

**DISTRIBUTION OF *CALLERGATES GAILLARDOTI*
(CHEVROLAT) (COLEOPTERA: CERAMBYCIDAE:
PRIONINAE) IN THE EASTERN MEDITERRANEAN REGION**

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ABSTRACT: *Callergates gaillardoti* (Chevrolat) (Coleoptera: Cerambycidae: Prioninae), an endangered species on the European Red List of Saproxyllic Beetles, is reported from Greece (Rhodes, Samos and Lesbos Islands), Cyprus, Lebanon, Syria and Turkey. It also has been introduced into Egypt (North Africa). In Turkey, it occurs in Adana, Antalya, Aydın, Hatay, İçel, Konya, Muğla and Osmaniye provinces. Known host plants include the species of *Pinus* (Pinaceae), e.g. *Pinus brutia*, *Pinus halepensis*, *Pinus nigra*, *Pinus pinea*, *Pinus sylvestris*.

KEY WORDS: *Callergates gaillardoti*, longhorned beetle, distribution, host plants

Callergates gaillardoti (Chevrolat, 1854) (Coleoptera: Cerambycidae: Prioninae) is classified as “Endangered” on the European Red List of Saproxyllic Beetles (Nieto & Alexanderi 2010). Information on this species is critical to efforts to protect this species from extinction in the Eastern Mediterranean basin.

The Eastern Mediterranean denotes the countries geographically to the east of the Mediterranean Sea (Levantine Sea basin). This is commonly interpreted in two ways: the region of Syria plus the Cyprus (also known as the Levant), and Turkey, or the Levant plus Greece, and Egypt, thereby including European and African components to the definition. The Levantine Sea is bordered by Turkey in the north, Syria, Lebanon, Israel and the Gaza Strip in the east, Egypt and Libya in the south, and the Aegean Sea in the northwest. The largest Island in the Levantine Sea is Cyprus. The greatest depth of 4384 meters is found in the Pliny Trench, about 80 km south of Crete. The Levantine Sea stretches over an area of 320 000 km². The countries and territories of the Eastern Mediterranean include Cyprus, Greece (mainland and Aegean Islands), Lebanon, Syria, Palestine, Israel, Turkey, Egypt, Jordan and Libya. The Eastern Mediterranean Region encompasses only two countries as Greece and Cyprus within the European Union (Sundseth & Brussels, 2009).

The Mediterranean basin is recognised as a biodiversity hotspot. About one-third of the Mediterranean fauna is endemic. According to the International Union for Conservation of Nature Red List of Threatened Species, 19% of faunal species (amphibians, birds, cartilaginous fishes, endemic freshwater fishes, crabs and crayfish, mammals, dragonflies, and reptiles) are threatened with extinction (5% Critically Endangered, 7% Endangered, 7% Vulnerable) in the Mediterranean Region. In addition, at least 16 irreplaceable species are already extinct, including some endemics (Vlachogianni et al. 2012, Avgın et al. 2015). With most representatives in the Order Coleoptera, insect diversity in the region is also high.

Within borders of region as well as in neighboring countries and regions, Turkey is surrounded on 3 sides by large water bodies, it has continental properties including exceptionally diverse topographical features. The latter have provided refugia in which many species have survived in spite of harsh geological

and climatic changes. Turkey is located at an intersection of geographical regions with large climatic and geographical gradients as well as a diversity of ecosystems and habitats (Kahraman et al., 2011; International Union for Conservation of Nature, 2012; Avgin et al., 2015). The great biological importance of Turkey is evident from the remarkable variety of arthropods in Turkey. The coleopteran fauna of Turkey is estimated to include 25 000 species (Koçak & Kemal, 2009). As a result of this, Turkey plays an important geographic and ecological role in safeguarding biodiversity.

Biodiversity is under severe pressure in Turkey, and region-wide conservation efforts must be implemented to avoid extinction of threatened species. Such conservation efforts can be aided by identification of emblematic umbrella species to help market, advertise, and generate public support (Avgin et al., 2015). The deadwood habitat of native tree species is under severe pressure among the many habitats and species threatened in Turkey (Avcı et al., 2010; Coşkun et al., 2010; Gürkan et al., 2010; Avgin et al., 2015). *Callergates gaillardoti* is among the saproxylic beetles of that habitat and, in Europe, is considered “Endangered” (Nieto & Alexander, 2010). Thus, the primary objective of this paper is to define the known distribution of this insect along with information on its ecological habits and host plants. In addition, a bibliography of previous studies related to this species is included.

