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## Revisions of the Cholevinae (the small carrion beetles) of Australia. 1. The genus *Nargiotes* Jeannel, 1936 (Coleoptera, Leiodidae) \*\*\* \*\*\*\*

### ABSTRACT

The beetle genus *Nargiotes* Jeannel, 1936, is endemic to moist and forested habitats in eastern Australia. The genus is a part of the ancient and south-temperate "Gondwanaland" fauna of Australia. Three species were previously described. This revision describes additional 17 new species. All species are placed in 9 species groups as follows: The *N. leptocerus* group: *N. leptocerus* Szymczakowski, 1973, *N. beatricis* n. sp., and *N. nothofagi* n. sp.. The *N. athertoni* group: *N. athertoni* n. sp.. The *N. lawrencei* group: *N. lawrencei* n. sp.. The *N. queenslandicum* group: *N. queenslandicum* n. sp.. The *N. victoriensis* group: *N. victoriensis* n. sp., *N. newtoni* n. sp., and *N. thayeri* n. sp.. The *N. monteithi* group: *N. monteithi* n. sp. and *N. thompsoni* n. sp.. The *N. procerus* group: *N. procerus* Zwick, 1970 and *N. szymczakowskii* n. sp.. The *N. blackburni* group: *N. zwicki* n. sp., *N. blackburni* (Blackburn, 1891), and *N. tasmanianum* n. sp.. The *N. gordonii* group: *N. bawbawi* n. sp., *N. gordonii* n. sp., *N. annalaurae* n. sp., and *N. montisfusci* n. sp.. The bionomics of each species are summarized.

### INTRODUCTION

The leiodid beetle fauna of Australia contains four subfamilies (Lawrence and Britton 1991, 1994). One of these, the subfamily Cholevinae, contains six tribes globally, but only the tribe Anemadini occurs in the Australian Biogeographic Region. The subtribe Eunemadina, which is predominantly a south-temperate group, contains 16 genera, of which 14 occur in southern and mostly temperate regions of Australia, New Zealand, and Chile and Argentina

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in southern South America. Only three genera in this subtribe have species that have reached equatorial latitudes in the Neotropical and Oriental Regions (Newton 1998, Perreau 2000). The general affinities of the genera of Eunevadina show that they are clearly a natural "Gondwanaland" assemblage, and do not represent a pattern caused by northern extinction and southward range contraction (Newton 1985) but the genera have not been compared in detail. Giachino et al. (1998) offer a reconstruction of the basal phylogeny of the Cholevine, demonstrating the importance and role of Gondwanaland in their biogeographic history.

Cholevine beetles are small in body size, and are usually from 2-4 mm in body length. They are a diverse and abundant component of leaf litter, soil, and rocky-talus habitats in temperate forests. Because they are mostly scavengers on the decay products of dead animal tissues and can often be taken at carrion baits, they can be called the "small carrion beetles".

The richness of the Australian fauna of Cholevinae-Anemadini was only hinted at in the world monograph by Jeannel (1936), and added to by Szymczakowski (1963, 1966, 1971, 1973) and most recently in the work by Zwick (1979). Additional field work by the authors and many others has since revealed an even greater, but unstudied, diversity. This revision of the genus *Nargiotes* is the first in a series of projected studies to document the additional richness of the fauna of the Cholevinae of Australia.

Jeannel (1936) described the genus *Nargiotes*, with the type species being *Choleva antipodum* Blackburn, 1891 (Type locality: Victoria). The second species was described by Szymczakowski (1973) as *Nargiotes leptocerus* of Maijala National Park and Bunya Mountains National Park (Queensland). The last species to be named was by Zwick (1979), as *Nargiotes procerus* from the Blue Mountains (NSW).

The extensive collections and abundant material examined in the present work comes from the collections made personally by the authors in the last three decades of the past century; from the collections made in the same years by Dr. A. F. Newton and Dr. M. K. Thayer, and now deposited at the Field Museum of Natural History, Chicago, Illinois, USA; from extensive research carried out by the staff of the Queensland Museum, Brisbane, Queensland, Australia, especially by Dr. G. B. Monteith; and by the staff of the Division of Entomology, CSIRO, Canberra, ACT, Australia. Additionally, some specimens have come from the New Zealand Arthropod Collection of the DSIR, Division of Entomology, Auckland, New Zealand.

#### MATERIALS AND METHODS

The higher level systematics used in this study is that employed by Lawrence and Britton (1991, 1994) for the Australian Coleoptera.

The specimens used in this study have been collected with many methods.

The most productive of these has been the use of extracting specimens from sifted leaf litter and by the use of flight intercept traps (FIT; also called large area window traps; Peck and Davies 1980), in forested habitats. The use of carrion-baited pitfall traps in forested habitats has produced few specimens of *Nargiotes*, suggesting that they do not feed upon carrion and its decay associates. The baits and traps used to capture Cholevinae have usually been relatively large, but Zwick (1979) has shown that very small traps with baits of only about a centimeter in size attract a separate Cholevine fauna not often found at the larger traps.

Previous studies have had some 40 specimens available for study. Some 2500 specimens of *Nargiotes* have been examined for the present study. We report specimen data as they appear on the labels of the specimens. In many cases these labels bear abbreviations. We have been conservative and not attempted to interpret these abbreviations for fear of introducing misunderstandings about their meanings. The reason for this is that these abbreviations have been made by many collectors from varying national and language backgrounds, and the margin for misinterpretation is high. We have attempted to arrange the lists of material examined in a geographic sequence by listing localities in a north to south sequence. Specimens are deposited in collections identified by the following acronyms.

- AMS: Australian Museum, Sydney, N.S.W., Australia  
 ANIC: Australian National Insect Collection, CSIRO, Canberra, A.C.T., Australia  
 FMNHC: Field Museum of Natural History, Chicago, Illinois, U.S.A.  
 MRSN: Museo Regionale di Scienze Naturali, Turin, Italy  
 NMV: Museum of Victoria, Melbourne, Vic., Australia  
 NZAC: New Zealand Arthropod Collection, Entomology Division, DSIR, Auckland, New Zealand  
 QM: Queensland Museum, Brisbane, Queensland, Australia  
 QVM: Queen Victoria Museum, Launceston, Tas., Australia  
 SAMA: South Australian Museum, Adelaide, S.A., Australia  
 TMH: Tasmanian Museum & Art Gallery, Hobart, Tas., Australia  
 CBu: Burattini Collection, Ivrea (Turin), Italy  
 CCa: Casale Collection, Turin, Italy  
 CGi: Giachino Collection, Turin, Italy  
 CPe: Peck Collection, Ottawa, Canada  
 CVa: Vailati Collection, Brescia, Italy

The following abbreviations for morphological ratios have been used.

- a/l: antennal elongation index = antennal length/(pronotum length + elytral length)  
 pw/l: width/length of pronotum  
 ew/l: width/length of elytra

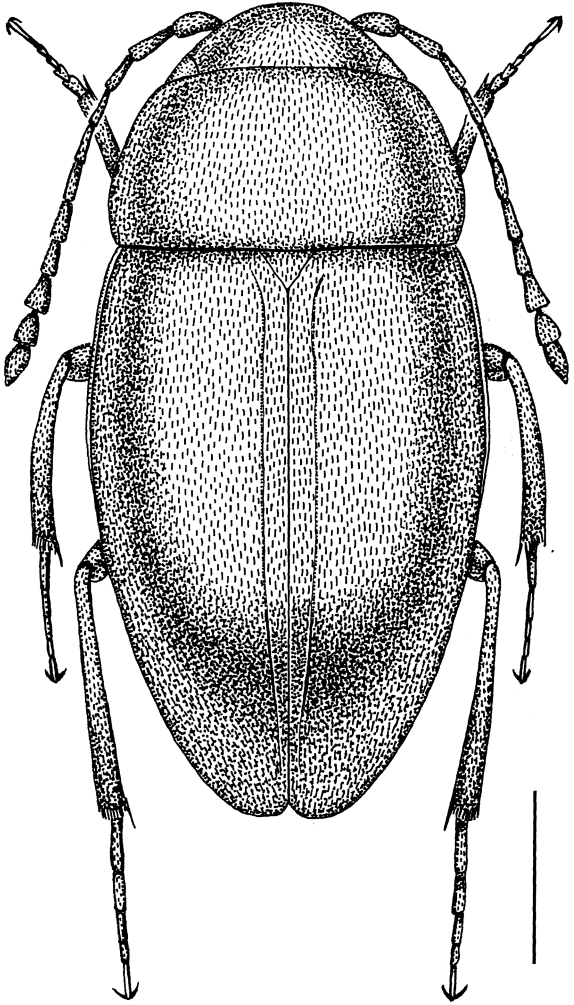


Fig. 1 – *Nargiotes leptocerus*, ♂ from Mt Glorious: habitus. Scale: 0.5 mm.

## Nargiotes Jeannel, 1936

*Nargiotes* Jeannel, 1936: 141

*Nargiotes* Jeannel, 1936: Szymczakowski, 1973: 113

*Nargiotes* Jeannel, 1936: Zwick, 1979: 39

*Nargiotes* Jeannel, 1936: Perreau, 2000: 59

Type species: *Choleva antipodum* Blackburn, 1891

### REDESCRIPTION

Compared to other Cholevinae, this genus includes small to medium-large species (1.98 - 3.52 mm). They are characterized by the microsculpture on the pronotum and elytra, which is not transversely aligned to form striae, but is composed of a sparse and more or less marked punctuation, having the same intensity on both the pronotum and elytra. The body pubescence is short or moderately long and it is recumbent (lying down) or slightly raised.

The head is subquadrate, with well developed eyes and a marked and complete occipital carina; the suture between the frons and epistome has disappeared. The antennae are characterized by an 8<sup>th</sup> antennomere which is never transverse, but is always more or less elongated.

The elytra always show a distinct and complete sutural stria (slightly fading anteriorly only in one species).

The metathoracic wings are always present and well developed.

The legs are robust; protibiae not dilated apically; mesotibiae more or less arcuate; and metatibiae straight. Protarsi simple or with the first 2 tarsomeres dilated in the males; mesotarsi simple or with a tarsomere dilated in the male.

The male genital segment is complete and of a variety of shapes.

The aedeagus has a median lobe, and the parameres are of a remarkably variable shape. The basal blade of the median lobe is complete; ventral blade of the tegmen reduced.

### DISTRIBUTION, HABITATS AND SEASONALITY

The genus is distributed from Tasmania and along the SE and E coast of Australia, through the states of Victoria and New South Wales, and it reaches the north of Queensland south of Cooktown and at the base of the Cape York Peninsula (fig. 84). In mainland Australia all recorded localities are along the mountain chain of the Great Dividing Range, in forest habitats with climatic features varying progressively from cool-temperate in Tasmania in the south to tropical-submontane in central and northern Queensland. The genus does not occur in the moist forests of southwestern Australia, based on extensive collecting there by one of us (SBP). Specimens have generally been collected from 50-870 m in forests in Tasmania and southern Australia, and at progressively higher elevations northwards to northern Queensland (250-1650 m).

Table 1 - Distribution of *Nargiotes* species by species groups from north to south, distribution by state, by elevational range (as minimum and maximum elevation in metres above sea level (a.s.l.), and number of individual adults collected by month, from label data which explicitly contained this information, including data in Szymczakowski 1973 and Zwick 1979.

Species and distribution.	min elev	max elev	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Athertoni group</b>														
athertoni; n Qld	700	1150	0	0	0	3	1	3	98	13	2	16	1	4
<b>Queenslandicum group</b>														
queenslandicum; n Qld	100	1620	0	0	0	3	0	0	0	0	0	29	13	0
<b>Monteithi group</b>														
monteithi; n Qld	1000	1300	20	0	0	0	0	0	0	0	0	0	0	1
thompsoni; n Qld	250	1560	29	3	0	11	0	0	28	0	0	36	5	37
<b>Lawrencei group</b>														
lawrenci; se Qld	1400	1400	0	0	0	0	0	0	0	0	0	16	0	0
<b>Leptocerus group</b>														
beatricis; se Qld	580	1000	10	10	10	3	0	1	11	11	0	25	0	4
leptocerus; ce, se Qld	300	1200	163	186	15	71	0	25	40	90	0	10	0	0
nothofagi; e NSW	200	1300	12	0	0	0	0	0	60	0	0	0	0	1
<b>Procerus group</b>														
szymczakowski; se Qld	630	630	2	31	3	0	0	0	0	0	0	0	0	0
procerus; ec NSW	400	400	18	0	0	0	0	1	7	12	2	1	0	0
<b>Victoriensis group</b>														
victoriensis; s Vic	400	1250	66	2	0	0	1	0	0	0	0	0	0	8
thayeri; s Vic	3	690	0	86	0	0	20	0	0	0	0	0	0	0
newtoni; sw Vic	260	390	0	13	0	0	0	0	0	0	0	0	0	0
<b>Gordoni group</b>														
annalurae; e Vic	820	1040	0	88	0	0	0	0	0	0	0	0	0	0
bawbawi; sc Vic	320	1200	15	19	0	0	6	0	0	0	0	0	0	0
gordoni; w Tas	5	800	700	68	1	0	0	0	0	0	0	0	0	4
montifusci; se NSW	940	1000	0	18	0	0	1	0	0	0	0	0	0	4
<b>Blackburni group</b>														
zwicki; ec NSW, e Vic	10 <sup>36</sup>	940	5	8	0	0	2	0	2	0	0	0	0	2
blackburni; ne Vic	215	500	2	10	0	1	0	0	0	0	0	3	0	0
tasmanianum; n, e Tas	50	890	0	66	16	0	0	0	0	0	0	0	0	0
Monthly totals			1042	608	45	92	31	30	246	126	4	136	19	65

The collections were mostly made by extraction of specimens from leaf litter, and in flight intercept traps (FIT). A significant number of specimens were captured in pitfall traps but label data do not indicate that these were baited traps. There are no data to suggest that the beetles are attracted in large numbers to any particular substance. The food materials of adults and larvae are not known.

Table 1 presents a summary of elevational range and month and abundance of collection of adults. This shows that adults have been collected in all months of the year, with maximum numbers in the summer months of January and February. This partly is a reflection of the summertime activity of most collectors as well as of the beetles. The third highest number is in July, which shows winter activity, but these and other winter collections are mostly from Queensland.

#### PHYLOGENY AND BIOGEOGRAPHY

We think that a detailed cladistic-phylogenetic analysis of all the known species is presently premature. No other genus of *Eunemadina* has been recently revised so that it can be used as a comparative outgroup for the establishment of hypotheses of character transformations. Instead, we have attempted a phylogenetic analysis only for the species groups. Table 2 presents the characters which we have found to be useful in distinguishing the groups. Figure 85 is our preferred cladogram from these data. This has a relatively low resolution because of the prevalence of autapomorphies. The cladogram suggests the presence of two species groups, which we call the "northern" and the "southern" groups. But these are not mutually exclusive groupings, because species of the "southern" *monteithi* group occur in the north in Queensland at high elevations.

The comparatively small geographic ranges of many of the species, and the number of suitable regions which have not been sampled, especially in east-central Queensland, all suggest that more species of *Nargiotes* may remain to be discovered. This prevalence of species to single or adjacent clusters of moist forest regions is especially evident in the disjunct forests of Queensland and New South Wales. The present disjunct nature of eastern Australian rainforests is shown in Figure 86. The speciation pattern probably shows some past isolation and limitation of dispersal activity between these forests or forest clusters. The history of the sequence of the vicariant fragmentation of eastern Australian moist forests from Tertiary to present is probably related to speciation patterns. But no clear cladistic biogeography pattern for *Nargiotes* is apparent to us which would suggest a sequence of ancestral vicariant speciation events.

Table 2 - Character states for phylogenetic analysis of species groups of *Nargiotes*. The outgroup is hypothetical and based on our understanding of generalised character states in Cholevinae. 0 = plesiotypic state; 1 and 2 = apotypic states, unordered. Characters 4, 5, 6, 9, and 10 are autapomorphic and uninformative about relationships.

Characters	1. Antenna	2. Male 1st tarsomere	3. Male mesofemur	4. Parameres membranous internal area	5. Paramere, apical setae	6. Male genitalia	7. Paramere teeth	8. Paramere width	9. Paramere tips	10. Median lobe apex
<b>Species groups</b>										
outgroup	Short, 0	Dilated, 0	Simple, 0	Absent, 0	One, 0	Shorter, 0	Shorter, 0	Narrow, 0	Straight, 0	Normal, 0
lawrencei	Short, 0	Narrow, 1	Simple, 0	Absent, 0	One, 0	Shorter, 0	Absent, 0	Narrow, 0	Straight, 0	Normal, 0
athertoni	Short, 0	Narrow, 1	Simple, 0	Present, 1	One, 0	Shorter, 0	Longer, 1	Absent, 1	Straight, 0	Normal, 0
leptocerus	Short, 0	Narrow, 1	Simple, 0	Absent, 0	One, 0	Longer, 1	Absent, 0	Narrow, 0	Straight, 0	Normal, 0
queenslandicum	Short, 0	Narrow, 1	Simple, 0	Absent, 0	Two, 1	Shorter, 0	Absent, 0	Narrow, 0	Straight, 0	Normal, 0
victoriensis	Long, 1	Dilated, 0	Simple, 0	Absent, 0	One, 0	Shorter, 0	Present, 2	Narrow, 0	Straight, 0	Normal, 0
monteithi	Long, 1	Dilated, 0	Simple, 0	Absent, 0	One, 0	Shorter, 0	Absent, 0	Wider, 2	Straight, 0	Normal, 0
procerus	Long, 1	Dilated, 0	Simple, 0	Absent, 0	One, 0	Shorter, 0	Absent, 0	Narrow, 0	Hooked, 1	Normal, 0
blackburni	Long, 1	Dilated, 0	Dentate, 1	Absent, 0	One, 0	Shorter, 0	Absent, 0	Narrow, 0	Straight, 0	Hooked, 1
gordoni	Long, 1	Dilated, 0	Dentate, 1	Absent, 0	One, 0	Shorter, 0	Absent, 0	Narrow, 0	Straight, 0	Normal, 0

	11. 8 <sup>th</sup> antennomere	12. Median lobe
<b>Species group</b>		
outgroup	Short, 0	Straight, 0
lawrencei	Short, 0	straight, 0
athertoni	Short, 0	upward, 1
leptocerus	Short, 0	downward, 2
queenslandicum	Short, 0	downward, 2
victoriensis	Long, 1	straight, 0
monteithi	Long, 1	straight, 0
procerus	Long, 1	straight, 0
blackburni	Long, 1	straight, 0
gordoni	Long, 1	straight, 0



## KEY TO THE SPECIES GROUPS

1. Antennae short, 8<sup>th</sup> antennomere clearly shorter than the 7<sup>th</sup>; 1<sup>st</sup> mesotarsomere not or only slightly dilated in the male; mesofemur simple, not dentate in the male. Species of medium to small size (1.98 - 2.47 mm). . . . . **2**
- Antennae long, 8<sup>th</sup> antennomere almost as long as the 7<sup>th</sup>; 1<sup>st</sup> mesotarsomere dilated in the male; mesofemur simple or dentate in the male. Species of medium to large size (2.35 - 3.52 mm). . . . . **5**
2. Mesotarsomere not dilated in the male. Apex of the median lobe of the aedeagus bent upwards or downwards, in lateral view. . . . . **3**
- Mesotarsomere slightly dilated in the male. Apex of the median lobe of the aedeagus subrectilinear, not bent upwards in lateral view. . . . . **lawrencei group**
3. Aedeagus with parameres having a distinct internal membranous area. Apex of the median lobe of the aedeagus bent upwards in lateral view. . . . . **athertoni group**
- Aedeagus with parameres without a distinct internal membranous area. Apex of the median lobe of the aedeagus bent downwards in lateral view. . . . . **4**
4. Aedeagus with parameres bearing only one preapical seta. Male genital segment with the tergite longer than the sternites. . . . . **leptocerus group**
- Aedeagus with parameres bearing two preapical setae. Male genital segment with the tergite shorter than the sternites. . . . . **queenslandicum group**
5. Mesofemur simple, not dentate in the male. Median lobe of the aedeagus with a subtriangular apex; clearly bent downwards in lateral view. Parameres with apex denticulate outwards. . . . . **victoriensis group**
- Mesofemur simple or dentate in the male. Median lobe of the aedeagus with an apex of different shape; subrectilinear or clearly hooked upwards in lateral view. Parameres with apex not denticulate outwards. . . . . **6**
6. Mesofemur simple, not dentate in the male. Parameres very developed in width, so to "cover" the median lobe of the aedeagus. . . . . **7**
- Mesofemur dentate in the male. Parameres of a normal width. . . . . **8**
7. Parameres in dorsal view with the apex not hooked inwards. Median lobe of the aedeagus clearly hooked upwards. Male genital segment with the tergite shorter than the pleurites; hind edge of pleurites deeply hollowed ventrally, in correspondence with the ventrite. . . . . **monteithi group**
- Parameres in dorsal view with the apex hooked inwards. Median lobe of the aedeagus not hooked upwards. Male genital segment with the tergite shorter than the pleurites, not hollowed ventrally in correspondence with the ventrite. . . . . **procerus group**
8. Median lobe of the aedeagus, in dorsal view, with the apex more or less abruptly tapered. Apex of the median lobe clearly hooked upwards in lateral view. Male genital segment with pleurites

- having their hind edge deeply hollowed, forming two points of subequal length. . . . . **blackburni group**
- . Median lobe of the aedeagus, in dorsal view, elongated, frail, regularly tapered from base to apex. Apex of the median lobe, in lateral view, stocky, not or only imperceptibly hooked upwards. Male genital segment with pleurites having the hind edge deeply hollowed, forming two points of different length, the inner one shorter. . . . . **gordoni group**

### <<leptocerus group>>

#### DIAGNOSIS

Small-sized species (2.09 - 2.47 mm); with short antennae, 8<sup>th</sup> antennomere clearly shorter than the 7<sup>th</sup>; 1<sup>st</sup> mesotarsomere not dilated in males; male mesofemur simple, not dentate. Median lobe of the aedeagus relatively elongated, with a subtriangular apex; in lateral view apex not directed upwards. Parameres without membranous areas, bearing only one preapical seta. Male genital segment moderately elongated, with the tergite slightly longer than the pleurites, and the hind edge slightly hollowed; pleurites with the hind edge distinctly hollowed in the latero-ventral zone.

The following species belong to this group: *N. leptocerus* Szymczakowski, 1973, *N. beatricis* n. sp., and *N. nothofagi* n. sp.

#### KEY TO SPECIES

1. Median lobe of the aedeagus in dorsal view with a subacuminate apex. . . . . **2**
- . Median lobe of the aedeagus in dorsal view with a rounded apex. . . . . **beatricis**
2. Median lobe of the aedeagus in dorsal view subtriangular; apex less curved in lateral view. Parameres in lateral view with a stockier apex. . . . . **nothofagi**
- . Median lobe of the aedeagus in dorsal view with sides weakly curved; apex more curved in lateral view. Parameres in lateral view with a more tapered apex. . . . . **leptocerus**

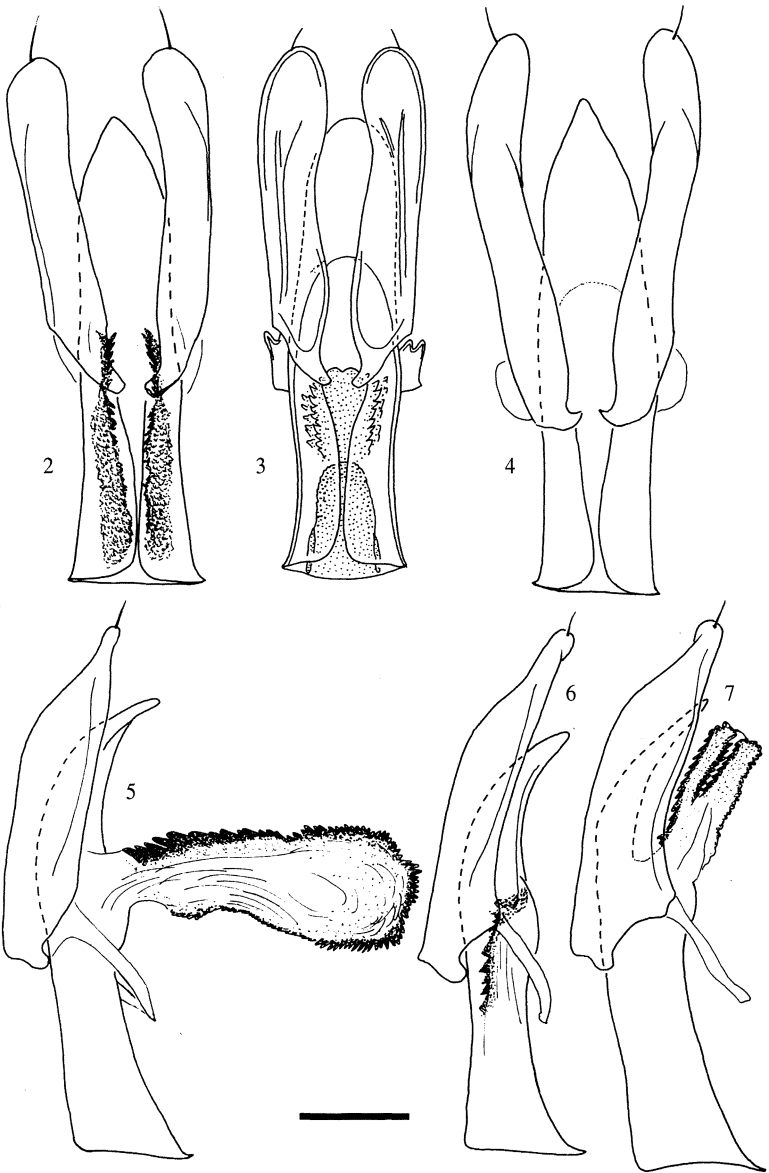
### ***Nargiotes leptocerus* Szymczakowki, 1973**

(Figs. 1, 2, 5, 9, 84)

*Nargiotes leptocerus* Szymczakowki, 1973: 113

*Nargiotes leptocerus* Szymczakowki, 1973: Zwick, 1979: 40

Type locality: Australia, Queensland, Maijala National Park (Holotypes in coll. Crowson, Glasgow University).



Figs. 2-7 – *Nargiotes* spp.: aedeagus, median lobe in dorsal and lateral view. *N. leptocerus* from Mt Glorious (2, 5); *N. beatricis* n. sp.: Holotype (3), Paratype (6); *N. nothofagi* n. sp.: Holotype (4), Paratype (7). Scale: 0.1 mm.

## Examined material

**Queensland.** 15 ♂♂ 5 ♀♀, Aust. Q., Summit Mt. Macartney, 21.IV.1979, rainfor., m 850, 20°51'S 148°33'E, Ber. Litter, G.B. Montheith; 14 ♂♂ 24 ♀♀, Australia, Qld., Summit Mt. Macartney, 21.IV.1979, rainfor., m 850, 20°51'S 148°33'E, Q. M. Berlesate n° 48, sieved litter, G.B. Montheith; 1 ♂, Aust. Q., Summit Mt. Macartney, 21.IV.1979, rainfor., m 850, 20°51'S 148°33'E, Ber. 46, G.B. Montheith; 4 ♀♀, Aust. Q., Summit Mt. Macartney, 21.IV.1979, m 850, 20°51'S 148°33'E, Q.M. Berlesate no 48 rainforest, Sieved Litter, G.B. Montheith; 1 ♀, Aust. Q., Mt. Macartney Cathu SF, 22.IV.1979, m 750, 20°51'S 148°33'E, Q.M. Berlesate no 48 rainforest, Sieved Litter, G.B. Montheith; 1 ♂, Aust. MEQ, Eungella N.P., Mt. William, 19.IV.1979, 21°02'S 148°36'E, rainforest, 1200 m, Berl. litter, G.B. Montheith; 1 ♂ 1 ♀, Australia, Queensland (MEQ), Eungella N.P., Broken River, 18 Apr. 1979, G.B. Montheith, Q.M. Berlesate no. 34, 21°11'S 148°31'E, rainforest, 700 m, sieved litter; 1 ♀, Mt. Nebo, April 1961, E. Derrek, berlese residue; 1 ♂ 2 ♀♀, Australia, Queensland, Bunya Mts., m 1100, 1 Oct. 1979, G. Kuschel, litter 79/101; 5 ♂♂ 8 ♀♀, Australia, Qld., 60 km NE Dalby, 900 m, S. & J. Peck, Bunya Mountains, 17.VI-19.VII.1982, FIT *Araucaria* forest; 45 ♂♂ 45 ♀♀, Australia, Qld., 1000 m, Bunya Mts. N. Park, 18.VIII.1982, S. Peck, rainforest litter 82-108; 68 ♂♂ 41 ♀♀, Australia, Qld, Bunya Mts. N.P., Westcott Campground, m 1100, 18.I.2000, 26°51'51"S 151°34'17"E, R.S. Anderson, montane rainforest litter, RSA2000-007; 1 ♂ 6 ♀♀, Australia, Qld., 7 km SE Maleny, c. 900 m, S. & J. Peck, Mary Cairncross Park, 18.VI-15.VIII.1982, rainforest, FIT; 22 ♂♂ 15 ♀♀, Australia, Qld, 8 km N Cooyar, c. 300 m, S. & J. Peck, 18.VI-19.VIII.1982, *Araucaria* vine forest, flight intercept trap, 82-39; 23 ♂♂ 27 ♀♀, Australia, Qld., Mt. Glorious, nr. Brisbane, I.1989, H. & A. Howden leg.; 84 ♂♂ 102 ♀♀, Australia, Qld., Mt. Glorious, nr. Brisbane, II.1989, malaise trap, H. & A. Howden leg.; 2 ♂♂ 1 ♀, Australia, Qld., Mt. Glorious, 27.IV -26.X.1989, H. & A. Howden leg., malaise trap; 4 ♂♂ 4 ♀♀, Australia, Qld., Mt. Glorious N. P., m 630, Feb. 28 - March 9. 84, L. Masner, MT, dry sclerophyl *Eucalyptus* for.; 16 ♂♂ 7 ♀♀, Australia, SE Q., Mt. Woods nr. Mt. Glorious, 800 m, 28.IV-4.VII.1978, rainforest, S. & J. Peck, rottedmushrooms & debris under bark; 6 ♀♀, Australia, Qld., Mt. Woods nr. Mt. Glorious, 800 m, 28.VI-4.VII.1978, rainforest, S. & J. Peck, rottedmushrooms; 4 ♂♂ 3 ♀♀, Qld. Miala Nat. Park, 27° 20' S 152° 46' E, rainforest, c. 635 m, 13.3.1973, berlesate, ANIC 450, R. J. Kohout; 4 ♂♂ 3 ♀♀, Australia, Qld, 27° 56' S 153° 12' E, Joalah Nat. Park, Tamborine Mt., 18-21 Oct. 1978, rainforest, Lawrence & Weir, berlesate litter; 1 ♂ 1 ♀, SEQ, 28° 02' S 152° 23' E, Bare Rock 2 km N of Mt. Cordeaux, m 1100, 31 Dec. 1993 - 20 Feb. 1994, G. Monteith, Intercept; 2 ♀♀, SEQ, 28° 15' S 153° 16' E, Springbrook Repeater, 9 Jan. - 19 Feb. 1995, G. B. Monteith, Intercept traps, m 1000; 1 ♂, Aust. Qld. SEQ, Springbrook Repeater, 6 Apr. 1995, G. B. Monteith, QM Berlesate n° 883, 28° 15' S 153° 16' E, Rainforest m 1000, sieved litter; (ANIC, MRSN, NZAC, QM, CGi, CPe, CVa).

## DIAGNOSIS

This is a small-sized *Nargiotes* species (2.09 - 2.34 mm). *N. leptocerus* differs from *N. beatricis* n. sp. in that the apex of the median lobe of the aedeagus is subtriangular in dorsal view and from *N. nothofagi* n. sp. in that the shape of the median lobe of the aedeagus is more curved in lateral view and by the shape of the parameres, with a less stocky apex in lateral view.

