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# Further findings of the rare *Agapanthia* (*Synthapsia*) *kirbyi* (Gyllenhal, 1817) (Coleoptera: Cerambycidae: Lamiinae) in central-southern Apennines

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New records of the rare longhorn beetle *Agapanthia* (*Synthapsia*) *kirbyi* (Gyllenhal, 1817) are reported from the Matese Massif (central-southern Apennines, Italy). These findings confirm the species' persistence in the Italian fauna and extend its known distribution within the Apennine range.

*A. kirbyi* is a Cerambycidae beetle typically classified among xylophagous taxa associated with dead wood or woody plants. However, it constitutes a significant exception, as its ecology is entirely linked to herbaceous plants, with a life cycle tightly associated with *Verbascum* spp. (Scrophulariaceae) (Miroğlu *et al*., 2019; Rapuzzi & Parisi, 2022). This ecological specificity makes it a subject of interest in ecological, biogeographical, and conservation contexts.

The species' life cycle is closely aligned with the phenology of its host plant. After hatching, the larvae penetrate the stem of *Verbascum* spp. (Scrophulariaceae), feeding on internal tissues. Before pupation, the larvae move down into the root and sever the stem near the soil surface by creating a ring, sealing the central stem channel with a plug of frass. Feeding ends in the fall, and the species overwinters as mature larvae or pupae. Adults emerge from late spring to early summer, depending on altitude and local climate. Adults are active for a brief period and are typically observed occurring on the foliar surface or at the basal part of the leaf, adjacent to the main stem. The species is univoltine, with a single generation per year (Miroğlu *et al*., 2019; Sama, 2008).

Ecologically, *A. kirbyi* occupies a distinct niche: open, warm, and well-exposed habitats, often on dry or rocky soils with patchy herbaceous cover. These environments include arid mountain slopes, secondary pastures, rocky outcrops, forest edges, clearings, trail margins, embankments, and ruderal grasslands. The most favourable areas are those where *Verbascum* grows in medium to high densities and is not subjected to frequent mechanical disturbances, such as intensive grazing or mowing (Rapuzzi & Parisi, 2022; Sama, 2008).

In Italy, *A. kirbyi* has long been considered rare and highly localized (Rapuzzi & Parisi, 2022). Early records by Luigioni (1927, 1929) reported its presence in Lazio (Bracciano and Riano). Later, Sama (1988) documented the species in Campania (Piano Laceno, Monti Picentini), and in a later

synthesis (Sama, 2006), he suggested a possible presence in Calabria, though without further detail. For decades afterward, the species went unobserved, raising concerns about its continued existence in Italy. This situation changed with recent surveys conducted between 2019 and 2021, which confirmed the current presence of *A. kirbyi* in the Matese Massif, located between Campania and Molise (Rapuzzi & Parisi, 2022). Eleven specimens were recorded at six localities on both slopes of the massif, between 940 and 1800 m a.s.l., all found on *Verbascum pulverulentum* Vill., one of the species' main host plants. The Matese Massif is emerging as an area of significant biogeographical and conservation importance. Its temperate oceanic sub-Mediterranean climate, high annual rainfall (over 1600 mm), lack of prolonged summer droughts, and diverse habitats—from montane beech forests to herbaceous clearings—support numerous relictual, endemic, and specialized species (Parisi et al., 2020; Rapuzzi & Parisi, 2022).

This contribution presents additional records of *A. kirby* from the Matese Massif, further expanding the known distribution in the central-southern Apennines.

