## SCIENTIFIC NOTE

# PLANT HOSTS AND POTENTIAL LARVAL FOOD OF *EUNATALIS NINAE* GERSTMEIER AND SEITNER (CLERIDAE: CLERINAE).

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**Summary**

*Eunatalis ninae* Gerstmeier and Seinter is recorded from a range of plant hosts and associated with a number of potential insect prey species emerging from the same plant material. *Eunatalis ninae* was reared from species of *Eucalyptus*, *Angophora*, *Acacia*, *Casuarina* and *Eleaocarpus* from southern Sydney. Timber boring species that co-existed with *E. ninae* include several species of Cerambycidae, Curculionidae and Buprestidae. While *E. ninae* cannot be confirmed as predators of these species, their co-emergence suggests a predator-prey association.

Keywords*: Eunatalis ninae*, Cleridae.

## INTRODUCTION

Recently, the genus *Eunatalis* was revised by Gerstmeier and Seitner (2013) who described several new species including *E. ninae* from eastern Australia (Townsville in Qld to Adelaide in SA). They listed several specimens with host data (either plant or insect) including three records of emergence from *Acacia longifolia* (Andr.) Willd. and two records of predation on woodboring insects, *Ancita marginicollis* (Boisduval) and a species of *Melobasis* (Buprestidae). Both *Ancita* and *Melobasis* are common timber borers of *A. longifolia* (Froggatt 1907, Gurney 1910, Van den Berg 1982, Webb 1987, Webb 1997). For other species of *Eunatalis*, Gerstmeier and Seitmer (2013) listed label data suggesting associations with *Bursaria*, *Acacia* and *Eucalyptus*, and more detailed reference to *E. planipennis* (Blackburn) in the tunnels of *Phoracantha mastersi* (Pascoe) and *Coptorcercus aberrans* Newman (both Cerambycidae). Additionally, there are many references to species of *Eunatalis* being found under the bark of eucalypt and wattle trees.

The recent review of *Eunatalis* makes it difficult to validate some of the previous records in the historical literature. Many specimens with prior species determinations on their labels cited by Gerstmeier and Seitmer (2013) now reside under different species as a result of their review. Nevertheless, they remain useful for the genus as a whole. *Eunatalis* larvae are known predators of timber borers, predominantly Cerambycidae (Coleoptera), and commonly are found occupying their excavated chambers or under the bark of eucalypts and wattles (Bashford 1994, Bashford 2004,Gerstmeier and Seitner 2013, McKeown 1944). Froggatt (1907) suggested that *Eunatalis porcata* (F.) was probably "parasitic" on *Phoracantha* spp.. Bashford (1994) recorded *E. porcatus* as predators of *Epithora dorsalis* Macleay from *Eucalyptus obliqua* L'Herit in Tasmania. Also, Bashford (2004) reared *E. porcatus* from many Tasmanian *Eucalyptus* spp., coincident with the emergence of species of Cerambycidae and Curculionidae.

Other species of clerids have been reared from timber but not associated with any specific larval host (Bashford 1991, Webb 1990, Webb 1994). However, Froggatt (1916) described the life history of *Trogodendron fasciculatum* Schreibers in some detail, as a predator of *Phoracantha recurva* Newman. Hawkeswood (1991) reared *Tarsostenus univittatus* (Rossi) from *Acacia bidwillii* Benth., from which *Chlorophorus curtisi* (Laport and Gory) (Cerambycidae) also emerged. In his review of the Tarsosteninae, Opitz (2016) noted several instances where members of this tribe were predatory on wood boring beetles, primarily Lyctidae and Bostrychidae.

During the process of collecting and storing infested timber to rear timber-boring Coleoptera, the occasional *E. ninae* has emerged. Timber samples were maintained in plastic tubs under semi-controlled conditions within the garage of a suburban house in Sydney (Australia).

## RESULTS AND DISCUSSION

Gerstmeier and Seitner (2013) listed a number of records of *Eunatalis* spp. associated with either plant hosts and/or potential insect prey (Table 1). *Acacia* and *Eucalyptus* appear to be the most common host plants. The two more specific records (both from Queensland) associate *E. planipennis* with the cerambycid species *Coptocercus aberrans* and

*Tryphocaria mastersi* (both Cerambycidae: Cerambycinae: Phoracanthini). In this study, several specimens of *E. natalis* emerged from stored timber and some can be linked with potential prey species (Table 2).

It is not possible to confirm *E. natalis* as a predator with specific timber borers unless there is clear evidence of clerid larvae ingesting larvae or pupae of these species. However, it is highly likely that there is a direct link where they emerge from the same timber material, and particularly in isolation with only one potential prey species. This was the case with three records, *Bethelium* sp. (Cerambycidae: Lamiinae), *Atesta antennale* (Carter) (Cerambycidae: Cerambycinae) and a small (as yet) undetermined buprestid species. In the remaining cases, multiple potential insect prey were reared from the stored timber. All were Cerambycidae, except for *Orthorhinus cylindirostris* (F.) (Curculionidae).

*Eunalatis natalis,* along with other species of *Eunatalis,* appear to be polyphagous and are probably generalist predators of other insects that inhabit timber, particularly in their larval and pupal stages.