## DESCRIPTION

Total length with the head deflexed 2.22 - 2.34 ♂♂ mm, 2.09 - 2.35 ♀♀ mm; head from brown to dark brown; legs, antennae and palpi only slightly lighter; antennae with antennomeres 1-2 and 11 slightly lighter.

Antennae relatively short (a/l: 0.55 - 0.59 ♂♂, 0.54 - 0.57 ♀♀), not

reaching the middle of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere distinctly shorter than the 7<sup>th</sup>.

Pronotum transverse (pw/l: 1.85 - 1.90 ♂♂, 1.93 - 1.96 ♀♀), with the maximum width at the basal third; base slightly narrower and sinuate before the hind angles. Sides elongately and regularly arcuate anteriorly, weakly converging posteriorly; hind angles obtuse, marked. Disc of the pronotum regularly convex, not flat near the hind angles; punctuation of medium size; pubescence golden, short and recumbent.

Elytra ovoidal, elongated (ew/l: 0.65 - 0.68 ♂♂, 0.68 - 0.72 ♀♀), with the maximum width at about the middle. Elytral apex rounded in the ♂, not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria complete, distinct; punctuation of medium size. Pubescence golden, long and erect.

Legs robust; protibiae not dilated apically, mesotibiae arcuate and metatarsia straight, mesofemora not dentate in the male. Protarsi with the first 2 tarsomeres dilated in the ♂, narrower than the protibial apex; mesotarsi not dilated in the ♂.

Male genital segment elongated (fig. 9), with the tergite slightly longer than the pleurites, with the hind edge slightly hollowed; pleurites with the hind edge weakly but distinctly hollowed in the latero-ventral zone, forming two points of a subequal length, the inner one stocky and rounded; ventral apophysis short and stocky.

Aedeagus (figs. 2, 5) with the median lobe relatively elongated; basal blade of the median lobe, in dorsal view, shorter than the remaining part of the median lobe, and with subparallel sides. Distal part of the median lobe, in dorsal view, with subparallel sides in the basal 2/3, then curved and converging to a subtriangular acute (but not acuminate) apex; median lobe, in lateral view, short, stocky, regularly curved downwards. Parameres clearly longer than the median lobe, without membranous areas; bearing only one external apical seta. In dorsal view they are stocky and widely rounded apically; in lateral view they are relatively elongated, clearly sinuate and abruptly tapered preapically, with a thin, rounded and subrectilinear apex. Internal sac with two more sclerotized dentate areas in the basal area.

#### DISTRIBUTION AND ECOLOGY

*N. leptocerus* is a species with a disjunct distribution: it is known from both central eastern and SE Queensland (fig. 84), and these groups of populations are separated by a large gap with few or no rainforests in the drainage of the Fitzroy River. The species was collected between 300 and 1,200 m a.s.l., in sifted forest litter and by malaise and intercept traps. The habitats are characterized as subtropical relict rainforests. Most specimens were caught in February.

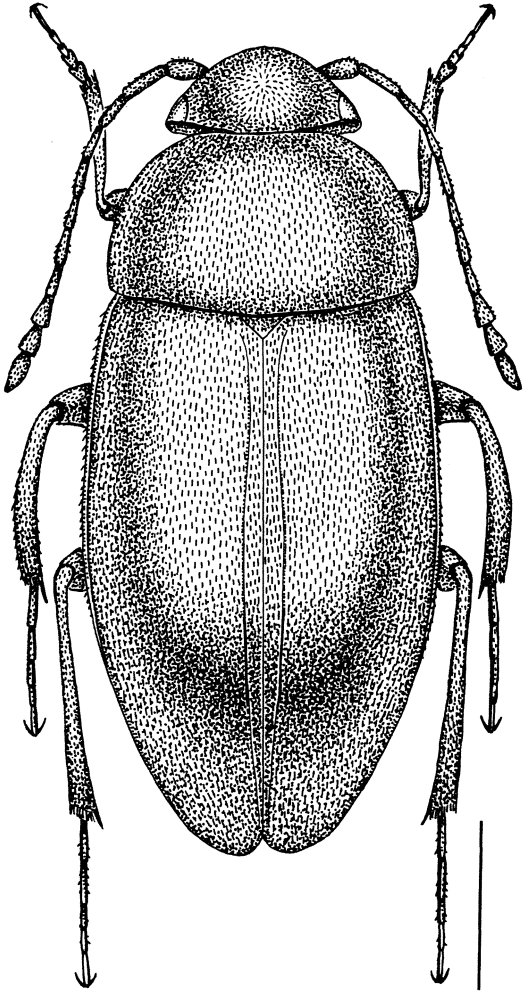


Fig. 8 – *Nargiotes beatricis* n. sp., Holotype ♂: habitus. Scale: 0.5 mm.

***Nargiotes beatricis* n.sp.**

(Figs. 8, 3, 6, 10, 84)

Type locality: Australia, Queensland, Lamington National Park, Green Mountain, 800 m.

Type Series: Holotype ♂, Australia, Queensland, Lamington National Park, Green Mountain, m 800, 11.IV.1996, P.M. Giachino leg. (QM). Paratypes: **Queensland.** 1 ♂ 1 ♀, Australia, Queensland, Lamington National Park, Green Mountain, m 800, 11.IV.1996, P.M. Giachino leg.; 1 ♀, Australia, Queensland, Lamington National Park, Green Mountain, m 800, 21.I.1997, P.M. Giachino leg.; 2 ♂♂ 1 ♀, Australia, Queensland, Lamington National Park, Blue Pool Track, Green Mounts., 14.I.1999, M. Daccordi leg.; 1 ♂ 4 ♀♀, Australia, Queensland, Lamington N. P., Blue Pool Track, Green Mountains, 4.I.2000, M. Daccordi leg.; 4 ♂♂ 4 ♀♀, Qld, Lamington N. Park (O'Reillys), rainforest, c. 920 m, 21.III.1973, Berlesate ANIC 459, R. W. Taylor, 28° 14' S 153° 08' E; 12 ♂♂ 9 ♀♀, Australia, Qld, Lamington N. Park, O'Reilly's, 22-27.X.1978, Lawrence & Weir, bel. 655 ex leaf log litter (ANIC, CGi); 3 ♀♀, Qld, Lamington Nat. Pk., O'Reilly's Guesthouse, 14.XII.1981, G. Monteith & D. Yeates, Q. M. Berlesate n° 377, rainforest sieved litter; 1 ♀, Aust. SEQ, O'Reilly's, Lamington Nat. Pk., baited window trap, 27.XII.1981-15.I.1982, G. Monteith; 1 ♂ 3 ♀♀, Australia, Queensland, Lamington N. P., 8 Oct. 1979, G. Kuschel, sifted litter 79/110; 1 ♂, Australia, Q. Lamington N.P., Binna Burra, 900 m, 23.VI-7.VII.1978, S. & J. Peck, *Nothofagus* groove, berlese debris under bark; 1 ♂, Qld, Lamington N. Park, Binna Burra, 25 Mar. - 4 Apr. 1985, J. & N. Lawrence, collected at light. **New South Wales.** 1 ♂, Australia, NSW, 33 km NE Wiangaree, m 1000, nr. Tweed Val Lookout, 13.VI-24.VIII.1982, FIT rainforest, S. & J. Peck; 4 ♂♂ 5 ♀♀, Australia, NSW, 33 km NE Wiangaree, m 1000, Wiangaree St. Forest, 24.VIII.1982, S. & J. Peck, *Nothofagus* litter; 3 ♂♂ 7 ♀♀, Australia, NSW, 16 km NE Wiangaree, m 600, Sheepstation Creek, 13.VI-24.VIII.1982, FIT rainforest, S. & J. Peck; 4 ♂♂ 6 ♀♀, Australia, N.S.W. nr. Grevillia, Unumgar S.F. Coxs Rd., m 580, 28°27'S 152°46'E, 2-11.II.1987, A. Newton & M. Thayer 789, sub-tropical rainforest, FMHD #87-176, flight intercept (window) trap, Field Mus. Nat. Hist.; 1 ♀, Australia, NSW, Wiangaree SF, Brindle Ck, 740 m, 29.II-3.III.1980, sub-rainf., A. Newton. M. Thayer, berl. for. leaf & log litter; 1 ♀, Australia, NSW, Border Ranges N. Pk, Antarctic Beech Picnic Area, 1000 m, ca. 35 km NW Kyogle, 4-9.I.1981, Malaise trap in cool temp. *Noth. moorei* r. forest, D. A. Pollock, L.A. Reichert collectors; 2 ♂♂, Australia, NSW, 30 km NNW Kyogle, Roseberry St. For., Mt. Glennie, 820 m, S. Peck, 21.VIII.1982, litter, 82-109 (ANIC, FMNHC, MRSN, NZAC, CBu, CCa, CGi, CPe, CVa).

**DIAGNOSIS**

This is a small-sized *Nargiotes* species (2.32 - 2.38 mm). *N. beatricis* n. sp. differs from *N. nothofagi* n. sp. and *N. leptocerus* in that the median lobe of the aedeagus is rounded in dorsal view.

**DESCRIPTION**

Total length with the head deflexed 2.32 - 2.36 ♂♂ mm, 2.32 - 2.38 ♀♀ mm; body from brown to dark brown; legs, antennae and palpi only slightly lighter; antennae with antennomeres 10-11 clearly lighter.

Antennae relatively short ( $a/l$ : 0.56 - 0.57 ♂♂, 0.50 - 0.54 ♀♀), not reaching the middle of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and with the 8<sup>th</sup> antennomere distinctly shorter than the 7<sup>th</sup>.

Pronotum transverse (pw/l: 1.81 - 1.86 ♂♂, 1.81 - 1.85 ♀♀), with the maximum width at the basal third; base only slightly narrower and sinuate before the hind angles. Sides elongately and regularly arcuate anteriorly, weakly converging posteriorly; hind angles almost right, marked. Pronotum disc regularly convex, not flat near the hind angles; punctuation of medium size; pubescence golden, short and recumbent.

Elytra ovoidal, elongated (ew/l: 0.63 - 0.66 ♂♂, 0.68 - 0.69 ♀♀), with the maximum width at about the middle. Elytral apex rounded in the ♂, not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria complete, distinct; punctuation of medium size. Pubescence golden, long and erect.

Legs robust; protibiae not dilated apically, mesotibiae arcuate and metatibiae straight, mesofemora not dentate in the male. Protarsi with the first 2 tarsomeres dilated in the ♂, narrower than the protibial apex; mesotarsi not dilated in the ♂.

Male genital segment elongated (fig. 10), with the tergite slightly longer than the pleurites, and the hind edge slightly hollowed; pleurites with the hind edge weakly but distinctly hollowed in the latero-ventral zone, forming two points of subequal length, the inner one stocky and rounded; ventral apophysis short and stocky.

Aedeagus (figs. 3, 6) with the median lobe relatively elongated; basal blade of the median lobe, in dorsal view, shorter than the remaining part of the median lobe, and with subparallel sides. Distal part of the median lobe, in dorsal view, with the apex widely rounded; median lobe, in lateral view, short, stocky, regularly curved downwards. Parameres clearly longer than the median lobe, without membranous areas, bearing only one external apical seta. In dorsal view they are stocky and widely rounded apically; in lateral view they are relatively elongated, clearly sinuate and abruptly narrowed preapically, with the apex rounded and slightly directed downwards. Internal sac with two more sclerotized dentate areas in the basal area.

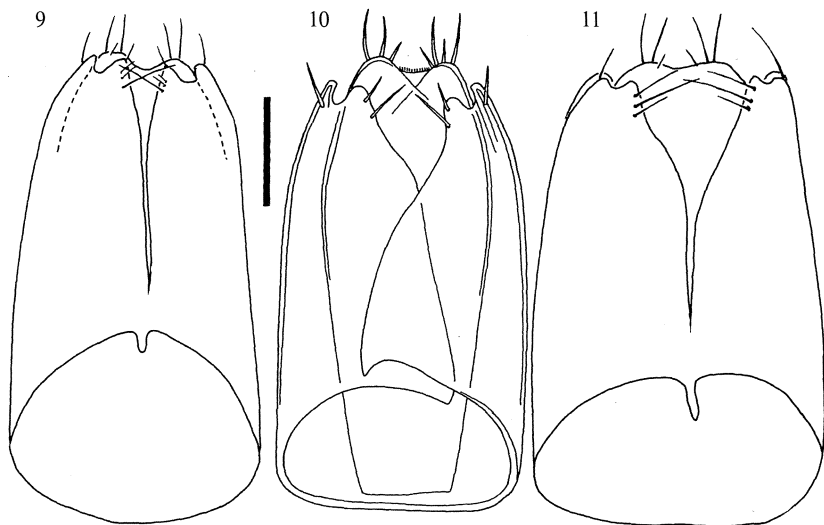
## ETYMOLOGY

This new species is dedicated, as a token of esteem and affection, to Dr. Beatrice Sambugar, the research companion in Australia of one of the authors (P. M. G.).

## DISTRIBUTION AND ECOLOGY

*N. beatricis* n. sp. is known from the area of Lamington National Park in SE Queensland and from nearby localities in adjacent NE of N.S.W., along the border between both states (fig. 84). In these sites it was collected at various elevations between 580 and 1000 m a.s.l., by sifting forest litter and by





Figs. 9-11 – *Nargiotes* spp.: male genital segment in ventral view. *N. leptocerus* from Mt Glorious (9); *N. beatricis* n. sp.: Holotype (10); *N. nothofagi* n. sp.: Holotype (11). Scale: 0.1 mm.

malaise and window traps. The habitats are characterized as relict subtropical rainforests (fig. 12). Small numbers of adults were collected in most months of the year.

#### REMARK

Among the material studied from FMNHC there was a male specimen preserved in alcohol, bearing the following label: Australia, Vic. Cement Creek, N Warburton m 625, 37° 43' S 145° 42' E, 27.I-11.II.1987, FMHD #87-232, A. Newton & M. Thayer 814, flight intercept (window) trap, *Euc. regnans*-*Noth. cunn.*

The examination of the genitals of this male showed that it is without doubt *N. beatricis* n. sp. Considering the bad preservation conditions (a distinctly damaged specimen), we believe that it is mislabeled, and comes from Unungar S.F. (NSW), where Newton and Thayer had collected it some days before, and it remained for some reason inside a collecting bottle that was employed again for the locality of Cement Creek in Victoria.



Fig. 12 – Lamington National Park (Qld, Australia) at Blue Pool Track, Green Mounts. Type locality of *N. beatrix* n. sp. (Photo by B. Sambugar).

### ***Nargiotes nothofagi* n. sp.**

(Figs. 4, 7, 11, 13, 84)

Type locality: Australia, N.S.W., 48 km N Singleton, Mt Royal State Forest.

Type Series: Holotype ♂, Australia, N.S.W., 48 km N Singleton, Mt. Royal State Forest, 23.VII.1983, FMHD #83-285, rain forest litter nr. stream, L.E.Watrous, berlese, Field Museum (ANIC). Paratypes: **New South Wales.** 15 ♂♂ 6 ♀♀, Australia, NSW, Bruxner Park, N of Coffsharb., 9-15.VII.1978, S. & J. Peck, rainforest, 200 m, forest litter berlese and berlese debris under bark; 10 ♂♂ 16 ♀♀, Australia, NSW, Bruxner Park, N of Coffsharb., 9-15.VII.1978, S. & J. Peck, rainforest, 200 m, berlese debris under bark; 2 ♀♀, Australia, NSW, Bruxner Park, N of Coffsharb., 9 Jul.1978, S. & J. Peck, rainforest, 200 m, berlesate ANIC 653 rainforest log litter; 2 ♀♀, Australia, NSW, FIT Bruxner Park, 8 km N of Coffs Harbour, 12.VI-25.VIII.1982, S. & J. Peck, rainforest; 2 ♂♂ 9 ♀♀, Australia, NSW, Dorrigo N.P., E. end Blackbutt Track, m 710, 28.II-5.III.1980, subtrop. rainfor., A. Newton, M. Thayer; 1 ♂, Australia, NSW, New England N.P., Wright's Lookout Tr., m 1300, 27.II-6.III.1980, *Nothofagus moorei* rainfor., A. Newton, M. Thayer; 1 ♂, Australia, N.S.W., Barrington Tops N. P., Mt. Allyn m 1150, *Nothofagus* forest, 24.I.1997, P. M. Giachino leg.; 1 ♀, N.S.W., Upr. Allyn Val., nr Eccleston, c. 2000 ft., 11-14.12.1967, Taylor, Brooks; 4 ♂♂ 2 ♀♀, Australia, NSW, B-gton Tops, Mt. Allyn, Burruga Tr., 17.VI-16.VII.1978, m 1000, S. & J. Peck, *Nothofagus* forest, forest litter berlese; 6 ♂♂ 5 ♀♀, Australia, NSW, 3 km N LansdownU, 4.I.1987, H. & A. Howden; 1 ♀, Australia, N.S.W., 48 km N Singleton, Mt. Royal State Forest, 23.VII.1983, FMHD #83-285, rain forest litter nr. stream, L.E.Watrous, berlese, Field Museum; 1 ♂, Australia, N.S.W., 48 km N Singleton, Tuglo Wildlf. Ref., 10.VII.1983, FMHD #83-255, leaf litter dry sclerophyll forest, L.E.Watrous (ANIC, AM, FMNHC, MRSN, CGi, CPe).

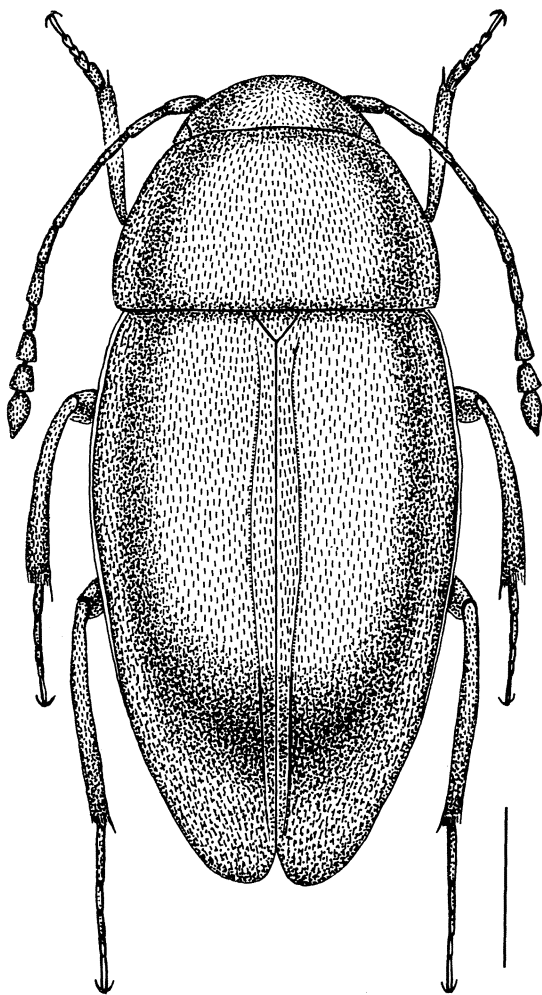


Fig. 13 – *Nargiotes nothofagi* n. sp., Paratype ♂: habitus. Scale: 0.5 mm.

## DIAGNOSIS

This is a small-sized *Nargiotes* species (2.12 - 2.47 mm). *N. nothofagi* n. sp. differs from *N. beatricis* n. sp. in that the median lobe of the aedeagus is subacuminate in dorsal view, and from *N. leptocerus* in that the shape of the median lobe of the aedeagus is less curved in lateral view, and in the shape of the parameres, with a stockier apex in lateral view.

## DESCRIPTION

Total length with the head deflexed 2.38 - 2.47 ♂♂ mm, 2.12 - 2.16 ♀♀ mm; body dark brown; legs, antennae and palpi slightly lighter.

Antennae relatively short (a/l: 0.52 - 0.55 ♂♂, 0.49 - 0.51 ♀♀), not reaching the middle of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere clearly shorter than the 7<sup>th</sup>.

Pronotum transverse (pw/l: 1.82 - 1.83 ♂♂, 2.05 - 2.07 ♀♀), with the maximum width at the basal third; base slightly narrower and sinuate before the hind angles. Sides elongately and regularly arcuate anteriorly, weakly converging posteriorly; hind angles obtuse, marked. Pronotum disc regularly convex, not flat near the hind angles; punctation of medium size; pubescence golden, short and recumbent.

Elytra ovoidal, elongated (ew/l: 0.64 - 0.65 ♂♂, 0.73 - 0.75 ♀♀), with the maximum width at about the basal third. Elytral apex rounded in the ♂, not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria complete, distinct; punctation of medium size. Pubescence golden, long and recumbent.

Legs robust; protibiae not dilated apically, mesotibiae arcuate and metatibiae straight, mesofemora not dentate in the male. Protarsi with the first 2 tarsomeres dilated in the ♂, as wide as the protibial apex; mesotarsi not dilated in the ♂.

Male genital segment elongated (fig. 11), with the tergite slightly longer than the pleurites, and the hind edge slightly hollowed; pleurites with the hind edge weakly but distinctly hollowed in the latero-ventral zone, forming two points of a subequal length, the inner one stocky, but subacuminate; ventral apophysis short and stocky.

Aedeagus (figs. 4, 7) with the median lobe relatively elongated; basal blade of the median lobe, in dorsal view, shorter than the remaining part of the median lobe, and with subparallel sides. Distal part of the median lobe, in dorsal view, with sides at first weakly, then clearly, converging so to form an acute subtriangular (but not acuminate) apex; median lobe, in lateral view, short, frail, regularly curved downwards. Parameres clearly longer than the median lobe, without membranous areas; provided with only one external apical seta. In dorsal view they are stocky and slightly curved inwards apically;

in lateral view they are stocky, clearly sinuate and abruptly tapered preapically, with the apex rounded, stocky, and slightly directed upwards. Internal sac with two more sclerotized toothed areas in the basal area.

#### ETYMOLOGY

The name refers to the tree and shrub genus *Nothofagus*, the southern or austral beeches, which grow in the cool and moist forests of the SE mountains of Australia and other southern countries. This genus is an excellent indicator of habitats with austral or Gondwanaland distributions and phylogenetic affinities.

#### DISTRIBUTION AND ECOLOGY

*N. nothofagi* n. sp. is known from localities in NE N.S.W. (fig. 84), where it was collected at various elevations between 200 and 1,300 m a.s.l., by litter sieving in a dry sclerophyll forest (Tuglo Wildlf. Refuge) and in rainforests and *Nothofagus* forests (in and near Barrington Tops National Park) (see also Garetto & Giachino, this volume). Adults were mostly collected in the months of January and July.

### << **athertoni** group >>

#### DIAGNOSIS

The group is characterized by a small sized species (1.98 - 2.19 mm), with short antennae, 8<sup>th</sup> antennomere clearly shorter than the 7<sup>th</sup>, and 1<sup>st</sup> mesotarsomere not dilated in males; male mesofemora simple, not dentate. Median lobe of the aedeagus relatively stocky, subtriangular, with a protruding apex having a distinct subacuminate point; apex abruptly bent upwards in lateral view. Parameres with distinct internal membranous areas, bearing only one preapical seta. Male genital segment moderately elongated, with the tergite longer than the pleurites, and the hind edge widely rounded; pleurites with the hind edge distinctly hollowed in the latero-ventral zone.

Only *N. athertoni* n. sp. belongs to this species group.

#### **Nargiotes athertoni** n.sp.

(Figs. 14 - 17, 84)

Type locality: Australia, Queensland, Mt Fisher, 1050 m, 7 km SW Millaa Millaa.

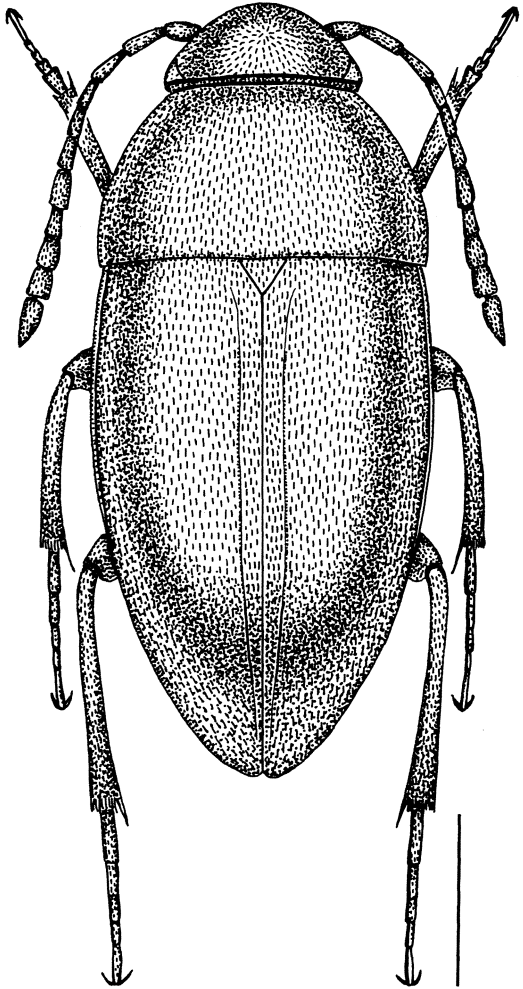


Fig. 14 – *Nargiotes athertoni* n. sp., Holotype ♂: habitus. Scale: 0.5 mm.

Type Series: Holotype ♂, Australia, N. Qld., Mt. Fisher, m 1050, 7 km SW Millaa Millaa, 27 Apr. 1982, Monteith, Yeates & Cook, Q. M. Berlesate n° 412, 17° 34' S 145° 34' E, rainforest sieved litter (QM). Paratypes: **Queensland**. 1 ♂ N. E. queensland, 2 km N Mt. Lewis, via Julatten, 9 Sept. 1981, G. Monteith & D. Cook, Q. M. Berlesate n° 281, Rainforest m 1000, sieved litter; 1 ♀, N. E. queensland, 2.5 km N Mt. Lewis, via Julatten, 3 Nov. 1983, D. K. Yeates & G. I. Thompson, Q. M. Berlesate n° 610, 16° 34' S 145° 16' E, Rainforest m 1040, sieved litter; 9 ♂♂ 1 ♀, Australia, Qld., rainforest 20 km S Mossman, Mt. Lewis, m 1000, 10.VII.1982, S. & J. Peck, log-leaf litter; 1 ♀, Australia, Qld., 20 km SW Mossman, m 1000, Mt. Lewis, S. & J. Peck, 26.VI-1.VIII.1982, rainforest FIT, 82-52; 25 ♂♂ 69 ♀♀, Australia, Qld., 20 km SW Mossman, m 1000, Mt. Lewis, S. & J. Peck, 10.VII.1982, log & leaf litter, 82-67; 1 ♀, Aus., Qld., Mt. Lewis, 20.XII.1986, FIT, H. & A. Howden; 1 ♂ 2 ♀♀, Aust., NEQ, Mt. Lewis, barracks via Julatten, 10.VI.1981, rainfor. 1000 m, Ber. Litter, G.B. Monteith D. Cook; 1 ♂, N. E. Queensland, 5.5 km N Mt. Lewis, via Julatten, 8 Sept. 1981, G. Monteith & D. Cook, Q. M. Berlesate n° 275, Rainforest m 1100, sieved litter; 1 ♂ 1 ♀, NE. Q., 17° 14' S 145° 48' E, Massey Ra., 6 km NW of Bellenden Ker, m 1150, 11 Oct. 1991, Monteith & Janetzki, Pyrethrum; 1 ♀, N. Q., Gadgarra State For., 10 km E Lake Eacham, 9 - 31 Dec. 1989, m 700, Monteith, Thompson & Janetzki, Pitfalls & Flight Intercept; 1 ♀, Aust. Qld.-NE., Gadgarra Rd., 5 km E Lake Eacham, 9 Dec. 1989, Monteith, Thompson & Janetzki, Q. M. Berlesate n° 842, 17° 16' S 145° 40' E, Rainforest m 700, sieved litter; 1 ♂, Aust. NE. QLD., Baldy Mtn. Rd., m 1150, 7 km SW Atherton, 9 Dec. 1988, G. Monteith G. Thompson, Q. M. Berlesate n° 817, 17° 17' S 145° 24' E, rainforest sieved litter; 1 ♀, NE QLD., Millaa Millaa Falls, m 800, 17 May 1995, G. B. Monteith, Q. M. Berlesate n° 888, 17° 28' S 145° 36' E, rainforest leaf litter; 2 ♀♀, Australia, N Qld., rainfor. 14 km SW Malanda, 960 m, Mt. Hypipamee N. Pk., 24.VII.1982, S. & J. Peck, streamside litter; 1 ♂ 2 ♀♀, Australia, Queensland (NEQ), Mt. Hypipamee Nat. Park., 5 Oct. 1980, G.B. Monteith, Q.M. Berlesate no. 236, rainforest 950 m, sieved litter; 8 ♂♂ 3 ♀♀, Aust. NEQ, Mt. Hypipamee N. P., rainf. 950 m, Ber. Litter, 5.X.1980, G.B. Monteith; 1 ♂, Aust. Qld., 800 m, 16 km NE Yungaburra, on Gillies Road (NE Atherton), 26.VI-3.VIII.1982, rainforest FIT, S. & J. Peck; 1 ♂ 1 ♀, Australia, N. Qld., Mt. Fisher, m 1050, 7 km SW Millaa Millaa, 27 Apr. 1982, Monteith, Yeates & Cook, Q. M. Berlesate n° 412, 17° 34' S 145° 34' E, rainforest sieved litter; 4 ♂♂ 2 ♀♀, Australia, Qld., Rosina Creek, 14 km SE Millaa Millaa, Palmerston Hwy., 720 m, 24.VI-2.VIII.1982, rainforest FIT, S. & J. Peck (QM, FMNHC, MRSN, CBu, CCa, CGi, CPe, CVa).

## DESCRIPTION

Total length with the head deflexed 1.98 - 2.19 ♂♂ mm, 2.06 - 2.12 ♀♀ mm; body light brown, nearly testaceous; legs and palpi lighter; antennae with antennomeres 1-2 and 10-11 clearly lighter.

Antennae long (a/l: 0.58 - 0.61 ♂♂, 0.59 - 0.61 ♀♀), reaching the middle of the elytra in the ♂ when stretched backwards; relatively stocky, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere distinctly shorter than the 7<sup>th</sup>.

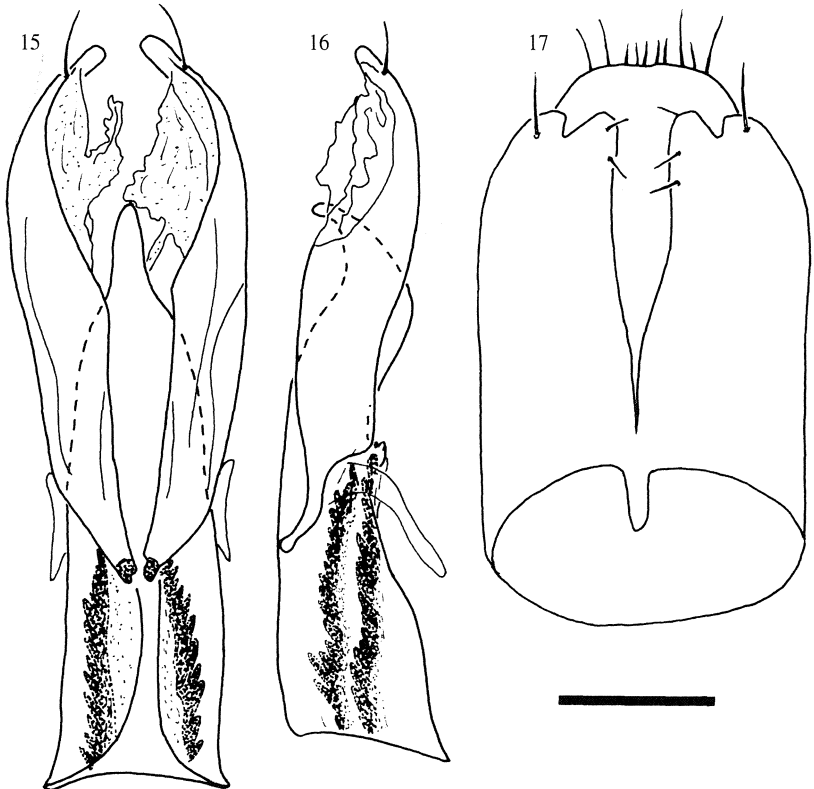
Pronotum transverse (pw/l: 1.86 - 1.87 ♂♂, 1.86 - 1.87 ♀♀), with the maximum width at the basal third; base not narrower and slightly sinuate before the hind angles. Sides elongately and regularly arcuate anteriorly, not converging posteriorly; hind angles almost right, marked. Pronotum disc regularly convex near the hind angles, not flat; punctuation of medium size; pubescence golden, short and recumbent.

