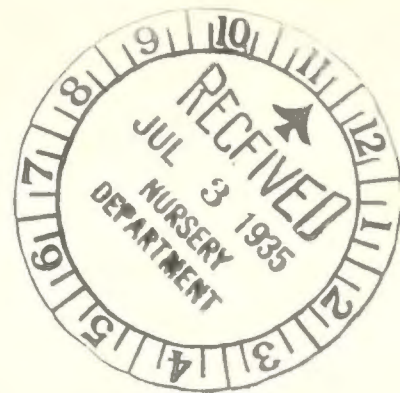


THE INSECT PEST SURVEY
BULLETIN



Volume 15

Supplement

Number 4

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INSECT PEST SURVEY BULLETIN

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INSECT NOTES FROM COSTA RICA IN 1934

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The following tables were prepared from notes sent in each month during 1934 by C. H. Ballou. The dates indicate the time specimens were collected and are not necessarily the period of activity of the insect, nor do the given localities limit the distribution of the species. The notes are arranged by orders and under the families in the larger orders. In order to condense the tables, certain localities are abbreviated as follows:

Muelle = Muelle de San Carlos

Paso Ancho = Paso Ancho de San Sebastian

Peralta = Peralta y Chitaria

San Antonio = San Antonio de Belen

San Isidro = San Isidro de Coronado

San Pedro = San Pedro de Montes de Oca

Santa Barbara = Santa Barbara de Heredia

The accompanying map was prepared for this publication by Rafael A. Chavarria, Director of the Centro Nacional de Agricultura.

Explanation of Map

The letters in the following list give some idea of the climate when considered with the region in which the place lies. The eastern slope (E) is a humid region; the western slope (W) is dry; the central plateau (C) is moderate; San Carlos (S) is very wet. The number following the name represents altitude in feet. The number preceding the name is given to locate the place on the map.

- | | |
|----------------------------------|--|
| 1 Alajuela (C) 4490 | 25 Orosi |
| 2 Boca de Konver (S) 600 | 26 Orotina (W) 853 |
| 3 Canada de Cot (C) 7250 | 27 Pan de Azucar (W) 70 |
| 4 Cartago (E) 5653 | 28 Paso Ancho de San Sebastian (C) |
| 5 Cascajal (W) 448 | Lower than San Jose |
| 6 Charui (=San Jose) | 29 Peralta (E) 1055 and Chitaria several |
| 7 Concepcion (W) 1040 | hundred feet higher |
| 8 Coyolar (W) 700 | 30 Quebrada Azul (S) About 800 |
| 9 Cuesta del Macho (S) highest | 31 Rio Segundo (C) 3940 |
| part of San Carlos | 32 Sabanilla (C) |
| 10 El Cacao (C) | 33 Sanatorio Duran (C) 9090 |
| 11 El Pizote (C) 6300 | 34 San Antonio de Belen (C) 3119 |
| 12 Escasu (C) 4500 | 35 San Dimas (C) |
| 13 Florencia (S) | 36 San Francisco de Dos Pios (C) |
| 14 Granadilla (C) | 37 San Isidro de Coronado (C) 5580 |
| 15 Grecia (C) 4330 | 38 San Jose (C) 4645 |
| 16 Guadalupe (C) | 39 San Lucas (W) 25 |
| 17 Lagunillas (W) | 40 San Pedro de Montes de Oca (C) 5300 |
| 18 La Holanda (C) 7480 | 41 Santa Ana (C) 3900 |
| 19 La Uruca (C) 4550 | 42 Santa Barbara de Heredia (C) 5060 |
| 20 Limon (E) 10 | 43 Santiago de Paraiso (E) 3536 |
| 21 Manzanillo | 44 Sarchi (C) 5400 |
| 22 Muelle de San Carlos (S) 630 | 45 Tacares (C) 3200 |
| 23 Naranjo (C) 4673 | 46 Ujarras |
| 24 Ochomogo (On the Divide) 6059 | 47 Villa Quesada (S) |
| | 48 Waldeck (E) 60 |



COLEOPTERA

ANTHICIDAE	C o l l e c t e d o n	Date	Notes
Anthicus asphaltinus Champ. San Pedro	Chrysophyllum cainito Persea americana	Trichilia havanensis	Through- out year
CANTHARIDAE			
Diaphron proteum Gorh. Paso Ancho San Pedro	Acnistus arborescens Pastinaca sativa Persea americana	Spondias mombin	May 21 June 11
CARABIDAE			
Calleida chryseis Bates Guadalupe San Pedro	Coffea arabica Persea drymifolia Vernonia brachiata		Jan. 5 Sept. 30 Always taken be- tween leaves webbed together.
CERAMBYCIDAE			
Antodice cretata Bates San Pedro	Tournefortia foetid- issima		May 26 Eats midribs of leaves.
Esthlogena porosa Bates El Cacao	Eriobotyra japonica		Nov. 12
Oreodera costaricensis Thom. Escasu	Erythrina rubrinervia		Jan. 17 Called "Zapatero."
Phaea lateralis Bates Guadalupe San Pedro	Erythrina rubrinervia Ipomoea tiliacea		May 26
CHRYSOMELIDAE			
Calligrapha elegantula Jacoby Ochomogo San Pedro	Panicum barbinode Saccharum officinarum	Sida rhombifolia Zea mays	June 28 Aug. 28 Oct. 8

	C o l l e c t e d o n		Date	Notes
Cerotoma rogersi Jacoby Orosi Paso Ancho	Cestrum sp.	Meibonia frutescens	Sept. 13	A serious pest of string beans.
	Cucurbita pepo	Phaseolus vulgaris	to	
	Galinzoga hispida	Vicia faba	Dec. 28	
	Guarea caoba	Vigna sesquipedalis		
Chalcophana mutabilis Harold Paso Ancho	Vernonia brachiata		May 31	
Chelymorpha gressoria Boh. Ochomogo	Asparagus officinalis		June 28	
Colaspis prasina Jacoby Guadalupe San Pedro	Croton gossypiifolium	Solanum melongena	Jan. 24	Lives on wild Solanum and mi- grates to cul- tivated species, especially egg- plant.
	Musa paradisiaca	Solanum torvum	to	
	Pastinaca sativa	Solanum tuberosum	June 22	
	Solanum lanceolatum var. sinuatum		Nov. 22 Dec. 20	
Cryptocephalus trizonatus Suffr. Coyolar Paso Ancho San Isidro San Pedro	Amygdalus persica	Pisum sativum	Through-	out year
	Capsicum annum	Prunus pissardi		
	Diospyros virginiana	Sida rhombifolia		
	Diphysa robinoides	Vernonia brachiata		
	Elaphrium simaruba			
Cryptocephalus tesseratus Chevr. San Pedro	Malus sylvestris		Jan. 5	
Deloyala testudinaria Boh. El Cacao Orosi San Pedro	Acnistus arborescens		May 26	
	Solanum nigrum		Sept. 13	
			Nov. 6	

	C o l l e c t e d o n		Date	Notes
Diabrotica balteata Lec.	Amaranthus spinosus	Lycopersicum esculentum	Feb. 19	When very abundant, causes considerable damage, especially on beans and potatoes.
Coyolar	Capsicum annuum	Malus sylvestris	to	
Guadalupe	Celosia cristata	Pelargonium zonale	Dec. 20	
Muelle	Citrus sp. (toronjo)	Persea americana		
Ochomogo	Crescentia cujete	Phaseolus vulgaris		
Pan de Azucar	Crotalaria striata	Pisum sativum		
San Pedro	Cucurbita ficifolia	Sida rhombifolia		
Santa Ana	Heliotropium indicum	Solanum tuberosum		
Villa Quesada	Iberis sp.	Zea mays		
	Lactuca sativa			
Diabrotica corrusca Jacoby	Chayota edulis	Solanum tuberosum	June 28	In flowers.
Ochomogo	Cucurbita pepo		Sept. 8	
San Pedro	Phaseolus vulgaris			
Diabrotica dorsoplagiata Jacoby	Citrus sinensis		June 1	
San Pedro				
Diabrotica fulvicornis Jacoby	Citrus grandis	Eugenia jambos	Mar. 16	
San Dimas	Citrus limonia	Persea americana	to	
San Pedro	Citrus nobilis deliciosa	Saccharum officinarum	Dec. 20	
	Citrus sinensis	Vernonia brachiata		
	Erythrina rubrinervia	Vicia faba		
Diabrotica nummularis Harold	Acacia melanoxylon	Asparagus officinalis	Through-	Very abundant and very destructive to potatoes throughout June at San Pedro. A general feeder, often destroying vegetable and flower gardens.
Cuesta del Macho	Acnistus arborescens	Bidens pilosa	out	
Guadalupe	Ageratum conyzoides	Bixa orellana	year	
Muelle	Amaranthus cruentus	Calocarpum mammosum		
Ochomogo	Amygdalus persica	Calyptanthus costaricensis		
Paso Ancho	Anethum graveolens	Cestrum macrophyllum		
San Isidro	Annona chirimola	Chayota edulis		
Villa Quesada	Asclepias curassavica			