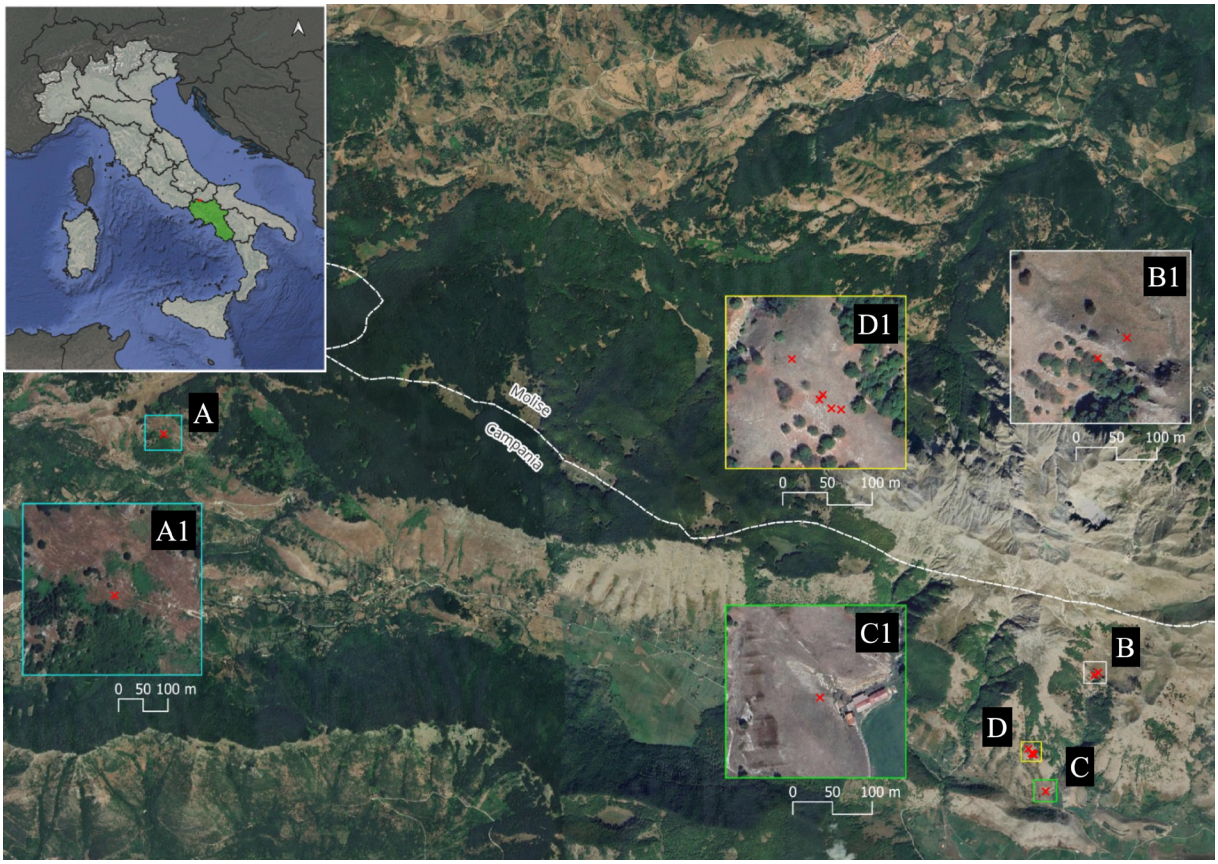


**Figure 1.** New findings of *Agapanthia kirbyi* in the central-southern Apennines (Matese Massif). (A-A1) Campo Figliolo locality. (B-B1) Campo dell'Arco locality. (C-C1, D-D1) Schiena d'Asino locality.

Family: Cerambycidae

***Agapanthia kirbyi* (Gyllenhal, 1817)**

**Material *from the central-southern Apennines*.** Rapuzzi & Parisi (2022) reported: 1 specimen in September 2019; 4 specimens in May 2020, and five specimens in May 2021 for the Matese Massif.
**New records.** 29 May 2021 – Letino (CE), Campo Figliolo (14°15'55.25"E; 41°27'55.66"N, 1175 m), two specimens on *Verbascum pulverulentum* Vill. 9 June 2024 (Legit P. Buonpane) – San Gregorio Matese (CE), Loc. Schiena d'Asino (14°21'59.41"E; 41°25'55.78"N, 1240 m), 1 specimen on *V. pulverulentum* Vill. 9 June 2024 (Legit P. Buonpane) – San Gregorio Matese (CE), Loc. Schiena d'Asino (14°21'58.57"E; 41°25'56.36"N, 1246 m), 1 specimen on *V. pulverulentum* Vill. 9 June 2024 (Legit P. Buonpane) – San Gregorio Matese (CE), Loc. Schiena d'Asino (14°21'57.17"E; 41°25'57.73"N, 1256