Elytra ovoidal, weakly elongated (ew/l: 0.64 - 0.71 ♂♂, 0.65 - 0.73 ♀♀), with the maximum width at about the basal third. Elytral apex rounded in the ♂, not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria complete, distinct; punctuation of medium size.

Pubescence golden, short and recumbent; interspersed by sparse, long and raised setae.

Legs robust; protibiae not dilated apically, mesotibiae slightly arcuate and metatibiae straight, mesofemora not dentate in the male. Protarsi with the first 2 tarsomeres dilated in the ♂, as wide as the protibial apex; mesotarsi not dilated in the ♂.

Male genital segment elongated (fig. 17), with the tergite longer than the pleurites, and the hind edge widely rounded; pleurites with the hind edge clearly hollowed in the latero-ventral zone, forming two points of subequal length, the inner one stocky and widely rounded; ventral apophysis short and stocky.



Figs. 15-17 – *Nargiotes athertoni* n. sp.: aedeagus, median lobe in dorsal (PT) and lateral (HT) view (15, 16); male genital segment in ventral view (17). Scale: 0.1 mm.



Aedeagus (figs. 15, 16) with the median lobe short and stocky; basal blade of the median lobe, in dorsal view, slightly shorter than the remaining part of the median lobe, and with subparallel sides. Distal part of the median lobe, in dorsal view, with sides converging and then clearly emarginate before the apex, which protrudes as a rounded beak; median lobe, in lateral view, short, stocky, with the apex at first sinuate dorsally and then clearly hooked upwards. Parameres much longer than the median lobe, having, in the distal half, long inner ventral membranous areas, and bearing only one external preapical seta. In dorsal view they are curved inwards and widely emarginate dorsally in the apical area; in lateral view they are clearly sinuate preapically, with a subacuminate apex directed upwards. Internal sac with two more sclerotized dentate areas in the basal area.

#### ETYMOLOGY

The name refers to the Atherton Tableland (NE Queensland) where the type locality is located.

#### DISTRIBUTION AND ECOLOGY

*N. athertoni* n. sp. is known from the Atherton Tableland in NE Queensland, near Cairns (fig. 84), where it was collected, at various elevations between 700 and 1,150 m a.s.l.; by forest litter sieving, by pitfall traps, window traps, and knocked down from logs and similar habitats by spraying them with pyrethrum insecticides. The collecting areas are characterized as relict tropical rainforests. Small numbers of adults have been collected from April to December.

#### << lawrencei group >>

#### DIAGNOSIS

The group is characterized by a small-sized species (2.12 - 2.41 mm), with short antennae, 8<sup>th</sup> antennomere clearly shorter than the 7<sup>th</sup>, and 1<sup>st</sup> mesotarsomere weakly dilated in males; male mesofemora simple, not dentate. Median lobe of the aedeagus relatively stocky, subtriangular, with the apex subtriangular and subacuminate; apex, in lateral view, subrectilinear, not bent upwards. Parameres without membranous areas, bearing only one preapical seta. Male genital segment elongated, with the tergite longer than the pleurites, and the hind edge widely rounded; pleurites with the hind edge distinctly hollowed in the latero-ventral zone.

Only *N. lawrencei* n. sp. belongs to this species group.

**Nargiotes lawrencei** n. sp.  
(Figs. 18 – 21, 84)

Type locality: Australia, Queensland, Lamington National Park, Mt Bethongabel, 1400 m.

Type Series: Holotype ♂, Australia, Queensland, Lamington National Park, Mt. Bethongabel, m 1400, 23 Oct. 1978, Lawrence & Weir, Berlesate ANIC 654, *Nothofagus moorei* litter & moss (ANIC). Paratypes: **Queensland**. 6 ♂♂ 9 ♀♀, Australia, Queensland, Lamington National Park, Mt. Bethongabel, m 1400, 23 Oct. 1978, Lawrence & Weir, Berlesate ANIC 654, *Nothofagus moorei* litter & moss (ANIC, CGi, CPe).

DESCRIPTION

Total length with the head deflexed 2.25 - 2.41 ♂♂ mm, 2.12 - 2.22 ♀♀ mm; body light brown, with elytra slightly darker; legs and palpi lighter; antennae with antennomeres 1-2 and 9-11 clearly lighter.

Antennae long (a/l: 0.60 - 0.62 ♂♂, 0.58 - 0.60 ♀♀), longer than half of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere distinctly shorter than the 7<sup>th</sup>.

Pronotum transverse (pw/l: 1.70 - 1.78 ♂♂, 1.86 - 1.94 ♀♀), with the maximum width at the basal third; base slightly narrower and subrectilinear. Sides elongately and regularly arcuate anteriorly, slightly converging posteriorly; hind angles obtuse, marked. Pronotum disc regularly convex, not flat near the hind angles; punctuation of medium size; pubescence golden, short and recumbent.

Elytra ovoidal, elongated (ew/l: 0.60 - 0.63 ♂♂, 0.64 - 0.66 ♀♀), with the maximum width at about the basal third. Elytral apex rounded in the ♂, not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria complete, distinct; punctuation of medium size. Pubescence golden, long and recumbent.

Legs robust; protibiae not dilated apically, mesotibiae slightly arcuate and metatibiae straight, mesofemora not dentate in the male. Protarsi with the first 2 tarsomeres dilated in the ♂, as wide as the protibial apex; mesotarsi with one tarsomere slightly dilated in the ♂.

Male genital segment elongated (fig. 21), with the tergite much longer than the pleurites, and the hind edge widely rounded; pleurites with the hind edge clearly hollowed in the latero-ventral zone, forming two points of unequal length, the inner one short, stocky and widely rounded; ventral apophysis short and stocky.

Aedeagus (figs. 19, 20) with the median lobe short and stocky; basal blade of the median lobe, in dorsal view, slightly longer than the remaining part of the median lobe, and with subparallel sides. Distal part of the median lobe, in dorsal view, with a subtriangular apex; median lobe, in lateral view, short, frail, subrectilinear, with the apex not bent upwards. Parameres much longer than the median lobe, without membranous areas, bearing only one external

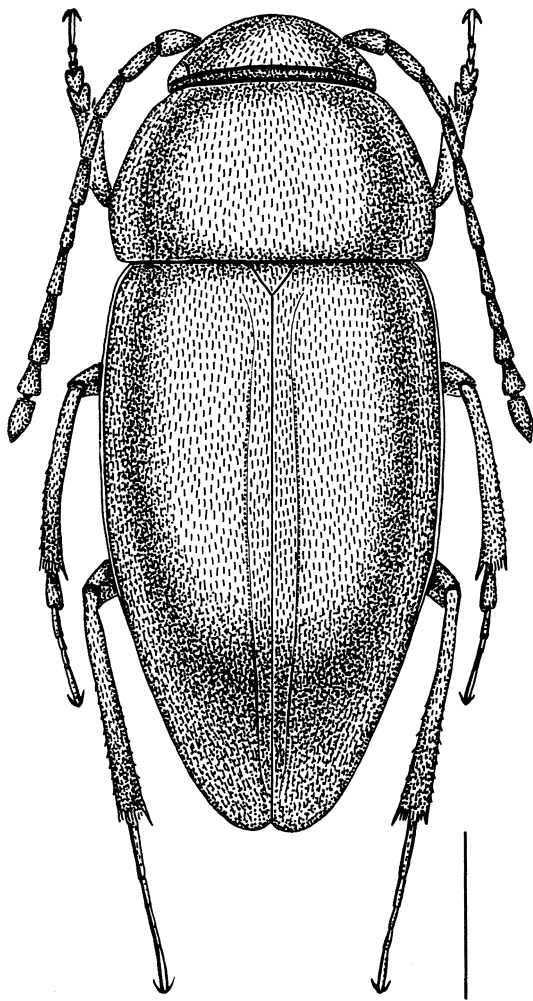
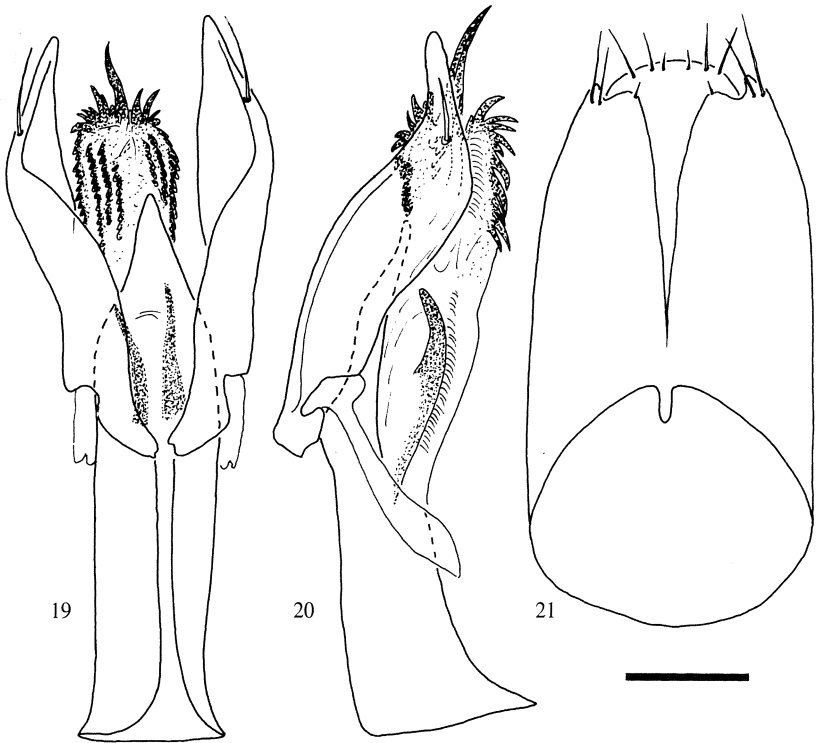


Fig. 18 – *Nargiotes lawrencei* n. sp., Holotype ♂: habitus. Scale: 0.5 mm.

preapical seta. In dorsal view they are widely emarginate dorsally in the apical area; in lateral view they are clearly sinuate preapically, with a subacuminate apex. Internal sac with two more sclerotized dentate areas in the central area and, in the basal region, two narrow and elongated chitinized rods.

#### ETYMOLOGY

This species is dedicated, as a token of esteem, to one of its collectors, Dr. J. F. Lawrence of the CSIRO Division of Entomology of Canberra, who has done so much to make known the beetles of Australia, and the family-level classification of Coleoptera.



Figs. 19-21 – *Nargiotes lawrencei* n. sp.: aedeagus, median lobe in dorsal (PT) and lateral (HT) view (19, 20); male genital segment in ventral view (21). Scale: 0.1 mm.

## DISTRIBUTION AND ECOLOGY

*N. lawrencei* n. sp. is known only from the type locality, Mt Bethongabel, in Lamington National Park in SE Queensland (fig. 84), where it was collected, at an elevation of 1,400 m a.s.l., by litter sieving in a *Nothofagus moorei* forest, in the month of October.

<< **queenslandicum group** >>

## DIAGNOSIS

This group contains a small-sized species (2.12 - 2.26 mm), with short antennae, 8<sup>th</sup> antennomere clearly shorter than the 7<sup>th</sup>, and 1<sup>st</sup> mesotarsomere not dilated in males; male mesofemora simple, not dentate. Median lobe of the aedeagus relatively elongated, with a subtriangular and blunt apex; apex, in lateral view, subrectilinear, not bent upwards. Parameres without membranous areas, bearing two preapical setae. Male genital segment short and stocky, with the tergite shorter than the pleurites; pleurites with the hind edge deeply hollowed (about 2/3 of their length) in the latero-ventral zone.

Only *N. queenslandicum* n. sp. belongs to this species group.

**Nargiotes queenslandicum** n.sp.

(Figs. 22 - 25, 84)

Type locality: Australia, Queensland, Bellenden Ker Range, Summit TV Stn. 1560 m.

Type Series: Holotype ♂, Australia, Queensland, Bellenden Ker Range, Summit TV Stn. m 1560, 17 Oct. - 5 Nov. 1981, Earthwatch/Qld. Museum, Baited Window Trap (QM). Paratypes: **Queensland**. 3 ♂♂ 7 ♀♀, Australia, Queensland, Bellenden Ker Range, Summit TV Stn. m 1560, 17 Oct. - 5 Nov. 1981, Earthwatch/Qld. Museum, Baited Window Trap; 3 ♂♂, Australia, Queensland, Bellenden Ker Range, Summit TV Stn. m 1054, 17 Oct. - 5 Nov. 1981, Earthwatch/Qld. Museum, Baited Window Trap; 1 ♂, Australia, Queensland, Bellenden Ker Range, Summit TV Stn. m 1560, 17 Oct. - 5 Nov. 1981, Earthwatch/Qld. Museum, Pitfall Trap, Rainforest; 1 ♂, Australia, Queensland, Bellenden Ker Range, Summit TV Stn. m 1560, 1-7 Nov. 1981, Earthwatch/Qld. Museum, Q. M. Berlesate n° 337, 17° 16' S 145° 51' E Rainforest sieved litter; 1 ♀, NE Qld., Bellenden Ker Range, Summit TV Stn., Apr. - Oct. 1982, m 1560, S. Montague, RF pitfall trap; 1 ♂ 2 ♀♀, Australia, Queensland, Bellenden Ker Range, Summit TV Stn. m 1560, 20-23 Oct. 1981, Earthwatch/Qld. Museum, Q. M. Berlesate n° 376, 17° 16' S 145° 51' E Rainforest sieved litter; 2 ♂♂, Australia, Queensland, Bellenden Ker Range, Cable Tower 3. m 1054, 25-31 Oct. 1981, Earthwatch/Qld. Museum, Q. M. Berlesate n° 331, 17° 16' S 145° 52' E Rainforest sieved litter; 1 ♂, Australia, Queensland, Bellenden Ker Range, Cable Tower 3. m 1054, 17 Oct. - 5 Nov. 1981, Earthwatch/Qld. Museum, Pyrethrum knockdown; 1 ♀, Australia, Queensland, Bellenden Ker Range, Cableway Base Stn., m 100, 17 Oct. - 9 Nov. 1981, Earthwatch/Qld. Museum, Pitfall Trap, Rainforest; 1 ♀, Queensland (NEQ), Bellenden Ker, Centre Peak Summit, 23 Oct. 1980, G. B. Monteith, Q. M. Berlesate n° 266, 17° 16' S 145° 52' E, rainforest

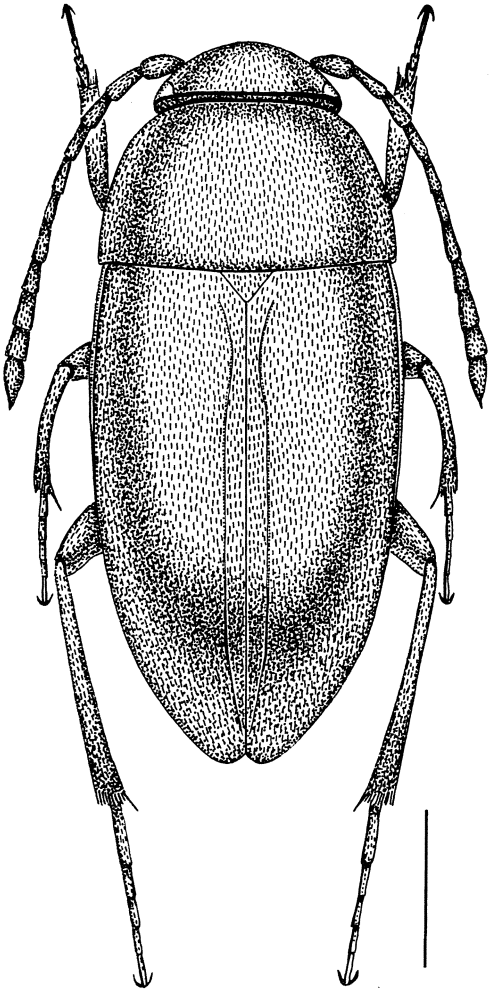


Fig. 22 – *Nargiotes queenslandicum* n. sp., Paratype ♂: habitus. Scale: 0.5 mm.

m 1560, sieved litter; 2 ♂♂, Queensland (NEQ), Bellenden Ker, Centre Peak Summit, 11 Apr. 1979, G. B. Monteith, Q. M. Berlesate n° 13, 17° 16' S 145° 51' E, rainforest m 1500, sieved litter; 2 ♀♀, Aust. Qld.-NE., Massey Range, 10 Oct. 1991, Monteith & Janetzski, Q. M. Berlesate n° 853, 17° 16' S 145° 49' E, Rainforest m 1250, sieved litter; 1 ♂ 3 ♀♀, N Qld., Mt. Bartle-Frere, NW/Centre Peak ridge, 7-8.X.1981, 1400-1500 m, Earthwatch/Qld. Museum, Q. M. Berlesate n° 358, 17° 23' S 145° 48' E, rainforest sieved litter; 5 ♂♂ 7 ♀♀, N Qld., Mt. Bartle-Frere, NW/Centre Peak ridge, 6-8 Nov. 1981, 1620 m, Earthwatch/Qld. Museum, Q. M. Berlesate n° 354, 17° 24' S 145° 49' E, rainforest sieved litter; 1 ♀, Bellenden Ker Range, NQ, Summit m 1560, 1-30 Apr. 1982, S. Montague, pitfall traps (QM, FMNHC, MRSN, CGI, CPe, CVa).

## DESCRIPTION

Total length with the head deflexed 2.12 - 2.26 ♂♂ mm, 2.03 - 2.14 ♀♀ mm; body dark brown; legs, antennae and palpi lighter; antennae with antennomeres 1-2 and 11 clearly lighter.

Antennae long (a/l: 0.62 - 0.64 ♂♂, 0.57 - 0.59 ♀♀), reaching the middle of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere shorter than the 7<sup>th</sup>.

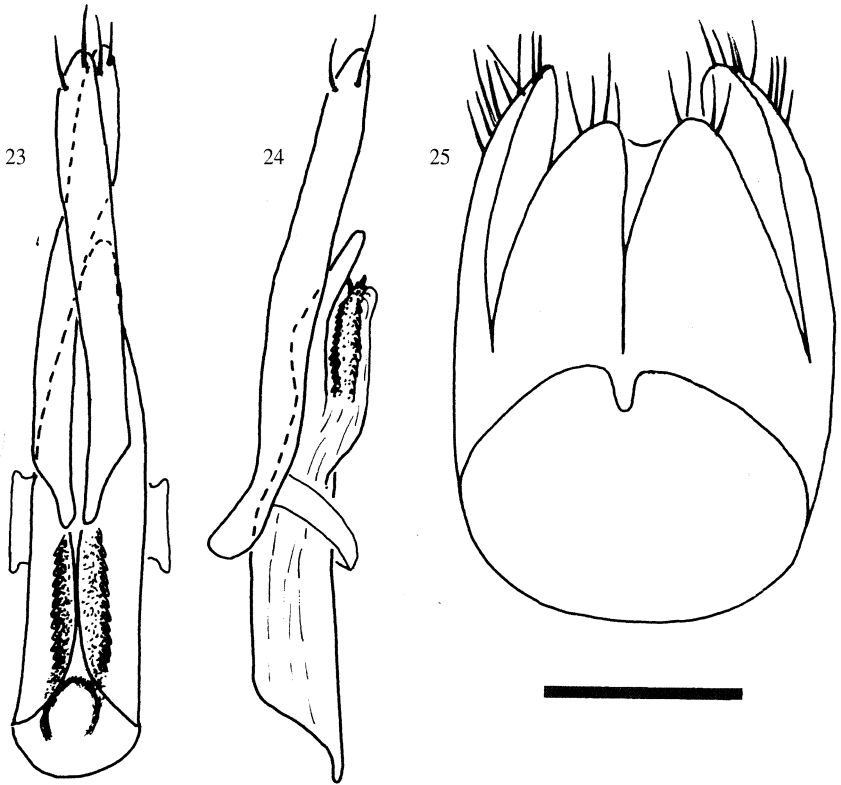
Pronotum transverse (pw/l: 1.74 - 1.80 ♂♂, 1.89 - 1.92 ♀♀), with the maximum width at the basal third; base not narrower and slightly sinuate before the basal angles. Sides elongately and regularly arcuate anteriorly, subparallel posteriorly; hind angles almost right, marked. Pronotum disc regularly convex, not flat near the hind angles; punctuation of medium size; pubescence golden, short and recumbent

Elytra oval, elongated (ew/l: 0.61 - 0.65 ♂♂, 0.67 - 0.69 ♀♀), with the maximum width at about the basal third. Elytral apex rounded in the ♂, not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria complete, distinct; punctuation of medium size. Pubescence golden, short and recumbent.

Legs relatively frail; protibiae not dilated apically, mesotibiae slightly arcuate and metatibiae straight, mesofemora not dentate in the male. Protarsi not dilated and mesotarsi dilated in the ♂.

Male genital segment short and stocky (fig. 25), with the tergite shorter than the pleurites, and the hind edge hollowed; pleurites with the hind edge deeply hollowed in the latero-ventral zone, forming two points of unequal length, the inner one short and stocky; ventral apophysis short and stocky.

Aedeagus (figs. 23, 24) with the median lobe short, but relatively slender; basal blade of the median lobe, in dorsal view, short, as long as the remaining part of the median lobe, and with subparallel sides. Distal part of the median lobe, in dorsal view, subtriangular, with a rounded apex; median lobe, in lateral view, frail, bisinuate, with the apex slightly curved downwards. Parameres much longer than the median lobe, without membranous areas, bearing two external preapical setae. Both in dorsal and lateral view they are long and slender, subrectilinear, with a rounded apex. Internal sac with two elongated and dentate, and one upside-down U-shaped more sclerotized area in the basal area.



Figs. 23-25 – *Nargiotes queenslandicum* n. sp.: aedeagus, median lobe in dorsal (PT) and lateral (HT) view (23, 24); male genital segment in ventral view (25). Scale: 0.1 mm.

#### ETYMOLOGY

The name refers to the state of Queensland, the site of the type locality.

#### DISTRIBUTION AND ECOLOGY

*N. queenslandicum* n. sp. is known from several sites in N Queensland, S of Cairns, along the coastal mountain chain (fig. 84); where it was collected, at various elevations between 100 and 1,620 m a.s.l., by litter sieving, in pit-fall traps and window traps, all in tropical montane rainforest. Most adults were collected in October and November.



<< **victoriensis** group >>

## DIAGNOSIS

The group is characterized by medium-large sized species (2.51 - 3.23 mm), with long antennae, 8<sup>th</sup> antennomere about as long as the 7<sup>th</sup>, and 1<sup>st</sup> mesotarsomere distinctly dilated in males; male mesofemora simple, not dentate. Median lobe of the aedeagus stocky, with a subtriangular and more or less blunt apex; the latter, in lateral view, distinctly bent downwards. Parameres without membranous areas, having the apex dentate outwards, and bearing only one preapical seta. Male genital segment relatively elongated, with the tergite slightly longer than the pleurites, and the hind edge deeply hollowed; pleurites with the hind edge deeply hollowed in the latero-ventral zone.

*N. victoriensis* n. sp., *N. newtoni* n. sp., and *N. thayeri* n. sp. belong to this group.

## KEY TO SPECIES

1. Smaller sized species on the average (2.51 - 2.74 ♂♂ mm, 2.90 - 2.96 ♀♀ mm). Median lobe of the aedeagus with a subtriangular apex having strongly hollowed sides. Apex of the parameres with the apical area truncate and shorter in lateral view. . . . . **victoriensis**
- Larger sized species on the average (2.83 - 3.23 ♂♂ mm, 2.90 - 3.19 ♀♀ mm). Median lobe of the aedeagus with a subtriangular apex having subrectilinear sides only weakly hollowed. Apex of the parameres with the apical area truncate and longer in lateral view. . . . . **2**
2. Median lobe of the aedeagus with a subtriangular apex having weakly hollowed sides. Parameres more elongated with the truncate apical area longer in lateral view. . . . . **thayeri**
- Median lobe of the aedeagus with a subtriangular apex having subrectilinear sides. Parameres shorter, with the truncate apical area shorter in lateral view. . . . . **newtoni**

**Nargiotes victoriensis** n. sp.

(Figs. 26, 27, 30, 34, 84)

Type locality: Australia, Victoria, Cumberland Scenic Reserve, nr. Cambarville, 37° 43' S 145° 53' E.

Type Series: Holotype ♂, Australia, Victoria, Cumberland Scenic Res., nr. Cambarville, 37° 43' S 145° 53' E, 7-9.XII.1990, *Noth. - Acacia - Euc.* For., D.A. Pollock & L. A. Reichert collectors, sift leaf litter. Paratypes: **Victoria**. 4 ♂♂ 3 ♀♀, Australia, Victoria, Cumberland Scenic Res., nr. Cambarville, 37° 43' S 145° 53' E, 7-9.XII.1990, *Noth. - Acacia - Euc.* For., D.A. Pollock & L. A. Reichert collectors, sift leaf litter; 1 ♂ 1 ♀; Australia, Vic. Myrtle Gully Res., NW Warburton, m 1000, 37° 43' S 145° 38' E, 30.I-9.II.1987, A. Newton & M. Thayer 819, FMHD #87-247, flight intercept (window) trap, *Noth. cunn. - Euc. Regnans*; 3 ♂♂ 6 ♀♀, Australia, Vic., Mt. Donna Buang 0.5 km below 10 mi turntable 1005 m, 14.I.1980, A. Newton, M. Thayer flood detn's wet moss, for.

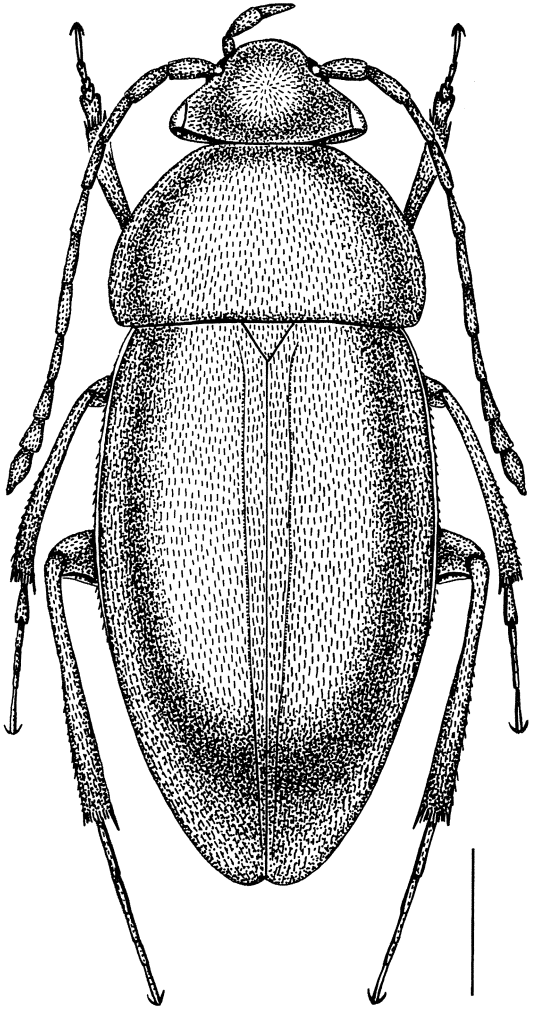


Fig. 26 – *Nargiotes victoriensis* n. sp., Holotype ♂: habitus. Scale: 0.5 mm.

Stream; 1 ♂ 1 ♀, Australia, Vic., Mt. Donna Buang summit 1250 m, 14-17.I.1980, A. Newton, M. Thayer, *Eucalyptus* woodland, berl. forest leaf & log litter; 7 ♂♂ 5 ♀♀, Australia, Vic., Mt. Donna Buang 1200 m, 11-17.I.1980, A. Newton, M. Thayer, *Eucalypt.-Nothof.* for., berl. forest leaf & log litter; 1 ♀, Australia, Vic., Mt. Donna Buang 1200 m, 11-17.I.1980, A. Newton, M. Thayer, *Eucalypt.-Nothof.* for., window trap 550; 1 ♀, Australia, Vic., Warburton, Cement Ck., m 670, 10-17.I.1980, *Nothofagus cunninghamii* etc., A. Newton M. Thayer, flood debris; 15 ♂♂ 22 ♀♀, Australia, Vic., Warburton, Cement Creek m 670, 10-17.I.1980, *Nothofagus cunninghamii*, etc., A. Newton, M. Thayer, flood debris forest stream; 1 ♀, Australia, Vic., 500 m, Cement Creek, 5 km N Warburton, S. & J. Peck, 30.IV-7.V.1978, *Nothofagus* ravine, forest litter berlese; 3 ♂♂ 1 ♀, Australia, Vic., Kallista, Sherbrooke For. Pk., 400-500 m, 15.I.1980, A. Newton, M. Thayer, wet sclerophyll for., berl. forest leaf & log litter (ANIC, FMNHC, NMV, MRSN, CGI, CPe, CVa).

## DIAGNOSIS

This is a medium-large sized *Nargiotes* species (2.51 - 2.96 mm). *N. victoriensis* n. sp. differs from *N. newtoni* n. sp. and *N. thayeri* n. sp. by their smaller size and in the shape of the median lobe of the aedeagus with preapically deeply hollowed sides in dorsal view.

## DESCRIPTION

Total length with the head deflexed 2.51 - 2.74 ♂♂ mm, 2.90 - 2.96 ♀♀ mm; body dark brown; legs, antennae and palpi just slightly lighter; antennal club of the same colour.

Antennae long (a/l: 0.68 - 0.69 ♂♂, 0.65 - 0.66 ♀♀), reaching the middle of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere as long as the 7<sup>th</sup>.

Pronotum transverse (pw/l: 1.75 - 1.86 ♂♂, 1.70 - 1.74 ♀♀), with the maximum width at the basal third; base slightly narrower and a little sinuate before the basal angles. Sides elongately and regularly arcuate anteriorly, slightly converging posteriorly; hind angles obtuse, marked. Pronotum disc regularly convex, not flat near the hind angles; punctuation of small size; pubescence golden, long and recumbent.

Elytra ovoidal, elongated (ew/l: 0.59 - 0.65 ♂♂, 0.66 - 0.67ff), with the maximum width at about the basal third. Elytral apex rounded in the ♂, not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria complete, distinct; punctuation of small size. Pubescence golden, long and recumbent.

Legs robust; protibiae not dilated apically, mesotibiae weakly arcuate, and metatibiae straight, mesofemora not dentate in the male. Protarsi with the first 2 tarsomeres dilated in the ♂, as wide as the protibial apex; mesotarsi with one tarsomere dilated in the ♂.

Male genital segment elongated (fig. 34), with the tergite longer than the pleurites, and the hind edge deeply hollowed; pleurites with the hind edge slightly hollowed in the latero-ventral zone, forming two points of subequal length, the inner one relatively stocky; ventral apophysis short and stocky.

Aedeagus (figs. 27, 30) with the median lobe short and stocky; basal blade of the median lobe, in dorsal view, robust, short, but much longer than the remaining part of the median lobe, and with subparallel sides. Distal part of the median lobe, in dorsal view, subtriangular, with deeply hollowed sides and acute apex, but not acuminate; median lobe, in lateral view, frail, weakly sinuate, with the apex then weakly bent downwards. Parameres clearly longer than the median lobe, without membranous areas, bearing only one external preapical seta. In dorsal view they are stocky, slightly curved inwards, with the apex weakly hooked outwards. In lateral view they are stocky, truncate apically and twisted in the distal fifth. Internal sac with two dentate sclerotized areas.