	C o l l e c t e d o n		Date	Notes
Diabrotica nummularis--Cont'd	Chrysanthemum maximum	Lonchocarpus sp.		
	Citrus limonia	Morus sylvestris		
	Citrus sinensis	Parthenocarpus aculeata		
	Colocasia sp.	Persea americana		
	Crotalaria striata	Phaseolus vulgaris		
	Cucurbita ficifolia	Phytolacca decandra		
	Cucurbita pepo	Polygonum acre		
	Dianthus caryophyllus	Prunus armeniaca		
	Diospyros kaki	Psidium guajava		
	Erythrina rubrinervia	Raphanus sativus		
	Eschscholtzia cali-	Rosa spp.		
	fornica	Rumex crispus		
	Eugenia uniflora	Saccharum officinarum		
	Ficus carica	Solanum nigrum		
	Hedychium coronarium	Solanum tuberosum		
	Hibiscus rosa-sinensis	Spondias mombin		
	Iberis sp.	Terminalia catappa		
	Impatiens balsamina	Vicia faba		
	Ipomoea batatas	Vitis vinifera		
	Ipomoea tiliacea	Zea mays		
	Lagerstroemia speciosa	Zinnia elegans		
Diabrotica porracea Harold	Annona cherimola	Cucurbita pepo	Jan. 18	General feeder.
	Chayota edulis	Iberis sp.	to	Destroyed candy-
	Citrus limonia	Solanum tuberosum	Sept. 11	tuft in July
	Coffea arabica	Tripsacum laxum		at Guadalupe.
	Conostegia lanceolata	Vitis vinifera		
	Cornutia cymosa	Zea mays		
Diabrotica viridula Fab.	Cucurbita pepo	Saccharum officinarum	March 28	Abundant on corn
	Eschscholtzia cali-	Sobralia decora	to	in August, es-
	fornica	Tripsacum laxum	Dec. 20	pecially on
	Iberis sp.	Verbena litoralis		the silk.
	Inga paterno	Zantedeschia aethio-		
	Pennisetum purpureum	pica		
	Phaseolus vulgaris	Zea mays		

	C o l l e c t e d o n		Date	Notes
Diabrotica vittata Fab.	Citrus sinensis		Feb. 15	Very abundant on various cucurbitaceous plants
Ochomogo	Cucurbita ficifolia		June 28	
Peralta	Cucurbita pepo		Aug. 22-	
San Dimas	Raphanus sativus		Dec. 20	
San Pedro				
Epitrix fuscata Jac.-Dáv.	Capsicum annuum	Solanum tuberosum	Feb. 4	A serious pest of potato and tomato.
Paso Ancho	Lycopersicum esculentum		to Dec. 30	
Galeruca encaustica Germ.	Casuarina equisetifolia	Inga edulis	Apr. 20	
Granadilla		Persea americana	to	
Paso Ancho	Citrus nobilis deliciosa		June 28	
San Pedro	Coffea arabica		Oct. 25 to Nov. 28	
Homophoeta cyanipennis octomaculata Crotch	Acnistus arborescens	Gliricidia maculata	Feb. 5	Sometimes harmful on tender growth, especially of avocado.
Coyolar	Allium cepa	Impatiens balsamina	to	
Cuesta del Macho	Amaryllis sp.	Ipomoea batatas	Dec. 27	
El Cacao	Amygdalus persica	Ligustrum japonicum		
Granadilla	Anacardium rhinocarpus	Malus sylvestris		
Guadalupe	Asparagus officinalis	Musa textilis		
Orosi	Canna indica	Pennisetum purpureum		
Paso Ancho	Citrus grandis	Persea americana		
San Pedro	Citrus medica	Persea drymifolia		
Santa Ana	Citrus sinensis	Phaseolus vulgaris		
Villa Quesada	Coffea arabica	Saccharum officinarum		
	Coix lachryma-jobi	Soja max		
	Croton gossypifolium	Tetragonia expansa		
	Dahlia rosea	Vitis vinifera		
	Dioscorea sp.	Zea mays		
	Gardenia japonica			

	C o l l e c t e d o n		Date	Notes
Leptinotarsa undecimlineata Stahl Granadilla La Holanda Muelle Ochomogo Orosi San Dimas San Pedro	Phytolacca decandra Saccharum officinarum Solanum aculeatissimum Solanum torvum		Through- out year	Very common on Solanum spp.
Metriona emarginata Boh. San Pedro	Hamelia erecta Ipomoea batatas		May 26 Oct. 5	
Nodonota irazuensis Jacoby El Cacao Grecia Guadalupe Ochomogo Paso Ancho San Pedro Santa Ana Villa Quesada	Acalypha wilkesiana Ageratum conyzoides Amaranthus cruentus Amygdalus persica Annona cherimola Annona reticulata Asclepias curassavica Bidens pilosa Bixa orellana Boehmeria nivea Calliandra grandi- flora Callistemon lanceo- latus Calypttranthes costari- censis Camellia japonica Carissa grandiflora Cestrum aurantiacum Cestrum lanatum Chayota edulis Chenopodium ambrosioi- des	Chrysanthemum Cichorium intybus Citrus aurantifolia Citrus limonia Citrus sinensis Coffea arabica Coleus blumei Conostegia lanceolata Corcopsis lanceolata Crotalaria striata Croton gossypifolium Cucurbita pepo Cupressus benthami Cydonia oblonga Dahlia rosea Dianthus caryophyllus Diospyros kaki Diphysa robinoides Eriobotrya japonica Erythrina rubrinervia Eschscholtzia califor- nica Eugenia uniflora	Jan. 5 to Dec. 31	Probably the most harmful insect observed during the year. It feeds especially on tender new leaves.

	C o l l e c t e d o n		Date	Notes
Nodonota irazuensis--Cont'd	<i>Ficus carica</i> <i>Fragaria chiloensis</i> <i>Gliricidia maculata</i> <i>Hibiscus rosa-sinensis</i> <i>Impatiens balsamina</i> <i>Inga paterne</i> <i>Ipomoea batatas</i> <i>Ipomoea tiliacea</i> <i>Lippia berlandieri</i> <i>Malacra radiata</i> <i>Malus sylvestris</i> <i>Mangifera indica</i> <i>Morus rubra</i> <i>Myosotis sylvatica</i> <i>Panicum barbinode</i> <i>Pastinaca sativa</i> <i>Pelargonium graveolens</i> <i>Pelargonium zonale</i> <i>Persea americana</i> <i>Persea drymifolia</i> <i>Phaseolus vulgaris</i> <i>Poinsettia pulcherrima</i> <i>Polygonum acre</i> <i>Prunus armeniaca</i>	<i>Prunus avium</i> <i>Prunus pissardi</i> <i>Psidium guajava</i> <i>Pyrus communis</i> <i>Raphanus sativus</i> <i>Rosa spp.</i> <i>Rumex crispus</i> <i>Saccharum officinarum</i> <i>Salvia sp. (Chian de Guatemala)</i> <i>Schinus molle</i> <i>Solanum tuberosum</i> <i>Sterculia diversifolia</i> <i>Tagetes erecta</i> <i>Terminalia catappa</i> <i>Thuja plicata</i> <i>Tripsacum laxum</i> <i>Tropaeolum majus</i> <i>Verbena</i> <i>Vernonia brachiata</i> <i>Vicia faba</i> <i>Vigna sesquipedalis</i> <i>Vitis vinifera</i> <i>Zea mays</i>		
Nodonota lateralis Jacoby	<i>Ageratum conyzoides</i> <i>Amygdalus persica</i> <i>Casuarina equisetifolia</i> <i>Chenopodium ambrosioides</i> <i>Chrysanthemum maximum</i> <i>Citrus limonia</i>	<i>Citrus sinensis</i> <i>Coffea arabica</i> <i>Conostegia lanceolata</i> <i>Couralea rosea</i> <i>Crotalaria striata</i> <i>Cupressus benthami</i> <i>Diospyros virginiana</i> <i>Dianthus caryophyllus</i>	Through-out year.	Especially harmful to roses.

