



Figure 1: Pacific fruit fly (*Bactrocera xanthodes*)



Figure 2: *Bactrocera kirki*.

***Bactrocera kirki* (Froggatt)**

B. kirki (Figure 2), a medium-sized fly, is mostly black with yellow markings on either sides of the thorax (upper body); the lower body (abdomen) is glossy black with orange-brown longitudinal bands in the middle. The main host fruits for *B. kirki* are tropical almond (*Terminalia catappa*), mango, avocado, Tahitian chestnut (*Inocarpus fagifer*), guava, rose apple (*Syzygium jambos*), mountain apple (*S. malaccense*), mandarin, orange, Pacific lychee (*Pometia pinnata*) and starfruit (*Averrhoa carambola*). *B. kirki* is present in French Polynesia (but not in the Marquesas), Tonga, Samoa, American Samoa, Niue, Wallis and Futuna and Fiji Islands (on Rotuma only). Males are attracted to Cue-lure.

***Bactrocera passiflorae* (Froggatt)**

B. passiflorae, a small-sized, predominantly black species (Figure 3), is present in Fiji Islands (excluding Rotuma), Niue and Wallis and Futuna. In Fiji Islands, this species attacks guava, mango, cashew, avocado, granadilla (*Passiflora quadrangularis*), orange, kumquat, mandarin, *Syzygium* apples, tropical almond, and *Ochrosia oppositifolia*. *B. passiflorae* male flies come to the attractant Cue-lure.



Figure 3: *Bactrocera passiflorae*.

NON-ECONOMIC SPECIES

***Bactrocera distincta* (Malloch)**

B. distincta is a medium-large fly and is partially black (Figure 4). The wings have a distinctive dark transverse crossband pattern. This fly has been reared from at least six host fruit species, most of which are from the plant family Sapotaceae, including sapodilla (*Manilkara zapota*) and star apple (*Chrysophyllum cainito*). It occurs in Fiji Islands, including Rotuma, on Futuna, in Tonga, Samoa and American Samoa. It is attracted to fruit fly traps baited with Cue-lure.

***Bactrocera obscura* (Malloch)**

B. obscura (Figure 5) is present in American Samoa, Niue, Samoa, Tonga and Wallis and Futuna and Rotuma (in Fiji Islands). It is a medium-sized species with yellow patches on the area of the shoulder and rear end of the thorax. The abdomen, which is orange-brown, has a medial longitudinal dark band and four lateral dark markings. The wings are clear except for broad dark areas on the foremargin and at the rear of the wing. Males are attracted to Cue-lure.

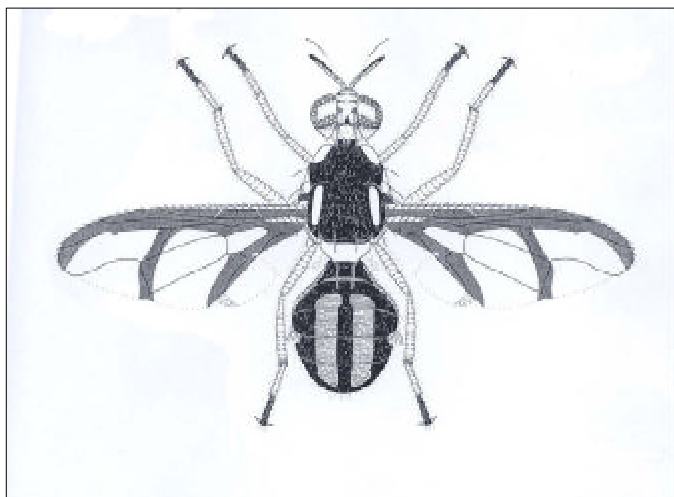


Figure 4: *Bactrocera distincta*.

Bactrocera* new species near *passiflorae

As its name suggests, it is an undescribed new species similar to *B. passiflorae*, but smaller in size and with light coloured markings on the abdomen. An illustration of the species may be found in Drew and Hancock (1995). It occurs in the northern interior and in the southern part of Viti Levu, and Lau group in Fiji Islands, on Tuvalu, Tokelau, and the Niua's group in Tonga. This species was reared from *Ochrosia oppositifolia* in Fiji and from a number of commercial/edible hosts in Tonga, such as orange and mandarin, although its economic impact has not been clearly assessed. Its pest status in Tuvalu and Tokelau is yet to be determined. Males are attracted to Cue-lure.

