

Recent Introductions for Biological Control in Hawaii—IV

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This paper is primarily a check list of beneficial organisms released in Hawaii by the Board of Agriculture and Forestry, and the Hawaiian Sugar Planters' Association since the last published listing by the author (PROC. HAW. ENT. SOC. 16 (3):356-358, 1958). The list of beneficial organisms is presented in the tables following the summary.

SUMMARY

The establishment of introduced organisms may often take a year or more under Hawaiian conditions, and thus precludes appraisal of 1958 introductions at this time. *Canthon humectus* (Say), for example, was sent from Mexico to Hawaii by H. T. Osborn in 1923 for hornfly control but was not recovered until June 12, 1947 (PROC. HAW. ENT. SOC. 13 (2): 212, 1948). This summary, therefore, pertains to noteworthy developments of some established organisms introduced prior to 1958 under the following respective categories:

I Snail Pest Control

Euglandina rosea (Ferrusac), the carnivorous snail from Florida, apparently has not reached a population peak, and continues to multiply spectacularly in most all African snail infested areas. Two other carnivorous snails, *Gonaxis kibweziensis* (Smith) and *Gonaxis quadrilateralis* (Preston), were present at nearly all release points surveyed, and had extended their ranges considerably.

II Plant Pest Control

A. *Lantana camara* L.

Syngamia haemorrhoidalis Guenée was, until recently, the only outstanding lepidopterous defoliator of lantana. This pyralid was introduced from Florida in 1956 and became established rapidly throughout the major islands of the Hawaiian Group. At Mokuleia, Oahu, in 1957, destruction to lantana foliage was close to one hundred per cent and was comparable to seasonal devastation caused by the tingid, *Teleonemia scrupulosa* Stål.

NEW INTRODUCTIONS AND ADDITIONAL RELEASES FOR BIOLOGICAL CONTROL IN HAWAII

Pest Needing Control	Organism Introduced	Source	Collector	Date Rel'd. (1958)	No.	***Release Point
I SNAIL PESTS <i>Achatina fulica</i> Bowdich (giant African snail)	<i>Damaster blaptoides blaptoides</i> Kollar	Fukuoka, Japan	N.L.H. Krauss	Jul 3	50	Kionaole Road (Old Pali Road) Oahu
		Fukuoka, Japan	N.L.H. Krauss	Jul 9	25	Haiku, Maui
	<i>Damaster blaptoides rugipennis</i> Motchulsky	Sapporo, Hokkaido, Japan	N.L.H. Krauss	Jul 28	46	Tantalus, Oahu
	* <i>Lamprophorus tenebrosus</i> (Walker)	Kandy, Ceylon	N.L.H. Krauss	Oct 15	256	Waiahole, Oahu
			N.L.H. Krauss	Oct 27	56	Pauwela Gulch, Maui
	* <i>Gulella bicolor</i> Hutton	Saipan Kuala Lumpur, Malaya	N.L.H. Krauss N.L.H. Krauss	Mar 28 Sept 10	9 600	Pauoa Valley, Oahu Hilo, Hawaii
<i>Subulina octona</i> Bruguiere (conical snail)						
<i>Lymnaea ollula</i> Gould (liver fluke snail)	<i>Sepedon macropus</i> Walker	Nicaragua	Dr. C. Berg	Dec 5	8	Kahaluu Swamp, Oahu
II PLANT PESTS <i>Melastoma malabathricum</i> L.	<i>Bocchoris fatualis</i> Munro	Paete, Laguna Province, Philippine Island	N.L.H. Krauss	Mar 13	58	Knudsen Gap, Kauai
				Apr 10	40	Ainako, Hawaii
	* <i>Apion</i> sp.	Montachique, Portugal	C. J. Davis	Jul 9	130	Olinda, Maui
	* <i>Aerenicopsis championi</i> Bates	Vera Cruz, Mexico	Ing. Eleazar Jimenez	June 9 June 6	-38 10	Tantalus, Oahu Kona, Hawaii

* Previously introduced

NEW INTRODUCTIONS AND ADDITIONAL RELEASES FOR BIOLOGICAL CONTROL IN HAWAII (Cont'd)