Nodonota lateralis--Cont'd.	C o l l e c t e d o n	Date	Notes
	Eugenia uniflora Galinsoga hispida Hicoria pecan Inga paterno Malus sylvestris Mangifera indica Myosotis sylvatica Panicum barbinode Pelargonium graveco- lens	Phaseolus vulgaris Prunus salicina Pyrus communis Rosa spp. Vernonia brachiata Vitis vinifera Zinnia elegans Zea mays	
Oedionychis tenuicincta Jacoby San Pedro	Amygdalus persica	June 18	Usually taken at lights.
Pachybrachys femoratus Oliv. El Cacao San Pedro	Eugenia uniflora Persca americana Prunus cerasifera	Saccharum officinarum Vicia faba Feb. 5 to Dec. 20	
Prionodera wagneri Harold Ochomogo	Zea mays	June 28	
COCCINELLIDAE			
Epilachna borealis Fab. Coyolar El Cacao San Dimas San Lucas San Pedro Santa Ana	Cestrum sp. Cucurbita pepo Jatropha urens Luffa cylindrica Myosotis sylvatica Phaseolus vulgaris	June 18 to Dec. 9	
Epilachna corrupta Muls. Grecia	Phaseolus vulgaris	Dec. 7	
Epilachna defecta Muls. Guadalupe Orosi Paso Ancho	Acnistus arborescens Cestrum lanatum Cestrum macrophyllum Coffea arabica	March 2 to Dec. 22	A pest of Zorrillo (Cestrum spp.) throughout the year.

Epilachna defecta--Cont'd.	C o l l e c t e d o n	Date	Notes
San Pedro Santa Ana	Croton gossypifolium Zea mays Vernonia brachiata		
Epilachna vincta Crotch San Isidro	Podachenium alatum	Jan. 26	
Epilachna virgata Muls. Paso Ancho San Pedro	Citharexalum caudatum	Fe. 4 May 28 Dec. 25	Seriously damages Dama.
ELATERIDAE			
Agriotes sublineatus Champ. San Pedro	Citrus sinensis Erythrina rubrinervia	May 26 to June 5	
EROTYLIDAE			
Cypherotylus elevatus Fab. San Pedro	Coffea arabica	Apr. 5 Sept. 10	
Mycotretus luteipes Lac. San Pedro	Pleurotus sp.	May 29 Nov. 22	
LYCIDAE			
Calopteron bifasciatum Gorh. San Pedro	Casuarina equiseti- folia	Apr. 20	
MALACHIDAE			
Anthocomus basilis Erichs. San Pedro	Dovyalis hebecarpa	May 9	
NITIDULIDAE			
Colopterus morio Erichs. San Pedro	Zantedeschia aethio- pica	Apr. 5	In flower.

SCARABAEIDAE	C o l l e c t e d o n		Date	Notes
Anomala testaceipennis Blanch. San Pedro	Rosa sp.		Oct. 22	
Euphoria candezei Janson Guadalupe	Couralea rosea		July 2	
Faula brunneipennis Bates Ochomogo San Jose San Pedro	Anethum graveolens Asparagus officinalis Capsicum annuum Casuarina equiseti- folia Chayota edulis Coffea arabica Hicoria pecan	Malus sylvestris Pelargonium zonale Persea americana Persea drymifolia Pyrus communis Rosa sp. Vitis vinifera	May 14 to July 2	Destroyed a grape crop and damaged avocado at San Pedro early in June
Gymnetis liturata Oliv. Guadalupe San Pedro	Coffea arabica Ficus carica Persea americana Vernonia brachiata		Jan. 29 to Feb. 16 Nov. 20 to Dec. 17	Sucking sap at wound in bark of avocado. Eating fruit of fig.
Hoplia argyrites Bates San Pedro	Citrus sinensis Persea drymifolia Prunus pissardi		May 15 June 5	Eating flowers of avocado.
Hoplia surata Bates San Pedro	Malus sylvestris Spondias mombin		May 22, 26	
Macroductylus lineatus Chevr. San Pedro	Persea americana		May 15 -30	Doing considerable damage.

	C o l l e c t e d o n		Date	Notes
Macroductylus suavis Bates Paso Ancho San Pedro	Calea urticifolia Citrus limonia Citrus sinensis	Cydonia oblonga Persea drymifolia Spondias mombin	May 28 to July 2	Damages avocado, especially flowers.
Macroductylus sylphis Bates Paso Ancho San Pedro	Acnistus arborescens Citrus aurantifolia Malus sylvestris Persea americana	Persea drymifolia	May 15 to June 18	Frequents flowers of Citrus spp. and destructive to avocado.
Pachystethus micans Burm. San Pedro	Conostegia lanceolata		May 26	In flowers.
Pachystethus nitidula Blanch. San Pedro	Rosa sp.		Oct. 22	
Strigoderma rutelina Bates El Cacao	Phaseolus vulgaris		Nov. 27	
STAPHYLINIDAE				
Paederus lactus Erich. San Pedro	Fragaria chiloensis		Oct. 5	
Philonthus feralis Erichs. San Pedro	Pennisetum purpureum		Jan. 3	
TELEBRIONIDAE				
Lobometopon guatemalensis Champ. Grecia Guadalupe Mueller Ochomogo San Dimas San Pedro	Amygdalus persica Canna indica Carica papaya Cestrum macrophyllum Citrus limonia Citrus nobilis de- liciosa Citrus sp. (tangelo)	Citrus sp. (toronjo) Coffea arabica Ligustrum japonicum Malus sylvestris Mangifera indica Persea americana Persea drymifolia Prunus pissardi		A tenebrionid ob- served feeding on pollen of peach, plum, and avocado, probably not a pest. Ob- served eating peach- rust fungus.

Lobometopon guatemalensis-- Cont'd	C o l l e c t e d o n	Date	Notes
	Prunus salicina	Vernonia brachiata	
	Terminalia catappa	Vicia faba	
	Thunbergia erecta	Vigna sesquipedalis	
Schoenicus panamensis Champ. Grecia Guadalupe Paso Ancho San Pedro	Acnistus arborescens	Hibiscus rosa-sinensis	A tenebrionid; frequents flowers. Prob- ably not a pest. Eats pollen.
	Amygdalus persica	Malus sylvestris	
	Chenopodium ambrosi- oides	Pennisetum purpureum	
	Citrus aurantium	Persea americana	
	Citrus sinensis	Persea drymifolia	
	Coffea arabica	Vigna sesquipedalis	
RHYNCHOPHORA			
Anypotactus exilis Boh. San Pedro	Amygdalus persica	Citrus sinensis	Jan. 6-27 Nov. 30
	Citrus nobilis delici- osa		
Cleistolophus similis Chevr. San Pedro	Chenopodium ambrosi- oides	Vernonia brachiata	May 24 to
	Persea americana		
Conotrachelus flavangulus Champ. San Pedro	Cucurbita pepo		Sept. 11
Conotrachelus perseae Barber San Pedro	Persea americana		Jan. 5 Aug. 13, 20 Nov. 20
Copturus constrictus Champ. San Pedro	Persea americana		Dec. 19 : Destroying avocado.

	C o l l e c t e d o n		Date	Notes
Cosmopolites sordidus Germ. Waldeck	Musa sapientum		Feb. 13	Damaging bulbs. An important pest.
Eurhinus festivus Fab. San Pedro	Cestrum macrophyllum Vernonia brachiata		May 18 Nov. 19	
Geraeus lentiginosus Boh. El Cacao San Pedro	Chrysanthemum maximum Eugenia jambos Phaseolus vulgaris Vicia faba		Apr. 20 Nov. 7 Dec. 20, 30	
Lechriops sp. San Pedro	Erythrina rubrinervia Vernonia brachiata		May 19 June 30	
Nicentrus lineicollis Boh. San Pedro	Amaranthus spinosus Chrysanthemum maximum Fragaria chiloensis	Poinsettia pulcherrima	Oct. 5 to Dec. 30	
Pandeleticius crubescens Champ. Guadalupe San Pedro	Persea americana Persea drymifolia		Apr. 24 to Nov. 28	Eats avocado leaves.
Rhodobaenus bicinctus Chevr. Ochomogo	Verbesina turbacensis		June 28	
Rhodobaenus pantherinus Champ. Ochomogo	Verbesina turbacensis		June 28	
Steirarrhinus nebulosus Champ. Paso Ancho San Pedro	Amygdalus persica Blakea gracilis Boehmeria nivea Cestrum lanatum Citharexylum caudatum Citrus limonia	Citrus nobilis Citrus sinensis Coffea arabica Dovyalis hebecarpa Triumfetta josefina Vernonia brachiata	May 7- Aug. 7	

D I P T E R A

	C o l l e c t e d o n		Date	Notes
Anastrepha serpentina Wied. San Pedro	Chrysophyllum sp.		Feb. 27 June 22 July 28	Larvae destroy fruit of star- apple. Adult reared July 28.
Anastrepha striata Schin. San Pedro	Mangifera indica Persca sp. Psidium guajava		Apr. 29 May 28 Aug. 20	Maggots in mango and guava fruit. Adult emerged May 28. Adults feed at avocado flowers.
Eusimulium callidum D. & S. San Pedro	Man		June 2 Oct. 8, 10	
Eusimulium metallicum Bell. Orosi San Pedro	Man		Through- out year.	A very trouble- some pest.
Eusimulium ochraceum Walk. San Pedro	Man		Feb. 26	
Eusimulium quadrivittatum Loew San Pedro	Man		June 4 to July 19. Dec. 15	
Rhynchosciara brevicornis Guer. San Pedro	Amygdalus persica Fortunella japonica Malus sylvestris	Persea americana Solanum muricatum	June 18 Dec. 10- 28	Probably not a pest.