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**Table 1: Records of *Eunatalis* spp. and associated plant hosts or potential larval food (from Gerstmeier and Seitner 2013)**

| ***Eunatalis* species** | **State** | **Location** | **Host plant** | **Associated insects** | **Label Comments** | **Collection** |
|---|---|---|---|---|---|---|
| *E. ninae* | NSW | Redhead ("SE of Teree") (presumably Taree) | *Acacia longifolia* | None recorded | branch collected dead in woodland—littoral rainf. interface; predated on small Melobasis buprestids in captivity | ANIC |
| *E. ninae* | NSW | Redhead ("SE of Teree") (presumably Taree) | *Acacia* sp. | None recorded | emerged, 29–31 Dec. 1983, G. Williams, Acacia branch | ANIC |
| *E. ninae* | NSW | Wolli Creek, Earlwood | *Acacia longifolia* | None recorded | emerged 10.II.85, S. Watkins; reared from Acacia longifolia bin.no. 23 (ANIC). | ANIC |
| *E. plannipennis* | Vic | Shepparton | *Eucalyptus grandis* | None recorded | E. grandis (tall) Jan 1995, Emerged Oct 1995 | ANIC |
| *E. plannipennis* | Qld | Braemer State Forest | *Eucalyptus maculatus* | *Coptocercus aberrans* | 5 Oct. 1994, F.R. Wylie, F.J. King, M. DeBaar; present in Coptocercus aberrans hole | QDPC |
| *E. plannipennis* | Qld | Braemer State Forest | *Eucalyptus maculatus* | *Tryphocaria mastersi* | emerg. 24 July 1990, F.R. Wylie, M. DeBaar, Accn.No. 6535-8; ex tunnels, Tryphocaria mastersi, ex trunk, standing Euc. maculata; O-166590 | QDPC |
| *E. fasciata* | WA | Goomalling | *Acacia acuminata* | None recorded | 5 25.IV.79, R.P. McMillan; out from tunnel in Acacia acuminata. | WAMP |
| *E. lugubris* | Qld | Jericho | *Bursaria incana* | None recorded | 77 km. S of Jericho, Qld. T.M. Hanlon, ex. Bursaria incana, K 324504 (AM). | AM |
| *E. lugubris* | WA | McDermid Rock | *Acacia lasiocalyx* | None recorded | 20.x.2001, S. Bily leg.; ex. l. XII.2002, Acacia lasiocalyx (JRCP). | JRCP |
| ANIC (Australian National Insect Collection, CSIRO, Canberra; QDPC (Queensland Primary Industries Insect Collection, Brisbane); WAMP (Western Australian Museum, Perth), Jiri Kolcik Collection, Czech Republic). | | | | | | |

**Table 2. Records of *E. natalis* emerging from stored timber and associated timber-boring species in this study**

| Location | Plant species | Plant Material Collected | Emerged | Associated species | Emergence Date (No. specimens) | Comments |
|---|---|---|---|---|---|---|
| NSW, Wanda | *Casuarina glauca* | 5 Feb. 2019 | 21 Dec. 2019 | *Bethelium* sp. (Cerambycidae) | 10 Dec. 2019 (1)<br>18 Dec. 2019 (1) | Cut live from cerambycid pupal cell. |
| NSW, Woolooware | *Acacia longifolia* | 25 Nov. 2018 | 19 Feb. 2019 | None | | Emerged |
| NSW, Wanda | *Acacia longifolia* | 5 May 2019 | 5 Jan. 2020 | *Piesarthrius marginellus* (Cerambycidae) | 10 Dec. 2019 (1) | Emerged |
| | | | | *Neissa sp.* (Cerambycidae) | 21 Dec. 2019 (1)<br>5 Jan. 2020 (1)<br>4 Feb. 2020 (1) | Emerged |
| NSW, Royal National Park, Wattamolla | *Eucalyptus camfieldii* | 15 Sep. 2020 | 5 Jan. 2021 | *Proagapete sp.* (Cerambycidae) | 19 Sep. 2020 (1)<br>4 Feb. 2021 (1)<br>11 Mar. 2021 (1)<br>16 Mar. 2021 (1)<br>2 Apr. 2021 (6) | Emerged |
| | | | | *Scolecobrotus westwoodii* (Cerambycidae) | 16 Mar. 21 (2)<br>2 Apr. 2021 (1) | Emerged |
| NSW, Bonnet Bay | *Eleaocarpus reticulatus* | 16 Jan. 2020 | 23 Dec. 2020 | *Uracanthis acutus* (Cerambycidae) | 25 Nov. 2020 (1) | Emerged |
| | | | | *Orthorhinus sp.* (Curculionidae) | 25 Oct. 2020 (2)<br>3 Nov. 2020 (1) | Emerged |
| NSW, Barden Ridge | *Angophora costata* | 14 Jun. 2020 | 4 Jan. 2021 | *Atesta antennale* (Cerambycidae) | 12-19 Nov. 2020 (5)<br>2 Dec. 2020 (1)<br>1 Feb. 2021 (1) | Emerged |
| NSW, Royal National Park, Little Marley Firetrail | *Angophora hispida* | 29 Jul. 2020 | 27 Nov. 2020 | Undetermined small Buprestid sp. (Buprestidae) | 13 Dec. 2020 (1) | Emerged |