Galleries of *Pityogenes calcaratus* excavated in a *Pinus nigra* branch (photo A. Mazur & R. Witkowski)

not been confirmed (probably 3). The species mainly infests trees weakened by fungi, fires and after thinning (Mendel et al., 1985). A predatory mite *Iponemus punctatus* Lindquist from the family Tarsonemidae has been noted from the galleries of *P. calcaratus* (Hofstetter et al., 2015).

RESULTS

Pityogenes calcartus was noted from branches and twigs of *Pinus nigra* Arn. collected near Borjomi (Samtskhe-Javakheti; N: 41°54'59" E: 43°25'46"; 1350 m AMSL, Borjomi-Kharaguali National Park). The branches was collected in mid-May 2019).

From the material collected on September 15–22, 2019, 18 specimens were obtained (12 exx. ♂♂, 6 exx. ♀♀). One beetle emerged from the branch on November 12, 2019.

Morphology of the species is illustrated in Figures 1 and 2, galleries excavated mainly by adult beetles in the outer layer of wood and dark brown larval galleries are shown in Figure 3.

CONCLUSIONS

The information on *P. calcaratus* from western Georgia is in line with the potential range of the species, but it is the easternmost locality from the whole known range of the species. Collected materials were not sufficient to conclude on the scale of *P. calcaratus* distribution in Georgia. However, so far the species in its entire range has been relatively rare with the exception of Israel, where it is more numerous (Buse et al., 2010; Halperin and Holzschuh, 1984).

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