	C o l l e c t e d o n	Date	Notes
Tetraeuresta obscuriventris Loew San Pedro	Erythrina rubrinervia Vernonia brachiata	May 18	Abundant on the leaves.
Toxotrypana curvicauda Gerst. Grecia	Carica papaya	Oct. 16	Destroys all papaya fruit in some regions, especially in San Pedro.

H E M I P T E R A

Acanthocephala declivis var. guatemalena Dist. San Pedro	Calyptranthes costaricensis Casimiroa edulis Citrus aurantium Citrus grandis Citrus limonia	Citrus nobilis deliciosa Citrus sinensis Citrus sp. (tangelo) Citrus sp. (toronjo) Poncirus trifoliata	Jan. 6 to Dec. 28	Very numerous on citrus fruits, causing the tips of branches to wilt.
Acrosternum marginatum P. de B. Villa Quesada	Citrus sinensis		March 27	
Anasa andresii Guer. Peralta San Pedro	Cucurbita pepo		Feb. 15 Sept. 11 Oct. 1	
Anasa scorbutica Fab. San Dimas San Pedro	Cucurbita pepo		Aug. 31 Oct. 10	
Anisoscelis gradadia Dist. San Pedro	Passiflora quadrangularis		Nov. 20	
Archimerus scutellaris Stahl Faso Ancho San Pedro	Colea urticifolia axillaris Coix lachryma-jobi		May 26, 31 Sept. 13	Causes tips to wilt.

	C o l l e c t e d o n		Date	Notes
<i>Capaneus odiosus</i> Stahl Coyolar San Lucas	<i>Cymbopogon rufus</i>		July 7	
	<i>Zea mays</i>		Sept. 16	
<i>Chlorocoris aberrans</i> Dist. San Pedro	<i>Persea americana</i>		March 17	
<i>Collaria oleosa</i> Dist. El Cacao Lagunillas San Pedro Santa Ana Villa Quesada	<i>Panicum barbinode</i>		Feb. 14	A mirid, abundant and harmful on grasses, causing leaves to dry.
	<i>Paspalum notatum</i>		March 28	
	<i>Phaseolus vulgaris</i>		Sept. 18	
	<i>Sanchezia nobilis</i>		to	
	<i>Zea mays</i>		Dec. 21	
<i>Corecoris</i> sp. San Pedro	<i>Cnayota edulis</i>	<i>Ipomoea tiliacea</i>	June 14	
	<i>Coffea arabica</i>	<i>Tournefortia foetidis-</i> <i>sima</i>	July 3	
			Sept. 25	
<i>Corizus sidae</i> Fab. San Pedro	<i>Malacra radiata</i>		June 18	
<i>Corythucha gossypii</i> Fab. Alajuela San Jose San Pedro	<i>Amygdalus persica</i>		Apr. 1	Seriously damages soursop.
	<i>Annona muricata</i>			
<i>Cosmocepla decorata</i> Hahn San Pedro	<i>Apium ammi</i>		May 26	A pentatomid.
<i>Creontiades rubrinervis</i> Stahl San Pedro	<i>Coffea arabica</i>	<i>Persea americana</i>	Jan. 25-	A mirid.
	<i>Hibiscus rosa-sinensis</i>	<i>Vicia faba</i>	July 12	
	<i>Malus sylvestris</i>			
<i>Cyrtopeltis notatus</i> Dist. Paso Ancho San Pedro	<i>Lycopersicum esculon-</i> <i>tum</i>		Feb. 4 to	A mirid pest of tomato and tobacco.
	<i>Nicotiana tabacum</i>		June 18.	
			Nov. 13-	
			Dec. 28	

	C o l l e c t e d o n		Date	Notes
Dinocoris tripterus Fab. Peralta	Mangifera indica		Aug. 4	A pentatomid.
Dysdercus mimus Say Paso Ancho San Pedro	Annona cherimola Croton gossypiifolium		May 31 June 15	A pyrrhocorid.
Dysdercus obliquus H. S. Granadilla San Pedro	Althea rosea Carna indica Citrus sinensis	Coffea arabica Hibiscus rosa-sinensis	Sept. 11 to Dec. 10	Serious pest of hollyhock and other malva- ceous ornamentals.
Edessa cornuta Burm. San Pedro	Ipomoea batatas Ipomoea tiliacea		Aug. 31 Oct. 5	A pentatomid.
Edessa junix Stahl El Cacao	Coffea arabica		Nov. 6	
Edessa salvini Dist. San Pedro	Croton gossypiifolium		May 26	
Euschistus bifibulus P. de B. San Lucas	Zea mays		July 8	A pentatomid.
Gargaphia patricia Stahl Paso Ancho San Dimas San Isidro San Pedro	Acnistus arborescens Croton gossypiifolium		Jan. 26 May 31 Aug. 31	A tingidid.
Halticus citri Ashm. El Cacao Paso Ancho San Pedro Santa Barbara	Capriola dactylon Cucurbita pepo Gomphrena globosa Jacobinia coccinea Lactuca sp.	Phaseolus vulgaris Raphanus sp. Solanum tuberosum Tetragonia expansa Zantedeschia aethio- pica	Feb. 1 to Apr. 5 Nov. 7- Dec. 27	A mirid, one of the most serious pests of the vegetable garden.

	C o l l e c t e d o n		Date	Notes
Hypsilonotus atratus Dist.	Ananas sativus	Psidium friedrichsth-	Jan. 16	A coreid.
El Cacao	Coffea arabica	alianum	to	
Guadalupe	Conostegia macrantha	Saccharum officinarum	May 31	
Orosi	Cucurbita pepo	Vernonia brachiata	Sept. 13	
Paso Ancho	Dovyalis hebecarpa		Dec. 25	
San Pedro	Lactuca sativa			
Villa Quesada	Polygonum punctatum			
Jadera acola Dallas	Persea americana		March 23	A coreid.
San Pedro				
Jalysus mollitus Dist.	Pelargonium zonale		Nov. 6,7	A neidid.
El Cacao	Phaseolus vulgaris		Dec. 25	
Paso Ancho				
Leptobrysa chiriquensis	Persea americana		Nov. 20,	A tingidid.
Champ.			26	
San Pedro				
Leptoglossus stigma Hbst.	Bixa orellana		Feb. 6	A coreid.
San Pedro	Carica papaya		to	
	Morus rubra		Apr. 5	
			Nov. 30	
			Dec. 19	
Leptoglossus zonatus Dallas	Amygdalus persica	Cyphomandra betacea	Through-	Damages fruit of tomato severely.
El Cacao	Bixa orellana	Ficus carica	out	
Grecia	Capsicum annum	Lycopersicum osculen-	year	
Ochomogo	Carica papaya	tum		
San Dimas	Citrus nobilis do-	Persea americana		
San Pedro	liciosa	Phaseolus vulgaris		
Santa Ana	Citrus sinensis	Prunus armeniaca		
	Cucurbita pepo	Vitis vinifera		

	C o l l e c t e d o n		Date	Notes
Lygaeus bistriangularis Say San Pedro	Coffea arabica Cucurbita pepo		Aug. 17 May 17	A lygacid.
Lygaeus circumlitus Stahl San Pedro	Annona cherimola Ligustrum japonicum Persea americana		May 18 Dec. 13	
Lygaeus reclivatus Say Santa Ana	Ipomoea tiliacea Gramineae		Nov. 22	
Megalotomus femoratus Dist. El Cacao	Phaseolus vulgaris		Nov. 7	A coreid.
Mormidea notulata H. & S. El Cacao	Phaseolus vulgaris		Nov. 7	A pentatomid.
Nezara viridula L. Ochomogo San Pedro	Amygdalus persica Brassica oleracea botrytis Brassica oleracea capitata Cucurbita pepo Impatiens balsamina	Lycopersicum esculen- tum Pyrus communis Raphanus sativus Solanum tuberosum Vigna sesquipedalis	June 18 to Dec. 20	A pentatomid.
Oncopeltus cingulifer Stahl Cuesta del Macho Muelle Orosi Paso Ancho Rio Segundo San Pedro Santa Ana Villa Quesada	Asclepias curassavica Citrus sinensis Vernonia brachiata		Mar. 25 to Nov. 22	A lygacid, com- mon on milkweed.