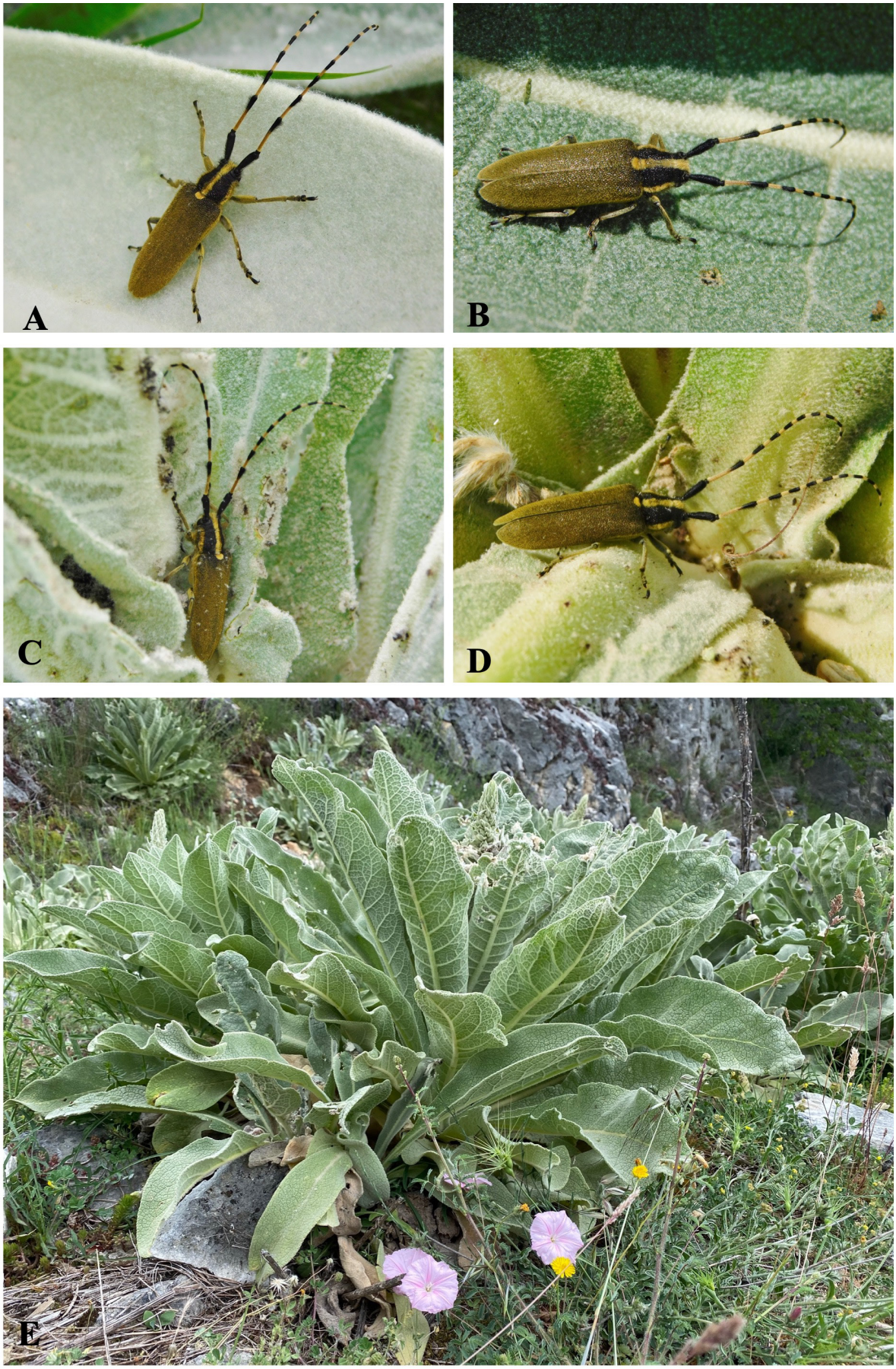


**Figure 2.** Recently collected adult specimens of *Agapanthia kirbyi* in the Matese Massif (A, B, C, D). Photos by P. Buonpane. Host plant: *Verbascum pulverulentum* (E). Photo by F. Parisi.