#### ETYMOLOGY

The name refers to the state of Victoria, where the type locality occurs.

#### DISTRIBUTION AND ECOLOGY

*N. victoriensis* n. sp. is known from localities NE of Melbourne in Victoria (fig. 84) where it was collected at elevations between 400 and 1,250 m a.s.l., by litter sieving and window traps in rainforests of *Nothofagus cunningami* and *Eucalyptus regnans*. Adults were mostly collected in January and December.

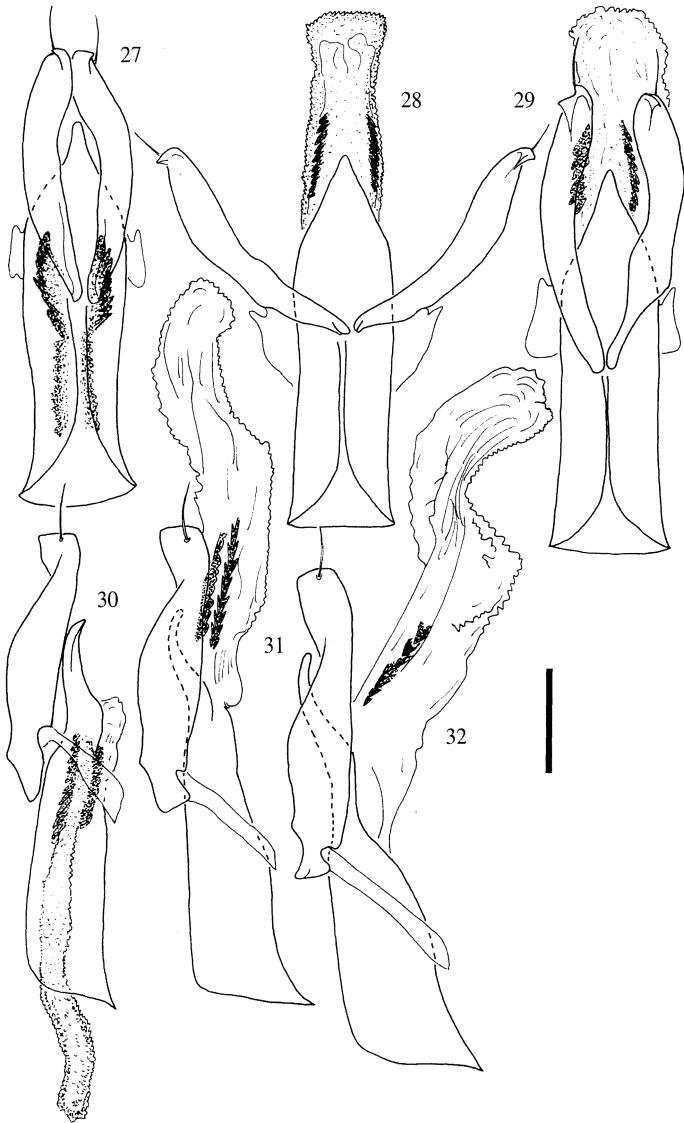
#### **Nargiotes newtoni** n. sp. (Figs. 28, 31, 33, 35, 84)

Type locality: Australia Victoria, Otway N.P., Maits Rest, 260 m, 38° 45' S 143° 33' E.

Type Series: Holotype ♂, Australia Vic. Otway N.P., Maits Rest, 260 m, 38° 45' S 143° 33' E, 25.I - 8. II.1987, A. Newton & M Thayer 807, wet scleroph. *Noth. cunn.*, FMHD #87-206 flight intercept (window) trap (ANIC). Paratypes: **Victoria**. 3 ♀♀, Australia Vic. Otway N.P., Binn Rd. 4.3 km N Cape Horn, 38° 43' S 143° 36' E 390 m, 25.I - 8.II.1987, A. Newton & M Thayer 808, wet sclerophyll forest, FMHD #87-210 flight intercept (window) trap; 2 ♂♂ 7 ♀♀, Australia Vic. Otway N.P., Maits Rest, 260 m, 38° 45' S 143° 33' E, 25.I - 8.II.1987, A. Newton & M Thayer 807, wet scleroph. *Noth. cunn.*, FMHD #87-206 flight intercept (window) trap (FMNHC, CGi, CPe).

#### DIAGNOSIS

This is a large-sized *Nargiotes* species (2.83 - 3.23 mm). *N. newtoni* n. sp. differs from *N. victoriensis* n. sp. in its bigger size and the shape of the median lobe of the aedeagus in dorsal view, with sides not hollowed preapically; whereas it differs from *N. thayeri* n. sp. in its shorter parameres, having a shorter truncate apical area in lateral view.



Figs. 27-32 – *Nargiotes* spp.: aedeagus, median lobe in dorsal and lateral view. *N. victoriensis* n. sp. Holotype (27), Paratype (30); *N. newtoni* n. sp.: Paratype (28), Holotype (31); *N. thayeri* n. sp.: Paratype (29), Holotype (32). Scale: 0.1 mm.

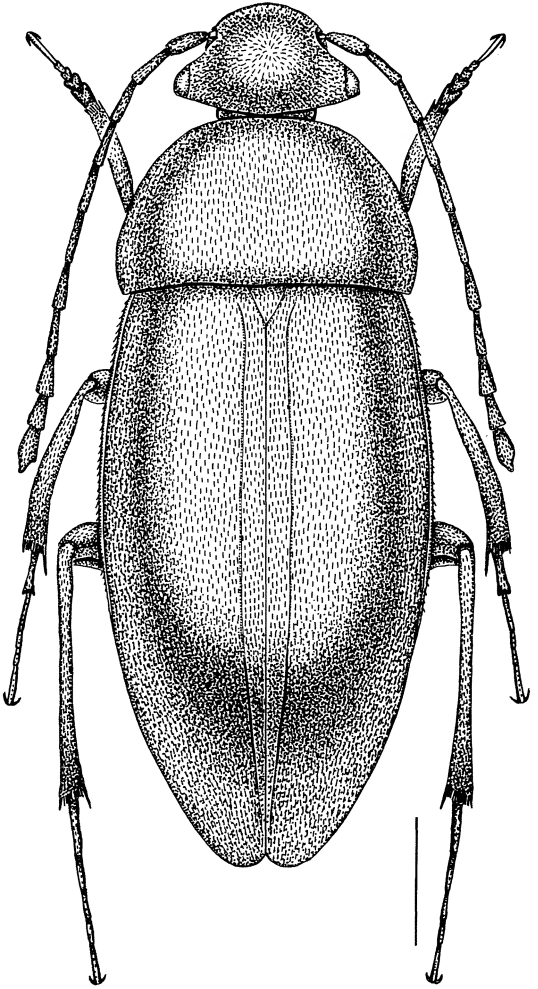


Fig. 33 – *Nargiotes newtoni* n. sp., Holotype ♂: habitus. Scale: 0.5 mm.

## DESCRIPTION

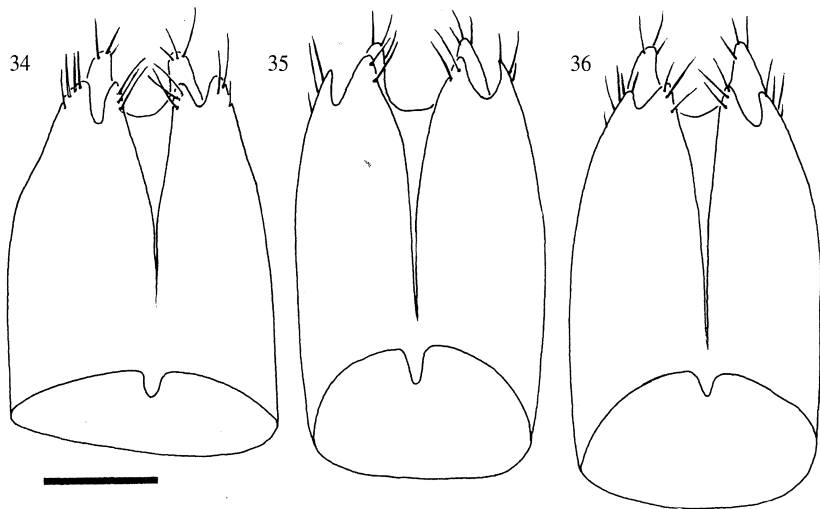
Total length with the head deflexed 2.83 - 3.23 ♂♂ mm, 2.90 - 3.06 ♀♀ mm; body dark brown; legs, antennae and palpi just slightly lighter; antennal club of the same colour.

Antennae long (a/l: 0.65 - 0.66 ♂♂, 0.65 - 0.67 ♀♀), not reaching the middle of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere as long as the 7<sup>th</sup>.

Pronotum transverse (pw/l: 1.75 - 1.83 ♂♂, 1.74 - 1.83 ♀♀), with the maximum width at the basal fourth; base slightly narrower and a little sinuate before the basal angles. Sides elongately and regularly arcuate anteriorly, slightly converging posteriorly; hind angles obtuse, marked. Pronotum disc regularly convex, not flat near the hind angles; punctuation of medium size; pubescence golden, short and recumbent.

Elytra ovoidal, elongated (ew/l: 0.56 - 0.60 ♂♂, 0.61 - 0.63 ♀♀), with the maximum width at about the basal third. Elytral apex rounded in the ♂, not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria complete, distinct; punctuation of medium size. Pubescence golden, long and recumbent.

Legs robust; protibiae not dilated apically, mesotibiae weakly arcuate, and metatibiae straight, mesofemora not dentate in the male. Protarsi with the first



Figs. 34-36 - *Nargiotes* spp.: male genital segment in ventral view. *N. victoriensis* n. sp. Holotype (34), *N. newtoni* n. sp.: Paratype (35); *N. thayeri* n. sp.: Paratype (36). Scale: 0.1 mm.

2 tarsomeres dilated in the ♂, as wide as the protibial apex; mesotarsi with one tarsomere dilated in the ♂.

Male genital segment elongated (fig. 35), with the tergite longer than the pleurites, and the hind edge deeply hollowed; pleurites with the hind edge slightly hollowed in the latero-ventral margin, forming two points of subequal length, the inner one relatively stocky; ventral apophysis short and stocky.

Aedeagus (figs. 28, 31) with the median lobe short and stocky; basal blade of the median lobe, in dorsal view, robust, short, slightly longer than the remaining part of the median lobe, and with subparallel sides. Distal part of the median lobe, in dorsal view, subtriangular, with subrectilinear sides and acute apex, but not acuminate; median lobe, in lateral view, frail, clearly bent upwards in the middle, with the apex then regularly curved downwards. Parameres clearly longer than the median lobe, without membranous areas, bearing only one external apical seta; in dorsal view, stocky, slightly curved inwards, with the apex distinctly hooked outwards; in lateral view, stocky, truncate apically and twisted in the distal fourth. Internal sac with two more sclerotized dentate areas.

#### ETYMOLOGY

This new species is dedicated to one of its collectors, Dr. A. F. Newton of the Field Museum of Natural History of Chicago, who has contributed so much to an understanding of the higher classification of Staphylinoida, and especially of the Leiodidae.

#### DISTRIBUTION AND ECOLOGY

*N. newtoni* n. sp. is known from localities SW of Melbourne in Victoria (fig. 84) where it was collected at elevations between 260 and 390 m a.s.l., by means of window traps in a wet sclerophyll forest of *Nothofagus cunninghami*. Adults are known only from the month of February.

#### ***Nargiotes thayeri* n. sp.**

(Figs. 29, 32, 36, 37, 84)

Type locality: Australia, Victoria, TarraBulga N. P., Grand Ridge Rd. at Traralgon-Balook Rd. 690 m, 38° 25' S 146° 34' E.

Type Series: Holotype ♂, Australia, Vic. TarraBulga N. P., Grand Ridge Rd. at Traralgon-Balook Rd. m 690, 38° 25' S 146° 34' E 13-25.II.1993, FMHD # 93-90 window trap, A. Newton & M. Thayer 928, Field Mus. Nat. Hist., ridge top open *Euc. regnans-Acacia melanoxyton* forest w/*Chyatea* treeferns (ANIC). Paratypes: **Victoria**. 2 ♂♂ 1 ♀, Australia, Vic. Mt. Worth N. P., Trevorrow Mill, m 300, 38° 17' S 146° 00' E, 7.II.1987, A. Newton & M. Thayer 815, FMHD #87-237, berl. leaf & log litter, forest floor, wet sclerophyll forest; 19 ♂♂ 23 ♀♀, Australia, Vic. TarraBulga N. P.,



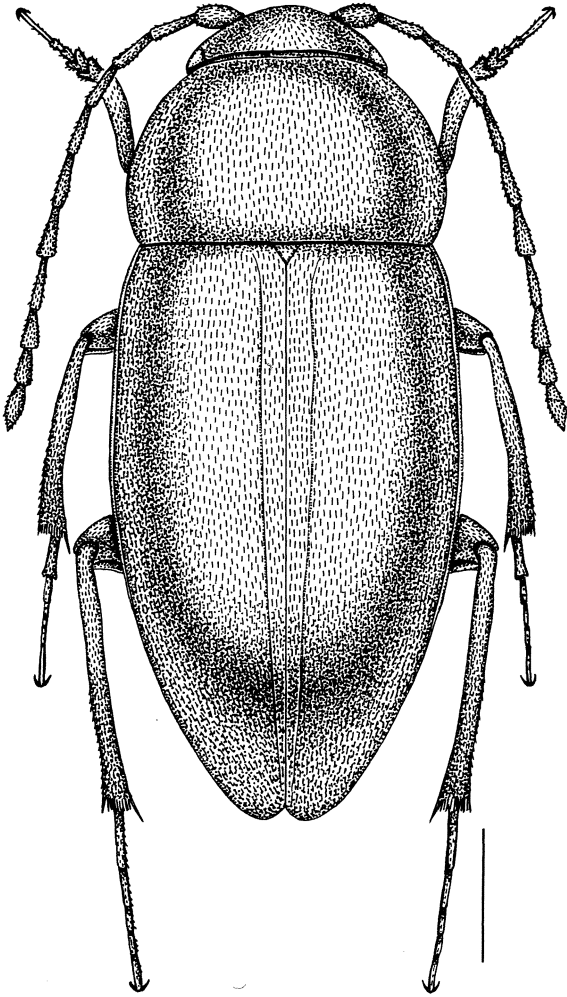


Fig. 37 – *Nargiotes thayeri* n. sp., Holotype ♂: habitus. Scale: 0.5 mm.

Grand Ridge Rd. at Traralgon-Balook Rd. m 690, 38° 25' S 146° 34' E 13-25.II.1993, FMHD # 93-90 window trap, A. Newton & M. Thayer 928, Field Mus. Nat. Hist., ridge top open *Euc. regnans-Acacia melanoxylon* forest w/*Chyatea* treeferns; 10 ♂♂ 6 ♀♀, Australia, Vic. TarraBulga N. P., Grand Ridge Rd. at Traralgon-Balook Rd. m 690, 38° 25' S 146° 34' E 13.II.1993, FMHD # 93-92 berl. leaf & log litter, A. Newton & M. Thayer 928, Field Mus. Nat. Hist., ridge top open *Euc. regnans-Acacia melanoxylon* forest w/*Chyatea* treeferns; 14 ♂♂ 10 ♀♀, Australia, Vic. TarraBulga N. P., Tarra Valley near Picnic Area m 340, 38° 27' S 146° 32' E 13-25.II.1993, FMHD # 93-87 window trap, A. Newton & M. Thayer 927, Field Mus. Nat. Hist., cool temperate rainforest w/*Noth. cunn. Dicksonia* tree ferns etc.; 12 ♂♂ 8 ♀♀, Australia, Vic., Wilson Prom. N.P., 16.V.1978, S. & J. Peck, Lilly Pilly Tr., 3 m, *Eugenia* temp. rainforest, forest litter berlese (FMNHC, MRSN, CBu, CGi, CPe, CVa).

## DIAGNOSIS

This is a large-sized *Nargiotes* species (2.96 - 3.19 mm). *N. thayeri* n. sp. differs from *N. victoriensis* n. sp. by its bigger size and the shape of the median lobe of the aedeagus with sides only weakly hollowed preapically in dorsal view; it differs from *N. newtoni* n. sp. in the longer parameres and, in lateral view, a longer truncate apical area.

## DESCRIPTION

Total length with the head deflexed 2.96 - 3.11 ♂♂ mm, 3.16 - 3.19 ♀♀ mm; body dark brown; legs, antennae and palpi just slightly lighter; antennal club of the same colour.

Antennae long (a/l: 0.68 - 0.69 ♂♂, 0.61 - 0.62 ♀♀), reaching the middle of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere as long as the 7<sup>th</sup>.

Pronotum transverse (pw/l: 1.72 - 1.76 ♂♂, 1.82 - 1.89 ♀♀), with the maximum width at the basal third; base slightly narrower and a little sinuate before the basal angles. Sides elongately and regularly arcuate anteriorly, slightly converging posteriorly; hind angles obtuse, marked. Pronotum disc regularly convex, not flat near the hind angles; punctuation of medium size; pubescence golden, short and recumbent.

Elytra ovoidal, elongated (ew/l: 0.61 - 0.62 ♂♂, 0.61 - 0.62 ♀♀), with the maximum width at about the basal third. Elytral apex rounded in the ♂ not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria complete, distinct; punctuation of medium size. Pubescence golden, long and recumbent.

Legs robust; protibiae not dilated apically, mesotibiae weakly arcuate, and metatibiae straight, mesofemora not dentate in the male. Protarsi with the first 2 tarsomeres dilated in the ♂, as wide as the protibial apex; mesotarsi with one tarsomere dilated in the ♂.

Male genital segment elongated (fig. 36), with the tergite longer than the pleurites, and the hind edge deeply hollowed; pleurites with the hind edge slightly hollowed in the latero-ventral zone, forming two points of subequal

length, the inner one relatively stocky; ventral apophysis short and stocky.

Aedeagus (figs. 29, 32) with the median lobe short and stocky; basal blade of the median lobe, in dorsal view, robust, short, about as long as the remaining part of the median lobe, and with subparallel sides. Distal part of the median lobe, in dorsal view, subtriangular, with slightly hollowed sides and acute apex, but not acuminate; median lobe, in lateral view, frail, clearly sinuate, with the apex regularly curved downwards. Parameres clearly longer than the median lobe, without membranous areas, bearing only one external apical seta. In dorsal view they are stocky, slightly curved inwards, with the apex distinctly hooked outwards. In lateral view they are stocky, truncate apically and twisted in the distal third. Internal sac with two more sclerotized dentate areas.

#### ETYMOLOGY

This new species is dedicated to one of its collectors, Dr. M. K. Thayer of the Field Museum of Natural History of Chicago, in recognition of her work in taxonomy of Staphylinidae.

#### DISTRIBUTION AND ECOLOGY

*N. thayeri* n. sp. is known from localities SE of Melbourne in Victoria (fig. 84); where it was collected at elevations between 3 and 690 m a.s.l., by litter sieving and window traps both in open forests with *Eucalyptus regnans* and *Acacia melanoxylon* and in cool temperate forests with *Nothofagus cunninghami* and *Dicksonia* (tree ferns). Most adults were collected in the months of February and May.

#### << monteithi group >>

This group is characterized by medium-large sized species (2.35 - 2.87 mm), with long antennae, 8<sup>th</sup> antennomere about as long as the 7<sup>th</sup>, and 1<sup>st</sup> mesotarsomere dilated in males; male mesofemora simple, not dentate. Median lobe of the aedeagus more or less elongated, and more or less regularly tapered from base to apex; apex distinctly bent upwards in lateral view. Parameres very widely developed, almost "embracing" the median lobe, without membranous areas, and bearing only one preapical seta. Internal sac with two or more large bifid teeth. Male genital segment elongated, with the tergite shorter than the pleurites, and the hind edge deeply hollowed; pleurites with the hind edge deeply hollowed in the latero-ventral zone, and with a deeply incised ventrite.

*N. monteithi* n. sp. and *N. thompsoni* n. sp. belong to this species group.

## KEY TO SPECIES

1. Larger sized species (2.64 - 2.82 ♂♂ mm, 2.77 - 2.87 ♀♀ mm). Elytral apex truncate in the ♂, dentate in the ♀. Apex of the median lobe buttonlike in dorsal view. Parameres enormously developed in width; their width three times that of the basal blade of the median lobe in lateral view. . . . . **monteithi**
2. Smaller sized species (2.57 - 2.58 ♂♂ mm, 2.35 - 2.72 ♀♀ mm). Elytral apex simple in both sexes. Apex of the median lobe subacuminate in dorsal view. Parameres less developed in width; width less than twice that of the basal blade of the median lobe in lateral view. . . . . **thompsoni**

**Nargiotes monteithi n.sp.**

(Figs. 38 - 40, 44, 46, 84)

Type locality: Australia, NE Queensland, Mossman Bluff Track, 5-10 km W Mossman, 1300 m.

Type Series: Holotype ♂, Australia, NE Queensland, Mossman Bluff Track, 5-10 km W Mossman, m 1300, 20 Dec. 1989 - 15 Jan. 1990, Monteith, Thompson & ANZSES, site 10, intercept (QM).  
 Paratypes: **Queensland**. 2 ♂♂ 5 ♀♀, Australia, NE Queensland, Mossman Bluff Track, 5-10 km W Mossman, m 1300, 20 Dec. 1989 - 15 Jan. 1990, Monteith, Thompson & ANZSES, site 10, intercept; 1 ♂, Australia, NE Queensland, Mossman Bluff Track, 5-10 km W Mossman, m 1000, 20 Dec. 1989 - 15 Jan. 1990, Monteith, Thompson & ANZSES, site 7, flt.intercept; 3 ♂♂ 2 ♀♀, Australia, NE Queensland, Mossman Bluff Track, 5-10 km W Mossman, m 1180, 20 Dec. 1989 - 15 Jan. 1990, Monteith, Thompson & ANZSES, site 8, intercept; 2 ♂♂ 4 ♀♀, Australia, NE Queensland, Mossman Bluff Track, 5-10 km W Mossman, m 1260, 20 Dec. 1989 - 15 Jan. 1990, Monteith, Thompson & ANZSES, site 9, intercept; 1 ♀, N.E. Qld., Mt. Lewis Rd., 22 km from Hyghway, 18 Dec. 1989 - 13 Jan. 1990, Site 3, 1000 m, Flt. Intercept, Monteith, Thompson, ANZSES (QM, CGi, CPe).

## DIAGNOSIS

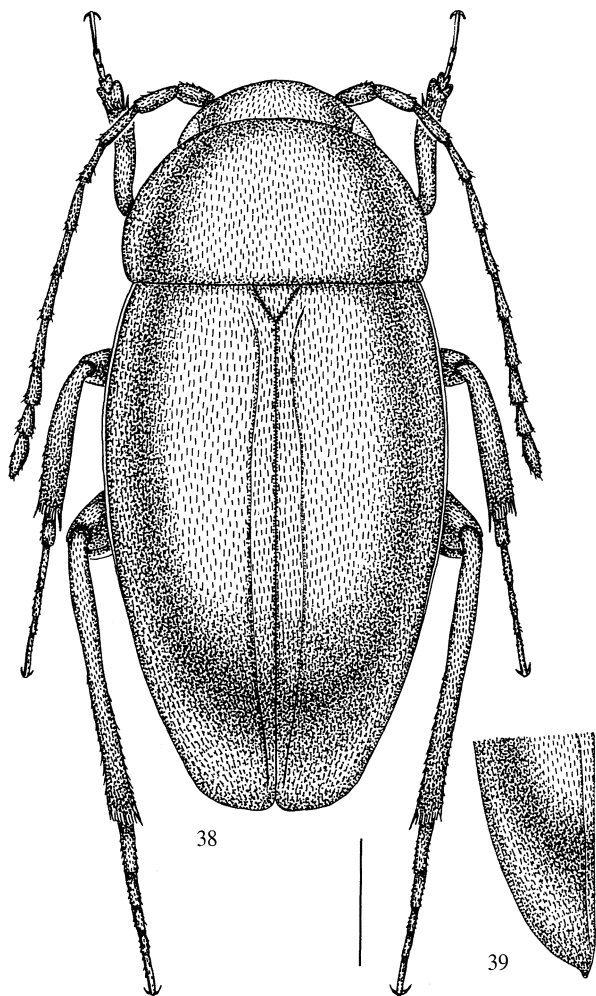
This is a medium-sized *Nargiotes* species (2.64 - 2.87 mm). *N. monteithi* n. sp. differs from *N. thompsoni* n. sp. in the shape of the parameres, in lateral view, much more developed in width and in the elytral apex being truncate in the male and dentate in the female.

## DESCRIPTION

Total length with the head deflexed 2.64 - 2.82 ♂♂ mm, 2.77 - 2.87 ♀♀ mm; body brown; legs, antennae and palpi lighter, testaceous; antennae with basal (1-3) and distal articles (9-11) clearly lighter.

Antennae long (a/l: 0.68 - 0.69 ♂♂, 0.61 - 0.62 ♀♀), longer than the middle of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere as long as the 7<sup>th</sup>.

Pronotum transverse (pw/l: 1.85 - 1.89 ♂♂, 1.70 - 1.82 ♀♀), with the maximum width at the basal fourth; base slightly narrower and a little sinuate



Figs. 38-39 – *Nargiotes monteithi* n. sp.: habitus Paratype ♂ (38); apex of female elytron (39).  
Scale: 0.5 mm.

before the basal angles. Sides elongately and regularly arcuate anteriorly, slightly converging posteriorly; hind angles obtuse, marked. Pronotum disc regularly convex, not flat near the hind angles; punctuation of small size; pubescence golden, long and recumbent.

Elytra oval, elongated (ew/l: 0.66 - 0.67 ♂♂, 0.62 - 0.65 ♀♀), with the maximum width at about the middle. Elytral apex truncate in the ♂, dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria complete, distinct; punctuation of small size. Pubescence golden, long and recumbent.

Legs robust; protibiae not dilated apically, mesotibiae arcuate, and metatibiae straight, mesofemora not dentate in the male. Protarsi with the first 2 tarsomeres dilated in the ♂, as wide as the protibial apex; mesotarsi with one tarsomere dilated in the ♂.

Male genital segment elongated (fig. 46), with the tergite shorter than the pleurites, and the hind edge deeply hollowed almost up to a half of the length; pleurites with the hind edge hollowed in the latero-ventral zone, forming two points of subequal length, the inner one subacuminate; ventral apophysis short and stocky.

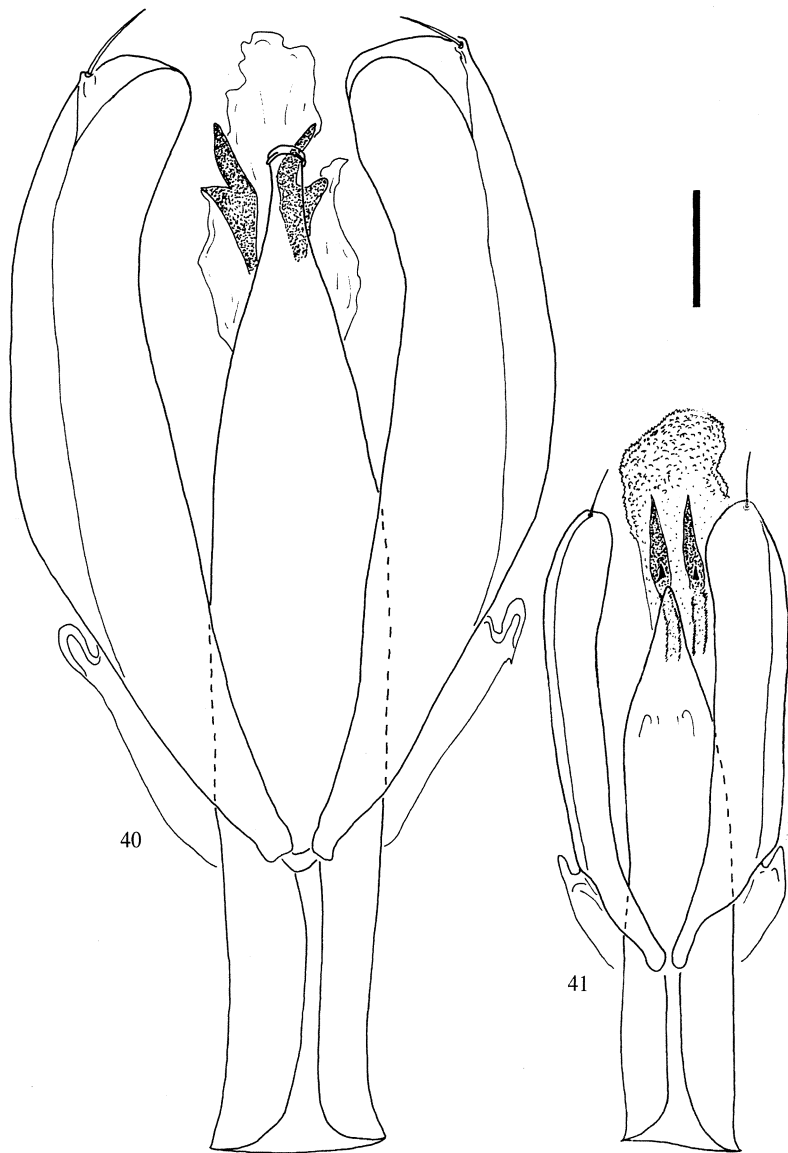
Aedeagus (figs. 40, 44) with the median lobe relatively slender; basal blade of the median lobe, in dorsal view, robust, short, about as long as a half of the remaining part of the median lobe, and with subparallel sides. Distal part of the median lobe, in dorsal view, with subparallel sides in the basal half, narrowed in the distal fourth, forming a subtruncate apex, with an apical button; median lobe, in lateral view, frail, bisinuate, with the apex distinctly hooked upwards. Parameres longer than the median lobe, without membranous areas, bearing only one external apical seta; in dorsal view, stocky and curved inwards, with the apex widely rounded; in lateral view, very wide and stocky, almost embracing the median lobe, and with a rounded apex. Internal sac with two ventral and bifid chitinized teeth in the central area.

## ETYMOLOGY

This new species is dedicated to one of its collectors, Dr. G. B. Monteith of the Department of Entomology of the Queensland Museum, as a token of esteem in recognition of his extensive fieldwork in sampling and making known the insect fauna of Queensland and other parts of Australia.

## DISTRIBUTION AND ECOLOGY

*N. monteithi* n. sp. is known from localities near Mossman, in the N of Queensland (fig. 84), where it was collected at elevations between 1,000 and 1,300 m a.s.l., by means of intercept traps, in tropical rainforests (fig. 42). Most adult specimens were collected in January.



Figs. 40-41 – *Nargiotes* spp.: aedeagus, median lobe in dorsal view. *N. monteithi* n. sp. Paratype (40); *N. thompsoni* n. sp.: Holotype (41). Scale: 0.1 mm.



Fig. 42 – Tropical rainforest at Mossman (Qld, Australia). Type locality of *N. monteithi* n. sp. and *N. thompsoni* n. sp. (Photo by P. M. Giachino).

***Nargiotes thompsoni* n.sp.**  
(Figs. 41, 43, 45, 47, 84)

Type locality: Australia, NE Queensland, Mossman Bluff Track, 5-10 km W Mossman, 250 m.

