

SOME NATIVE PARASITES OF DACINAE (fam. *TRYPETIDAE*) IN QUEENSLAND.

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SUMMARY.

During studies concerned primarily with Queensland hosts of the Dacinae (fam. Trypetidae) some species of native braconids were recorded. Two, possibly four, of these attack *Strumeta tryoni* (Frogg.), the most important economic fruit fly in the State.

It is apparent that parasitism by these native species is of little economic importance, and their occurrence in commercial fruit is comparatively rare.

INTRODUCTION.

Earlier workers in southern Queensland have consistently recorded braconid parasites of fruit flies. Records were published under the names of *Opius* sp., *Opius tryoni* Cameron and *Diachasma tryoni* (Cameron) (Tryon 1895, 1906, 1914, 1916; E. Jarvis 1913; H. Jarvis 1922, 1924, 1926; and Perkins and Hardy 1925). Others have existed merely as specimens in the collection and as entries in Departmental records. In addition, two ichneumon and two chalcid parasites were recorded (H. Jarvis 1925), but specimens of these are not available for study.

A notable contribution to our knowledge of the braconid parasites of Dacinae in North Queensland resulted from the search by N. L. H. Krauss for parasites which might be of value in helping to control *Strumeta dorsalis* (Hendel) in Hawaii. Several unnamed species were collected and described (Fullaway 1950, 1951).

For some years one of us has been interested in Queensland hosts of the Dacinae (May 1953), and during the associated breeding work parasite records were kept as a secondary project. Although large numbers of fruit samples were collected from many parts of Queensland, only comparatively few parasites emerged. These and associated records prior to April 1954 are presented as List 1, in which parasite and fruit fly host names are arranged alphabetically. The plant host of the particular fruit fly species is given with the locality, the date, the collector's name where acknowledgement is required, and the actual numbers of parasites and flies which emerged from the fruit samples. Where these numbers are not available, relevant notes are supplied. Only one of the earlier records is included in this list, as in the absence of correlated trypetid specimens parasites cannot be referred specifically to hosts. Fruit fly-parasite relationships are given in List 2.

LIST 1.

Parasite-Host Records.

Genus *Bracon* Fabricius.*Bracon* sp.

Asiadacus calophylli Perk. & May.

ex *Calophyllum inophyllum* L., Mossman, Aug. 1951; (2). This fruit sample was heavily infested by *A. calophylli*.

Bracon sp.

Diplodacus signatifer (Tryon).

ex *Capparis lucida* (DC.) R.Br. ex Benth., Bowen, August 1951; (1) (4).

Genus *Opius* Wesmael.*Opius* sp. ? *africanus* Szep.

1. *Strumeta endiandrae* Perk. & May (See No. 3).

2. *Strumeta tryoni* (Frogg.) (See No. 3).

3. *Strumeta* species.

ex *Endiandra* sp., Tamborine Mountain, Dec. 1952; (1). Two species, *S. endiandrae* (44 specimens) and *S. tryoni* (2 specimens), were bred from these fruit.

Opius deeraleensis Full.

1. *Daculus murrayi* Perk.

ex *Semecarpus australiensis* Engl., Cairns, Dec. 1951; (1) (36).

2. *Strumeta endiandrae*.

ex *Endiandra discolor* Benth., Cairns, Aug. 1951; (39) (40+).

3. *Strumeta fagraea* (Tryon).

ex *Fagraea cambageana* Domin, Cairns, June 1950, (W. A. Smith); (2) (4).

4. *Strumeta kraussi* Hardy.

ex *Endiandra palmerstonii* (F. M. Bail.) White & Francis, Bartle Frere, Apr. 1932, (J. H. Smith); no records of population density available.

Opius fletcheri Silv.

1. *Afrodacus jarvisi* (Tryon). (See No. 12).

2. *Asiadacus calophylli*.

ex *Calophyllum inophyllum*, Tully, June 1951; (1). Fruits heavily infested by *A. calophylli*.