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Pest Needing Control	Organism Introduced	Source	Collector	Date Rel'd. (1958)	No.	***Release Point
III INSECT PESTS <i>Aphis gossypii</i> Glover <i>Aphis</i> spp. Mealybugs	<i>*Coelophora inaequalis</i> (Fabricius)	Manila, Philippines	N.L.H. Krauss	Mar 14	187	Damon Tract, Oahu
	<i>Scymnus</i> sp.	Manila, Philippines	N.L.H. Krauss	Mar 11	18	Damon Tract, Oahu
	<i>Verania crocea</i> (Mulsant)	Manila, Philippines	N.L.H. Krauss	Mar 14	52	Damon Tract, Oahu
		Manila, Philippines	N.L.H. Krauss	Mar 24	700	Waiakeawaena, Hilo, Hawaii
		Manila, Philippines	N.L.H. Krauss	Mar 24	400	Wailuku, Maui
		Manila, Philippines	N.L.H. Krauss	Mar 24	500	Hanapepe & Lawai Valley, Kauai
	<i>*Synonyche grandis</i> Thunberg	Manila, Philippines	N.L.H. Krauss	Mar 17	100	Makaha Valley Road Oahu
		Okinawa, Ryukyu Is.	N.L.H. Krauss	June 6	33	Makiki Heights, Oahu
	<i>Verania</i> sp.	Zamboanga, Mindanao, Philippines	N.L.H. Krauss	Dec 9	40	Makiki, Oahu
	<i>Coelophora</i> sp.					
	<i>Scymnus</i> sp.	Calcutta, West Bengal	N.L.H. Krauss	Nov 7	155	Corner Young & Keeaumoku Sts., Oahu
		Calcutta, West Bengal	N.L.H. Krauss	Nov 7	125	Mokulua Dr., Lanikai, Oahu
	<i>*Scymnus roepkei</i> Fluiter	Manila, Philippines	N.L.H. Krauss	Mar 17	25	Makaha Valley Rd., Oahu
	Encyrtidae sp.	Calcutta, West Bengal	N.L.H. Krauss	Nov 20	15	Corner Young & Keeaumoku Sts., Oahu
	<i>*Aenasius advena</i> Compere	Manila, Philippines	N.L.H. Krauss	Dec 29	30	Nuuanu Valley, Oahu

* Previously introduced

NEW INTRODUCTIONS AND ADDITIONAL RELEASES FOR BIOLOGICAL CONTROL IN HAWAII (Cont'd)

Pest Needing Control	Organism Introduced	Source	Collector	Date Rel'd. (1958)	No.	***Release Point
III INSECT PESTS (Cont'd)						
<i>Protaetia fusca</i> (Herbst) (scarab beetle)	<i>Tiphia paralella</i> Smith	Mauritius	A. Moutia	Jan 17	30	H.S.P.A., Oahu
<i>Siphona irritans</i> L. (hornfly)	Scarabaeidae, Undetermined	Iran	E. Esfandiari	June 2	50	Kualoa Ranch, Oahu
	** <i>Pachylister lutarius</i> Erichson	Ceylon	N.L.H. Krauss	Sept 28	4	University of Hawaii Dairy, Oahu
	** <i>Hister javanicus</i> , Paykull	Ceylon	N.L.H. Krauss	Sept 29	10	University of Hawaii Dairy, Oahu
	* ** <i>Pachylister chinensis</i> Quenstedt	Ceylon	N.L.H. Krauss	Oct 6	7	Foremost Dairy (Campos), Oahu
	** <i>Santalus orientalis</i> Paykull	Ceylon	N.L.H. Krauss	Oct 6	7	Foremost Dairy (Campos), Oahu
<i>Aspidiotus</i> spp. (scale pests)	<i>Chilocorus nigritus</i> (Fabricius)	Chilaw, Ceylon	N.L.H. Krauss	Oct 13	12	Foster Gardens, Oahu
<i>Hedylepta accepta</i> (Butler) (sugar cane leafroller)	<i>Litomastix</i> sp.	Fiji	B.A. O'Connor	Mar '58		Aiea, Oahu; Mt. View, Hawaii

* Previously introduced

** Determined by Dr. R. L. Wenzel

*** Applies to initial releases only.

During the latter part of the year another lantana defoliator, *Hyphenia jussalis* Walker, became established on Hawaii, Oahu, and Maui. Subsequently, Mr. Stephen Au, Resident Entomologist on Kauai, reported "explosions" of *Hyphenia* populations in Lawai Valley during October and November, 1958. This noctuid moth was introduced from Diani Beach, Kenya Colony and Umtali, Southern Rhodesia, in 1957.

Enemies of *Syngamia* and *Hyphenia* in Hawaii include *Pachodynerus nasidens* (Latrielle) and *Polistes* sp.

B. *Emex australis* Steinh.

Apion antiquum Gyllenhal, introduced from Durban, South Africa in January, 1957 was reported established on the Parker Ranch at Kamuela, Hawaii, by Harold Baybrook, Ranch Agriculturist, in October, 1958. The larvae of this weevil are stem borers and the adults feed on the leaves and flowers.

C. *Schinus terebinthifolius* Raddi (Christmas berry)

Episimus sp., an olethreutid moth introduced from Brazil in 1954, is established and widespread on all major islands. The larvae are leafrollers. The principal enemy of this species appears to be *Pachodynerus nasidens*.

III Insect Pest Control

No significant developments were observed.

The propagation and testing of all organisms considered for liberation were conducted by Mr. Q. C. Chock, Territorial Entomologist, assisted by Miss Mabel Chong, Insectary Supervisor.

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