Type Series: Holotype ♂, Australia, N Queensland, Mossman Bluff Track, 5-10 km W Mossman, m 250, 20 Dec. 1989 - 15 Jan. 1990, Monteith, Thompson & ANZSES, site 1, intercept (QM). Paratypes: **Queensland.** 1 ♂, Australia, N Queensland, Mossman Bluff Track, 5-10 km W Mossman, m 1000, 20 Dec. 1989 - 15 Jan. 1990, Monteith, Thompson & ANZSES, site 7, flt. Intercept; 1 ♂ 3 ♀♀, Australia, N Queensland, Mossman Bluff Track, 5-10 km W Mossman, m 860, 16-30 Dec. 1988, Monteith, Thompson & ANZSES, site 6, intercept; 1 ♂ 4 ♀♀, Australia, N Queensland, Mossman Bluff Track, 5-10 km W Mossman, m 860, 20 Dec. 1989 - 15 Jan. 1990, Monteith, Thompson & ANZSES, site 6, flt. Intercept; 1 ♀, Australia, N Queensland, Mossman Bluff Track, 5-10 km W Mossman, m 1260, 20 Dec. 1989 - 15 Jan. 1990, Monteith, Thompson & ANZSES, site 9, flt. Intercept; 3 ♂♂ 2 ♀♀, N. Qld., Windsor Tableland, 27 Dec. 1988 - 8 Jan. 1989, E. Schmidt & ANZSES, Site 9, Flt. Intercept; 1 ♂, N. Qld., Windsor Tbl., 35 km NNW Mt. Carbine, 25 - 26 Apr. 1982, m 1050, Monteith, Yeates & Cook, Pyrethrum knockdown; 2 ♂♂ 1 ♀, N. Qld., Windsor Tableland, 27 Dec. 1988 - 8 Jan. 1989, E. Schmidt & ANZSES, Site 8, Flt. Intercept; 2 ♂♂, N. Qld., Windsor Tableland, 27 Dec. 1988 - 8 Jan. 1989, E. Schmidt & ANZSES, Site 6, Flt. Intercept; 2 ♀♀, N. Qld., Windsor Tableland, 27 Dec. 1988 - 8 Jan. 1989, E. Schmidt & ANZSES, Site 5, Flt. Intercept; 1 ♂ 1 ♀, N. Qld., Windsor Tableland, 27 Dec. 1988 - 8 Jan. 1989, E. Schmidt & ANZSES, Site 3, Flt. Intercept; 2 ♂♂, NE. Q., 16° 26' S 145° 13' E, Upper Cow Ck., 1.5 km NE of Mt. Spurgeon, m 1180, 15 - 21 Oct. 1991, Pitfalls, Monteith,



Janetzki, Cook & Roberts; 1 ♂ 1 ♀, NE. Q., 16° 25' S 145° 13' E, Stony Creek, 2.5 km NE of Mt. Spurgeon, m 1200, 15 - 21 Oct. 1991, Pitfalls, Monteith, Janetzki, Cook & Roberts; 2 ♂ ♂, NQld., 2 km SE Mt. Spurgeon via Mt. Carbine, 20 Dec. 1988 - 4 Jan. 1989, Monteith, Thompson & ANZSES, m 1100, Flt. Intercept; 2 ♀ ♀, N.E. Qld., Mt. Lewis Rd., 16 km from Hyghway, 18 Dec. 1989 - 13 Jan. 1990, Site 2, 950 m, Flt. Intercept, Monteith, Thompson, ANZSES; 6 ♂ ♂ 6 ♀ ♀, Australia, Qld., rainforest 20 km S Mossman, Mt. Lewis, m 1000, 10.VII.1982, S. & J. Peck, log-leaf litter; 1 ♀, Aus., Qld., Mt. Lewis, 20.XII.1986, FIT, H. & A. Howden; 11 ♀ ♀, Australia, Qld., 20 km SW Mossman, m 1000, Mt. Lewis, S. & J. Peck, 26.VI-1.VIII.1982, rainforest FIT, 82-52; 2 ♂ ♂, Australia, Qld., 20 km SW Mossman, m 1000, Mt. Lewis, S. & J. Peck, 26.VI-1.VIII.1982, rainforest carrion trap, 82-64; 1 ♂, NEQ., 16° 30' S 145° 19' E, Mt. Demi summit, m 1000, 16 - 17 Dec. 1995, Monteith, Pyrethrum, trees; 2 ♂ ♂ 1 ♀, Australia, Queensland, Bellenden Ker Range, Summit TV Stn. m 1560, 17 Oct. - 5 Nov. 1981, Earthwatch/Qld. Museum, Pitfall Trap, Rainforest; 9 ♂ ♂ 6 ♀ ♀, Australia, Queensland, Bellenden Ker Range, Cable Tower 3. m 1054, 17 Oct. - 5 Nov. 1981, Earthwatch/Qld. Museum, Baited Window Trap; 4 ♂ ♂ 8 ♀ ♀, Australia, Queensland, Bellenden Ker Range, Summit TV Stn. m 1560, 17 Oct. - 5 Nov. 1981, Earthwatch/Qld. Museum, Baited Window Trap; 1 ♀, Australia, Queensland, Bellenden Ker Range, Summit TV Stn. m 1560, 17 Oct. - 5 Nov. 1981, Earthwatch/Qld. Museum, Malaise trap, rainforest; 1 ♀, N Qld., Mt. Bartle-Frere, NW/Centre Peak ridge, 7-8.X.1981, 1400-1500 m, Earthwatch/Qld. Museum, Pitfall Trap in rainforest; 1 ♂, E QLD, Longlands Gap BS1, 1150 m, 17° 28' S 145° 29' E, 1 Dec. 1994 - 3 Jan. 1995, P. Zborowski F L Trap ANIC; 2 ♂ ♂ 5 ♀ ♀, N. Q., Mt. Fisher, 1050-1100 m, 7 km SW Millaa Millaa, 27-29 Apr. 1982, Monteith, Yeates & Cook, Pyrethrum knockdown; 1 ♂, Mt. Fisher, m 1100, 7 km SW Millaa Millaa, 27 Apr. 1982, Monteith, Yeates & Cook, Q. M. Berlesate n° 409, 17° 34' S 145° 34' E, rainforest sieved litter; 1 ♀, Mt. Fisher, m 1100, 7 km SW Millaa Millaa, 27 Apr. 1982, Monteith, Yeates & Cook, Q. M. Berlesate n° 408, 17° 34' S 145° 34' E, rainforest Stick brushing; 1 ♂, Qld., 17° 33' S 145° 32' E, Mt. Fisher, m 1150, BS2, 1 Dec. 1994 - 3 Jan. 1995, P. Zborowski, F I Trap JCU (East); 2 ♂ ♂ 3 ♀ ♀, Australia, Qld., Rosina Creek, 14 km SE Millaa Millaa, Palmerston Hwy., 720 m, 24.VI-2.VIII.1982, rainforest FIT, S. & J. Peck; 1 ♂, N. E. Qld., Kirrama Range (Douglas Creek Rd., m 800), 10 Dec. 1986 - 11 Ja. 1987, Monteith, Thompson & Hamlet, Flight Intercept Trap; 1 ♂ 2 ♀ ♀, Australia, Qld., 32 km NW Cardwell, S. & J. Peck, Kirrama St. Forest, 23.VI-8.VIII.1982, rainforest FIT, 800 m; 2 ♂ ♂ 1 ♀, Australia, Qld, 40 km W Ingham, 600 m, S. & J. Peck, nr. Wallaman Falls, 22.VI-7.VIII.1982, rainforest FIT; 5 ♂ ♂ 2 ♀ ♀, N. Qld., Paluma Dam Rd., Site 1, 900 m, 8 Dec. 1990 - 5 Feb. 1991, Monteith & Seymour, Flight Intercept Trap; 2 ♂ ♂, N. Qld., Paluma Dam Rd., Site 2, 720 m, 17 Nov. - 8 Dec. 1990, Monteith & Seymour, Flight Intercept Trap; 1 ♂ 1 ♀, N. Qld., Paluma Dam Rd., Site 3, 800 m, 17 Nov. - 8 Dec. 1990, Monteith & Seymour, Flight Intercept Trap; 1 ♀, N. Qld., Paluma Dam Rd., Site 4, 750 m, 17 Nov. - 8 Dec. 1990, Monteith & Seymour, Flight Intercept Trap; 3 ♂ ♂ 4 ♀ ♀, Australia, Qld., Paluma, Paluma Dam Road, 850 m, 22.VI-6.VIII.1982, S. & J. Peck, rainforest FIT; 2 ♀ ♀, Qld., Star Valley Lookout, c 5 km W of Paluma, 3.VII.1967 at light, J. B. Brooks; 1 ♂ 1 ♀, N.E. Qld., Mt. Lewis Rd., 22 km from Hyghway, 18 Dec. 1989 - 13 Jan. 1990, Site 3, 1000 m, Flt. Intercept, Monteith, Thompson, ANZSES; 2 ♂ ♂ 1 ♀, NEQ., 19° 07' S 146° 23' E, Mt. Halifax summit m 1050, Jan. - 20 Mar. 1991, A. Graham, Pitfalls & Intercept; 1 ♀, NEQ., 19° 07' S 146° 23' E, Mt. Halifax summit, 21 Mar. - 10 May. 1991, D. Cook, Heat Pitfalls & Intercept; 2 ♂ ♂ 10 ♀ ♀, N.E. Qld., Bluewater Range, 50 km WNW Townsville, 6 - 9 Dec. 1986, m 700, Monteith, Thompson & Hamlet, Flight Intercept Trap (QM, ANIC, FMNHC, MRSN, CBu, CGi, CPe, CVa).

## DIAGNOSIS

This is a medium-sized *Nargiotes* species (2.35 - 2.72 mm). *N. thompsoni* n. sp. differs from *N. monteithi* n. sp. in the shape of the parameres, which are much less wider in lateral view, and by the elytral apex rounded in the male, not truncate; not dentate in the female.

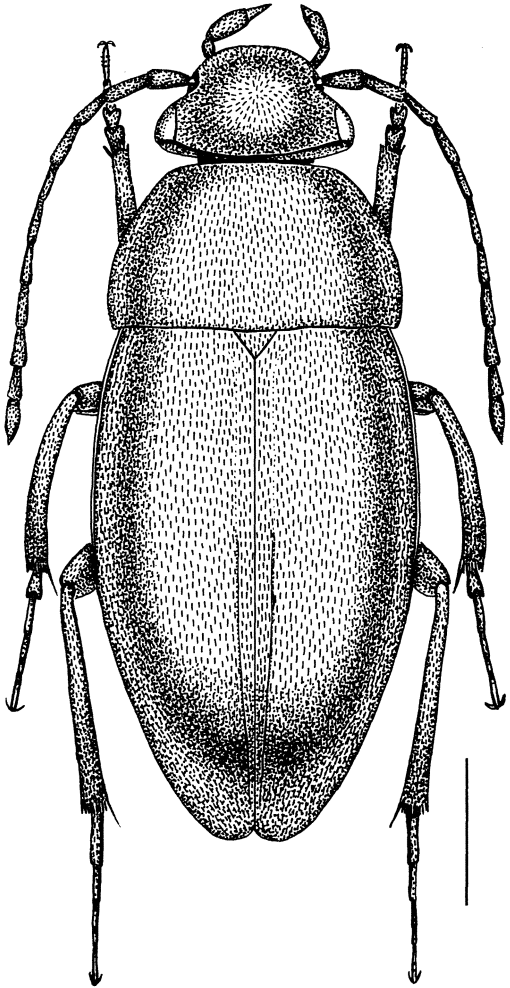


Fig. 43 – *Nargiotes thompsoni* n. sp., Paratype ♂: habitus. Scale: 0.5 mm.

## DESCRIPTION

Total length with the head deflexed 2.57 - 2.58 ♂♂ mm, 2.35 - 2.72 ♀♀ mm; body dark brown; legs, antennae and palpi lighter, testaceous; antennae with basal (1-3) and distal articles (9-11) lighter.

Antennae long (a/l: 0.67 - 0.69 ♂♂, 0.62 - 0.67 ♀♀), not reaching the middle of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere slightly shorter than the 7<sup>th</sup>.

Pronotum transverse (pw/l: 1.75 - 1.82 ♂♂ 1.70 - 1.79 ♀♀), with the maximum width at the basal third; base slightly narrower and a little sinuate before the basal angles. Sides elongately and regularly arcuate anteriorly, slightly converging posteriorly; hind angles obtuse, well marked. Pronotum disc regularly convex, not flat near the hind angles; punctuation of small size; pubescence golden, short and recumbent.

Elytra ovoidal, elongated (ew/l: 0.64 - 0.66 ♂♂ 0.59 - 0.68 ♀♀), with the maximum width at about the anterior third. Elytral apex rounded in the ♂, not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria complete, but distinct only in the posterior half, it tends to disappear anteriorly; punctuation of small size. Pubescence golden, short and slightly erect.

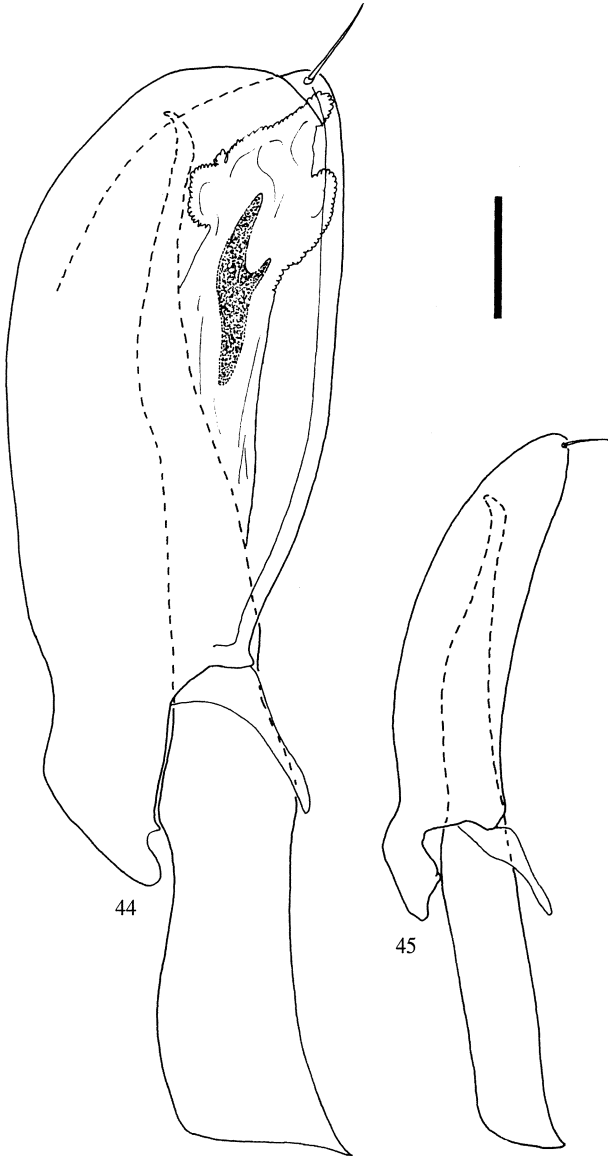
Legs robust; protibiae not dilated apically, mesotibiae arcuate, and metatibiae straight, mesofemora not dentate in the male. Protarsi with the first 2 tarsomeres dilated in the ♂, as wide as the protibial apex; mesotarsi with one tarsomere dilated in the ♂.

Male genital segment elongated (fig. 47), with the tergite shorter than the pleurites, and the hind edge deeply hollowed almost up to a half of the length; pleurites with the hind edge hollowed in the latero-ventral zone, forming two points of subequal length, the inner one acuminate; ventral apophysis short and stocky.

Aedeagus (figs. 41, 45) with the median lobe relatively slender; basal blade of the median lobe, in dorsal view, robust, short, about as long as a half of the remaining part of the median lobe, and with subparallel sides. Distal part of the median lobe, in dorsal view, with subparallel sides in the basal 3/4, regularly narrowed in the distal fourth, forming a subtriangular apex; median lobe, in lateral view, frail, slightly curved downwards, with the apex distinctly hooked upwards. Parameres longer than the median lobe, without membranous areas, bearing only one external apical seta; in dorsal view they are subrectilinear and stocky at the apex, which is widely rounded; in lateral view they are wide and stocky, slightly curved downwards, and with a rounded apex. Internal sac with two ventral and bifid chitinized teeth in the central area.

## ETYMOLOGY

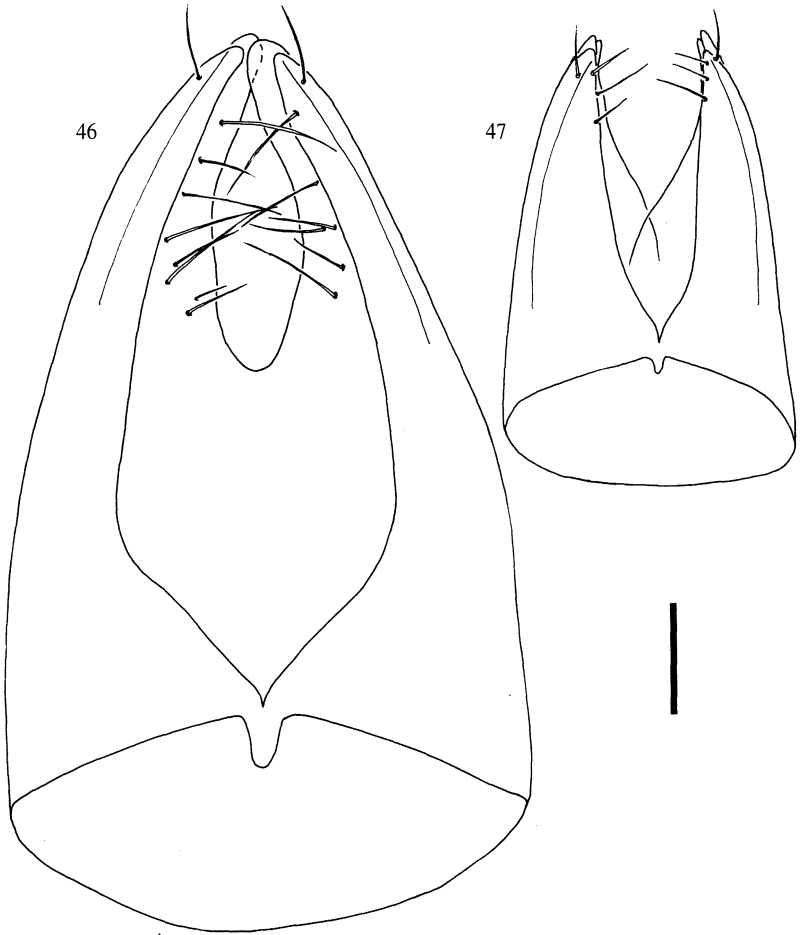
This new species is dedicated to Mr Geoffrey Thompson of the Queensland Museum as a token of esteem for his contribution to the knowledge of the Australian insect fauna.



Figs. 44-45 – *Nargiotes* spp.: aedeagus, median lobe in lateral view. *N. monteithi* n. sp. Holotype (44); *N. thompsoni* n. sp.: Paratype (45). Scale: 0.1 mm.

## DISTRIBUTION AND ECOLOGY

*N. thompsoni* n. sp. is known from about 12 localities in the N of Queensland, between Mossman and Townsville (fig. 84), where it was collected at elevations between 250 and 1560 m a.s.l., by means of pitfall traps, flight intercept traps, baited window traps and pyrethrum knockdown in tropical rainforests. Collections of adults are scattered throughout the year (table 1).



Figs. 46-47 - *Nargiotes* spp.: male genital segment in ventral view. *N. monteithi* n. sp. Paratype (46), *N. thompsoni* n. sp.: Paratype (47). Scale: 0.1 mm.

<< **procerus** group >>

## DIAGNOSIS

The group is characterized by medium-large sized species (2.43 - 2.83 mm), with long antennae, 8<sup>th</sup> antennomere about as long as the 7<sup>th</sup>, and 1<sup>st</sup> mesotarsomere dilated in males; male mesofemora simple, not dentate. Median lobe of the aedeagus elongated, with a remarkably tapered apex, which is not hooked upwards in lateral view. Parameres without membranous areas, bearing only one preapical seta and with a subacuminate apex directed inwards. Internal sac with two big teeth. Male genital segment elongated, with the tergite shorter than the pleurites, and the hind edge hollowed; pleurites with the hind edge hollowed in the latero-ventral zone, forming two points of subequal length.

*N. procerus* Zwick and *N. szymczakowskii* n. sp. belong to this species group.

## KEY TO SPECIES

1. Apex of the median lobe of the aedeagus subtriangular, not tapered. . . . . **szymczakowskii**
- Apex of the median lobe of the aedeagus tapered, with a distinct beak shape. . . . . **procerus**

**Nargiotes procerus** Zwick, 1979

(Figs. 48, 51, 54, 84)

*Nargiotes procerus* Zwick, 1979: 39*Nargiotes procerus* Zwick, 1979: Perreau, 2000: 59

Type locality: New South Wales, Galston (Holotype in ANIC).

## Examined material

**New South Wales.** 3 ♂♂ 3 ♀♀, Australia, NSW, Barrington House, m 400, 40 km NW Dungog, S. & J. Peck, 11.VI-28.VII.1982, wet sclerophyll; 8 ♂♂ 10 ♀♀, Australia, NSW, 3 km N Lansdown U, 4.I.1987, H. & A. Howden; 1 ♂ Paratype, Blue Mts. New S.W., 2456, E.W. Ferguson Collection (ANIC); 1 ♂ (without abdomen) 1 ♀, Austl., N.S.W., Narabeen Lagoon, 19.VII.1983, FMHD # 83-277, *Xostrum* & *Casuarina* drift, L.E. Watrous (ANIC, FMNHC, CGI, CPe).

## DIAGNOSIS

This is a small-sized *Nargiotes* species (2.43 - 2.80 mm). *N. procerus* differs from *N. szymczakowskii* n. sp. by the shape of the median lobe of the

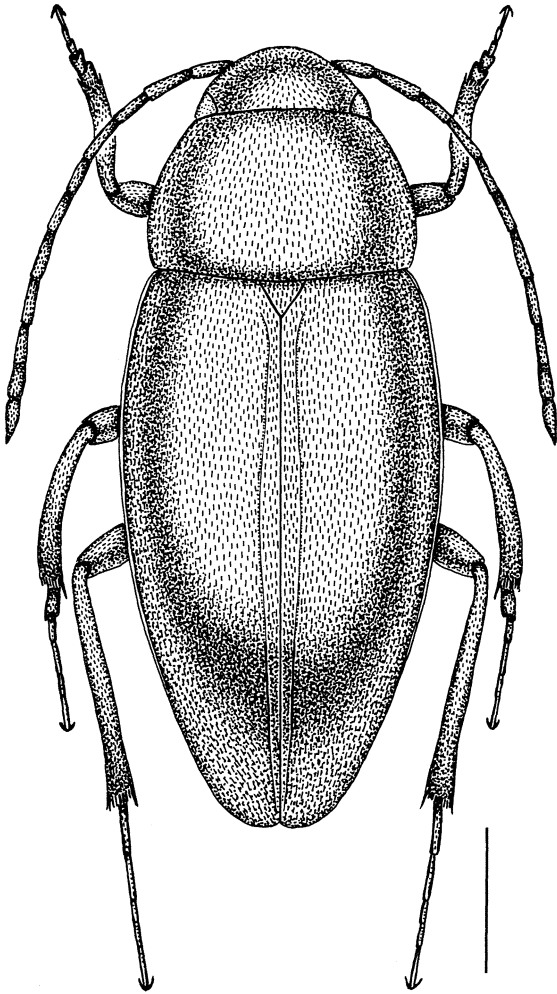
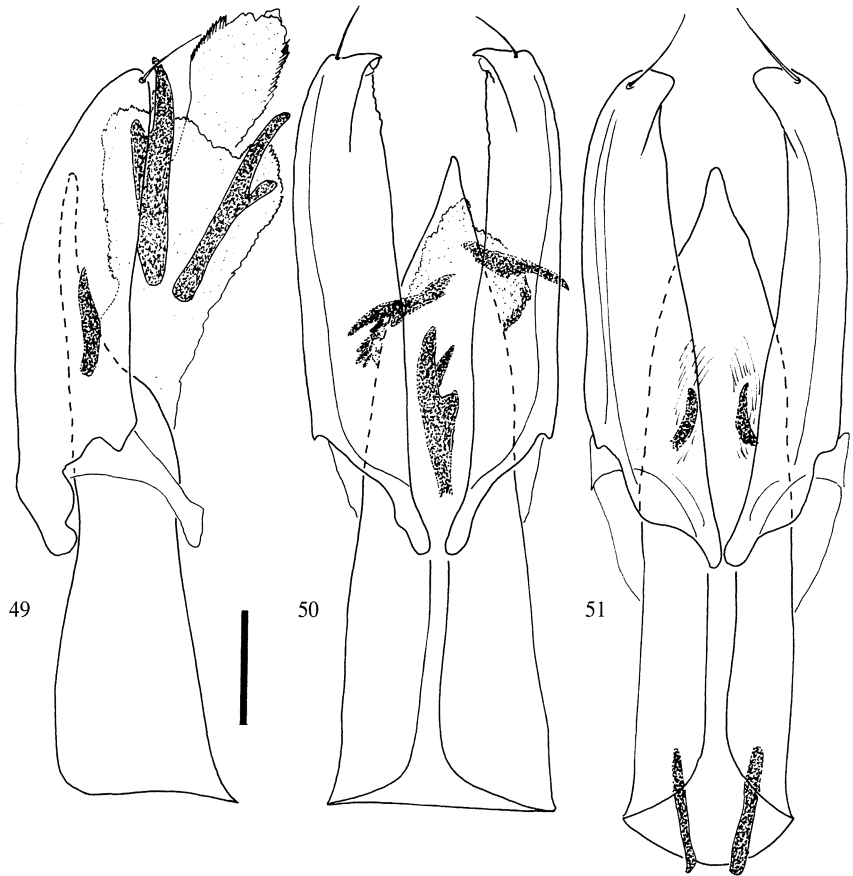


Fig. 48 – *Nargiotes procerus*, Paratype ♂ from Blue Mts: habitus. Scale: 0.5 mm.

aedeagus, which is not subtriangular in dorsal view, and by the elytral apex being rounded, not subtruncate in the male.

#### DESCRIPTION

Total length with the head deflexed 2.43 - 2.66 ♂♂ mm, 2.80 ♀ mm; body brown; legs, antennae and palpi slightly lighter; antennae with basal (1-3) and distal articles (9-11) slightly lighter.



Figs. 49-51 – *Nargiotes* spp.: aedeagus, median lobe in lateral and dorsal view. *N. szymczakowskii* n. sp. Holotype (50), Paratype (49); *N. procerus*: Paratype from Bue Mts (51). Scale: 0.1 mm.



Antennae long (a/l: 0.59 - 0.62 ♂♂, 0.53 ♀), not reaching the middle of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere as long as the 7<sup>th</sup>.

Pronotum transverse (pw/l: 1.56 - 1.61 ♂♂, 1.72 ♀), with the maximum width at the basal third; base slightly narrower and a little sinuate before the basal angles. Sides elongately and regularly arcuate anteriorly, slightly converging posteriorly; hind angles obtuse, well marked. Pronotum disc regularly convex, not flat near the hind angles; punctuation of small size; pubescence golden, short and recumbent.

Elytra ovoidal, elongated (ew/l: 0.60 - 0.62 ♂♂ 0.58 ♀), with the maximum width at about the anterior third. Elytral apex rounded in the ♂, not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria distinct and complete; punctuation of small size. Pubescence golden, short and somewhat erect.

Legs robust; protibiae not dilated apically, mesotibiae arcuate, and metatibiae straight, mesofemora not dentate in the male. Protarsi with the first 2 tarsomeres dilated in the ♂, as wide as the protibial apex; mesotarsi with one tarsomere dilated in the ♂.

Male genital segment elongated (fig. 54), with the tergite shorter than the pleurites, and the hind edge hollowed; pleurites with the hind edge hollowed in the latero-ventral zone, forming two points of subequal length, the inner one rounded; ventral apophysis short and stocky.

Aedeagus (fig. 51) with the median lobe relatively stocky; basal blade of the median lobe, in dorsal view, robust, about as long as the remaining part of the median lobe, and with subparallel sides. Distal part of the median lobe, in dorsal view, subtriangular, with sides regularly tapered from the base almost to the apex, where they narrow abruptly, forming a kind of subacuminate beak; median lobe, in lateral view, frail, slightly curved downwards, with the apex not dentate. Parameres longer than the median lobe, without membranous areas, bearing only one external preapical seta. In dorsal view they are curved and stocky, with the apex dentate inwards. In lateral view they are wide and stocky, with a rounded apex. Internal sac with two ventral chitinized teeth in the central area; in the basal area there are two setose-spinulose bundles ending with two rod-like more sclerotized areas.

#### DISTRIBUTION AND ECOLOGY

*N. procerus* is known from localities around 400 m a.s.l. in the Blue Mts and Barrington Tops Nat. Park, N and NE of Sydney in N.S.W. (fig. 84). The only data available mention collecting on stream-drift covered with *Xostrum* and *Casuarina* and in wet schlerophyll. Adults are known from January and the months from June to October.

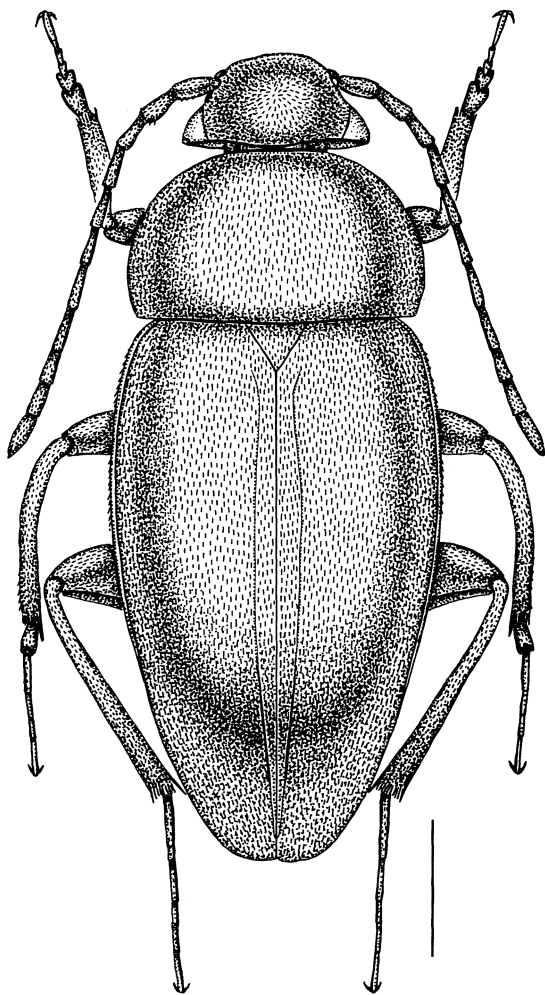


Fig. 52 – *Nargiotes szymczakowskii* n. sp., Holotype ♂: habitus. Scale: 0.5 mm.

***Nargiotes szymczakowskii* n.sp.**

(Figs. 49, 50, 52, 53, 84)

Type locality: Australia, Queensland, Mt Tambourine.

Type Series: Holotype ♂, Tambourine Mountain, Jan. 1893, C. J. Wild, *Choleva* (QM). Paratypes: **Queensland.** 1 ♀, Australia, Qld., Mt. Glorious, nr. Brisbane, I.1989, H. & A. Howden leg.; 13 ♂♂ 18 ♀♀, Australia, Qld., Mt. Glorious, nr. Brisbane, II.1989, malaise trap, H. & A. Howden leg.; 1 ♂ 2 ♀♀, Australia, Qld., Mt. Glorious N. P., m 630, Feb. 28 - March 9. 84, L. Masner, MT, dry sclerophyll *Eucalyptus* for. (FMNHC, MRSN, CBU; CGi, CPe, CVa).

**DIAGNOSIS**

This is a medium-sized *Nargiotes* species (2.53 - 2.83 mm). *N. szymczakowskii* n. sp. differs from *N. procerus* in the shape of the median lobe of the aedeagus, which is clearly subtriangular in dorsal view, and in the subtruncate elytral apex in the male.

**DESCRIPTION**

Total length with the head deflexed 2.53 - 2.80 ♂♂ mm, 2.71 - 2.83 ♀♀ mm; body dark brown; legs, antennae and palpi slightly lighter; antennae with basal and distal articles slightly lighter.