3. *Strumeta endiandrae*.
ex *Endiandra discolor*, Cairns Aug. 1951; (1) (40+).
4. *Strumeta fagraea*.
ex *Fagraea cambageana*, Mossman, Aug. 1951; (1) (49).
5. *Strumeta fuscatus* Perk. & May.
ex *Planchonella obovata* (R.Br.) H. J. Lam, Tully, July 1951; (2) (17).
6. *Strumeta halfordiae* (Tryon).
ex *Eugenia crebrinervis* C. T. White, Mt. Glorious, Feb. 1953;
(1) (100+).
7. *Strumeta humeralis* (Perk.). (See Nos. 12, 13, 14).
8. *Strumeta kraussi* ex *Acmena macrocarpa* C. T. White, Babinda, Apr. 1954; (1).
9. *Strumeta melas* Perk. & May. (See No. 12).
10. *Strumeta pallidus* Perk. & May.
ex *Nauclea orientalis* L., Ayr, Apr. 1953; (3).
11. *Strumeta tryoni* (See Nos. 12, 13, 14).
ex *Morus nigra* L., Brisbane, Oct. 1953; (1).
12. *Strumeta* species and *Afrodacus jarvisi*.
ex *Psidium guajava* L., Mackay, Mar. 1950; (25). (*O. kraussi* (13) also emerged. See p. 110). Several species of Dacinae emerged from this sample as follows:—*S. tryoni* 484, *S. humeralis* 129, *S. melas* 4, *A. jarvisi* 80.
13. *Strumeta* species.
ex *Psidium cattleianum* Sabine, Bundaberg, Mar. 1950, (W. A. Smith); (2). Both *S. tryoni* (54) and *S. humeralis* (20) emerged.
14. *Strumeta* species.
ex *Solanum seaforthianum* Andr., Giru, Apr. 1951; (3). Both *S. tryoni* (38) and *S. humeralis* (6) emerged.

Opius froggatti Full.

1. *Strumeta fagraea*.
ex *Fagraea cambageana*, Cairns, June 1950. (W. A. Smith); (1) (4).

Opius kraussi Full.

1. *Afrodacus jarvisi*. (See No. 7).
2. *Daculus murrayi*.
ex *Semecarpus australiensis*, Cairns, Dec. 1951; (1) (36).

3. *Strumeta halfordiae*. (See No. 7).
4. *Strumeta humeralis*. (See No. 7.)
5. *Strumeta melas*. (See No. 7).
6. *Strumeta tryoni*. (See No. 7).
 - ex *Juglans regia* L., Toowoomba, Dec. 1948; (35) (16).
 - ex *Persea gratissima* Gaertn. f., Brisbane, Apr. 1953; (1).
 - ex *Prunus persica* (L.) Batsch, Toowoomba, Feb. 1951; (3) (100+).
 - ex *Mangifera indica* L., Gayndah, Feb. 1947; records not kept.
 - ex *Mangifera indica*, Cairns, Jan. 1950, (S. E. Stephens); (3) (5).
 - ex *Mangifera indica*, Rockhampton, Dec. 1953; (4).
 - ex *Morus nigra*, Brisbane, Oct. 1953; (2).
 - ex *Solanum seaforthianum*, Capella, Mar. 1951; (1) (4).
 - ex *Terminalia catappa* L., Cairns, Feb. 1954; (3).
7. *Strumeta* species.
 - ex *Eriobotrya japonica* (Thunb.) Lindl., Brisbane, Sept. 1949. Very few parasites emerged from this sample, which was infested by *S. tryoni*, *S. humeralis*, *S. melas* and *S. halfordiae*.
 - ex *Psidium guajava*, Mackay, Mar. 1950. 13 parasites were recovered from among a mixed population of *S. tryoni*, *S. humeralis* and *Afrodacus jarvisi*. (See record above for *O. fletcheri*.)

Opius perkinsi Full.

1. *Strumeta fagraea*.
 - ex *Fagraea cambageana*, Mossman, Aug. 1951; (1) (49).
2. *Strumeta fuscatus*.
 - ex *Planchonella obovata*, Tully, July 1951; (1) (17).

Opius tryoni Cam.

1. *Afrodacus mesoniger* May.
 - ex *Litsea reticulata* (Meissn.) Benth., Tamborine Mountain, Dec. 1952. Records not kept.
2. *Strumeta halfordiae*. (See No. 7).
 - ex *Eugenia crebrinervis*, Mt. Glorious, Feb. 1953; (2) (100+).
 - ex *Phaleria chermsideana* (F. M. Bail.) C. T. White, Killarney, Mar. 1953; (1).
 - ex *Rauwenhoffia leichhardtii* (F. Muell.) Diels, Ravensbourne, Feb. 1953; (2) (100+).