	C o l l e c t e d o n		Date	Notes
Oncopeltus fasciatus Dallas	Asclepias curassavica		Sept. 13	A milkweed pest.
Orosi	Coffea arabica		Oct. 8	
San Pedro			Nov. 22	
Santa Ana				
Pachycoris torridus Scop.	Acnistus arborescens	Vitis vinifera	Sept. 13	A scutellerid.
Orosi	Asparagus plumosus		to	
Paso Ancho	Malus sylvestris		Nov. 19	
San Pedro	Saccharum officinarum			
Paracalocoris annulatus Dist.	Chalcas exotica	Persea americana	Feb. 5	A mirid.
San Pedro	Coffea arabica	Persea drymifolia	July 2-	
	Malus sylvestris	Vicia faba	Aug. 20	
			Dec. 20	
Phthia lunata Fab.	Cucurbita pepo		Dec. 30	A coreid.
San Pedro				
Poecilocus frumentarius	Vernonia brachiata		Sept. 7	A mirid, sometimes predacious.
Dist.			Dec. 17	
Guadalupe				
San Pedro				
Polymerus cuneatus Dist.	Crotalaria juncea		Nov. 19	A mirid.
San Pedro				
Proxys punctulatus Beauv.	Amygdalus persica	Solanum seaforthianum	July 7	A pentatomid.
Coyolar	Bromelia pinguin	Zea mays	to	
San Lucas	Persea americana		Nov. 22	
Santa Ana	Spondias mombin			
Pycnoderes incurvus Dist.	Cucurbita ficifolia		Feb. 15	A mirid.
Peralta	Cucurbita pepo		Aug. 31	
San Pedro	Ipomoea tiliacea		to	
			Dec. 20	

	C o l l e c t e d o n		Date	Notes
Stenomacra marginella H. & S.	Amygdalus persica	Ipomoea tiliacea	Through-	A pyrrhocorid, serious pest of avocado and coffee.
Granadilla	Annona cherimola	Lagerstroemia speciosa	out	
Guadalupe	Cestrum lanatum	Mangifera indica	year.	
Ochomogo	Citrus aurantium	Morus rubra		
San Dimas	Citrus sinensis	Persea americana		
San Pedro	Coffea arabica	Vernonia brachiata		
	Ficus religiosa			
Thyanta perditor Fab.	Asparagus officinalis	Malacra radiata	Jan. 30-	A pentatomid.
Coyolar	Citrus aurantifolia	Persea americana	June 18	
San Pedro	Cupressus benthami	Solanum tuberosum	Sept. 17	
	Ficus religiosa	Tetragonia expansa	Dec. 17	
	Lycopersicum esculentum			

H O M O P T E R A

ALEYRODIDAE

Aleurocanthus woglumi Ashby	Citrus aurantifolia	Poncirus trifoliata	Through-	A parasite, Eretmocerus serius Silv., is established at La Uruca. It was liberated at Heredia in August.
Alajuela	Citrus limonia		out	
Coyolar	Citrus medica		year	
Grecia	Citrus nobilis			
Guadalupe	Citrus sinensis			
La Uruca	Coffea arabica			
Paso Ancho	Eugenia jambos			
Rio Segundo	Eugenia uniflora			
San Antonio	Persea americana			
San Pedro	Persea drymifolia			
Aleurothrixus howardi Quaint.	Citrus limonia		Feb. 4	
Paso Ancho	Citrus sinensis		to	
San Jose	Hamelia erecta		Sept. 3	
San Pedro	Persea americana			

A P H I I D A E

	Collected on	Date	Notes
Aphis gossypii Glov. San Pedro	Hibiscus rosa-sinensis Persea sp.	Aug. 8 Dec. 26	
Aphis illinoisensis Shim. San Pedro	Vitis labrusca Vitis vinifera	Apr. 19- June 18	Caused considerable damage in April and May.
Aphis pomi DeG. Guadalupe San José San Pedro	Cydonia oblonga Eriobotrya japonica Malus sylvestris Pyrus communis	Through- out year	Especially harmful on first leaves of newly budded stock.
Aphis spiraeicola Patch San Pedro	Citrus nobilis delici- osa Fortunella japonica	Jan. 5- Aug. 13	
Eriosoma lanigera Hausm. Guadalupe	Malus sylvestris	July 14	
Rhopalosiphum pseudobrassicae Davis San Pedro	Brassica japonica	Dec. 28	An important pest.
Toxoptera aurantiae Boyer Granadilla Guadalupe Ochomogo Paso Ancho Peralta San Isidro San Pedro	Chalcas exotica Citrus limonia Citrus nobilis de- liciosa Citrus sinensis Coffea arabica Ficus religiosa Fortunella japonica	Mammea americana Through- out year	Causes damage, especially on tender shoots.
CERCOPIDAE			
Oephisus siccifolius Walk. San Pedro	Amygdalus persica Persea drymifolia	Jan. 6, 25	Forms masses of foam-like spittle that

Cephus siccifolius--Cont'd	C o l l e c t e d o n	Date	Notes
		Dec. 18, 27	hang over one foot from the branches, and which are blown around by the wind.
Clastoptera funesta Stahl Cascajal San Pedro Villa Quesada	Gardenia florida Guazuma ulmifolia Polygonum punctatum Verbesina turbacensis	March 7, 27 May 24	
Epicranion championi Fowl. San Pedro	Anacardium occidentale Calyptranthes costari- censis Cestrum aurantiacum Mangifera indica Malus sylvestris	May 21 Oct. 5 to Dec. 14	
Monecphora bicincta Say Coyolar El Cacao Ochomogo Paso Ancho San Pedro Santa Ana Villa Quesada	Anethum graveolens Capriola dactylon Musa paradisiaca Paspalum notatum Zea mays	March 26 June 26- Nov. 22	
Monecphora postica Walk. Alajuela Boca de Kopper Floresia Orosi Villa Quesada	Calea urticifolia Panicum barbinode Paspalum notatum Zea mays	March 26- 30 June 26 Aug. 10- Sept. 13	
CHERMIDAE			
Freysuila ernstii Schwarz San Pedro	Cedrela montana mexi- cana Guarea caoba	Jan. to May Oct. 10	Very abundant and injurious.

CICADELLIDAE	C o l l e c t e d o n		Date	Notes
Agallia novella tropicalis	Amaranthus spp.		Oct. 25-	
Van D.	Lantana camara		Dec. 24	
El Cacao	Phaseolus vulgaris			
Granadilla				
San Pedro				
Aligia modesta O. & B.	Chayota edulis		Aug. 31	
El Cacao	Gramineae		Nov. 7-	
Grecia	Hibiscus rosa-sinensis		Dec. 7	
San Pedro	Phaseolus vulgaris			
Santa Ana				
Aulacizes panamensis Fowl.	Citrus limonia		Jan. 6	
San Pedro	Eugenia jambos		June 27	
			Aug. 29	
Aulacizes thunbergi Stahl	Acnistus arborescens		Sept. 13	
Orosi	Jatropha urens			
Ujarras				
Carneocephala sagittifera	Amygdalus persica		Jan. 29	Very abundant on Bermuda grass.
Uhl.	Capriola dactylon		to	
Coyolar	Hibiscus rosa-sinensis		March 6	
El Cacao	Phaseolus vulgaris		Sept. 18	
Grecia			to	
San Antonio			Dec. 7	
San Pedro				
Santa Ana				
Chinaia bella Bruner & Met-	Persea americana		March	
calf			Aug.-	
San Pedro			Nov.	
Cicadella areolata Sign.	Amaranthus cruentus	Cucurbita pepo	Jan. 12	
Coyolar	Annona cherimola	Fragaria chiloensis		
El Cacao	Boehmeria nivea	Gramineae		
San Pedro	Calyptranthes costari-	Hamelia erecta		
	censis	Pelargonium zonale		

Cicadella areolata--Cont'd.	C o l l e c t e d o n		Date	Notes
	Persea drymifolia	Tripsacum laxum		
	Phaseolus vulgaris	Verbena litoralis		
	Saccharum officinarum	Vitis vinifera		
	Spondias mombin	Zea mays		
	Tetragonia expansa			
Cicadella coeruleovittata	Brassica spp.	Persea americana	Through-	
Sign.	Daucus carota	Phaseolus vulgaris	out	
El Cacao	Galinsoga hispida	Rumex crispus	year.	
Orosi	Ipomoea spp.	Tetragonia expansa		
San Dimas	Lycopersicum esculen-	Verbesina turbacensis		
San Pedro	tum	Vernonia brachiata		
Villa Quesada	Panicum barbinode			
	Pennisetum purpureum			
Cicadella flaviguttata Latr.	Solanum torvum		Feb. 14	
Peralta				
Cicadella lutea Sign.	Croton gossypiifolium		Through-	
San Pedro	Vernonia brachiata		out	
			year.	
Cicadella miniaticeps Fowl.	Calcea urticifolia	Tropaeolum majus	Jan. 26-	
Orosi	Crotalaria juncea	Zea mays	March 26	
Peralta	Hibiscus rosa-sinensis		June 7-	
San Isidro	Rumex crispus		Dec; 21	
San Pedro	Sanchezia nobilis			
Villa Quesada	Spondias cytherea			
Cicadella mollicella Fowl.	Paspalum notatum		Jan.	
Alajuela			Aug. 10-	
San Pedro			22	
Santa Ana			Nov. 22	