Antennae long (a/l: 0.63 - 0.65 ♂♂, 0.62 - 0.63 ♀♀), not reaching the middle of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere as long as the 7<sup>th</sup>.

Pronotum transverse (pw/l: 1.69 - 1.71 ♂♂, 1.75 - 1.81 ♀♀), with the maximum width at the basal third; base slightly narrower, subrectilinear. Sides elongately and regularly arcuate anteriorly, slightly converging posteriorly; hind angles obtuse, well marked. Pronotum disc regularly convex, not flat near the hind angles; punctuation of medium size; pubescence golden, short and recumbent.

Elytra ovoidal, elongated (ew/l: 0.61 - 0.64 ♂♂, 0.64 - 0.65 ♀♀), with the maximum width at about the anterior third. Elytral apex subtruncate in the ♂, not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria distinct and complete; punctuation of medium size. Pubescence golden, short and slightly erect.

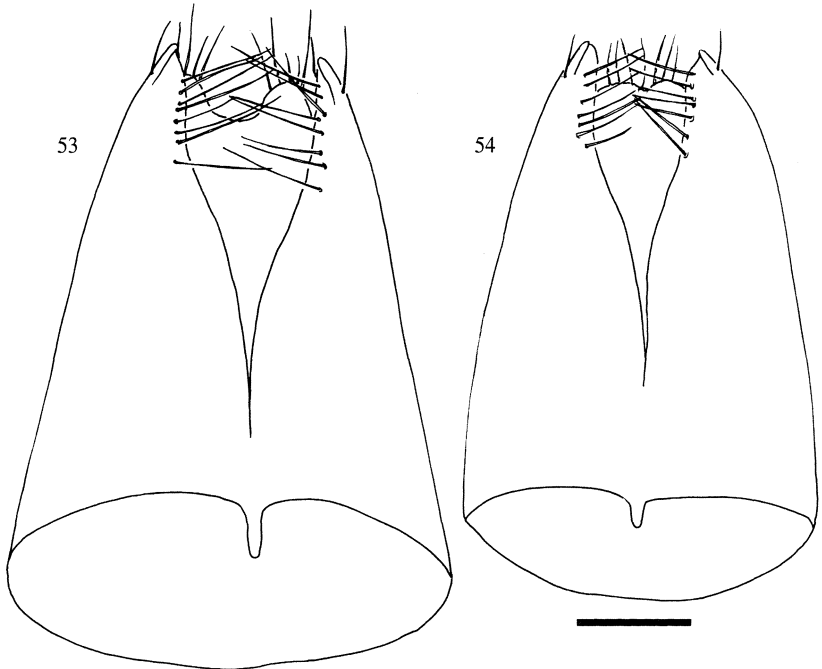
Legs robust; protibiae not dilated apically, mesotibiae arcuate, and metatibiae straight, mesofemora not dentate in the male. Protarsi with the first 2 tarsomeres dilated in the ♂, as wide as the protibial apex; mesotarsi with one tarsomere dilated in the ♂.

Male genital segment elongated (fig. 53), with the tergite shorter than the pleurites, and the hind edge hollowed; pleurites with the hind edge hollowed in the latero-ventral zone, forming two points of subequal length, the inner one rounded; ventral apophysis short and stocky.

Aedeagus (figs. 49, 50) with the median lobe relatively stocky, widely subtriangular; basal blade of the median lobe, in dorsal view, robust, about as long as the remaining part of the median lobe, and with sides converging forwards. Distal part of the median lobe, in dorsal view, subtriangular, with sides regularly tapered from the base to the apex, which is acute; median lobe, in lateral view, frail, slightly curved downwards distally, with the apex not dentate. Parameres longer than the median lobe, without membranous areas, bearing only one external preapical seta; in dorsal view they are subrectilinear and stocky, with the apex dentate inwards; in lateral view they are wide and stocky, with a rounded apex. Internal sac with two big ventral and bifid chitinized teeth in the central area; in the basal area there are two setose-spinulose bundles ending with two rod-like more sclerotized areas.

#### ETYMOLOGY

This new species is dedicated to W. Szymczakowski as a token of recog-



Figs. 53-54 - *Nargiotes* spp.: male genital segment in ventral view. *N. szymczakowskii* n. sp. Holotype (53), *N. procerus*: Paratype from Blue Mts (54). Scale: 0.1 mm.

dition for his extensive and fine work on the taxonomy of Australian and world Cholevinae.

#### DISTRIBUTION AND ECOLOGY

*N. szymczakowskii* n. sp. is known only from localities at about 630 m a.s.l. near and north of Brisbane in the S of Queensland (fig. 84). The only data available mention collecting by malaise trap. The habitats are characterized as subtropical rainforests. Adults were mostly collected in February.

### << blackburni group >>

#### DIAGNOSIS

This group is characterized as large-sized species (2.93 - 3.25 mm), with long antennae, 8<sup>th</sup> antennomere slightly shorter than the 7<sup>th</sup>, 1<sup>st</sup> mesotarsomere dilated in males, and 2 protarsomeres dilated in males; male mesofemora dentate. Median lobe of the aedeagus elongated, with a more or less abruptly tapered apex, which is distinctly hooked upwards in lateral view. Parameres without membranous areas, bearing only one preapical seta. Male genital segment elongated, with the tergite about as long as the pleurites, and the hind edge decidedly hollowed; pleurites with the hind edge deeply hollowed in the latero-ventral zone, forming two points of subequal length.

*N. zwicki* n. sp., *N. blackburni* (Blackburn), *N. tasmanianum* n. sp. belong to this species group.

#### KEY TO SPECIES

1. Apex of the median lobe of the aedeagus tapered to a beak shape in dorsal view. Median lobe of the aedeagus frail and with the apex distinctly bent upwards in lateral view, without upward pointing tooth. . . . . **zwicki**
- Apex of the median lobe of the aedeagus not tapered to a beak shape in dorsal view, but subtriangular and blunt. Median lobe of the aedeagus stocky and with the apex with upwards pointing tooth in lateral view. . . . . **2**
2. Median lobe more elongated in lateral view, with the apex obliquely truncate. Parameres with the apex distinctly directed upwards in lateral view. . . . . **blackburni**
- Median lobe stockier in lateral view, with the apex regularly rounded. Parameres with the apex rounded in lateral view, not directed upwards. . . . . **tasmanianum**

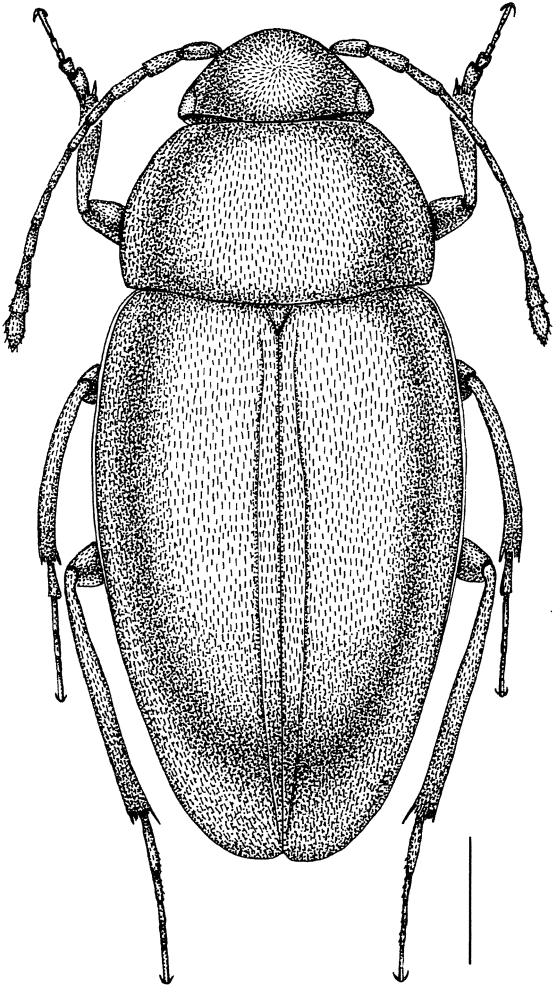


Fig. 55 – *Nargiotes zwicki* n. sp., Paratype ♂: habitus. Scale: 0.5 mm.

**Nargiotes zwicki n. sp.**  
(Figs. 55, 56, 60, 64, 84)

Type locality: Australia, N.S.W., Mt Irvine.

Type Series: Holotype ♂, Mt. Irvine, I. 1936, H. J. C. (ANIC). Paratypes: **New South Wales.** 1 ♂ 1 ♀, N. S. Wales, Kat VII 91, Dr. K.K. Spence, K.K. Spence Collection, *Choleva* sp. Silphidae, *Choleva antipodum* Blackb. 1 ♀, Mt. Irvine, I. 1936, H. J. C.; 4 ♂ ♂ 4 ♀ ♀, Australia N.S.W., Brown Mt. Flora Reserve, m 940, 0.5 km SSW Cochrane Dam, 8-22.II.1993, 36°35'S 149°27'E, A. Newton & M. Thayer 921, FMHD #93-70, window trap, cool temperate rainforest, Field Mus. Nat. Hist.; 1 ♂ 1 ♀, N. S. W., Barrengarry Mt., 1500 ft., rainforest, 20.XII.1967, Taylor, Brooks; 1 ♂ 2 ♀ ♀, Australia, NSW, Monga State Forest, 19-24.I.1984, L. Masner, *Eucalyptus* forest, 700 m, on ferns. **Victoria.** 1 ♂ 1 ♀, Australia, Vic., CannRiv., 18-26.V.1978, 10 m, S. & J. Peck, malaise wet sclerophyll (AMS, ANIC, FMNHC, CGi, CPe).

DIAGNOSIS

This is a large-sized *Nargiotes* species (3.09 - 3.19 mm) closely related to *N. blackburni* and *N. tasmanianum* n. sp. in the shape of the male genital segment. It differs from these species in the shape of the median lobe of the aedeagus, which is frail and distinctly hooked in lateral view and not protruding in an apical beak in dorsal view. Furthermore, it differs from *N. tasmanianum* n. sp. in the shape of the elytra, which are less narrow apically.

DESCRIPTION

Total length with the head deflexed 3.12 - 3.19 ♂ ♂ mm, 3.09 - 3.16 ♀ ♀ mm; body black-brown; legs, antennae and palpi slightly lighter; antennae with basal articles slightly lighter.

Antennae long (a/l: 0.55 - 0.57 ♂ ♂, 0.56 - 0.58 ♀ ♀), not reaching the middle of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere slightly shorter than the 7<sup>th</sup>.

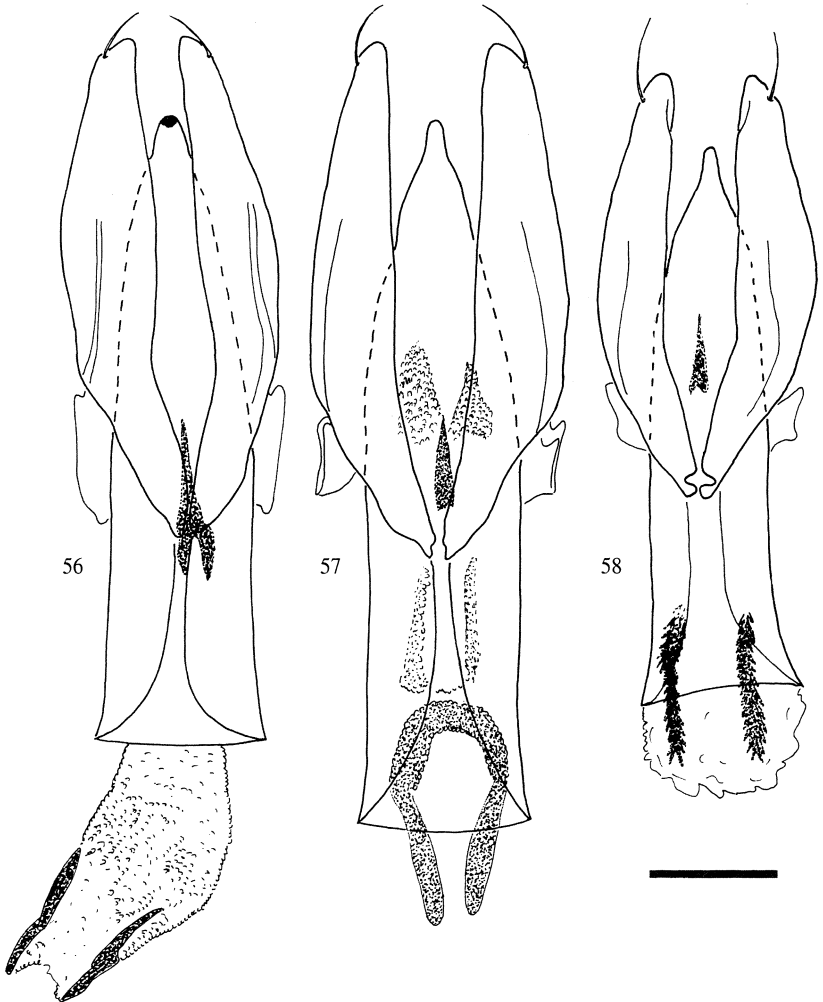
Pronotum transverse (pw/l: 1.75 - 1.90 ♂ ♂, 1.89 - 1.92 ♀ ♀), with the maximum width at the basal third; base slightly narrower and a little sinuate before the basal angles. Sides elongately and regularly arcuate anteriorly, slightly converging posteriorly; hind angles obtuse, well marked. Pronotum disc regularly convex, not flat near the hind angles; punctuation of medium size; pubescence golden, short and recumbent.

Elytra ovoidal, elongated (ew/l: 0.68 - 0.70 ♂ ♂, 0.64 - 0.68 ♀ ♀), with the maximum width at about the anterior third. Elytral apex rounded in the ♂, not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria distinct and complete; punctuation of medium size. Pubescence golden, short and recumbent.

Legs robust; protibiae not dilated apically, mesotibiae arcuate, and metatibiae straight, mesofemora dentate in the male. Protarsi with the first 2 tarsomeres dilated in the ♂, narrower than the protibial apex; mesotarsi with one tarsomere dilated in the ♂.

Male genital segment elongated (fig. 64), with the tergite about as long as the pleurites, and the hind edge decidedly hollowed; pleurites with the hind edge deeply hollowed in the latero-ventral zone, forming two points of subequal length, the inner one acuminate; ventral apophysis short and stocky.

Aedeagus (figs. 56, 60) with the median lobe relatively stocky; basal blade



Figs. 56-58 – *Nargiotes* spp.: aedeagus, median lobe in dorsal view. *N. zwicki* n. sp. Paratype (56); *N. blackburni* from Mt Buffalo Nat. Pk. (57); *N. tasmanianum* n. sp. Holotype (58). Scale: 0.1 mm.



of the median lobe, in dorsal view, robust, shorter than the remaining part of the median lobe, and with subparallel sides. Distal part of the median lobe subtriangular in dorsal view, with sides regularly tapered from base to apex, slightly sinuate before the apex, which is rounded; median lobe long and frail in lateral view, with the apex hooked upwards. Parameres longer than the median lobe (about 1/5), without membranous areas, bearing only one external preapical seta; in dorsal view they are subrectilinear and decidedly stocky centrally, regularly narrowed on the outer side until the apex, which is rounded; in lateral view they are slender, with the ventral edge slightly bisinuate and the dorsal edge abruptly sinuate in the central area; apex subacute but not acuminate, directed slightly upwards. Internal sac with one ventral chitinized tooth in the central area; in the basal area there are two setose-spinulose bundles.

#### ETYMOLOGY

This new species is dedicated to P. Zwick, as a token of esteem and recognition for his detailed work on the taxonomy of Cholevinae of Australia and elsewhere.

#### DISTRIBUTION AND ECOLOGY

*N. zwicki* n. sp. is known from localities in the Blue Mts, N of Sydney in N.S.W. and from a locality in E Victoria (fig. 84), where it was collected at elevations between 10 and 940 m a.s.l., by means of malaise and window traps in cool temperate rainforests. Adults are apparently active throughout much of the year in small numbers, and most were collected in February.

### ***Nargiotes blackburni* (Portevin, 1905)** (Figs. 57, 59, 61, 65, 84)

*Choleva antipodum* Blackburn, 1891: 87

*Choleva blackburni* Portevin, 1905: 49

*Choleva blackburni* Portevin, 1905: Hatch, 1928: 175

*Nargiotes antipodum* (Blackburn, 1891): Jeannel, 1936: 142

*Nargiotes antipodum* (Blackburn, 1891): Szymczakowski, 1973: 115

*Nargiotes antipodum* (Blackburn, 1891): Zwick, 1979: 41

*Nargiotes blackburni* (Portevin, 1905): Perreau, 2000: 59

Type locality: "Victoria" (Holotype in British Museum, London).

#### REMARKS

According to Perreau (2000), the name *blackburni*, proposed by Portevin (1905) was a replacement name for *antipodum* which was preoccupied by

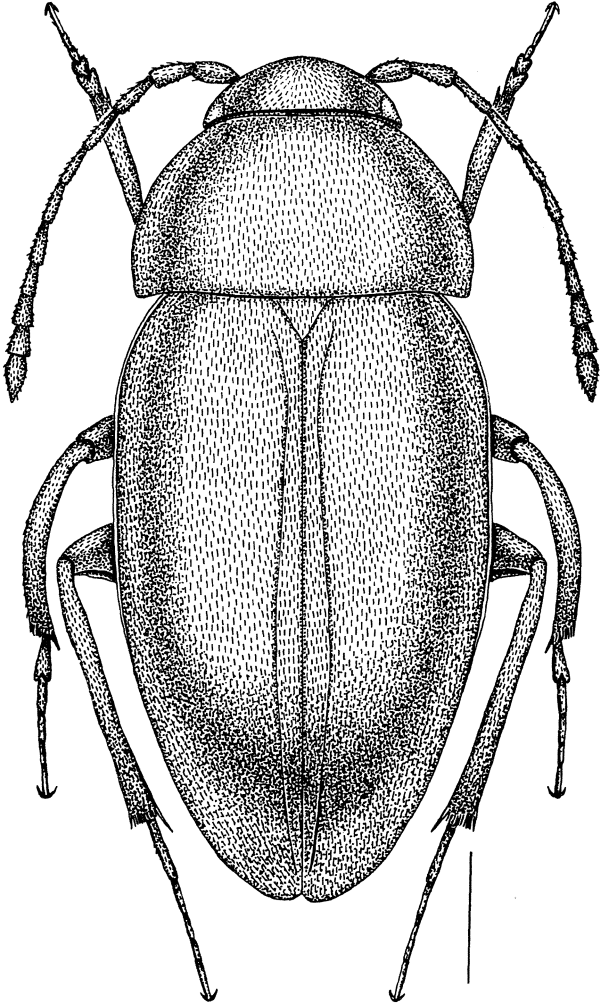


Fig. 59 – *Nargiotes blackburni* ♂ from Mt Buffalo Nat. Pk.: habitus. Scale: 0.5 mm.

*Choleva antipoda* Knirsch, 1877 (= *Paracatops antipoda* (Knirsch, 1877)), and that it is the correct name to be used for this species.

Jeannel (1936) gives drawings of the habitus, the aedeagus and the male genital segment in dorsal view of *N. antipodum*, without specifying the origin of the drawn specimen. He mentions expressively the type (fide Blackburn) as collected "under dead leaves on the mountains of Victoria". Jeannel (1936) states that he examined specimens of this species coming from New South Wales (Wentworth Falls and Illawarra) and Tasmania (Hobart). It does not seem that he had examined other material from Victoria, except for the type. Zwick (1979) supplies other drawings of the aedeagus and the male genital segment of *N. antipodum*, but without mentioning the specimen's origin. He states that he examined the holotype (British Museum), which is a female, and other material coming from Victoria, New South Wales, and Tasmania. In this material he mentions a male and a female, belonging to this species, coming from Mt Irvine (N.S.W.). In the examined material, Zwick (1979) mentions also studying a male coming from Wentworth Falls, together with the preparation of the genitalia made by Jeannel (genitalia slide 10).

Keeping in mind what has been learned in the light of this present contribution, the specimens from Tasmania (almost all females), mentioned by Jeannel (1936) and Zwick (1979) as *N. antipodum*, most probably belong to different species. The same must almost certainly be considered for the specimens from N.S.W.. The examination of material coming from the area around Sydney (from Barrington Tops N. P. to Blue Mountains N. P. and to the slopes of Mt Kosciusko) did not provide specimens of *N. blackburni*, but different species. Very probably the specimen from Wentworth Falls (N.S.W.), considering the presence of the preparation of genitalia, is the specimen used by Jeannel for the drawings included in his monograph (1936). But it is not *N. antipodum*, and is very probably *N. zwicki* n. sp. of the same species group, as described in this work. It is probable, instead, that Zwick (1979) had correctly determined the specimens from Victoria, by comparing them with the type, and obtained from them the drawings of the aedeagus and of the genital segment that he supplied.

Considering the above mentioned points, we believe the specimens coming from Mt Buffalo National Park, in the mountains about 180 Km NE of Melbourne (coming from a locality compatible with that of the holotype and fitting well with the description and drawings given by Zwick), belong to *N. blackburni*.

#### Examined material

**Victoria.** 2 ♂♂ 1 ♀, Australia. Vic., Mt. Buffalo Nat. Pk., 8 km from park gate ca. 20 km SE Myrtleford, 500 m, 5-13.XII.1990, malaise/flight int. trap in young *Euc.* regrowth nr. Pasture, D.A. Pollock & L.A. Reichert collectors; 1 ♀, Australia, Vic. Mt. Buffalo N. P., Eurobin Creek, m 450, 36° 43' S 146° 50' E, 12.II.1987, A. Newton & M. Thayer 830, under leaves and debris on dry rocks in creek, wet schlerophyll forest; 4 ♂♂ 1 ♀, Australia, Vic. Mt. Buffalo N. P., Eurobin Creek, m 450, 36° 43' S 146° 50' E, 12.II.1987, A. Newton & M. Thayer 830, wet leaves and flood debris for-

est stream, wet sclerophyll forest; 3 ♀ ♀, Australia, Vic. Mt. Buffalo N. P., Eurobin Creek, m 450, 36° 43' S 146° 50' E, 12.II.1987, A. Newton & M. Thayer 830, FMHD #87-264, wet leaves and flood debris forest stream, wet sclerophyll forest; 1 ♂ 1 ♀, Australia, Vic., 12 km E Warburton, m 215, 12-16.I.1980, *Eucalyptus* forest, A. Newton, M. Thayer (ANIC, FMNHC, CGi).

## DIAGNOSIS

This is a large-sized *Nargiotes* species (3.11 - 3.25 mm) closely related to *N. tasmanianum* n. sp. in the shape of the male genital segment and in the shape of the median lobe of the aedeagus which, in lateral view, is stocky, with an unhooked, but only dentate apex. It differs from this species in the shape of the median lobe of the aedeagus which, in dorsal view, has the apex more abruptly protruding as a beak. Moreover, it differs from *N. tasmanianum* n. sp. in the shape of the elytra, which is less narrow apically. It differs from *N. zwicki* n. sp. in the shape of the median lobe of the aedeagus which is frail, with a hooked apex in lateral view.

## DESCRIPTION

Total length with the head deflexed 3.11 - 3.15 ♂ ♂ mm, 3.17 - 3.25 ♀ ♀ mm; body black-brown; legs, antennae and palpi slightly lighter; antennae with basal articles slightly lighter.

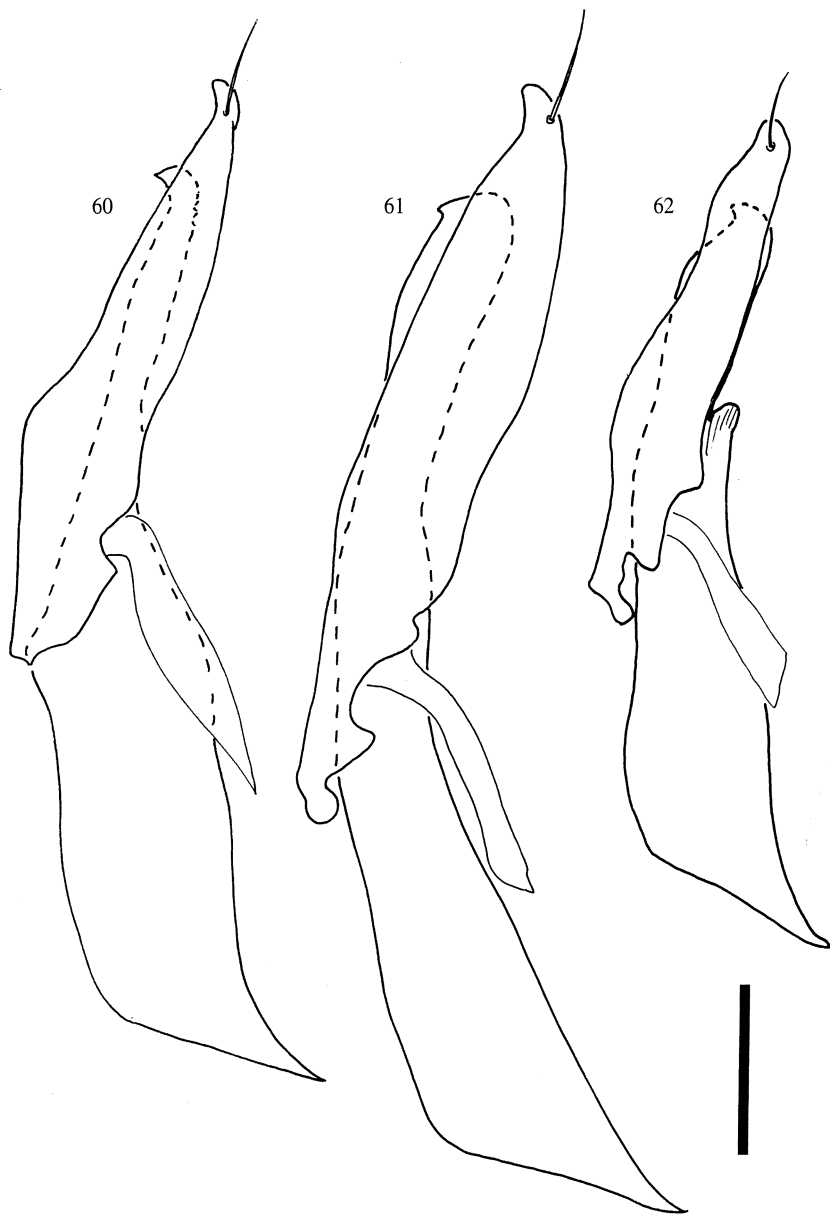
Antennae long ( $a/l$ : 0.57 - 0.58 ♂ ♂, 0.51 - 0.56 ♀ ♀), not reaching the middle of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere slightly shorter than the 7<sup>th</sup>.

Pronotum transverse ( $pw/l$ : 1.82 - 1.93 ♂ ♂, 1.85 - 1.87 ♀ ♀), with the maximum width at the basal third; base slightly narrower and a little sinuate before the basal angles. Sides elongately and regularly arcuate anteriorly, slightly converging posteriorly; hind angles obtuse, well marked. Pronotum disc regularly convex, not flat near the hind angles; punctation of medium size; pubescence golden, short and recumbent.

Elytra ovoidal, elongated ( $ew/l$ : 0.63 - 0.64 ♂ ♂, 0.61 - 0.62 ♀ ♀), with the maximum width at about the anterior third. Elytral apex rounded in the ♂, not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria distinct and complete; punctation of medium size; pubescence golden, short and recumbent.

Legs robust; protibiae not dilated apically, mesotibiae arcuate, and metatibiae straight, mesofemora dentate in the male. Protarsi with the first 2 tarsomeres dilated in the ♂, narrower than the protibial apex; mesotarsi with one tarsomere dilated in the ♂.

Male genital segment elongated (fig. 65), with the tergite about as long as the pleurites, and the hind edge decidedly hollowed; pleurites with the hind edge deeply hollowed in the latero-ventral zone, forming two points of subequal length, the inner one acuminate; ventral apophysis short and stocky.



Figs. 60-62 – *Nargiotes* spp.: aedeagus, median lobe in lateral view. *N. zwicki* n. sp. Paratype (60); *N. blackburni* from Mt Buffalo Nat. Pk. (61); *N. tasmanianum* n. sp. Paratype (62). Scale: 0.1 mm.

Aedeagus (figs. 57, 61) with the median lobe relatively stocky; basal blade of the median lobe, in dorsal view, robust, about as long as the remaining part of the median lobe, and with subparallel sides. Distal part of the median lobe subtriangular in dorsal view, with sides regularly tapered from the base almost to the apex, where they taper abruptly forming a kind of rounded beak; median lobe long and thick in lateral view, with the apex dentate upwards. Parameres longer than the median lobe (about 1/6), without membranous areas, bearing only one external preapical seta; in dorsal view they are subrectilinear and decidedly stocky centrally, regularly narrowed on the outer side until the apex, which is rounded; in lateral view they are slender, with the ventral edge slightly bisinuate and the dorsal edge a little sinuate in the central area; apex subacute but not acuminate, directed upwards. Internal sac with one ventral chitinized tooth in the central area; in the basal area there are two setose-spinulose bundles ending in a horse-shoe shaped structure.

#### DISTRIBUTION AND ECOLOGY

*N. blackburni* is known from in and near Mt Buffalo National Park and near Warburton, NE of Melbourne in Victoria (fig. 84), where it was collected at elevations between 215 and 500 m a.s.l., by sieving mosses and flood debris in wet sclerophyll forests. Most adults are known from February. As discussed above, the species does not occur in Tasmania and New South Wales, contrary to what is stated in Zwick (1979: 41).

### ***Nargiotes tasmanianum* n. sp.** (Figs. 58, 62, 63, 66, 84)

Type locality: Australia, Tasmania, 34 km W Smithton, W slope Dismal Swamp.

Type Series: Holotype ♂, Austl., Tasmania, 34 km W Smithton, W slope Dismal Swamp, 26.II.1997, FMHD #77-3041, conc. Litter in crown of *Dicksonia antarcticus* tree fern, J. Kethley (ANIC). Paratypes: **Tasmania**. 7 ♂♂, Austl. Tasm., 30 km W Smithton, 4.III.1977, FMHD #77-191, mixed litter of *Acacia melanoxylon* & *Dicksonia antarctica* at base of *Acacia melanoxylon* log, J. Kethley; 1 ♂ 1 ♀, Austl., Tasmania, 34 km W Smithton, W slope Dismal Swamp, 26.II.1997, FMHD #77-3041, conc. Litter in crown of *Dicksonia antarcticus* tree fern, J. Kethley; 5 ♂♂ 3 ♀♀, Australia, Tas., Dismal Swamp, 35.4 km WSW Smithton, m 50, 40°57'S 144°50'E, 13-26.I.1993, A. Newton & M. Thayer 910, FMHD #93-32, carrion trap (squid), Field Mus. Nat. Hist., *Acacia melanoxylon* swamp forest w/*Noth. cunn.*, *Euc. obliqua*, *Atherosperma*, *Melaleuca*; 7 ♂♂ 2 ♀♀, Austl. Tasm., 40 km SW Smithton, 4.III.1977, FMHD #77-190, *Acacia melanoxylon* litter, J. Kethley; 7 ♂♂ 8 ♀♀, Australia Tas., Lake Chisholm Forest Res., m 180, 41°08'S 145°04'E, 12-29.I.1993, A. Newton & M. Thayer 909, FMHD #93-28, window trap, Field Mus. Nat. Hist., *Euc. obliqua* for. w/*Eucryphia*, *Noth. cunn.*, *Blechnum* ground ferns; 1 ♂, Australia, Tasm., track off Mt. Barrow Rd., 780 m, 15-17.II.1980, *Nothofagus* etc., A. Newton M. Thayer, pyrethrin-fogging tree ferns; 3 ♀♀, Australia, Tasm., track off Mt. Barrow Rd., 780 m, 15-17.II.1980, *Nothofagus* etc., A. Newton M. Thayer; 2 ♂♂, Australia, Tasm., Mt. Barrow Rd., 890 m, 15-17.II.1980, *Nothofagus* etc., A. Newton M. Thayer, window trap; 12 ♂♂ 4 ♀♀, Australia, Tasmania, Schulhots Rd., 8.7 km NE Upper

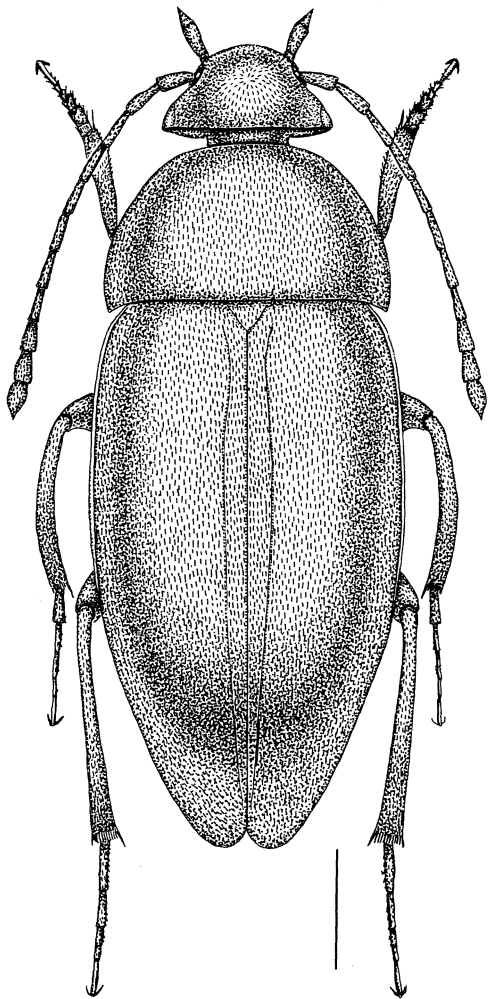


Fig. 63 – *Nargiotes tasmanianum* n. sp., Holotype ♂: habitus. Scale: 0.5 mm.