MATERIALS AND METHODS

The material of this work is a comprehensive review of the scientific literature that was conducted to delineate the known distribution of *Callergates gaillardoti*. Host plants and ecological habits were recorded when available. Additional surveys for this insect were conducted by many researchers and are reported herein. We included information and data that are important in assessing the level of threat to the species. These protocols included geographic range, population data, and habitat preferences (Nieto & Alexander, 2010; International Union for Conservation of Nature, 2012). Information and data of this species are presented under the title Taxonomic history, Reported occurrence in Turkey, Reported occurrence outside Turkey, Host plants, Life cycle and biology and Status and conservation of threatened species. Moreover, a distribution map of *Callergates gaillardoti* in the Eastern Mediterranean Region is also given (Fig. 1). Reported occurrences in Turkey and World with bibliographic citations are also provided (Tables 1 and 2).

RESULTS AND DISCUSSION

Taxonomic history. The prionine genus *Callergates* was erected by Lameere (1904) as a subgenus of the genus *Ergates* Audinet-Serville, 1832 with the type species *Ergates gaillardoti* Chevrolat, 1854. Earlier authors considered *Callergates* a subgenus of *Ergates* (Lameere 1904, Nishio 1956). More recent authors consider it as a separate genus (Villiers, 1978; Jeniš, 2001, 2008; Löbl & Smetana, 2010; Özdikmen, 2013, 2014; Danilevsky, 2016).

The Palaearctic genus *Callergates* includes only 2 described taxa as *Ergates gaillardoti* and *Ergates akbesianus*. The type species, *Ergates gaillardoti*, was described by Chevrolat (1854) from Saida (Lebanon). And *Ergates akbesianus* was described by Pic (1900) from “Haute Syrie: Akbès” that is in Hatay province of Turkey, not Syria. This taxon is a synonym of *Callergates gaillardoti* (Chevrolat, 1854). Thus, *Callergates* is still a monotypic genus.

Reported occurrence in Turkey. *Callergates gaillardoti* is reported as occurring in 8 of Turkey's 81 provinces (Fig. 1). These are Adana, Antalya, Aydın, Hatay, İçel, Konya, Muğla and Osmaniye provinces. Location reports along with specific citation(s) of those reports are listed in Table 1.

Reported occurrence outside Turkey. *Callergates gaillardoti* is recorded from the Western Palaearctic Region from Greece to Lebanon, Southeast Europe (Greece and Cyprus), Turkey (Anatolia), Middle East (Syria, Lebanon). It also has been introduced into Egypt (Alfieri, 1916; Löbl & Smetana, 2010; Özdikmen, 2016; Danilevsky, 2016). Citations of confirmed occurrence of *Callergates gaillardoti* are listed in Table 2, and the recorded distribution is shown in Fig. 1.

Host plants. *Callergates gaillardoti* is apparently monophagous in conifers (*Pinus* spp.) and develops in dead decaying trunk and in dead stumps of the host plants such as *Pinus pinea* (Demelt, 1963), *Pinus sylvestris* (Welnicki & Przewoźny, 2007), *Pinus brutia* (Sama et al., 2012), *Pinus nigra* and *Pinus brutia* (Cihan et al., 2013), *Pinus halepensis* (Hoskovec et al., 2016). Specimens from Turkey were found on or in the conifer species *Pinus brutia*, *Pinus nigra* and *Pinus pinea* either as adults or larvae (Demelt, 1963; Svacha & Danilevsky, 1987; Adlbauer, 1988; Sama et al., 2012; Cihan et al., 2013).

Life cycle and biology. *Callergates gaillardoti* larvae live in dead decaying trunk and in dead stumps of the host plants (Sama et al., 2012; Özdikmen, 2013; Hoskovec et al., 2016). Adults and larvae can be collected only from the host plants growing in lowland and foothill habitats between 150 and 1,467 m above sea level. Duration of the life cycle is at least 3 years. The overwintering stage is most likely the larval stage. Larvae live in dead decaying trunk and in dead stumps of the host plants. Pupation occurs in the wood (in pupal cell) in the spring and summer. Adults probably are crepuscular, nocturnal, and are attracted to light. They actively fly in spring and summer (between May and August) (Demelt, 1963; Svacha & Danilevsky, 1987; Adlbauer, 1988; Sama et al., 2012; Özdikmen, 2013; Hoskovec et al., 2016).

Status and conservation of threatened species. Nieto & Alexander (2010) report that 6% of the species of saproxylic beetles are considered Endangered in Europe. *Callergates gaillardoti* is included in those 26 species. According to Özdikmen (2016), *C. gaillardoti* is probably rather widely distributed in SW Turkey and suggested that the species be listed in the category of Vulnerable in the Turkish Red List. Based on its distribution, collection dates, and records from Turkey, we concur with that placement.