	C o l l e c t e d o n		Date	Notes
Cicadella occatoria Say	Acnistus arborescens	Lantana camara	Through- out year	
Coyolar	Amygdalus persica	Malacra radiata		
Cuesta del Macho	Arracacia xanthorrhiza	Malus sylvestris		
El Cacao	Boehmeria nivea	Oryza sativa		
Grecia	Brassica spp.	Panicum barbinode		
Paso Ancho	Camellia japonica	Pelargonium zonale		
Peralta	Carissa grandiflora	Persea americana		
San Lucas	Citrus limonia	Phaseolus vulgaris		
San Pedro	Coffea arabica	Psidium guajava		
Santa Ana	Coleus blumei	Rosa sp.		
Villa Quesada	Dahlia rosea	Sanchezia nobilis		
Waldeck	Dianthus barbatus	Sida rhombifolia		
	Elaphrium simaruba	Solanum seaforthianum		
	Ficus carica	Spondias mombin		
	Guazuma ulmifolia	Tetragonia expansa		
	Hamelia erecta	Verbesina turbacensis		
	Hibiscus esculentus	Vernonia brachiata		
	Impatiens balsamina	Zea mays		
	Ipomoea batatas			
Cicadella pardalina Fowl.	Amygdalus persica	Eugenia uniflora	Through- out year	
Granadilla	Anacardium occidentale	Ligustrum japonicum		
Guadalupe	Casuarina equisetifo-	Malus sylvestris		
Sabanilla	lia	Morus rubra		
San Dimas	Citrus grandis	Parkinsonia aculeata		
San Pedro	Citrus limonia	Prunus armeniaca		
	Citrus nobilis de-	Rhœdia edulis		
	liciosa	Spondias mombin		
	Citrus sinensis			
	Coffea arabica			
Cicadella pulchella Guer.	Brassica oleracea	Gramineae	May 28	
Coyolar	capitata	Hibiscus rosa-sinensis	July 2	
El Cacao	Crotalaria retusa	Jatropha urens	Sept. 13-	
Grecia	Fuchsia sp.	Lantana camara	18	

Cicadella pulchella--Cont'd	C o l l e c t e d o n		Date	Notes
Guadalupe	Phaseolus vulgaris			
Orosi	Sida rhombifolia			
Paso Ancho	Vernonia brachiata			
San Pedro				
Ujarras				
Cicadella reservata Fowl.	Acnistus arborescens	Tabernaemontana coro-	Sept. 13	
El Cacao	Eugenia uniflora	naria	Nov. 12-	
Paso Ancho	Impatiens balsamina	Terminalia catappa	Dec. 25	
San Pedro	Jasminum sambac	Vernonia brachiata	Feb. 4	
Waldeck	Pelargonium zonale		10	
Cicadella sanguineolenta	Artocarpus communis		Feb. 14	
Coque.				
Peralta				
Cicadella satelles Fowl.	Citrus sinensis		Sept. 11	
San Pedro				
Cicadella sexlineata Sign.	Citrus sinensis	Rosa spp.	Through-	Always abundant on geraniums.
Guadalupe	Duranta plumieri	Salvia splendens	out	
San Isidro	Ficus religiosa	Solanum tuberosum	year	
San Pedro	Ipomoea batatas	Spondias mombin		
	Lycopersicum esculen-	Thespesia populnea		
	tum	Trema micranta		
	Malacra radiata	Verbena litoralis		
	Mentha sativa	Vernonia brachiata		
	Pelargonium zonale			
Cicadella similis Walk.	Canna indica	Musa sapientum	Jan. 26-	
Alajuela	Capriola dactylon	Panicum barbinode	May 24	
Coyolar	Colocasia esculenta	Paspalum notatum	Aug. 10-	
El Cacao	Daucus carota	Phaseolus vulgaris	Dec. 20	
San Antonio	Dianthus barbatus	Raphanus sativus		
San Pedro	Hamelia erecta	Tetragonia expansa		
Santa Ana	Mangifera indica	Tropaeolum majus		
Villa Quesada				

	C o l l e c t e d o n		Date	Notes
Cicadella testudinaria Fowl.	Annona cherimola	Persea americana	Jan. 8-29	
Coyolar	Coffea arabica	Sida rhombifolia	Feb. 16	
Granadilla	Bauvardia humboldti	Spondias cytherea	Aug. 9. to	
Guadalupe	Elaphrium simaruba		Sept. 19	
Paso Ancho	Gramineae			
San Antonio	Lagerstroemia indica			
San Pedro	Nerium oleander			
Cicadella variegata Fab.	Phascolus vulgaris		Nov. 6-7	
El Cacao				
Cicadula maidis DeLong and Wolcott	Crotalaria juncea		July 13-	Abundant and harm- ful on young corn.
San Pedro	Zea mays		Dec. 10	
Deltocephalus flavicosta Stahl	Phaseolus vulgaris		Nov. 7	
El Cacao	Tetragonia expansa		Dec. 26	
San Pedro				
Diestostemma albipenne Fab.	Amygdalus persica	Taetsia fructicosa	Jan. 5-	Causes severe tip- wilt of coffee.
Granadilla	Citrus medica		May 18	
Guadalupe	Coffea arabica		Sept. 10-	
San Pedro	Pyrus communis		Oct. 25	
Diestostemma rugicolle Sign.	Asparagus plumosus	Coffea arabica	Through-	
Granadilla	Bixa orellana	Taetsia fructicosa	out	
Paso Ancho	Citrus limonia		year	
San Pedro	Citrus sinensis			
Euscolis obscurinervis Stahl	Gramineae		Jan. 26	
San Isidro				
Graphocophala anceps Fowl.	Persea americana		Sept. 17	
Coyolar	Spondias mombin			
San Pedro				

	C o l l e c t e d o n		Date	Notes
Graphocephala coccinea Forst.	Amygdalus persica	Malus sylvestris	Through- out year	
San Lucas	Annona cherimola	Mangifera indica		
San Pedro	Calyptanthos costaricensis	Persea americana		
Ujarras	Citrus nobilis deliciosa	Prunus armeniaca		
	Citrus sinensis	Prunus salicina		
	Codiaeum variegatum	Pyrus communis		
	Coffea arabica	Rosa sp.		
	Ficus religiosa	Sambucus mexicanus		
	Hibiscus rosa-sinensis	Schinus molle		
	Jatropha urens	Tetragonia expansa		
	Lippia berlandieri	Vernonia brachiata		
		Vicia faba		
Graphocephala urbana Stahl	Impatiens balsamina	Verbesina turbacensis	Aug. 31 to Sept. 5 Dec. 20	
San Pedro	Spondias mombin	Vernonia brachiata		
Graphocephala versuta Say	Canarium odoratum	Ficus religiosa	Through- out year	
Granadilla	Citrus limonia	Mangifera indica		
Paso Ancho	Citrus sinensis	Musa paradisiaca		
San Dimas	Codiaeum variegatum	Pouteria caimito		
San Pedro	Coffea arabica	Spondias mombin		
	Eugenia uniflora			
Gypona scarlatina vinula Stahl	Hamelia erecta	Persea americana	May 22-26 June 28 Oct. 5	
Ochozogo	Hymenaea courbaril	Solanum aculeatissimum		
San Pedro	Ipomoea sp.			
Gypona vulnerata Walk.	Amygdalus persica	Chrysanthemum sp.	Through- out year	
Granadilla	Annona cherimola	Citrus aurantium		
Paso Ancho	Annona reticulata	Citrus limonia		
San Dimas	Calyptanthos costaricensis	Citrus sinensis		
San Pedro	Cestrum macrophyllum	Coffea arabica		

