

Discovery of *Amegilla (Asaropoda) albiceps* bee reinforces the Mt piper/Broadford region as a distinct invertebrate hotspot and its importance for conservation

Threatened Species Conservancy

Figure 1. A group of *Amegilla albiceps* roosting together.

The Mt Piper/Broadford region is a key site for insect conservation in Victoria. It is home to Australia's only listed threatened Lepidoptera community, known as 'Butterfly Community No.1.' (Jelinek 2003). This unique ecological community is the sole site in Victoria where the large ant-blue butterfly (*Acrodipsas brisbanensis*) and small ant-blue butterfly (*Acrodipsas myrmecophila*) are documented to co-occur; it also has 41 recorded butterfly species and hosts a significant population of the golden sun moth (*Synemon plana*) (Mata & Smith 2021).

In January 2022, the Threatened Species Conservancy, a non-profit organisation dedicated to preventing the extinction of Australia's less-iconic biota, undertook surveys to understand the current distribution of the *Acrodipsas brisbanensis* and *Acrodipsas myrmecophila*. We targeted our efforts on locating coconut ant (*Papyrius* sp.) nests, which *Acrodipsas myrmecophila* and potentially *Acrodipsas brisbanensis* share symbiotic host-ant relationships with. We identified three prominent *Papyrius* sp. nest sites within the region. At one of these sites, our local

entomologist made the exciting discovery of hatched *Acrodipsas* sp. egg clutches which is suspected to be *Acrodipsas myrmecophila* due to the clustered egg deposition (Boehm et al. 2022).

During subsequent surveys at this *Acrodipsas* sp. breeding site in early 2023, our team made an incidental yet intriguing discovery — the compelling *Amegilla (Asaropoda) albiceps* bee. After our dedicated volunteer posted the bee photo on an online Australian native bee community forum, we were notified that the discovery was quite significant, and the record was outside its currently known distribution. Furthermore, our volunteer photographed the bees extensively and captured shots of both male and female specimens, including videos of the females burrowing in a bare earth patch directly underneath a mistletoe. With much around this species breeding biology unknown, these female observations provided rare insights into its lifecycle and ecology. It also provides an opportunity to investigate its taxonomy and the *Amegilla* genus' intricate relationship with mistletoes (*Amyema* sp.). But beyond the findings of



Figure 2. *Amegilla albiceps* roosting together.

this individual species' significance, we believe it accentuates the broader ecological importance of the Mt Piper/ Broadford Region as a biodiversity hotspot for insects.

Despite insects constituting over 80% of animals on Earth and playing integral ecosystem roles, their recognition in conservation efforts is disproportionately low. Identifying and highlighting invertebrate hotspots provides crucial leverage to acknowledge insects within conservation frameworks and decision making. Every subsequent noteworthy discovery, like those discussed here, enhances our capacity to advocate for and recognise the urgent need to include insects

within conservation efforts at a significantly higher rate than is currently undertaken. Through fostering upcoming entomologists, volunteers and community members, TSC hopes to continue to document and advocate for invertebrate hotspots so we can make informed conservation decisions to conserve ecosystem resilience for future generations.

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References:

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Figure 3. An *Amegilla albiceps* individual roosting on some grasses.