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FORESTRY COMMISSION OF N.S.W.

DIVISION OF FOREST MANAGEMENT

RESEARCH NOTE No. 12

Published October, 1962

INSECT ATTACK ON
PINUS spp.

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INTRODUCTION

Since a survey of insects attacking *Pinus* spp. was commenced during October, 1960, seventy-nine species of insects belonging to seven Orders, thirty Families and fifty-six Genera have been collected, studied and where possible, the species identified.

Biological studies on most of these species are proceeding and as information sufficient to recognise them in the field is obtained, it will be presented for the use of the officers concerned.

The following list is presented as an indication of the extent and variety of attack by insects which may be anticipated by the staff concerned with the care and protection of the Commission's *Pinus* spp. plantations (see map).

LIST OF INSECTS

Insects attacking *Pinus* spp. belong to the following Orders and Families:—

Orders

COLEOPTERA	(beetles)	..	..	..	..	17
COLLEMBOLA	(springtails)	..	..	..	..	1
HEMIPTERA	(sap-feeding bugs, scales)	..	..	..	..	13
ISOPTERA	(termites)	..	..	..	..	3
LEPIDOPTERA	(moths and butterflies)	..	..	..	..	38
ORTHOPTERA	(phasmatids, tree crickets)	..	..	..	..	4
THYSANOPTERA	(thrips)	..	..	..	..	3

Total species 79

Families

COLEOPTERA	ISOPTERA
Anobiidae 1	Calotermitidae .. 1
Anthribidae 1	Rhinotermitidae .. 2
Cerambycidae 6	LEPIDOPTERA
Curculionidae 7	Anthelidae 6
Eumolpidae 1	Arctiidae 3
Scolytidae 1	Eupterotidae 1
COLLEMBOLA	Geometridae 1
Hypogastruridae 1	Lymantriidae 4
HEMIPTERA	Noctuidae 5
Adelgidae 1	Notodontidae 1
Aphididae 2	Oecophoridae 5
Cicadellidae 2	Psychidae 6
Coccidae 3	Tortricidae 5
Flatidae 1	Xyloryctidae 1
Lygaeidae 1	
Membracidae 1	
Pseudococcidae 2	

Families

ORTHOPTERA

Eumasticidae	..	1
Phasmatidae	1
Tettigoniidae	2

THYSANOPTERA

Thripidae	3
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The following list includes the insect species, some of their host plants, damage, and details of the location of attack:—

Order COLEOPTERA

Family Anobiidae

Species: *Ernobius mollis* (L).

Hosts: *P. radiata*

Damage: Under bark on timber scantlings, and in wood of logs and dead trees or branches when bark is retained.

Location of attack: Moss Vale (highlands) and Somersby (coastal).

Family Anthribidae

Araecerus bicristatus Blkb.

P. pinaster, *P. radiata*

Severe damage to male inflorescence, or under bark and in centre of shoot stems.

Somersby (coastal).

Family Cerambycidae

Arhopalus syriacus (Reitt.) (introduced species).

P. radiata

Under bark and in wood of logs or unhealthy trees.

Somersby and Sydney (coastal).

Athemistus aborigine Carter

P. ponderosa

Under bark and in wood of logs.

Hanging Rock State Forest (highlands).

Athemistus harrisoni Carter

P. ponderosa

Under bark and in wood of logs.

Hanging Rock State Forest (highlands).

Arthemistus ? luciae Carter

P. ponderosa

Under bark and in wood of logs.

Hanging Rock State Forest (highlands).

Disterna lugubris Pascoe

P. radiata

Under bark and in wood of fire-killed trees.
Somersby (coastal).

Disterna plumifera Pascoe

P. radiata

Under bark and in wood of fire-killed trees.
Somersby (coastal).

Family Curculionidae

Aesiotes leucurus Pascoe

P. pinaster, *P. radiata*

In stumps and logs.
Somersby (coastal).

Aoplocnemis ? *guttiger* Pascoe

P. radiata

Moderate to heavy damage to foliage, by adults
only.

Blackheath (highlands).

Aoplocnemis rufipes Boheman

P. patula, *P. ponderosa*, *P. pseudostrobis* and *P. radiata*

Damage as for *A. guttiger*

Hanging Rock State Forest, Mount Mitchell
State Forest (highlands).

Chrysolophus spectabilis F.

Acacia spp., *P. radiata*

Slight damage to needle sheaths and foliage.
Somersby (coastal).

Euthyrrhinus meditabundus F.

P. halepensis, *P. radiata* and numerous indigenous
and exotic tree species.

Under bark and in wood of unthrifty trees.