	C o l l e c t e d o n		Date	Notes
Gypona vulnerata--Cont'd	Eugenia uniflora	Persea drymifolia		
	Hibiscus rosa-sinensis	Pouteria caimito		
	Hicoria pecan	Rumex crispus		
	Inga paterno	Salvia splendens		
	Mangifera indica	Schinus molle		
	Panicum barbinode	Spondias mombin		
	Persea americana	Vitis spp.		
Kolla fasciata Walk.	Capriola dactylon		Through-	
Alajucla	Paspalum notatum		out	
Coyolar	Phaseolus vulgaris		year	
El Cacao	Sida rhombifolia			
Quebrada Azul	Tetragonia expansa			
San Antonio				
San Pedro				
Santa Ana				
Villa Quesada				
Kolla geometrica Sign.	Citrus sinensis		Oct. 10	
El Cacao	Lactuca sativa		Nov. 7	
San Pedro	Phaseolus vulgaris		Dec. 31	
Oncometopia undata Fab.	Amygdalus persica	Guazuma ulmifolia	Jan. 5	Most abundant in lower altitudes.
Coyolar	Anacardium occidentale	Jatropha urens	to	
Grecia	Anethum graveolens	Lagerstroemia indica	Oct. 16	
Guadalupe	Calliandra grandiflora	Lantana camara		
Lagunillas	Citrus grandis	Malus sylvestris		
Ochomogo	Citrus nobilis de-	Phaseolus vulgaris		
Orosi	liciosa	Prunus avium		
Rio Segundo	Citrus sinensis	Tamarindus indica		
San Pedro	Coffea arabica	Vernonia brachiata		
Ujarras	Erythrina rubrinervia	Vitis vinifera		
	Eriobotrya japonica			
	Guarea caoba			

COCCIDAE	C o l l e c t e d o n		Date	Notes
Aspidiotus camelliae Sign. San Pedro	Mangifera indica Pyrus communis		Feb. 23 July 3	
Asterolecanium pustulans Ckll. Coyolar El Cacao	Nerium oleander		Sept. 17 Nov. 7	
Aulacaspis pentagona Targ. Paso Ancho San Pedro	Amygdalus persica Capsicum annuum Diospyros kaki Diospyros virginiana Hibiscus mutabilis Hicoria pecan	Mangifera indica Morus rubra Prunus armeniaca Prunus pissardi Prunus salicina Solanum muricatum	Through- out year	Very abundant and injurious.
Ceroplastes cirripediformis Comst. Paso Ancho San Pedro	Diospyros kaki Diospyros virginiana Conolobus edulis Persea drymifolia		Jan. 23 to Feb. 2 Aug. Oct.	
Ceroplastes floridensis Comst. Granadilla Peralta Quebrada Azul San Pedro Santa Ana	Amygdalus persica Calyptranthes costari- censis Citrus aurantifolia Citrus sinensis Citrus sp. (toronjo) Coffea arabica Diospyros kaki Diospyros virginiana Eriobotrya japonica	Malus sylvestris Mangifera indica Pelargonium sp. Persea americana Poncirus trifoliata Pouteria caimito Schinus molle Solanum seaforthianum Zea mays	Through- out year	
Chrysomphalus dictyospermi Morg. San Pedro	Citrus aurantium Citrus grandis Citrus sinensis	Rosa sp.	April June 30	Very harmful on roses and young orange trees.

	C o l l e c t e d o n	Date	Notes
Coccus acuminatus Sign.	Eriobotrya japonica	Feb. 14	
Cascajal	Jasminum grandiflorum	March 7	
Paso Ancho	Jasminum sambac	May 31	
Peralta	Mangifera indica	Oct. 7	
Coccus hesperidum L.	Citrus aurantifolia	Jan. 21-	
Guadalupe	Citrus sinensis	Feb. 4	
Paso Ancho	Diospyros kaki	Oct. 2-	
San Pedro	Eugenia uniflora	Dec. 28	
Tacares	Fortunella japonica		
Coccus viridis Green	Citrus sinensis	Sept. 18	
Lagunillas			
Eriococcus araucariae Mask.	Araucaria brasiliana	June 22	
San Pedro			
Fiorinia fioriniae Targ.	Camellia japonica	Through-	
San Pedro		out	
		year	
Icerya montserratensis Riley	Citrus sinensis	May 18	
& Howard	Mangifera indica	Sept. 17	
Coyolar			
San Pedro			
Ischnaspis longirostris Sign.	Coffea arabica	Apr. 3	
San Pedro			
Lepidosaphes beckii Newm.	Chalcas exotica	Through-	One of the most
Guadalupe	Citrus aurantifolia	out	harmful pests
Ochomogo	Citrus nobilis de-	year	on orange
Paso Ancho	liciosa		jessamine and
San Isidro	Citrus sinensis		on Citrus spp.
San Lucas	Citrus sp. (toronjo)		
San Pedro			

	C o l l e c t e d o n		Date	Notes
Orthezia insignis Dougl.	Coleus blumei		Feb. 14	
Naranjo	Salvia splendens		July 5	
Paso Ancho			Aug. 14	
San Jose			Nov. 13	
San Pedro				
Pseudischnaspis bowreyi Ckll.	Annona cherimola	Malus sylvestris	Jan. 1-	Kills rose bushes.
Ochomogo	Diospyros kaki	Rosa sp.	Dec. 27	
San Pedro	Diospyros virginiana			
Pseudococcus citri Risso	Casimiroa edulis	Citrus nobilis	Feb. 17	Especially harmful
Granadilla	Citrus aurantium	Citrus sinensis	June 5-20	on young trees
San Pedro	Citrus limonia	Coffea arabica	Aug. 7-27	and among coffee
	Citrus nobilis de-		Dec. 21-	flowers and
	liciosa		28	fruit.
Pseudococcus nipae Mask.	Chamaedora bifurcata		April 25	
San Jose	Persea americana		June 4-30	
San Pedro	Psidium guajava			
Pseudococcus virgatus Ckll.	Codiaeum variegatum		Sept. 16	
Coyolar	Persea gratissima			
Pulvinaria psidii Mask.	Canarium odoratum	Pouteria caimito	Through-	
San Pedro	Diospyros kaki	Psidium guajava	out	
	Lucuma mammosa		year	
Saissetia hemisphaerica Targ.	Annona muricata	Citrus limonia	Through-	Abundant and very
Alajuela	Asparagus officinalis	Citrus medica	out	harmful on
Coyolar	Casimiroa edulis	Citrus nobilis de-	year	tender new
El Cacao	Cedrela montana mexi-	liciosa		growth.
Guadalupe	cana	Citrus sinensis		
Paso Ancho	Citrus aurantifolia	Cycas revoluta		
Peralta	Citrus aurantium	Cyphomandra betacea		
San Antonio	Citrus grandis	Coffea arabica		

Saissetia hemisphaerica--	C o l l e c t e d o n	Date	Notes
Cont'd.	Diospyros kaki	Poinsettia pulcher-	
San Dimas	Diospyros virginiana	rima	
San Isidro	Eugenia uniflora	Poncirus trifoliata	
San Pedro	Gardenia florida	Pouteria caimito	
Santa Barbara	Hamelia erecta	Psidium guajava	
	Jacobinia coccinea	Psidium molle	
	Mammea americana	Rheedia edulis	
	Mangifera indica	Schinus molle	
	Morus rubra	Solanum muricatum	
	Nephrolepis sp.	Solanum seaforthianum	
	Pereskia aculeata	Thunbergia erecta	
	Persea gratissima		
Saissetia nigra Nietn.	Annona cherimola	Nerium oleander	Jan. 12
San Pedro	Capsicum annuum	Vitis vinifera	Apr. 4-19
	Diospyros kaki		Nov. 13
Saissetia oleae Bern.	Blighia sapida		Jan. 10-
Paso Ancho	Cassia spectabilis		26
San Pedro	Diospyros kaki		Feb. 26
	Fortunella japonica		June 5
	Hicoria pecan		Aug. 15-
	Pyrus communis		20
			Dec. 25
Solenaspidus articulatus	Jasminum sambac		Feb. 4
Morg.			May 31
Paso Ancho			Dec. 25
Trionymus sacchari Ckll.	Saccharum officinarum		July 8
El Cacao			Nov. 6-12
San Lucas			A heavy infestation on roots of sugar-cane caused severe damage at El Cacao in November.
FULGORIDAE			
Acanalonia virescens Stahl	Cymbopogon rufus	Persea americana	Aug. 17
Paso Ancho	Erythrina rubrinervia	Spondias mombin	Nov. 30
San Pedro			Dec. 25

	C o l l e c t e d o n		Date	Notes
Bothriocera tinealis Burm.	Acnistus arborescens	Vernonia brachiata	March 28,	
Muelle	Calea urticifolia		29	
Ochomogo	Calliandra grandiflora		May 18-28	
Orosi	Hedychium coronarium		Sept. 13	
San Pedro	Pennisetum purpureum		Nov. 13-	
Villa Quesada	Spondias mombin		19	
Colgorma proxima Fowl.	Ficus carica		Aug. 31	
San Pedro				
Colpoptera sinuata Burm.	Cestrum lanatum	Gardenia florida	Through-	
Granadilla	Cestrum macrophyllum	Gomphrena globosa	out	
Paso Ancho	Coffea arabica	Hibiscus rosa-sinensis	year	
San Pedro	Dovyalis hebecarpa	Lippia berlandieri		
	Ficus religiosa	Spondias mombin		
	Galinsoga hebecarpa	Vernonia brachiata		
Copicerus irroratus Swartz	Gramineae		Nov. 22	
Santa Ana				
Cyrpoptus belfragei Stahl	Phaseolus vulgaris		Nov. 7	
El Cacao				
Flatoides humeralis Walk.	Coffea arabica		Sept. 10	
Granadilla			Oct. 25	
MEMBRACIDAE				
Aconophora laticornis Walk.	Croton gossypifolium		Jan. 15	
Guadalupe			May 3	
San Pedro				
Aconophora pallescens Stahl	Acacia cyanophylla	Anacardium rhinocarpus	Through-	
Grecia	Amygdalus davidiana	Annona cherimola	out	
Ochomogo	Amygdalus persica	Bixa orellana	year	
Paso Ancho	Anacardium occidentale	Callistemon lanceola-		
Peralta		tum		
				Caused serious damage to papaya and avocado, preventing the former from blooming.