3. *Strumeta humeralis*. (See No. 7.)
4. *Strumeta melas*. (See No. 7.)
5. *Strumeta mutabilis* May. (See No. 7.)
6. *Strumeta tryoni*. (See No. 7.)
 ex *Hemicyclia australasica* Muell. Arg., Toogoolawah, Feb. 1950; (5) (19).
 ex *Juglans regia*, Toowoomba, Feb. 1950. No records kept.
 ex *Morus nigra*, Gatton, Oct. 1949; (2) (101).
7. *Strumeta* species.
 ex *Pyrus communis* L., Gatton, Jan. 1953; (5). These fruit were heavily infested by *S. tryoni* (100+), with an occasional *S. humeralis*.
 ex *Eriobotrya japonica*, Brisbane, Sept. 1949. An occasional parasite emerged from the sample heavily infested by *S. tryoni*, *S. humeralis*, *S. halfordiae* and *S. melas*.
 ex *Morus nigra*, Lawes, Oct. 1950; (2+). *S. tryoni* (139) and *S. humeralis* (7) were bred from a sample of 150 fruit.
 ex *Fortunella japonica* (Thunb.) Swingle, Grantham, Dec. 1949. Low incidence of parasitism was recorded from a sample heavily infested by *S. tryoni*, *S. melas*, *S. halfordiae* and *S. mutabilis* were also recorded in small numbers.
 ex *Niemeyera chartacea* (F. M. Bail.) C. T. White, Mt. Glorious, Dec. 1952; (2). *S. halfordiae* (64), *S. humeralis* (8) and *S. tryoni* (6) were recovered.

LIST 2.

Fruit Fly—Parasites.

Species of Dacinae.	Braconid Parasite.
<i>Afrodacus jarvisi</i> ..	* <i>Opius fletcheri</i> * <i>Opius kraussi</i>
<i>Afrodacus mesoniger</i> ..	<i>Opius tryoni</i>
<i>Asiadacus calophylli</i> ..	<i>Bracon</i> sp. <i>Opius fletcheri</i>
<i>Daculus murrayi</i> ..	<i>Opius deeraleensis</i> <i>Opius kraussi</i>
<i>Diplodacus signatifer</i> ..	<i>Bracon</i> sp.

* More than one species of Dacinae emerged from the fruit sample providing this record.

Fruit Fly—Parasites—*continued*.

Species of Dacinae.	Braconid Parasite.
<i>Strumeta endiandrae</i> ..	* <i>Opius</i> sp. ? <i>africanus</i> . <i>Opius deeralensis</i> <i>Opius fletcheri</i>
<i>Strumeta fagraea</i> ..	<i>Opius deeralensis</i> <i>Opius fletcheri</i> <i>Opius froggatti</i> <i>Opius perkinsi</i>
<i>Strumeta fuscatus</i> ..	<i>Opius fletcheri</i> <i>Opius perkinsi</i>
<i>Strumeta kraussi</i> ..	<i>Opius deeralensis</i> <i>Opius fletcheri</i>
<i>Strumeta halfordiae</i> ..	<i>Opius fletcheri</i> * <i>Opius kraussi</i> <i>Opius tryoni</i>
<i>Strumeta humeralis</i> ..	* <i>Opius fletcheri</i> * <i>Opius kraussi</i> * <i>Opius tryoni</i>
<i>Strumeta melas</i> ..	* <i>Opius fletcheri</i> * <i>Opius kraussi</i> * <i>Opius tryoni</i>
<i>Strumeta mutabilis</i> ..	* <i>Opius tryoni</i>
<i>Strumeta tryoni</i> ..	* <i>Opius</i> sp. ? <i>africanus</i> . * <i>Opius fletcheri</i> <i>Opius kraussi</i> <i>Opius tryoni</i>

* More than one species of Dacinae emerged from the fruit sample providing this record.

DISCUSSION.

Opius tryoni, the only parasite recognised specifically by early workers, and therefore apparently given considerable publicity, was introduced into Hawaii by Silvestri in 1913 to combat *Ceratitis capitata* Wied. (Silvestri 1914). Although this braconid is associated with several fruit fly hosts, it is restricted to southern Queensland and is by no means the dominant species in the State. Several others, particularly *O. kraussi* and *O. fletcheri*, are often as prevalent as *O. tryoni* and have a wider distribution. It is of interest that *Strumeta tryoni*, the most important economic fruit fly in the State, is attacked by two, and possibly four, native braconids.

When the number and variety of fruit samples providing these parasite records (May 1953) are considered, it is apparent that parasitism of fruit flies by native species is of little economic importance. Furthermore, parasitism of fruit fly in commercial fruit is a comparatively rare occurrence.

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