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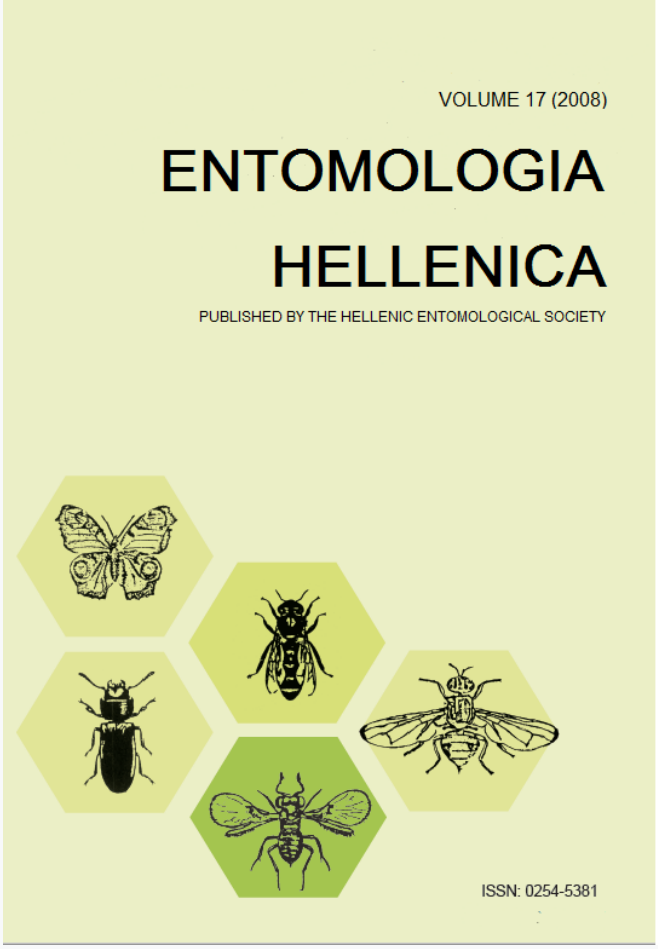

First record of Acanthoscelides macrophthalmus (Schaeffer) (Coleoptera: Bruchidae) in Cyprus

V. A. Vassiliou, G. Papadoulis

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SHORT COMMUNICATION

First record of *Acanthoscelides macrophthalmus* (Schaeffer) (Coleoptera: Bruchidae) in Cyprus

V. A. VASSILIOU[1,*] AND G. PAPADOULIS[2]

[1]*Agricultural Research Institute, Plant Protection Section, P.O.Box 22016, 1516 Nicosia, Cyprus*
[2]*Agricultural University of Athens, Laboratory of Agricultural Zoology and Entomology, 75 Iera Odos, 11855 Athens, Greece*

A bruchid beetle was emerged from the seeds of *Leucaena leucocephala* (syn. *Leucaena glauca* Benth., Family Mimosaceae). This endophagous seed predator was identified as *Acanthoscelides macrophthalmus* (Schaeffer) (Coleoptera: Bruchidae). Seed specimens were collected from *L. leucocephala* at the Nicosia district (35° 11'N., 33° 23'E). The identification took place at the Agricultural University of Athens where specimens are stored. The insect was identified by morphological traits according to methods described by Kingsolver (2004). Body length is 2.9-3.8mm and width 1.8-2.0mm. Adults fly readily when disturbed. The integument color is red, occasionally with diffuse piceous marginal shading on elytra (Fig. 1). Vestiture is of fine dark brown, gray, and golden setae in pattern. Head and pronotum are golden with little or no pattern (Fig. 1). The length of the elytra is slightly longer than the width of the two elytra together. Eggs are laid either on the *Leucaena* pod surface, over a seed, or directly on exposed seeds (Walton 2003). They are less than 1mm in length. The larva hatches and chews into the seed. In the seed, larva passes through all its molts until the adult bruchid emerges. The characteristic circular escape hole can be seen in pods that have matured and dried out (Walton 2003). According to international literature this bruchid beetle appears to be a seed predator native to Central and South America (Neser 1994). It feeds on seeds of Neotropical *Leucaena*