m), 1 specimen on *V. pulverulentum* Vill. 9 June 2024 (Legit P. Buonpane) – San Gregorio Matese (CE), Loc. Schiena d'Asino (14°21'58.39"E; 41°25'56.19"N, 1243 m), 1 specimen on *V. pulverulentum* Vill. 9 June 2024 (Legit P. Buonpane) – San Gregorio Matese (CE), Campo dell'Arco (14°22'27.08"E; 41°26'20.53"N, 1532 m), 1 specimen on *V. mallophorum* Boiss. & Heldr. 9 June 2024 (Legit P. Buonpane) – San Gregorio Matese (CE), Campo dell'Arco (14°22'28.70"E; 41°26'21.09"N, 1532 m), 1 specimen on *V. mallophorum* Boiss. & Heldr. 1 June 2025 (Legit P. Buonpane) – Loc. Schiena d'Asino (14°21'58.95"E; 41°25'55.84"N, 1243 m), 1 individual on *V. pulverulentum* Vill. 1 June 2025 (Legit P. Buonpane) – Loc. Schiena d'Asino (14°22'1.52"E; 41°25'43.61"N, 1110 m), 1 specimen on *V. pulverulentum* Vill. (Figure 1).

**Distribution.** *A. kirbyi* was described by Gyllenhal (1817) from Portugal. The species is distributed across much of western Eurasia: from southern and central Europe (Portugal, Spain, France, Italy, the Balkans, Hungary) to Asia Minor, Middle East, Caucasus, Iran, and Central Asia (Kazakhstan, Turkmenistan). Within this broad range, populations show notable morphological and chromatic variations, leading some authors to recognize three main subspecies, each with distinct geographic affinities. The nominal form, *A. kirbyi* s. str., occurs from the Iberian Peninsula to the Carpathians, including Italy and reaches in the eastern area West Sibiria and Kazakhstan; *A. kirbyi zawadskyi* Fairmaire, 1866 is found mainly in the Balkans and western Anatolia; and *A. kirbyi samai* Rapuzzi & Parisi, 2022, inhabits eastern regions such as Iran, Armenia, Azerbaijan, Turkmenistan and eastern Turkey, displaying consistent morphological differences (Rapuzzi & Parisi, 2022).

*Agapanthia kirbyi* may serve as an "indicator species" for stable, mature, and low-disturbance secondary herbaceous environments. Its close trophic link to *Verbascum* makes it vulnerable to both land abandonment (leading to forest succession) and intensified agriculture. Monitoring this species can thus offer valuable insight into the ecological integrity of open mountain habitats, especially in areas of the central-southern Apennines where secondary grasslands are undergoing rapid succession toward more closed, biodiversity-poor stages (Parisi *et al*., 2020; Rapuzzi & Parisi, 2022) (Figure 2).

This species is rare and localized, yet widely distributed in fragmented habitats across the western Palaearctic. In Italy, its presence had long been overlooked and has only recently been re-confirmed through focused fieldwork. Its specialized ecology and sensitivity to habitat change make it a key species for ecological and conservation research.

In conclusion, the confirmed persistence of *A. kirbyi* underlines the ecological value of certain open herbaceous habitats in the Apennines. Although these landscapes may seem "ordinary," they are crucial refuges for rare and neglected entomofauna. The findings presented here not only confirm the species' survival in Italy but also stress the importance of conserving semi-natural mountain grasslands.

## Acknowledgments

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