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Table 1. Distribution of *Callergates gaillardoti* in Turkey by province, with bibliographic citation of occurrence.

Province	Locality	Citations
Adana	Çukurova Univ. (Campus of Balçalı)	Özdikmen, 2006
Adana	Feke	Adlbauer, 1988
Adana	Karaisalı (Yenigözleşen)	Cihan et al., 2013
Adana	Karataş	Demelt, 1963
Adana	Kozan	Atay et al., 2012
Adana	Unreported	Öymen, 1987
Antalya	Alanya (Cırlasun bridge)	Özdikmen & Çağlar, 2004
Antalya	Alanya (Güzelbağ)	Adlbauer, 1988
Antalya	Bey Mts.	Demelt, 1963
Antalya	Çayarası-Alanya (Sarımüt bridge env.)	Özdikmen & Turgut, 2009; Turgut & Özdikmen, 2010
Antalya	Manavgat (Kumköy)	Demelt, 1963
Antalya	Manavgat	Özdikmen & Demir, 2006
Antalya	Unreported	Öymen, 1987
Aydın	Didim (Yenihisar)	Özdikmen, 2006
Hatay	Hassa (Akbez)	Pic, 1897, 1900
Hatay	Nur Mts. (E of Dört Yol)	Sama et al., 2012
İçel	Anamur (Sarıyayla)	Cihan et al., 2013
İçel	Çamhyayla (İledin)	Cihan et al., 2013
İçel	Çamhyayla (Namrun)	Svacha & Danilevsky, 1987
İçel	Erdemli (Hacıalanı)	Cihan et al., 2013
İçel	Mezitli (Kuyuluk)	Cihan et al., 2013
İçel	Mut (Alahan)	Cihan et al., 2013
İçel	Silifke	Cihan et al., 2013
İçel	Silifke (Karakaya)	Cihan et al., 2013
İçel	Tarsus (Ayvalı)	Cihan et al., 2013
Konya	Beyreli	Özdikmen & Turgut, 2009; Turgut & Özdikmen, 2010
Muğla	Köyceğiz	Özdikmen, 2006
Osmaniye	Zorkun (Plateau of Mitis)	Özdikmen & Turgut, 2009
Turkey		Lodos, 1998; Sama & Rapuzzi, 2000; Özdikmen, 2006; Swift et al., 2010; Löbl & Smetana, 2010; Danilevsky, 2016

Table 2. Reported global occurrence of *Callergates gaillardoti*, with bibliographic citations.

Reported Countries	Citations
Cyprus	Sama, 1994; Özdikmen & Turgut, 2009; Löbl & Smetana, 2010; Özdikmen, 2014, 2016; Hoskovec et al., 2016; Danilevsky, 2016
Egypt	Alfieri, 1916; Löbl & Smetana, 2010; Özdikmen, 2014, 2016; Danilevsky, 2016
Greece (Lesbos Island)	Drumont & Dauber, 2011
Greece (Rhodes Island)	Wełnicki & Przewoźny, 2007; Özdikmen & Turgut, 2009; Löbl & Smetana, 2010; Özdikmen, 2014, 2016; Danilevsky, 2016
Greece (Samos Island)	Wełnicki & Przewoźny, 2007; Özdikmen & Turgut, 2009; Löbl & Smetana, 2010; Özdikmen, 2014, 2016; Danilevsky, 2016

Lebanon	Chevrolat, 1854; Sama & Rapuzzi, 2000; Özdikmen & Turgut, 2009; Löbl & Smetana, 2010; Özdikmen, 2014, 2016; Hoskovec et al., 2016; Danilevsky, 2016
Syria	Rejzek et al., 2003; Jeniš, 2008; Özdikmen & Turgut, 2009; Löbl & Smetana, 2010; Özdikmen, 2014, 2016; Hoskovec et al., 2016; Danilevsky, 2016
Turkey	Pic, 1897, 1900; Lameere, 1904; Demelt, 1963; Öymen, 1987; Svacha & Danilevsky, 1987; Adlbauer, 1988; Lodos, 1998; Sama & Rapuzzi, 2000; Jeniš, 2001; Özdikmen & Çağlar, 2004; Özdikmen, 2006; Özdikmen & Demir, 2006; Özdikmen & Turgut, 2009; Turgut & Özdikmen, 2010; Löbl & Smetana, 2010; Atay et al., 2012; Cihan et al., 2013; Özdikmen, 2014, 2016; Hoskovec et al., 2016; Danilevsky, 2016



Figure 1. Distribution of *Callergates gaillardoti* in provinces of Turkey, Eastern Mediterranean basin, and other countries.