FIG. 1. Dorsal and lateral view of *A. macrophthalmus.*

**Corresponding author, e-mail: vassilis@arinet.ari.gov.cy*

(Fabaceae: Mimosoideae) and one of its hosts is *Leucaena leucocephala*, a fast-growing nitrogen-fixing tree that serves as a multi-purpose beneficial plant. Research was carried out in several countries in order to use this bruchid species as a biological control agent in controlling *Leucaena´*s seeds. *A. macrophthalmus* appears to be very effective in reducing *Leucaena´*s seed numbers in laboratory environment. It is recorded that 95% or more of seed may be infested (Walton 2003), but under field conditions this effectiveness may vary. Research in Australia showed that the bruchid is not able to regulate the invasiveness of *Leucaena* and this is because the population densities of the insect in relation with the seed numbers on each plant are proportionally unequal. *Leucaena´*s seed predator, *A. macrophthalmus*, satisfies the criteria as a control agent in Asia. This seed beetle has already been introduced to South Africa for the control of *L. leucocephala* (ARC-PPRI 2003, Olckers 2004).

L. leucocephala is a thornless long-lived shrub or tree which may grow to heights of 7-18m (Fig 2). Leaves are bipinnate with 6-8 pairs of pinnae bearing 11-23 pairs of leaflets 8-16mm long. The inflorescence is a cream coloured globular shape which produces a cluster of flat pods 13-18mm long containing 15-30 seeds. The plant is known for its drought tolerance. Seed remain viable from several months to several years. The hard waxy seed coat makes scarification necessary before planting.

Leucaena is a widely used species as a valuable fodder shrub for increased animal production in the tropics (Khamseekhiew et al. 2001). It is an ever green forage rich in protein, minerals and *B*-carotene. The plant can also be grazed directly, is well accepted by livestock, particularly goats and is quite resistant to heavy, frequent defoliation (Meissner 1997). The crop can be cut at mature stage for silage or fodder. On the other hand, *L. leucocephala* is a “conflict tree” being widely promoted for tropical forage production and reforestation. At the same time, it is spreading naturally and is widely reported as a weed. This species has been nominated as among 100 of the "World's Worst" invaders (Lowe et al. 2000)

FIG. 2. Characteristic flat pods of the shrub *L. leucocephala*.

and has been reported as a weed in more than 20 countries across all continents except Europe (only in Madeira is reported) and Antarctica. In Japan, *L. leucocephala*, initially introduced as a beneficial tree in the 19th century, escaped from cultivation by seed dispersal and has become weedy in tropical regions of Japan and other areas (Smith 1985, Henderson 2001).

In Cyprus, there are records that *Leucaena* was introduced into the island about 25 years ago as a valuable fodder plant and that this plant species was extensively cultivated in many areas, such as Limassol, Protaras (Famagusta district), Potami and Anayia (Nicosia district), and other areas in order to be given as fodder shrub to horses (Tsindides et al. 2002). After few years of intensive feeding by horses it was found that the last were suffering from hair loss, attributing this to poisonous substances

contained in *Leucaena* foliage and affecting horses´ health, in general. After this incidence, its cultivation was discontinued. Nowadays *L. leucocephala* can be found individually in an altitude of 0 to 500m in agricultural areas, coastland, natural and planted forests, and in urban areas (across roads, pavements, parks etc).

To our knowledge this is the first report of the insect *A. macrophthalmus* in Cyprus.

References

[ARC-PPRI] Agricultural Research Council-Plant Protection Research Institute. 2003. Releases of Biological Control Agents against Weeds in South Africa. http://155.240.199.39/institutes/ppri/main/divisions/weedsdiv/releases.htm.

Henderson, L. 2001. Alien weeds and invasive plants. Plant Protection Research Institute, Agricultural Research Council, Cape Town, South Africa. Vol. 12.

Khamseekhiew, B., J.B. Liang, C.C. Wong and Z.A. Jalan. 2001. Ruminal and intestinal digestibility of some tropical legume forages. Asian-Austr. J. Anim. Sci. 14: 321-325.