Mittagong, Goulburn (highlands) and Somersby
(coastal).

Perperus lateralis (Boisd.)

P. elliotii, *P. radiata*

Damage as for *Aoplocnemis* spp., but also to
stems of young shoots where a clear, resinous
exudation appears at the point of attack.

Kulnura (highlands) and Somersby (coastal).

Perperus melancholicus Boisd.

P. radiata

Damage as for *P. lateralis*

Blackheath (highlands) and Ourimbah S. F.
(coastal).

Family Eumolpidae

Geloptera porosa Lea

P. radiata

Adults cut through bases of needles.

Somersby (coastal).

Family Scolytidae

Hylastes ater Payk.

P. radiata

Severe damage under bark on logs.

Widespread throughout southern highlands.

Order COLLEMBOLA

Family Hypogastruridae

Xenylla occidentalis Womersley

P. radiata

In large populations on young shoots, smaller twigs and branches; damage to trees not apparent.

Somersby (coastal).

Order HEMIPTERA

Family Adelgidae

Pineus near orientalis

P. durangensis, *P. elliotii*, *P. montezumae*, *P. pinaster*, *P. pseudostrobis*, *P. radiata*, *P. taeda*

Large populations on small branches, shoots and boles; mainly on small trees, but also on large, old trees; often associated with stunted growth probably caused by virus; apparently transported on nursery stock.

Widely distributed on coast, highlands and western slopes where *Pinus* spp. are grown.

Family Aphididae

Eulachmus sp.

P. taeda

Damage not evident.

Whiporee S. F. (highlands).

? *Eulachmus* sp.

?

Damage not evident.

Bullahdelah (coastal).

Family Cicadellidae

Orosius argentatus (Evans)

P. radiata

Associated with "die-back" of young nursery stock.

Moss Vale (highlands).

(Typhlocybinae) Gen. et sp. nov.

P. radiata

Damage not apparent; on foliage.

Lisarow, Somersby (coastal).

Family Coccidae

Coccus hesperidum L.

P. pinaster, *P. radiata*

Severe damage to foliage, accompanied by extensive sooty mould.

Mt. Topper S. F. (western slopes) and Ourimbah S. F. (coastal).

Lindingaspis rossi (Maskell)

P. pinaster

Heavy attack accompanied by yellowing of foliage.

Mt. Mitchell S. F. (highlands), Somersby (coastal).

Phenacaspis eugeniae (Maskell)

P. radiata

Slight damage to foliage.

Somersby (coastal).

Family Flatidae

Siphanta acuta Walk.

P. radiata

Damage not apparent; on foliage.

Lisarow (coastal).

Family Lygaeidae

Nysius vinitor Bergr.

P. radiata

Associated with "die-back" of young nursery stock.

Moss Vale (highlands).

Family Membracidae

Acanthucus sp.

P. radiata

Damage not apparent; on foliage.

Somersby (coastal).

Family Pseudococcidae

Pseudococcus adonidum (L.)

P. radiata

Damage not apparent; on stem of small plant.
Lisarow, Somersby (coastal).

Pseudococcus gahani Green

P. radiata

Damage not apparent; on stem.
Somersby (coastal).

Order ISOPTERA

Family Rhinotermitidae

Coptotermes acinaciformis (Froggatt)

P. radiata

Severe attack in old stump.
Somersby (coastal).

Coptotermes lacteus (Froggatt)

P. radiata

Dead tree, killed by lightning strike.
Mt. Mitchell S. F. (highlands).

Family Calotermitidae

Porotermes adamsoni Froggatt

Pinus sp.

Damage to growing trees on poor site quality.
Banyabba S. F. (coastal).

Order LEPIDOPTERA

Family Anthelidae

Anthela excellens (Walk.)

P. radiata

Slight damage to foliage.
Somersby (coastal).

Anthela nicothoe (Boisd.)

Acacia spp. and *P. radiata*

Damage to foliage negligible to severe.
Widespread throughout highlands of N.S.W.

Anthela ocellata Walk.

P. radiata

Damage usually slight.
Somersby (coastal).

Anthela near varia

P. radiata

Usually slight damage to foliage.
Somersby and Sydney (coastal).

Chelepteryx felderi Turner

P. radiata

Usually slight damage to foliage.
Somersby (coastal).

Chenuala heliaspis (Meyr.)

P. engelmannii, *P. patula*, *P. radiata*, *Eucalyptus*
spp.

Slight to moderate damage to foliage.
Hanging Rock S. F., Blayney (highlands).

Family Arctiidae

Asura cervicalis Walk.

Ficus rubiginosa, *P. radiata*

Damage to foliage of *P. radiata* slight, even
though large numbers of larvae occur;
defoliation of former species.