Blessington, m 870 41°26'S 147°36'E, 16.I-1.II.1993, A. Newton & M. Thayer 914, FMHD #93-43 window trap, Field Mus. Nat. Hist., *Euc. delegatensis*-*Euc. obliquus* forest w/*Senecio odoratus* & ferns; 7 ♂♂, 11 ♀♀, Australia, Tas., S of Orford, Sandspit Forest Res., m 200, 42°43'S 147°50'E, 17.I-2.II.1993, A. Newton & M. Thayer 915, FMHD #93-45, window trap, Field Mus. Nat. Hist., *Euc. globulus* w/rainforest, understory (ANIC, FMNHC; CBu; CGi, CPe, CVa).

## DIAGNOSIS

This is a large-sized *Nargiotes* species (2.93 - 3.20 mm) closely related to *N. blackburni* in the shape of the male genital segment and in the shape of the median lobe of the aedeagus which, in lateral view, is stocky, with an unhooked, and only dentate apex. It differs from this species in the shape of the median lobe of the aedeagus which, in dorsal view, has the apex less abruptly protruding as a beak. Furthermore, it differs from *N. blackburni* in the shape of the elytra, which is narrower apically. It differs from *N. zwicki* n. sp. by the shape of the median lobe of the aedeagus which, in lateral view, is frail, with a hooked apex.

## DESCRIPTION

Total length with the head deflexed 3.19 - 3.20 ♂♂ mm, 2.93 - 3.11 ♀♀ mm; body black-brown; legs, antennae and palpi slightly lighter; antennae with basal articles slightly lighter.

Antennae long (a/l: 0.62 - 0.74 ♂♂, 0.55 - 0.56 ♀♀), not reaching the middle of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere slightly shorter than the 7<sup>th</sup>.

Pronotum transverse (pw/l: 1.80 - 1.87 ♂♂, 1.67 - 1.89 ♀♀), with the maximum width at the basal fourth; base slightly narrower and a little sinuate before the basal angles. Sides elongately and regularly arcuate anteriorly, slightly converging posteriorly; hind angles obtuse, well marked. Pronotum disc regularly convex, not flat near the hind angles; punctation of medium size; pubescence golden, short and recumbent.

Elytra ovoidal, elongated (ew/l: 0.59 - 0.68 ♂♂, 0.65 - 0.67 ♀♀), with the maximum width at about the anterior third. Elytra tapered at the apex, which is rounded in the ♂, not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria distinct and complete; punctation of medium size. Pubescence golden, short and recumbent.

Legs robust; protibiae not dilated apically, mesotibiae arcuate, and metatibiae straight, mesofemora dentate in the male. Protarsi with the first 2 tarsomeres dilated in the ♂, narrower than the protibial apex; mesotarsi with one tarsomere dilated in the ♂.

Male genital segment elongated (fig. 66), with the tergite about as long as the pleurites, and the hind edge decidedly hollowed; pleurites with the hind edge deeply hollowed in the latero-ventral zone, forming two points of subequal length, the inner one acuminate; ventral apophysis short and stocky.



Aedeagus (figs. 58, 62) with the median lobe relatively stocky; basal blade of the median lobe, in dorsal view, robust, about as long as the remaining part of the median lobe, and with subparallel sides. Distal part of the median lobe, in dorsal view, with sides weakly converging and tapered from the base almost to the apex, where they form a kind of rounded beak; median lobe short and thick in lateral view, with the apex dentate upwards. Parameres longer than the median lobe (about 1/6), without membranous areas, bearing only one external preapical seta; in dorsal view they are slightly arcuate and decidedly stocky centrally, regularly narrowed on the outer side until the apex, which is rounded; in lateral view they are slender, with the ventral edge subrectilinear in the distal 2/3 and dorsal edge distinctly bisinuate; apex stocky, rounded and not directed upwards. Internal sac with one ventral chitinized tooth in the central area; in the basal area there are two setose-spinulose bundles.



Figs. 64-66 – *Nargiotes* spp.: male genital segment in ventral view. *N. zwicki* n. sp. Holotype (64), *N. blackburni* from Mt Buffalo Nat. Pk. (65); *N. tasmanianum* n. sp. Paratype (66). Scale: 0.1 mm.

#### ETYMOLOGY

The name is derived from the Australian state of Tasmania, which contains the type locality.

## DISTRIBUTION AND ECOLOGY

*N. tasmanianum* n. sp. is known from different localities in the N and SE of Tasmania (fig. 84), and is apparently absent in the SW of the island. It was collected at elevations between 50 and 890 m a.s.l., by litter sieving, window traps and carrion traps in different forest types. Most adults are known from February.

<< **gordoni group** >>

This group is composed of large-sized species (2.96 - 3.52 mm), with long antennae, 8<sup>th</sup> antennomere almost as long as the 7<sup>th</sup>, 1<sup>st</sup> mesotarsomere dilated in males; male mesofemora dentate. Median lobe of the aedeagus relatively frail and elongated, regularly tapered from base to apex, which is stocky in lateral view and either not dentate upwards, or just imperceptibly so. Parameres without membranous areas, bearing only one preapical seta. Male genital segment elongated, with the tergite about as long as the pleurites, and the hind edge distinctly V-shaped; pleurites with the hind edge deeply hollowed in the latero-ventral zone, forming two separate ends of unequal length, the inner one shorter.

*N. bawbawi* n. sp., *N. gordoni* n. sp., *N. annalaurae* n. sp., and *N. montisfusci* n. sp. belong to this species group.

## KEY TO SPECIES

1. Larger sized species (3.52 mm in the male). Median lobe of the aedeagus with the distal part as long as the basal blade. . . . . **annalaurae**
- Smaller sized species (2.96 - 3.17 mm in the male). Median lobe of the aedeagus with the distal part longer than the basal blade. . . . . **2**
2. Parameres long, about 4/3 of the distal part of the median lobe, which is stocky and without an upward pointing tooth in lateral view. . . . . **gordoni**
- Parameres short, less than 4/3 of the distal part of the median lobe, which is stocky and with small and slightly dentate upwards pointing tooth in lateral view. . . . . **3**
3. Basal blade of the median lobe of the aedeagus narrow and frail in dorsal view. In lateral view the median lobe of the aedeagus is more elongated and the parameres have a slenderer apex. . . . . **montisfusci**
- Basal blade of the median lobe of the aedeagus wide in dorsal view. In lateral view the median lobe of the aedeagus is shorter and the parameres have a less slender apex. . . . . **bawbawi**

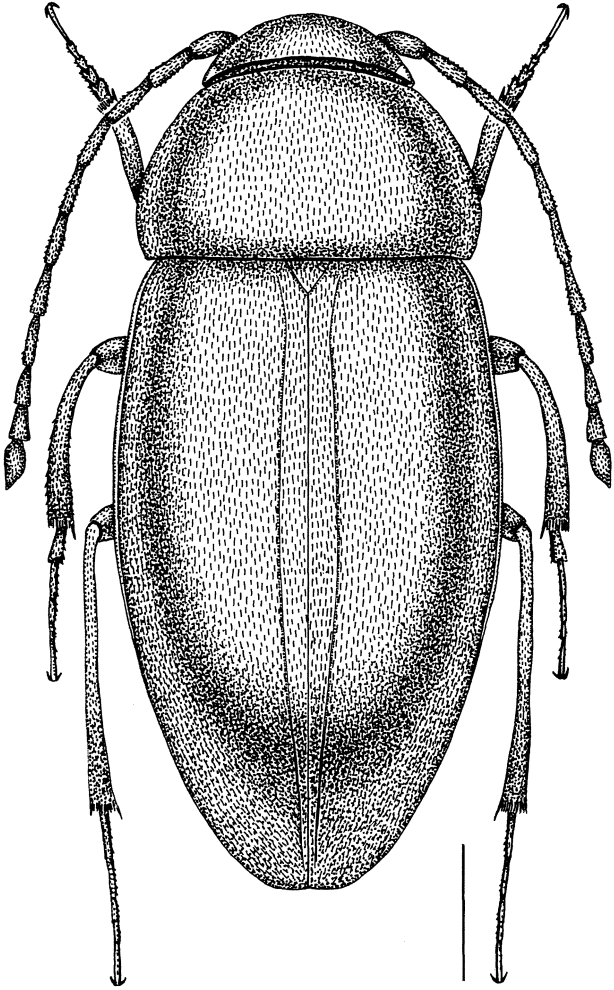


Fig. 67 – *Nargiotes bawbawi* n. sp., Holotype ♂: habitus. Scale: 0.5 mm.

**Nargiotes bawbawi n. sp.**

(Figs. 67, 68, 73, 79, 84)

Type locality: Australia, Victoria, Baw Baw Alpine Res., Neulynes Mill (0.7 km NE) 1035 m, 37° 51' S 146° 15' E.

Type Series: Holotype ♂, Australia, Vic. Baw Baw Alpine Res., Neulynes Mill (0.7 km NE) m 1035, 37° 51' S 146° 15' E, 14-26.II.1993, A. Newton & M. Thayer 930, FMHD # 93-97 window trap, Field Mus. Nat. Hist., *Enc. delegatensis* forest w/ *Noth. cunn.*, Blechnum ground ferns (ANIC). Paratypes: **Victoria.** 1 ♂ 1 ♀, Australia, Vic. Cement Creek, N Warburton m 670, 37° 43' S 145° 42' E, 26.I-11.II.1987 FMHD #87-222, A. Newton & M. Thayer 812, flight intercept (window) trap, *Enc. regnans*-*Noth. cunn.*; 1 ♀, Australia, Vic., Warburton, Cement Ck., m 670, 10-17.I.1980, *Nothofagus cunninghamii* etc., A. Newton M. Thayer, at UV light; 1 ♂ 1 ♀; Australia, Vic. Myrtle Gully Res., NW Warburton, m 1000, 37° 43' S 145° 38' E, 30.I-9.II.1987, A. Newton & M. Thayer 819, FMHD #87-247, flight intercept (window) trap, *Noth. cunn.* - *Enc. regnans*; 8 ♂♂ 4 ♀♀, Australia, Vic. Warburton, 2.2 km NE on Acheron Way, 37° 44' S 145° 43' E, m 320, 15-27.II.1993, A. Newton & M. Thayer 931, FMHD #93-99, window trap, Field Mus. Nat. Hist.; 1 ♂ 5 ♀♀, Australia, Vic., 750 m, Acheron Gap, 16 km N Warburton, S. & J. Peck, 28.IV-7.V.1978, *Nothofagus* forest malaise trap; 6 ♂♂ 7 ♀♀, Australia, Vic., Mt. Donna Buang 1200 m, 11-17.I.1980, A. Newton, M. Thayer, *Eucalypt.-Nothof.* for., window trap 550; 1 ♂, Australia, Vic., Kallista, Sherbrooke For. Pk., 400-500 m, 15.I.1980, A. Newton, M. Thayer, wet sclerophyll for., berl. forest leaf & log litter; 2 ♂♂, Australia, Vic. Baw Baw Alpine Res., Neulynes Mill (0.7 km NE) m 1035, 37° 51' S 146° 15' E, 14-26.II.1993, A. Newton & M. Thayer 930, FMHD # 93-97 window trap, Field Mus. Nat. Hist., *Enc. delegatensis* forest w/ *Noth. cunn.*, Blechnum ground ferns (FMNHC, CGI, CPe).

## DIAGNOSIS

This is a large-sized *Nargiotes* species (2.96 - 3.17 mm), especially related to *N. gordonii* n. sp. and *N. annalaurae* n. sp. in the robust basal blade of the median lobe of the aedeagus and the distinctly dentate femora. It differs from *N. annalaurae* n. sp. in the distal part of the median lobe of the aedeagus, which is longer than the basal blade, and in the elytral apex which is subtruncate in the male. It differs from *N. gordonii* n. sp. in the median lobe of the aedeagus, which is longer than the parameres and does not have subrectilinear sides, and in the elytral apex, which is subtruncate in the male. Finally, it differs from *N. montisfusci* n. sp. in the robust basal blade of the median lobe of the aedeagus.

## DESCRIPTION

Total length with the head deflexed 3.06 - 3.17 ♂♂ mm, 2.96 - 3.03 ♀♀ mm; body black-brown; legs, antennae and palpi slightly lighter; antennae with basal articles slightly lighter.

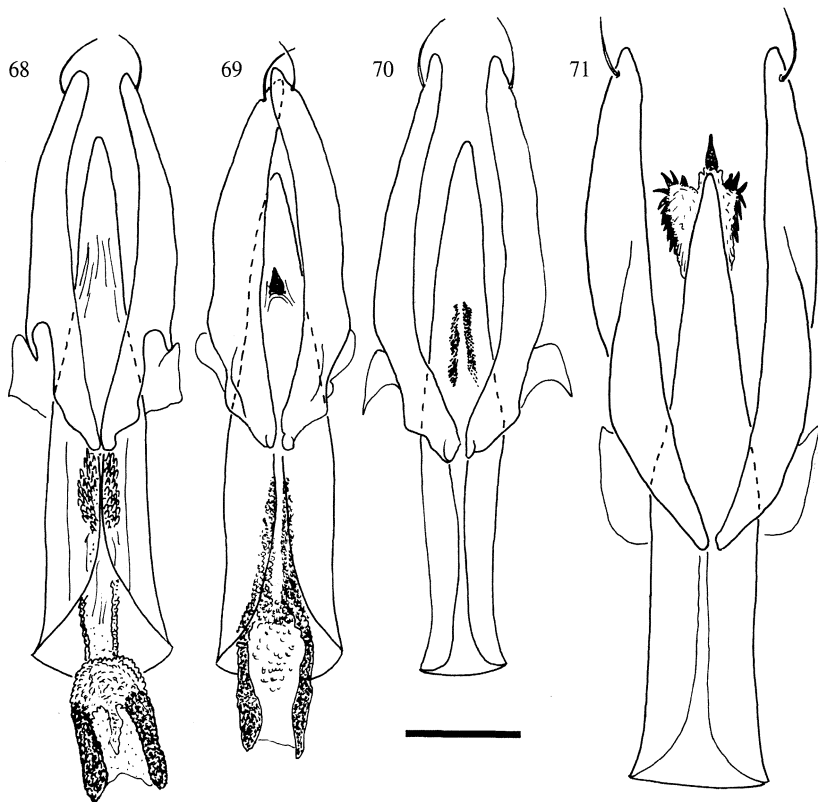
Antennae long (a/l: 0.60 - 0.66 ♂♂, 0.60 - 0.61 ♀♀), longer than half of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere as long as the 7<sup>th</sup>.

Pronotum transverse (pw/l: 1.78 - 1.86 ♂♂, 1.67 - 1.85 ♀♀), with the maximum width at the basal fourth; base slightly narrower and a little sinuate before the basal angles. Sides elongately and regularly arcuate anteriorly,

slightly converging posteriorly; hind angles obtuse, well marked. Pronotum disc regularly convex, not flat near the hind angles; punctuation of medium size; pubescence golden, short and recumbent.

Elytra ovoidal, elongated (ew/l: 0.61 - 0.62 ♂♂, 0.62 - 0.68 ♀♀), with the maximum width at about the middle. Elytral apex subtruncate in the ♂, not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria distinct and complete; punctuation of medium size. Pubescence golden, short and recumbent.

Legs robust; protibiae not dilated apically, mesotibiae arcuate, and metatibiae straight, mesofemora dentate in the male. Protarsi with the first 2 tarsomeres dilated in the ♂, narrower than the protibial apex; mesotarsi with one tarsomere dilated in the ♂.



Figs. 68-71 - *Nargiotes* spp.: aedeagus, median lobe in dorsal view. *N. bawbawi* n. sp. Paratype (68); *N. annalaurae* n. sp. Paratype (69); *N. montisfusci* n. sp. Holotype (70); *N. gordonii* n. sp. Paratype (71). Scale: 0.1 mm.

Male genital segment elongated (fig. 79), with the tergite about as long as the pleurites, and the hind edge distinctly V-shaped; pleurites with the hind edge deeply hollowed in the latero-ventral zone, forming two separate tips of unequal length, the inner one shorter and rounded apically; ventral apophysis short and stocky.

Aedeagus (figs. 68, 73) with the median lobe relatively frail and elongated; basal blade of the median lobe, in dorsal view, robust, shorter than the remaining part of the median lobe, and with subparallel sides. Distal part of the median lobe, in dorsal view, not regularly tapered from base to apex, but slightly sinuate in the basal third and more abruptly tapered at the apex, which is subtriangular and rounded; in lateral view the apex is stocky and slightly dentate upwards. Parameres longer than the median lobe (about 1/5), without membranous areas, bearing only one external preapical seta. In dorsal view parameres stocky and slightly curved inwards, not abruptly narrowed at the apex, which is slightly tapered and rounded. In lateral view parameres vaguely subtriangular, wide in the central area, with the ventral edge subrectilinear in the distal 2/3, the dorsal edge slightly convex in the central area; slightly sinuate dorsally in the distal third, with the apex subacute, not acuminate, but rounded. Internal sac with one ventral chitinized tooth in the central area; in the basal area there are two setose-spinulose bundles ending posteriorly with two more sclerotized rod-like chitinized areas.

#### ETYMOLOGY

The name refers to Baw Baw National Park, in Victoria, which is the type locality.

#### DISTRIBUTION AND ECOLOGY

*N. bawbawi* n. sp. is known from some localities E of Melbourne in Victoria (fig. 84). It was collected at elevations between 320 and 1,200 m a.s.l., by means of window traps in forests with *Eucalyptus regnans*, *E. delegatensis*, and *Nothofagus cunninghami*. Adults have been collected in the months of January, February and May.

### ***Nargiotes gordonii* n. sp.** (Figs. 71, 72, 76, 82, 84)

Type locality: Australia, SW Tasmania, Lower Gordon Range, 42° 41' - 42° S 145° 48' - 49° E.

Type Series: Holotype ♂, Australia, SW Tasmania, Lower Gordon Range, 42° 41' - 42° S 145° 48' - 49° E, II.1976, Howard, Hill, H.E.C. Survey, 1 R 50 litter (ANIC). Paratypes: **Tasmania**. 10 ♂♂ 32 ♀♀, Australia, Tas., Dismal Swamp, 35.4 km WSW Smithton, m 50, 40°57'S 144°50'E, 13-26.I.1993, A. Newton & M. Thayer 910, FMHD #93-32, carrion trap (squid), Field Mus. Nat. Hist.,

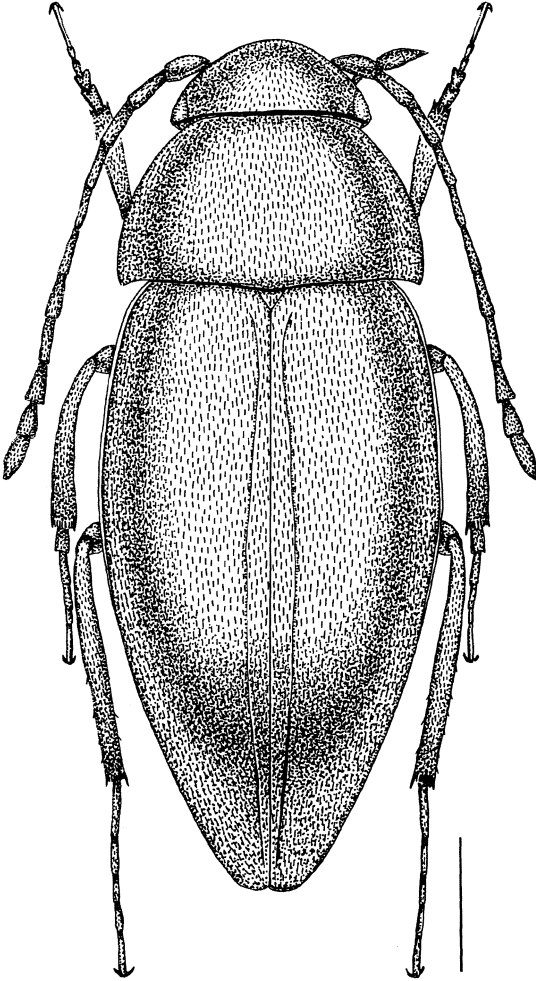


Fig. 72 – *Nargiotes gordonii* n. sp., Holotype ♂: habitus. Scale: 0.5 mm.

*Acacia melanoxylon* swamp forest w/*Noth. cunn.*, *Euc. obliqua*, *Atherosperma*, *Melaleuca*; 1 ♀, Austl. Tasm., 40 km SW Smithton, 4.III.1977, FMHD #77-190, *Acacia melanoxylon* litter, J. Kethley; 21 ♂♂ 44 ♀♀, Australia Tas., Lake Chisholm Forest Res., m 180, 41°08'S 145°04'E, 12-29.I.1993, A. Newton & M. Thayer 909, FMHD #93-28, window trap, Field Mus. Nat. Hist., *Euc. obliqua* for. w/*Eucryphia*, *Noth. cunn.*, *Blechnum* ground ferns; 2 ♂♂ 2 ♀♀, Australia, Tas., 4.4 km SE Weldborough, m 460, 12-14.II.1980, *Nothofagus* etc. for., A. Newton, M. Thayer, window trap 579; 5 ♂♂ 2 ♀♀, Australia, Tas., Murchison Hwy., Hellyer Gorge St. Res., Hellyer River Picnic Area, 30.I.2002, P. M. Giachino Leg.; 1 ♂ 16 ♀♀, Australia, Tas. Murchison Highway St. Reserve, Murchison Hwy at Que River Mine Rd., m 680, 41°36'S 145°41'E, 11-27.I.1993, A. Newton & M. Thayer 907, FMHD #93-22 window trap, Field Mus. Nat. Hist., *Noth. cunn.* rainforest w/*Atherosperma*, *Eucalyptus*, tree ferns; 1 ♂ 2 ♀♀, Australia, Tas., Rufus Canal, 13.5 km WNW Derwent Br., m 800, 26-28.I.1980, *Nothofagus* rainforest, A. Newton, M. Thayer, window trap 563; 1 ♂ 2 ♀♀, Australia, Tas., Lyell Hwy. at Franklin Rd., 55 km ESE Queenstown, m 400, 19-20.II.1980, A. Newton, M. Thayer, open *Eucalyptus* forest; 1 ♂ 5 ♀♀, Australia, Tas., Lyell Hwy. at Franklin Rd., 55 km ESE Queenstown, m 450, 19-20.II.1980, A. Newton, M. Thayer, *Noth. cunninggami* forest, window trap 587; 2 ♂♂, Australia, Tas., Strahan, Kelly Cove, Pillinger Track, 26.I.2002, M. Daccordi leg.; 9 ♂♂ 4 ♀♀, Australia, Tas., Strahan, Franklin-Gordon Wild River N.P., Gordon River, Heritage Landing Walk, 25.I.2002, P. M. Giachino Leg.; 1 ♀, Australia, SW Tasmania, Lower Gordon Range, 42° 41' - 42'S 145° 48'-49'E, II.1976, Howard, Hill, H.E.C. Survey, 1 R 50 litter; 4 ♂♂ 13 ♀♀, Australia, Tas. Mt. Field N. P., Lake Dobson Rd. nr Lyrabird Nature Walk, m 710, 42°41'S 146°40'E, 8-25.I.1993, A. Newton & M. Thayer 901, FMHD #93-9, window trap, Field Mus. Nat. Hist.; 3 ♂♂ 12 ♀♀, Australia, Tas. Mt. Field N. P., Lake Dobson Rd. Russell Falls Track, m 250, 42°41'S 146°42'E, 8-25.I.1993, A. Newton & M. Thayer 902, FMHD #93-11, window trap, Field Mus. Nat. Hist.; 1 ♀, Australia, Tasm., Mt. Field N.P., Lake Dobson Rd., 240 m, 30.I-5.II.1980, wet sclerophyll, A. Newton, M. Thayer, human dung trap 569; 1 ♀, Australia, Tas., Mt. Field N. P., m 610, Lake Dobson Rd., 30.I-4.II.1980, *Noth.-Euc.* for., A. Newton, M. Thayer, carrion trap 568; 2 ♀♀, Australia, Tas., Mt. Field N. P., m 240, Lake Dobson Rd., 30.I-5.II.1980, wet sclerophyll, A. Newton, M. Thayer, berl. forest leaf & log litter; 2 ♀♀, Australia, Tas., Mt. Field N. P., m 240, Lake Dobson Rd., 30.I-5.II.1980, wet sclerophyll, A. Newton, M. Thayer, berl. forest leaf & log litter; 1 ♂, Australia, Tasmania, Mt. Field N. P., Lyrabird Track, m 700, 7.XII.1998, vaglio di muschio, P.M. Giachino leg.; 1 ♂ 3 ♀♀, Australia, Tas., Mt. Field N.P., Jan. 8-14 1984, L. Masner, MT; 1 ♂ 4 ♀♀, Australia, SW Tasmania, Lower Gordon Range, 42° 43'S 145° 45'-50' E, II.1977, Howard, Hill, H.E.C. Survey, 2 R 70 litter; 11 ♀♀, Australia, Tas., Newall Creek at Mt. Jukes Rd., 11.3 km S Queenstown, m 80, 42°10'S 145°32'E 10-27.I.1993, A. Newton & M. Thayer 906, FMHD #93-20, window trap, Field Mus. Nat. Hist., riverine rainforest w/*Eucryphia*, *Noth. cunn.*, *Richea*, few tree ferns; 1 ♀, Australia, Tasmania, Derwent Val. 7 km NW Maydena, 16.II.1977, J. Kethley, FM(HD) # 77-149, ex *Eucalyptus globula* litter; 1 ♂ 2 ♀♀, Australia, Tasmania, Maydena, Junee Cave St. Res., m 300, 6.XII.1998 (in volo), P.M. Giachino leg.; 2 ♀♀, Austl. Tas, Styx Vly. 15 km WNW Maydena, 21.II.1977, FMHD # 77-161, mixed litter of Tree ferns & *Atherosperma moschatum*, mixed *Nothofagus cunninggami* - *Eucalyptus*, J. Kethley; 4 ♀♀, Australia, Tas., Maydena, Styx Valley, m 320, 18.I.2002, *Euc. regnans* forest, P.M. Giachino Leg.; 1 ♀, Australia, Tas., Gordon R. Rd., 0.8 km W Florentine R., m 550, 3.II.1980, *Nothofagus* etc., A. Newton, M. Thayer, berlese forest litter; 6 ♂♂ 5 ♀♀, Austl. Tas, 22 km NW Maydena, Florentine Vly., 700 ft., 15.II.1977, FMHD # 77-144, litter, *Eucalyptus regnans* & u. *Dicksonia antarctica* in depression, J. Kethley; 1 ♀, Australia, Tasmania, Florentine Val., 22 km NW Maydena, 700 ft., 15.II.1977, J. Kethley, FM(HD) # 77-148, ex sassafrass litter near stream; 9 ♂♂ 16 ♀♀, Australia, Tasm., Florentine Vly., 29.2 km WNW Maydena, on Eleven Rd. m 460, 1-6.II.1980, *Nothofagus*, A. Newton, M. Thayer, berl. forest leaf & log litter; 58 ♂♂, 57 ♀♀, Australia, Tas., S of Orford, Sandspit Forest Res., m 200, 42°43'S 147°50'E, 17.I-2.II.1993, A. Newton & M. Thayer 915, FMHD #93-45, window trap, Field Mus. Nat. Hist., *Euc. globulus* w/rainforest, understorey; 63 ♂♂ 141 ♀♀, Australia, Tas. Southwest N.P., Scotts Peak Rd., 2.1 km S Gordon River Rd., Creepy Crawly Nat. Tr., 600 m, 9-24.I.1993, 42°50'S 146°23'E, A. Newton & M. Thayer 904, FMHD #93-15 window trap, Field Mus. Nat. Hist., *Noth. cunn.* rainforest, w /tree ferns (very mossy); 105 ♂♂ 83 ♀♀, Australia, Tas. Picton River, Picton



Rd. 3.1 km S jct. Arve Rd., 105 m, 7-23.I.1993, 43°07'S 146°43'E, A. Newton & M. Thayer 899, FMHD #93-3 window trap, Field Mus. Nat. Hist., *Euc. obliqua* forest w/*Noth. cunn.*, *Atherosperma*, tree ferns; 2 ♀♀, Australia, Tas., Hastings St. Res., nr. Newdegate Cave, m 130, 9.II.1980, A. Newton, M. Thayer, trapped in floating debris forest stream; 1 ♂ 1 ♀, Tasmania, K 24620 (AMS, ANIC, FMNHC, MRSN, QVM, TMH, CCa, CGi, CPe, CVa).

## DIAGNOSIS

This is a large-sized *Nargiotes* species (3.15 - 3.35 mm), closely related to *N. bawbawi* n. sp. and *N. annalaurae* n. sp. in the robust basal blade of the median lobe of the aedeagus and in the distinctly dentate femora. It differs from *N. annalaurae* n. sp. in the distal part of the median lobe of the aedeagus, which is longer than the basal blade, and in the elytra being more tapered apically. It differs from *N. bawbawi* n. sp. in the median lobe of the aedeagus, which is shorter than the parameres, which have subrectilinear sides, and in the male elytral apex which is rounded, not subtruncate. Finally, it differs from *N. montisfusci* n. sp. in the robust basal blade of the median lobe of the aedeagus and in the male elytral apex which is rounded, not subtruncate.

## DESCRIPTION

Total length with the head deflexed 3.15 - 3.25 ♂♂ mm, 3.17 - 3.35 ♀♀ mm; body black-brown; legs, antennae and palpi lighter, brown; antennae with basal articles slightly lighter.

Antennae long (a/l: 0.62 - 0.63 ♂♂, 0.61 - 0.62 ♀♀), reaching the middle of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere as long as the 7<sup>th</sup>.

Pronotum transverse (pw/l: 1.76 - 1.77 ♂♂, 1.77 - 1.80 ♀♀), with the maximum width at the basal fourth; base slightly narrower and a little sinuate before the basal angles. Sides elongately and regularly arcuate anteriorly, slightly converging posteriorly; hind angles obtuse, well marked. Pronotum disc regularly convex, not flat near the hind angles; punctuation of medium size; pubescence golden, short and recumbent.