Kingsolver, M.J. 2004. Handbook of the Bruchidae of the United States and Canada (Insecta, Coleoptera). 1: 122-123.

Lowe, S., M. Browne, S. Boudjelas and M. De Poorter. 2000. 100 of the World's Worst Invasive Alien Species. A selection from the Global Invasive Species Database. Published by The Invasive Species Specialist Group (ISSG) a specialist group of the Species Survival Commission (SSC) of the World Conservation Union (IUCN), 12pp.

Meissner, H.H. .1997. Recent research on forage utilization by ruminant livestock in South Africa. Anim. Feed Sci. Tech. 69: 103-119.

Neser, S. 1994. "Conflicts of interest? The *Leucaena* controversy". Plant Protection News South Africa, vol. 6, p8.

Olckers, T. 2004. Targeting emerging weeds for biological control in South Africa: the benefit of halting the spread of alien plants at an early stage of their invasion. S. Afr. J. Sci. 100: 64–68.

Smith, A.C. 1985. Flora Vitiensis nova: a new flora of Fiji. National Tropical Botanical Garden, Lawai, Kauai, Hawaii. 3:758 pp.

Tsindides, Ch.T., N.G. Hadjikiriakou and S.Ch. Christodoulou. 2002. Trees and Shrubs of Cyprus. Leventi Foundation, Nicosia, Cyprus, 442 pp.

Walton, C.S. (2003) *Leucaena leucocephala* in Queensland. http://www.dpi.qld.gov.au/documents/Biosecurity_EnvironmentalPests/IPA-Leucaena-PSA.pdf

Πρώτη αναφορά του εντόμου *Acanthoscelides macrophthalmus* (Schaeffer) (Coleoptera: Bruchidae) στην Κύπρο

Β.Α. ΒΑΣΙΛΕΙΟΥ[1] ΚΑΙ Γ. ΠΑΠΑΔΟΥΛΗΣ[2]

[1] *Ινστιτούτο Γεωργικών Ερευνών, Τμήμα Φυτοπροστασίας, 1516 Λευκωσία, Κύπρος*
[2] *Γεωπονικό Πανεπιστήμιο Αθηνών, Εργαστήριο Γεωργικής Ζωολογίας και Εντομολογίας, Ιερά οδός 75, 11855 Αθήνα*

Το έντομο *Acanthoscelides macrophthalmus* (Schaeffer) (Coleoptera: Bruchidae) βρέθηκε για πρώτη φορά στην Κύπρο τον Οκτώβριο του 2007, μέσα σε σπόρους του είδους *Leucaena leucocephala* (Fabaceae: Mimosoideae). Το *A. macrophthalmus* έχει μήκος 2.9-3.8mm και πλάτος 1.8-2.0mm. Το αυγό έχει χρώμα λευκό ή ωχρό κίτρινο και μέγεθος μικρότερο από 1mm. Το θηλυκό ωοτοκεί κυρίως πάνω στο λοβό και τους σπόρους. Η προνύμφη έχει χρώμα λευκό, τρέφεται, αναπτύσσεται και νυμφώνεται στο εσωτερικό του σπόρου. Ακολούθως, το νεαρό ενήλικο ανοίγει κυκλική οπή εξόδου στον σπόρο. Στη διεθνή βιβλιογραφία το έντομο αναφέρεται ως μονοφάγο και τρέφεται μόνο στο είδος *L. leucocephala*. Σε μερικές χώρες το *A. macrophthalmus* χρησιμοποιείται για βιολογικό έλεγχο των σπόρων του φυτού αυτού, αφού το *L. leucocephala* κατατάσσεται σε πολλές χώρες, μέσα στα 100 πιο επικίνδυνα φυτά-εισβολείς. Στην Κύπρο, το έντομο φαίνεται να εισήχθη στο νησί πριν από 25 χρόνια περίπου, μαζί με τον ξενιστή του. Το φυτό αυτό εισήχθη και καλλιεργήθηκε στο νησί για την ψηλή θρεπτική του αξία και δινόταν ως προσθετικό στην τροφή των αλόγων.