Mt. Topper S. F. (highlands), Somersby and
Sydney (coastal).

Palaeosia bicosta Walk.

P. radiata

Damage as for *A. cervicalis*.
Armidale S. F. (highlands), Somersby (coastal).

Palaeosia sp.

P. radiata

Damage not evident.
Widespread throughout highlands, and also on
coast.

Family Eupterotidae

Panacela lewinae (Lewin)

Most *Angophora* spp. and *Eucalyptus* spp.;
Acacia spp.; *Exocarpus cupressiformis*; *P.*
patula, *P. radiata*; *Syncarpia glomulifera* and
numerous indigenous tree and plant species.

Damage often severe on indigenous spp., but
light on large trees or heavy on small trees
of *Pinus* spp.

Widespread throughout western slopes, highlands
and coast.

Family Geometridae

Lophodes sinistraria Guen.

Cratageus sp., *Lagerstroemia* sp., *P. elliottii*, *P. radiata*

Slight damage to foliage.

Lisarow, Somersby (coastal).

Family Lymantriidae

Axiologa pura Lucas

Citrus sp., *Eucalyptus saligna*, *P. radiata*

Damage to foliage slight.

Lisarow, Somersby (coastal).

Oligeria hemicalla (Lower)

P. radiata

Damage to foliage slight.

Somersby (coastal).

Orgyia anartoides Walk.

P. radiata and numerous indigenous trees and cultivated plants.

Damage to foliage slight on larger trees, severe on small trees of *P. radiata*.

Widely distributed throughout coast and highlands.

Porthesia paradoxa Bh.

Contoneaster sp., *Lagerstroemia* sp., *P. radiata*

Usually slight damage to foliage.

Lisarow, Somersby (coastal).

Family Noctuidae

Agrotis infusa (Boisd.)

P. radiata and numerous cultivated plants.

Damage to foliage, and to roots and bark of nursery stock; sometimes severe.

Blackheath, Sunny Corner S. F. (highlands).

Agrotis munda Walk.

P. radiata, *Pseudotsuga menziesii*

Severe damage to nursery stock.

Wingello S. F. (highlands), Glenfield (coastal).

Androdes hypochalcis Turner

P. radiata

Damage to foliage slight, on young plants.

Lisarow (coastal).

Euxoa radians (Guen.)

P. radiata and numerous cultivated plants.

Damage to roots and lower stems of nursery stock, sometimes severe.

Vulcan S. F. (highlands).

Heliothis punctigera Wallengr.

P. radiata

Damage to young nursery stock severe.

Sydney (coastal).

Family Notodontidae

Teara variegata Walk.

Acacia spp., *P. radiata*

Slight to moderate damage to foliage.

Lisarow, Somersby (coastal).

Family Oecophoridae

Arachnographa micrastrella (Meyr.)

P. elliottii, *P. pinaster*, *P. radiata*, *Cupressus* sp.

Damage to male inflorescence, and light to moderate damage to foliage.

Mangrove Mtn. (highlands), Somersby and Sydney (coastal).

Barea consignatella Walk.

P. radiata and numerous indigenous and exotic trees and shrubs.

Beneath bark of stumps and in damaged areas on trees and shrubs.

Lisarow, Somersby, Sydney (coastal).

Coesyra sp.

P. radiata

Attacks rotting foliage and grasses in crotches of larger trees.

Somersby (coastal).

Elaeonoma sp.

P. radiata

Beneath bark of stumps.

Somersby (coastal).

Tortricopsis semijunctella Walk.

P. radiata, *Juniperus* sp.

Damage as for *A. micrastrella* but larvae also bore in stems of young shoots.

Somersby, Sydney (coastal).

Family Psychidae

Clania tenuis Rosen.

P. radiata

Defoliation of small trees, moderate damage on larger trees.

Sydney, Newcastle (coastal).

Hyalarcta hubneri Westw.

P. ayacahuite, *P. elliotii*, *P. radiata*, flowers of *Leptospermum minutifolium*, and numerous indigenous and exotic trees and shrubs.

Defoliation of small trees, moderate damage on larger trees.

Widely distributed throughout western slopes, highlands and coast.

Lepidoscia ? punctiferella (Walk.)

P. radiata

Slight damage to foliage.

Armidale S. F. (highlands), Somersby (coastal).

Narycia sp.

P. pinaster, *P. radiata*

Slight damage to foliage.

Mt. Topper S. F. (western slopes), Mt. Mitchell S.F., Armidale S. F. ((highlands) and Lisarow and Somersby (coastal).

Oiketicus elongatus Saund.