QUARANTINE SURVEILLANCE

Fruit fly trapping and host fruit surveys are techniques used to confirm the presence of existing fruit fly species and detect new introductions of exotic species to a country or an island. Modified Steiner traps, baited with chemical lures that attract male fruit flies mixed with an insecticide, are used to trap the flies. Cue-lure and methyl eugenol are two commonly used attractants in the Pacific. A third lure, trimedlure, is used to trap the Mediterranean fruit fly (*Ceratitis capitata*), which is not present in the Pacific region, except in Hawaii. Trimedlure traps need to be maintained in American Samoa, which has direct airline contact with Hawaii. These traps are placed in backyards and education institutions in towns and cities, dumps, farms, villages, hotels and resorts, research stations and at ports of entry. Traps are placed on host or potential host fruit trees, at a height of about two metres in a shady position. They are suspended from wires that are coated with a non-drying adhesive, such as Tanglefoot. Care is taken to ensure that leaves or branches do not touch the trap and also that cross contamination between lures does not take place. Traps located in ports of entry and on farms that are producing fruit for export should be cleared every two weeks. The traps are re-charged with lure every three months and are replaced when they are damaged.

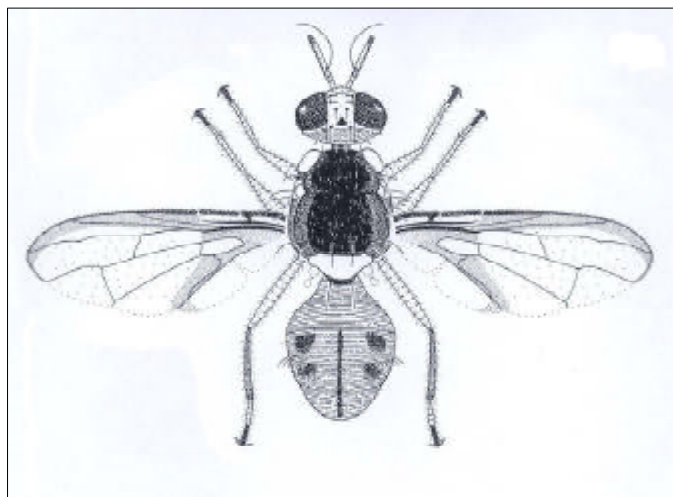


Figure 5: *Bactrocera obscura*.

Host fruit surveys are carried out to confirm the presence of fruit flies that are not attracted to the male lures and to monitor the levels of damage, presence of parasitoids, seasonal abundance and geographical distribution of fruit flies. Collected fruit samples are incubated for two to three weeks in containers over moist sawdust to determine whether flies emerge from the fruits. Data generated are used for pest risk assessments for trade negotiations on fresh fruit and vegetables.

Maintenance of quarantine surveillance is important particularly in small countries, where an introduction of serious exotic fruit flies may jeopardize food security and incomes.

FURTHER READING

1. Allwood, A.J. and R.A.I. Drew. 1997. Management of fruit flies in the Pacific. Proceedings of a Regional Symposium held in Nadi, Fiji Islands, on 27-31 October 1996. ACIAR Proceedings No. 76. 267 pp.
2. Drew, R.A.I. 1989. The tropical fruit flies (Diptera: Tephritidae: Dacinae) of Australasian and Oceanic regions. Memoirs of the Queensland Museum 26: 139-150.
3. Drew, R.A.I and D.L. Hancock. 1995. New Species, subgenus and records of *Bactrocera* Macquart from the South Pacific (Diptera: Tephritidae: Dacinae). Journal of Australian Entomological Society 34: 7-11pp.
4. Drew, R.A.I., G.H.S. Hooper, and M.A. Bateman. 1978. Economic Fruit Flies in the South Pacific Region. pp 65-123. Published in Brisbane.
5. Sales, F. 1998. Distribution, plantes hôtes et dynamique des populations des mouches des fruits (Diptera: Tephritidae) en Nouvelle-Calédonie et à Wallis et Futuna. Fruits 53:41-46.

This leaflet was compiled under the fruit fly projects in the Pacific. The FAO/AusAID/UNDP/SPC Project on Regional Management of Fruit Flies in the Pacific (RMFFP) commenced in 1990 and Phase 1 initially operated in Fiji Islands, Cook Islands, Tonga and Samoa. Phase 2 (1994-1997) included, besides the four original countries, Federated States of Micronesia (FSM), Solomon Islands and Vanuatu. The third phase (1997-2000) included all 22 Pacific Island countries and territories (PICTs). The RMFFP is funded by AusAID, UNDP and New Zealand Government (NZODA), implemented by FAO and executed by the Secretariat of the Pacific Community (SPC). The Australian Centre for International Agricultural Research (ACIAR) has also run a parallel fruit fly project in the seven countries during Phases 1 and 2, and in Papua New Guinea since 1998. Since January 2001, fruit fly activities have become Component 2, "Fruit Fly Management", of the Project on "Pest Management in the Pacific", executed by SPC and funded by the Australian (AusAID) and New Zealand (NZODA) governments. For more information on the Fruit Fly Project, consult the Web site: <http://www.pacifly.org>.



NZODA

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