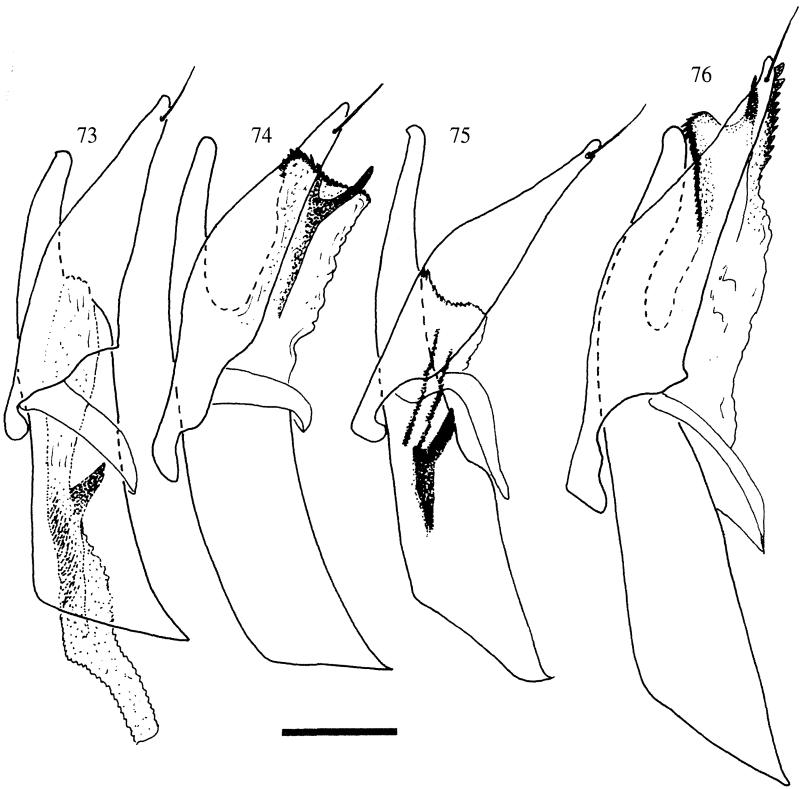
Elytra ovoidal, elongated (ew/l: 0.62 - 0.63 ♂♂, 0.64 - 0.68 ♀♀), with the maximum width at about the middle. Elytral apex rounded in the ♂, not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria distinct and complete; punctuation of medium size. Pubescence golden, short and recumbent.

Legs robust; protibiae not dilated apically, mesotibiae arcuate, and metatibiae straight, mesofemora strongly dentate in the male. Protarsi with the first 2 tarsomeres dilated in the ♂, narrower than the protibial apex; mesotarsi with one tarsomere dilated in the ♂.

Male genital segment elongated (fig. 82), with the tergite about as long as the pleurites, and the hind edge distinctly V-shaped; pleurites with the hind edge deeply hollowed in the latero-ventral zone, forming two separate

tips of unequal length, the inner one shorter and rounded apically; ventral apophysis short and stocky.

Aedeagus (figs. 71, 76) with the median lobe relatively frail and elongated; basal blade of the median lobe, in dorsal view, robust, shorter than the remaining part of the median lobe, and with subparallel sides. Distal part of the median lobe, in dorsal view, regularly tapered from base to apex, which is subtriangular and rounded; in lateral view, the apex is stocky and slightly emarginate, but not dentate upwards. Parameres longer than the median lobe (about 1/4), without membranous areas, bearing only one external preapical seta. In dorsal view the parameres are stocky and slightly curved inwards, not abruptly narrowed at the apex, which is slightly tapered and rounded. In lateral view parameres wide in the central area, with the ventral edge subrectilinear in the distal



Figs. 73-76 – *Nargiotes* spp.: aedeagus, median lobe in lateral view. *N. bawbawi* n. sp. Holotype (73); *N. annalaurae* n. sp. Holotype (74); *N. montisfusci* n. sp. Paratype (75); *N. gordonii* n. sp. Holotype (76). Scale: 0.1 mm.

2/3, and the dorsal edge convex in the central area; they are slightly sinuate dorsally in the preapical area, with the apex subacute, not acuminate, but rounded, and slightly bent upwards. Internal sac with one ventral chitinized tooth in the central area; in the basal area there are two setose-spinulose bundles.

#### ETYMOLOGY

The name refers to the Gordon Range mountain chain (in SW Tasmania), where the type locality occurs. These mountains and the Gordon River are named from Mr James Gordon, who was the owner of the whale-boat used by Mr James Kelly during his geographical exploration expedition.

#### DISTRIBUTION AND ECOLOGY

*N. gordonii* n. sp. is known from different localities in the S and NW of Tasmania (fig. 84). It was collected at elevations between 5 and 800 m a.s.l., by litter sieving, window traps and carrion traps in different forest types. In the area of Mt Field National Park (SW Tasmania), in a forest with *Eucalyptus regnans* and *Nothofagus cunninghamii* (fig. 77), a specimen of *N. gordonii* n. sp. was collected on the wing by one of the authors (PMG), in the late afternoon. Adults were collected from December to March, mostly in January.



Fig. 77 – Temperate forest at Mt Field National Park (SW Tasmania), habitat of *N. gordonii* n. sp. (Photo by P. M. Giachino).

***Nargiotes annalaurae* n. sp.**

(Figs. 69, 74, 78, 80, 84)

Type locality: Australia, Victoria, Errinundra Plateau, Gap Rd. 2.5 km E Bonang Hwy., 820 m, 37° 15' S 148° 47' E.

Type Series: Holotype ♂, Australia, Vic. Errinundra Plateau, Gap Rd. 2.5 km E Bonang Hwy., m 820, 37° 15' S 148° 47' E, 11-24.II.1993, FMHD # 93-79 window trap, A. Newton & M. Thayer 924, Field Mus. Nat. Hist., *Euc. nitens* - *Euc. regnans* forest w/tree ferns (ANIC). Paratypes: **Victoria.** 13 ♂♂ 37 ♀♀, Australia, Vic. Errinundra Plateau, Gap Rd. 2.5 km E Bonang Hwy., m 820, 37° 15' S 148° 47' E, 11-24.II.1993, FMHD # 93-79 window trap, A. Newton & M. Thayer 924, Field Mus. Nat. Hist., *Euc. nitens* - *Euc. regnans* forest w/tree ferns; 4 ♂♂ 1 ♀, Australia, Vic. Errinundra N. P., Coast Range Rd. 8.3 km E jct. Gunmark Rd., m 1040, 37° 17' S 148° 57' E, 11-24.II.1993, FMHD # 93-119 A. Newton & M. Thayer 926, berl. leaf & log litter cool temperate rainforest, Field Mus. Nat. Hist.; 8 ♂♂ 24 ♀♀, Australia, Vic. Errinundra N. P., Coast Range Rd. 8.8 km E jct. Gunmark Rd., m 1020, 37° 17' S 148° 57' E, 11-24.II.1993, FMHD # 93-82 window trap, A. Newton & M. Thayer 925, cool temperate rainforest, Field Mus. Nat. Hist. (ANIC, FMNHC, CBu, CGi, CPe, CVa).

**DIAGNOSIS**

This is a large-sized *Nargiotes* species (3.00 - 3.52 mm), closely related to *N. bawbawi* n. sp. and *N. gordonii* n. sp. in the robust median lobe of the aedeagus and in the distinctly dentate femora. It differs from *N. bawbawi* n. sp. and *N. gordonii* n. sp. in the distal part of the median lobe of the aedeagus which is as long as the basal blade. Moreover, it differs from *N. bawbawi* n. sp. in the male elytral apex being rounded, not subtruncate, while it differs from *N. gordonii* n. sp. in the less tapered elytral apex. Finally, it differs from *N. montisfusi* n. sp. in the robust base of the aedeagus and in the rounded, not subtruncate, male elytral apex.

**DESCRIPTION**

Total length with the head deflexed 3.00 - 3.52 ♂♂ mm, 3.06 - 3.09 ♀♀ mm; body pitch black; legs, antennae and palpi slightly lighter, black-brown; antennae of a uniform colour.

Antennae long (a/l: 0.59 - 0.62 ♂♂, 0.52 - 0.60 ♀♀), reaching the middle of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere as long as the 7<sup>th</sup>.

Pronotum transverse (pw/l: 1.82 - 1.84 ♂♂, 1.80 - 1.82 ♀♀), with the maximum width at the basal fourth; base slightly narrower and a little sinuate before the basal angles. Sides elongately and regularly arcuate anteriorly, slightly converging, almost rectilinear posteriorly; hind angles nearly right, well marked. Pronotum disc regularly convex, not flat near the hind angles; punctuation of medium size; pubescence golden, short and recumbent.

Elytra ovoidal, elongated (ew/l: 0.63 - 0.64 ♂♂, 0.60 - 0.61 ♀♀), with

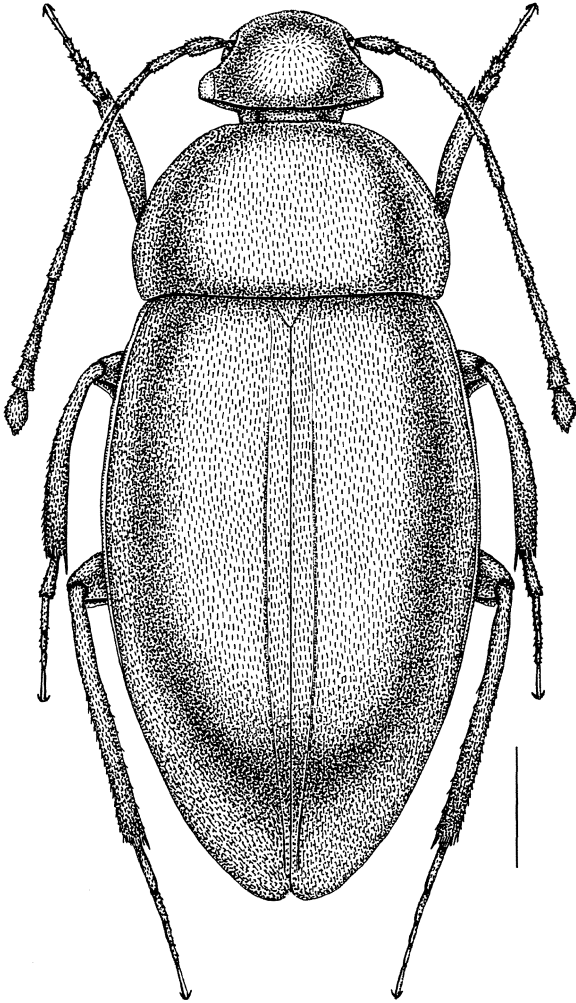


Fig. 78 – *Nargiotes annalaurae* n. sp., Holotype ♂: habitus. Scale: 0.5 mm.

the maximum width at about the anterior third. Elytral apex rounded in the ♂, not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria distinct and complete; punctation of medium size. Pubescence golden, short and recumbent.

Legs robust; protibiae not dilated apically, mesotibiae arcuate, and metatibiae straight, mesofemora dentate in the male. Protarsi with the first 2 tarsomeres dilated in the ♂, about as wide as the protibial apex; mesotarsi with one tarsomere dilated in the ♂.

Male genital segment elongated (fig. 80), with the tergite about as long as the pleurites, and the hind edge distinctly V-shaped; pleurites with the hind edge deeply hollowed in the latero-ventral zone, forming two separate ends of unequal length, the inner one shorter and rounded apically; ventral apophysis short and stocky.

Aedeagus (figs. 69, 74) with the median lobe relatively frail and elongated; basal blade of the median lobe, in dorsal view, robust, as long as the remaining part of the median lobe, and with subparallel sides. Distal part of the median lobe, in dorsal view, regularly tapered from base to apex, subtriangular with a rounded apex which is stocky and not dentate upwards in lateral view. Parameres much longer than the median lobe (about 1/3), without membranous areas, bearing only one external preapical seta. In dorsal view parameres stocky, slightly curved inwards, and not abruptly narrowed at the apex, which is slightly tapered and rounded. In lateral view parameres wide in the central area, with the ventral edge subrectilinear in the distal 2/3, and the dorsal edge slightly convex in the central area; regularly narrowed and not sinuate in the distal third, with the apex subacute, not acuminate, but rounded. Internal sac with one ventral chitinized tooth in the central area; in the basal area there are two setose-spinulose bundles ending posteriorly with two rod-like chitinized more sclerotized areas.

## ETYMOLOGY

We are pleased to dedicate this new species to Dr. Annalaura Pistarino, a botanist at the Museo Regionale di Scienze Naturali di Torino.

## DISTRIBUTION AND ECOLOGY

*N. annalaurae* n. sp. is known from localities in Errinundra National Park, in eastern Victoria (fig. 84). It was collected at elevations between 820 and 1,040 m a.s.l., by litter sieving and window traps in cool temperate rainforests and in forests with *Eucalyptus regnans* and *E. nitens*. Adults are known only from the month of February.



Figs. 79 - 82 - *Nargiotes* spp.: male genital segment in ventral view. *N. bawbawi* n. sp. Paratype (79); *N. annalaurae* n. sp. Paratype (80); *N. montisfusci* n. sp. Holotype (81); *N. gordonii* n. sp. Paratype (82). Scale: 0.1 mm.

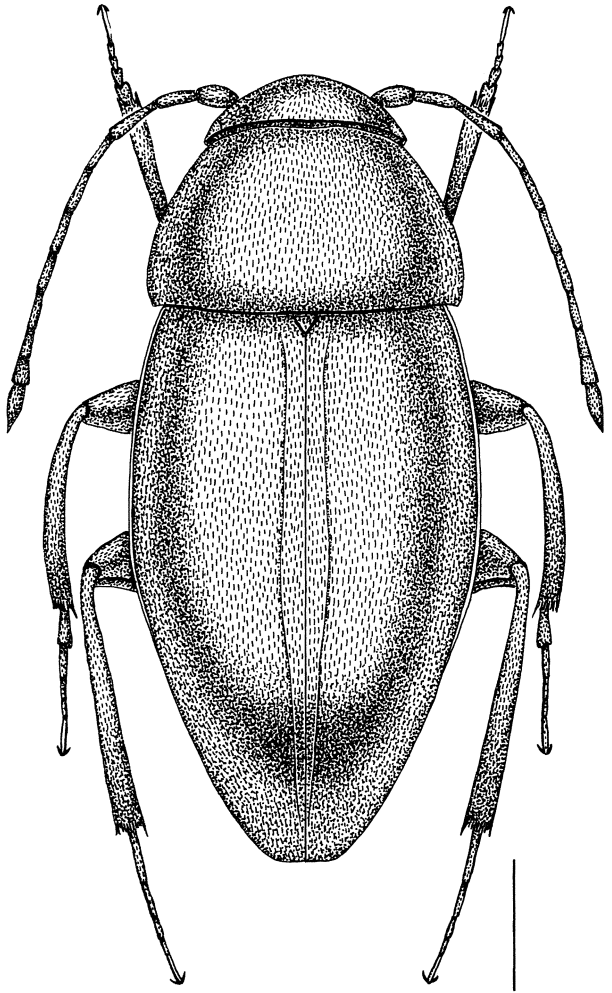


Fig. 83 – *Nargiotes montisfusci* n. sp., Paratype ♂: habitus. Scale: 0.5 mm.



***Nargiotes montisfusci* n. sp.**  
(Figs. 70, 75, 81, 83, 84)

Type locality: Australia, N.S.W., Brown Mt nr. Nimmitabel, Rutherford Ck.

Type Series: Holotype ♂, Australia, N.S.W., Brown Mt. nr. Nimmitabel, Rutherford Ck., 26.V.70, R. W. T. & R. Bartell (ANIC). Paratypes: **New South Wales**. 3 ♂♂, 1 ♀, N.S.W., Brown Mtn., c. 3000 ft., 9.XII.1967, rainforest, Taylor, Brooks, ANIC berlesate No. 42 leafmould; 7 ♂♂ 11 ♀♀, Australia N.S.W., Brown Mt. Flora Reserve, m 940, 0.5 km SSW Cochrane Dam, 8-22.II.1993, 36°35'S 149°27'E, A. Newton & M. Thayer 921, FMHD #93-70, window trap, cool temperate rainforest, Field Mus. Nat. Hist. (ANIC, FMNHC, CGi, CPe).

DIAGNOSIS

This is a large-sized *Nargiotes* species (2.96 - 3.25 mm), differing from the other species of the group in the frail basal blade of the median lobe of the aedeagus. Moreover, it differs from *N. gordonii* n. sp. and *N. annalaurae* n. sp. in the elytral apex being subtruncate in the male.

DESCRIPTION

Total length with the head deflexed 2.96 - 3.11 ♂♂ mm, 3.03 - 3.25 ♀♀ mm; body black-brown; legs, antennae and palpi slightly lighter, brown; antennae of a uniform colour.

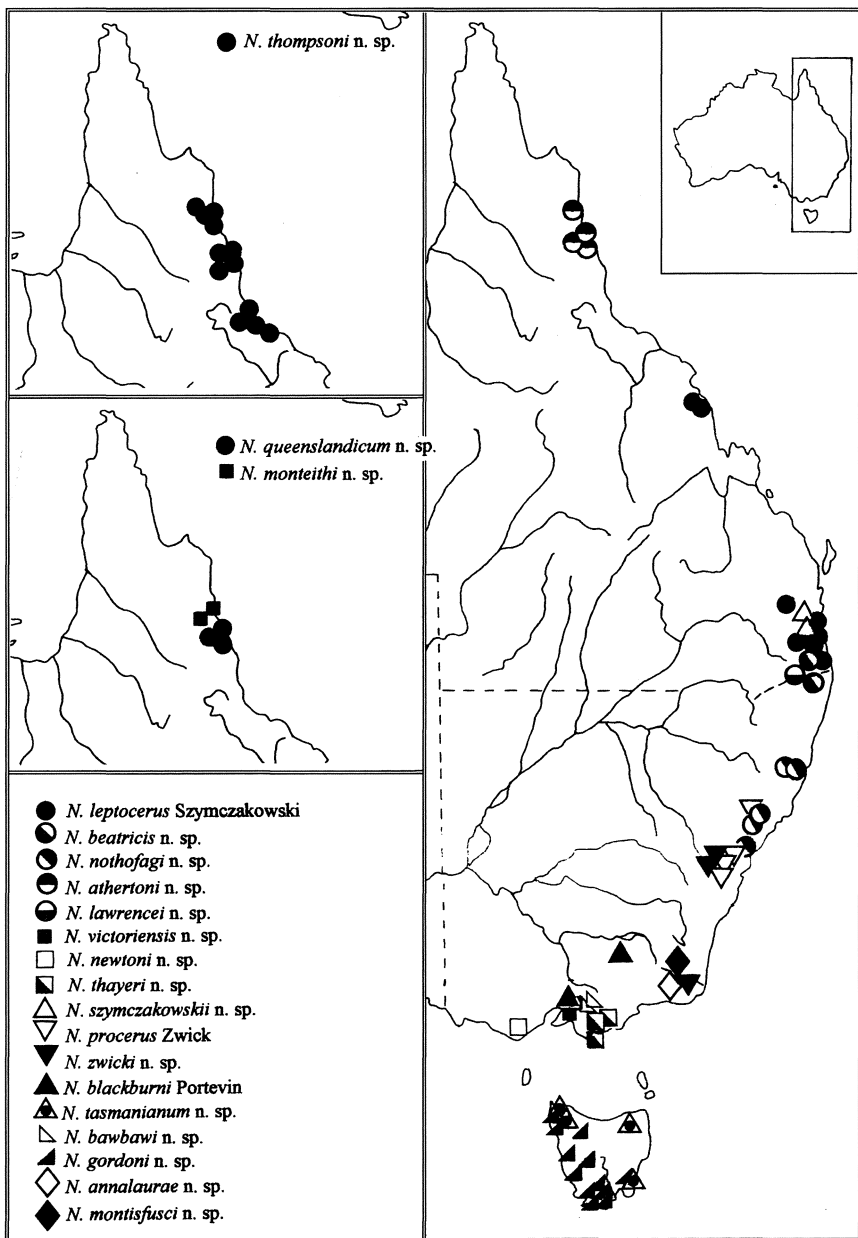
Antennae long (a/l: 0.65 - 0.67 ♂♂, 0.56 - 0.57 ♀♀), longer than the middle of the elytra in the ♂ when stretched backwards; frail, with a normal club, not enlarged, and the 8<sup>th</sup> antennomere as long as the 7<sup>th</sup>.

Pronotum transverse (pw/l: 1.77 - 1.79 ♂♂, 1.75 - 1.76 ♀♀), with the maximum width at the basal fourth; base slightly narrower and a little sinuate before the basal angles. Sides elongately and regularly arcuate anteriorly, slightly converging, almost rectilinear posteriorly; hind angles obtuse, well marked. Pronotum disc regularly convex, not flat near the hind angles; punctation of medium size; pubescence golden, short and recumbent.

Elytra ovoidal, elongated (ew/l: 0.64 - 0.65 ♂♂, 0.66 - 0.71 ♀♀), with the maximum width at about the middle. Elytral apex subtruncate in the ♂, not dentate in the ♀. Elytral disc weakly convex, flat in the middle of the basal half; sutural stria distinct and complete; punctation of medium size. Pubescence golden, short and recumbent.

Legs robust; protibiae not dilated apically, mesotibiae arcuate, and metatibiae straight, mesofemora dentate in the male. Protarsi with the first 2 tarsomeres dilated in the ♂, narrower than the protibial apex; mesotarsi with one tarsomere dilated in the ♂.

Male genital segment elongated (fig. 81), with the tergite about as long as the pleurites, and the hind edge distinctly V-shaped; pleurites with the hind edge deeply hollowed in the latero-ventral region, forming two separate tips

Fig. 84 – Distribution map of *Nargiotes* spp.

of unequal length, the inner one shorter and rounded apically; ventral apophysis short and stocky.

Aedeagus (figs. 70, 75) with the median lobe frail and elongated; basal blade of the median lobe, in dorsal view, frail, shorter than the remaining part of the median lobe. Distal part of the median lobe, in dorsal view, regularly tapered from base to apex, subtriangular with a rounded apex, which is relatively frail and dentate upwards in lateral view. Parameres much longer than the median lobe (about 1/5), without membranous areas, bearing only one external preapical seta. In dorsal view parameres stocky, slightly curved inwards, and not abruptly narrowed at the apex, which is slightly tapered and rounded. In lateral view parameres wide in the central area, with the ventral edge subrectilinear in the distal 2/3, and the dorsal edge slightly convex in the central area; regularly sinuate dorsally in the distal third, with the apex subacute, not acuminate, but rounded. Internal sac with one ventral chitinized tooth in the central area; in the basal area there are two setose-spinulose bundles.

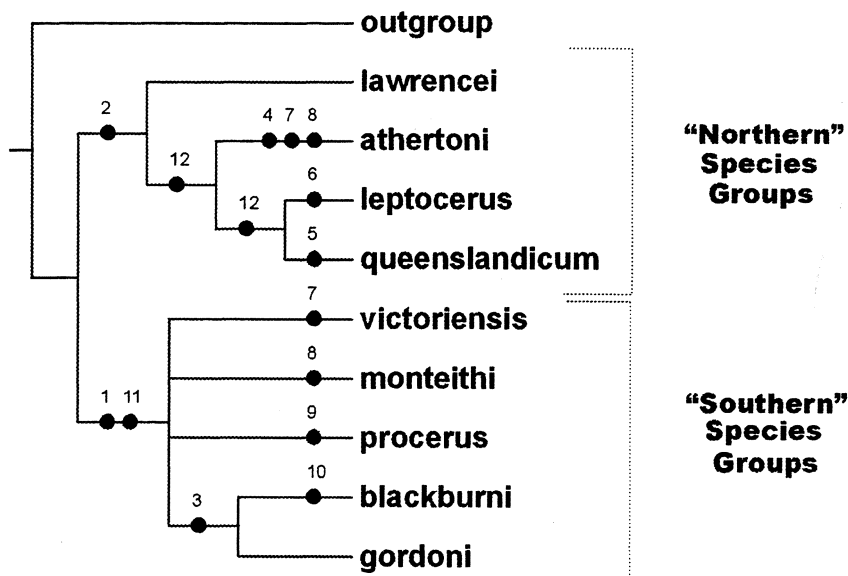


Fig. 85 – Cladogram of PAUP analysis of relationships of species groups of *Nargiotes*. This is the preferred tree from three equally parsimonious trees resulting from an exhaustive search. TL = 15, CI = 88, RI = 88. Only unambiguous characters are shown.

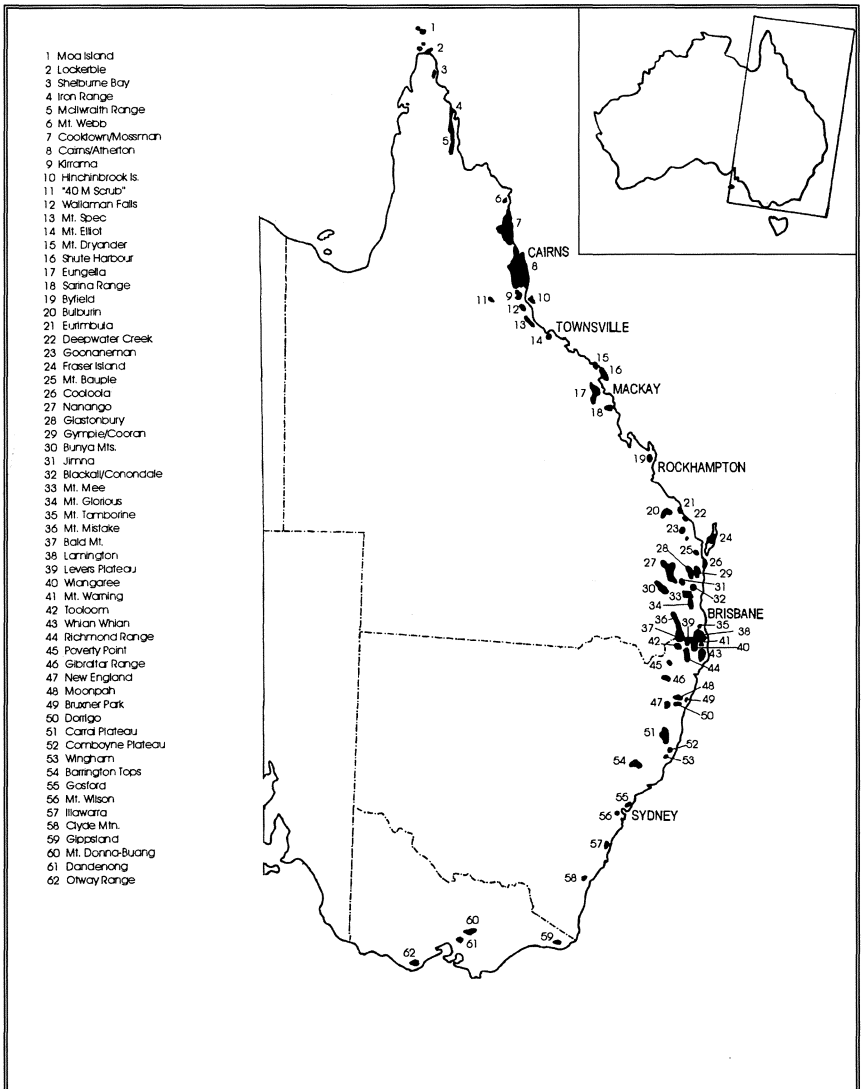


Fig. 86 – Present distribution of disjunct rainforest patches in eastern Australia, excluding Tasmania. From somewhat north of Brisbane the forests are subtropical and tropical in composition. From about Brisbane and south the upper elevation forests contain *Nothofagus*, which is an indicator of south temperate composition and past biotic connections. *Nargiotes* species are known from most of these forest patches, but are not limited to them. *Nargiotes* disperse by flight and occur in wet sclerophyll *Eucalyptus* forests which often connect the rainforest patches. Most *Nargiotes* species occur in a cluster of adjacent rainforest patches.

## ETYMOLOGY

The name is Latinized to suggest Mt Brown, the type locality of this new species.

## DISTRIBUTION AND ECOLOGY

*N. montisfusci* n. sp. is known only from the type locality, Mt Brown, near Nimmitabel, in the far S of N.S.W. (fig. 84). It was collected at elevations between 940 and 1,000 m a.s.l., by litter sieving and window traps in a cool temperate rainforest. Adults are known from the months of May, December, and mostly February.

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## REFERENCES

- BLACKBURN T., 1891. Notes on Australian Coleoptera, with description of new species. - Trans. Proc. R. Soc. S. Aust., 14: 65 - 153.
- GIACHINO P. M., VAILATI D., CASALE A., 1998. Major question in the phylogeny and biogeography of Cholevidae (Coleoptera), with emphasis on the subfamily Leptodirinae. Pp. 179-210. In: GIACHINO P.M. and PECK S. B. (eds.). Phylogeny and Evolution of Subterranean and Endogean Cholevidae (=Leiodidae Cholevinae). Proceedings of XX I.C.E., Firenze, 1996. Mus. reg. Sci. nat. Torino, 1998.
- HATCH M. H., 1928. Coleopterorum Catalogus pars 95, 202 pp., W. Junk (ed.), Berlin.
- JEANNEL R., 1936. Monographie des Catopidae. - Mém. Mus. natn. Hist. nat. Paris, N.S., 1, 1-433.
- LAWRENCE J.F., BRITTON E.B., 1991. Coleoptera (beetles). Pp. 543-683. In : CSIRO (ed). The Insects of Australia, a textbook for students and research workers. Vol. 2. Melbourne University Press.
- LAWRENCE J.F., BRITTON E.B., 1994. Australian beetles. Melbourne University Press. 192 pp.
- NEWTON A.F., JR. 1985. South temperate Staphylinioidea (Coleoptera) : their potential for biogeographic analysis of austral disjunctions. Pp. 180-220. In : BALL G. E. (ed.). Taxonomy, Phylogeny and Zoogeography of Beetles and Ants. Dr. W. Junk Publishers, Dordrecht.
- NEWTON A.F., JR. 1998. Phylogenetic problems, current classification and generic catalog of world Leiodidae (including Cholevidae). Pp. 41-178. In : GIACHINO P.M. and PECK S. B. (eds.). Phylogeny and Evolution of Subterranean and Endogean Cholevidae (=Leiodidae Cholevinae). Proceedings of XX I.C.E., Firenze, 1996. Atti Mus. reg. Sci. nat. Torino, 1998.
- PECK S.B., DAVIES A., 1980. Collecting small beetles with large-area « window » traps . - Coleopt. Bull. 34 : 237-238.
- PERREAU M., 2000. Catalogue des Coléoptères Leiodidae Cholevinae et Platypsyllinae. - Mémoires de la Société entomologique française, 4, 460 pp.
- PORTEVIN G., 1905. Notes synonymiques sur les Silphides (Col.). - Bull. Soc. Ent. Fr., 10: 49 - 51.
- SZYMCZAKOWSKI W., 1963. Révision du genre *Nargomorphus* Jeann. (Coleoptera, Catopidae). - Acta Zool. Cracov., 8(2): 27 - 89.
- SZYMCZAKOWSKI W., 1966. Nematinae (Coleoptera, Catopidae) de la région zoogéographique australienne. - Acta Zool. Cracov., 10 (17): 555-669.
- SZYMCZAKOWSKI W., 1971. Un genre nouveau et quelques espèces nouvelles ou mal connues des Nematini (Coleoptera, Catopidae). - Acta Zool. Cracov., 16(7): 397 - 412.
- SZYMCZAKOWSKI W., 1973. Nouvelles notes sur les Catopidae (Coleoptera) de la région australienne. - Acta Zool. Cracov., 18(5): 93 - 132.
- ZWICK P., 1979. Contributions to the Knowledge of Australian Cholevidae (Catopidae auct.; Coleoptera). - Austr. J. Zool., suppl. ser. n° 70: 1 - 56.