P. radiata and several indigenous and exotic trees and shrubs.

Moderate damage to foliage.

Lisarow and Sydney (coastal).

Trigonocyttara clandestina Turn.

P. radiata, most *Eucalyptus* spp. and numerous indigenous and exotic trees and shrubs.

Damage to foliage severe on small trees, moderate on larger trees.

Mt. Topper S. F. (western slopes), Mt. Mitchell S. F. and Armidale S. F. (highlands), Lisarow, Somersby and Sydney (coastal).

Family Tortricidae

Acropolitis rudisana (Walk.)

Pinus spp.

Severe damage to nursery stock.

Mt. Mitchell S. F. (highlands), Sydney (coastal).

Cryptoptila immersana (Walk.)

Pinus spp.

Severe damage to nursery stock.

Sydney (coastal).

Epiphyas postvittana (Walk.)

P. radiata, cultivated apple and rose, and numerous indigenous and exotic shrubs.

Damage to foliage slight on young tips of *P. radiata*.

Lisarow, Somersby (coastal).

Epiphyas xyloides (Meyr.)

P. radiata

Damage similar to that of *E. postvittana*.

Blackheath (highlands).

Isotenes miserana (Walk.)

P. radiata

Damage similar to two previous species.

Lisarow, Ourimbah S. F. (coastal).

Family Xyloryctidae

Plectophila discalis Walk.

P. radiata

Damage similar to *A. micrastrella*.

Somersby (coastal).

Order ORTHOPTERA

Family Eumasticidae

Moraba amiculi Sjost.

P. radiata

Slight damage to foliage.

Somersby (coastal).

Family Phasmatidae

Ctenomorpha sp.

P. radiata

Slight damage to foliage.

Somersby (coastal).

Family Tettigoniidae

Caedicia sp.

P. radiata

Destroys unopened tips of foliage on young plants.

Mt. Mitchell S. F. (highlands).

(Phaneropterinae) Gen. et sp. indet

P. radiata

Bases of needles damaged.

Somersby (coastal).

Order THYSANOPTERA

Family Thripidae

Heliothrips haemorrhoidalis Bouche

P. radiata

Damage sometimes severe, causing yellowing and silvering of foliage, with mortalities of lower branches on unpruned trees and of small plants. Occurs in large numbers in open situations during cooler weather, or in shaded situations during summer.

Lisarow, Somersby (coastal).

(2 unidentified spp.)

P. radiata

In small numbers on young shoots.

Lisarow (coastal).

CONCLUSION

It appears that *P. radiata* is more consistently and heavily attacked than other *Pinus* spp. in New South Wales, even when the much greater area planted to this species is considered.

Most of the insect species attacking *Pinus* spp. have the common characteristic of feeding on a wide range of host species in the field, which apparently enables them to feed readily on exotic plant species. When an indigenous insect species is host-specific, or almost so, this characteristic is apparently absent.

Pinus spp. grown on prime quality sites show little or no attack, and heaviest attack appears to occur on the less favourable sites and/or untreated stands.

Previous Research Notes Issued

- Research Note No. 1 A. G. FLOYD, 1958
Field Identification of Seedlings of the Major Tree Species in the
Blackbutt and Flooded Gum Areas.
- Research No. No. 2 A. G. FLOYD, 1960
Investigations in Sowing of Flooded Gum
- Research Note No. 3 A. G. FLOYD and H. C. HAYES, 1960
N.S.W. Rain Forest Trees. Part I: Family Lauraceae
- Research Note No. 4 G. N. BAUR, 1959
Raising and Planting of Flooded Gum
- Research Note No. 5 G. N. BAUR, 1960
Nursery Spacing and Grading of Slash Pine Seedlings
- Research Note No. 6 K. R. SHEPHERD, 1961
The effects of Low Pruning on Increment in Radiata Pine Plantation
- Research Note No. 7 A. G. FLOYD and H. C. HAYES, 1961
N.S.W. Rain Forest Trees. Part 2: Families Capparidaceae,
Escalloniaceae, Pittosporaceae, Cunoniaceae and Davidsoniaceae
- Research Note No. 8 G. N. BAUR, 1962
Forest Vegetation in North-Eastern New South Wales
- Research Note No. 9 G. N. BAUR, 1962
Silvicultural Practices in Rain Forests of Northern N.S.W.
- Research Note No. 10 A. G. FLOYD, 1962
Investigation into the Natural Regeneration of Blackbutt—*E.*
Pilularis
- Research Note No. 11 K. M. MOORE, 1962
Entomological Research on the Cause of Mortalities of *Eucalyptus*
saligna Smith (Sydney Blue Gum)