Aconophora pallescens--	C o l l e c t e d o n	Date	Notes
Cont'd. San Pedro	<i>Calyptanthus costaricensis</i> <i>Carica papaya</i> <i>Cestrum aurantiacum</i> <i>Chrysophyllum cainito</i> <i>Citrus aurantium</i> <i>Citrus limonia</i> <i>Citrus nobilis deliciosa</i> <i>Citrus sinensis</i> <i>Coffea arabica</i> <i>Cydonia oblonga</i> <i>Dovyalis hebecarpa</i> <i>Ficus religiosa</i>	<i>Hibiscus rosa-sinensis</i> <i>Hymenaea courbaril</i> <i>Lagerstroemia speciosa</i> <i>Malus sylvestris</i> <i>Mangifera indica</i> <i>Pennisetum purpureum</i> <i>Persea americana</i> <i>Persea drymifolia</i> <i>Phaseolus vulgaris</i> <i>Phoebe tonduzii</i> <i>Pouteria caimito</i> <i>Prunus cerasifera</i> <i>Spondias mombin</i>	Nov. 7
Acutalis fusconervosa Fairm. El Cacao	<i>Phaseolus vulgaris</i>	Feb. 16 to Oct. 5	Causes deformation of avocado branches.
Aethalion quadratum Fowl. Guadalupe Orosi San Jose San Pedro	<i>Persea americana</i> <i>Persea drymifolia</i> <i>Phoebe tonduzii</i>	Jan. 3- 19 Apr. 6 July 12 Nov. 20 Dec. 30	
Aethalion reticulatum L. San Pedro	<i>Canarium odoratum</i> <i>Casuarina equisetifolia</i> <i>Erythrina rubrinervia</i> <i>Phoebe tonduzii</i> <i>Terminalia catappa</i>	Jan. 24 Feb. 16 June 5	
Alchisme grossa Fairm. Guadalupe	<i>Croton gossypifolium</i> <i>Cyphomandra betacea</i> <i>Solanum lanceolatum sinuatum</i>		

	C o l l e c t e d o n		Date	Notes
Antianthe expansa Germ.	Acnistus arborescens	Erythrina rubrinervia	Through-	Especially harmful on pepper plants.
La Holanda	Capsicum annuum	Nicotiana tabacum	out	
Paso Ancho	Cestrum aurantiacum	Persea americana	year	
Peralta	Cestrum lanatum	Solanum aculeatissimum		
San Isidro	Cestrum macrophyllum	Vernonia brachiata		
San Pedro	Coffea arabica			
Santa Ana				
Sarchi				
Villa Quesada				
Bolbonota inaequalis Fab.	Acnistus arborescens	Ficus religiosa	Through-	out year
Coyolar	Calea urticifolia	Fortunella japonica	out	
El Cacao	Calyptranthes costari-	Hicoria pecan	year	
Granadilla	censis	Hymenaea courbaril		
Orosi	Camellia japonica	Malus sylvestris		
Paso Ancho	Canangium odoratum	Mammea americana		
San Pedro	Casuarina equisetifo-	Mangifera indica		
	lia	Morus rubra		
	Cinnamomum camphora	Persea americana		
	Citrus limonia	Persea drymifolia		
	Citrus sinensis	Pouteria caimito		
	Coffea arabica	Prunus armeniaca		
	Diospyros kaki	Prunus salicina		
	Dovyalis hebecarpa	Rosa sp.		
	Eugenia jambos			
	Eugenia uniflora			
Bolbonota insignis Fowl.	Calyptranthes costari-	Guarea caoba	Jan. 3-	Nov. 7
Coyolar	censis	Mangifera indica		
El Cacao	Casuarina equiseti-	Morus rubra		
San Antonio	folia	Persea americana		
San Pedro	Coffea arabica	Phaseolus vulgaris		
	Diphyssa robinoides	Saccharum officinarum		
	Ficus religiosa			
	Grevillea robusta			

	C o l l e c t e d o n	Date	Notes
Campylocentrus hamifer Fairm. San Pedro	Chayota edulis Spondias mombin	Aug. 31 Dec. 13	
Cyphonia clavata Fab. Cuesta del Macho Sarchi Villa Quesada Waldeck	Cestrum lanatum Eupatorium odoratum Vernonia brachiata	Feb. 10 March 25- 27 Aug. 14	
Enchenopa lanceolata Stoll Orosi Paso Ancho San Dimas San Pedro	Casuarina equiseti- folia Croton gossypiifolium Coffea arabica Cydonia oblonga	Cytisus fragrans Diphysa robinoides Erythrina rubrinervia Hicoria pecan Parkinsonia aculeata	Jan. 10- Nov. 19
Entylia sinuata Fab. Cuesta del Macho El Cacao Orosi Paso Ancho San Jose San Pedro Villa Quesada	Calca urticifolia Coffea arabica Coix lachryma-jobi Crotalaria retusa Dahlia rosea Jacobinia coccinea Persea americana Persea drymifolia	Phaseolus vulgaris Vernonia brachiata	Feb. 15 May 28 Sept. 13- Dec. 25
Erechtia sallaci Fowl. San Pedro	Anacardium occidentale Malus sylvestris Persea drymifolia	June 12- Dec. 26	Injurious to avocado; causes fruit to drop.
Heteronotus nodosus Germ. El Cacao Granadilla Guadalupe San Antonio	Inga paterno	July 2 Oct. 25 Nov. 7	

	C o l l e c t e d o n -		Date	Notes
Horiola picta Coque. Waldeck	Theobroma cacao		Feb. 13	
Hypsoprora coronata Fab. Orosi	Calea urticifolia		Sept. 13	
Membracis mexicana Guer. Granadilla Guadalupe Paso Ancho San Dimas San Pedro Waldeck	Acnistus arborescens Amygdalus persica Anacardium occidentale Anacardium rhinocarpus Annona cherimola Annona muricata Callistemon lanceo- latum Calyptranthes costari- censis Camellia japonica Canangium odoratum Casuarina equiseti- folia Citrus limonia Citrus sinensis Citrus sp. (toronjo) Coffea arabica Cydonia oblonga Diospyros kaki Diospyros virginiana Dovyalis hebecarpa	Erythrina rubrinervia Eugenia uniflora Hamelia erecta Hibiscus rosa-sinensis Hicoria pecan Hymenaea courbaril Jacobinia coccinea Lagerstroemia speciosa Malus sylvestris Mammea americana Mangifera indica Morus rubra Persea americana Phoebe tonduzii Pouteria caimito Prunus salicina Psidium guajava Pyrus communis Solanum seaforthianum Terminalia catappa	Through- out year	Seriously damages many plants.
Microtalis albivitta Fowl. San Pedro	Croton gossypifolium		Dec. 22	
Polyglypta dispar Fowl. Ochomogo	Verbesina turbacensis		June 28	

	C o l l e c t e d o n		Date	Notes
Polyglyptodes cucullatus Fowl. San Pedro	Diphysa robinoides		Dec. 13	
Poppea capricornis Fowl. Cuesta del Macho	Eupatorium odoratum		March 25	
Pterygia bituberculata Fowl. San Pedro	Inga edulis		June 28	
Spongophorus ballista Germ. Paso Ancho San Pedro Villa Quesada	Erythrina rubrinervia Indigofera suffructi- cosa Morus rubra Musa paradisiaca	Panicum barbinode Solanum tuberosum Spondias mombin Zinnia elegans	March 26 June Aug. 30 December	
Stictocephala festina Say Coyolar San Isidro San Pedro	Codiaeum variegatum Crotalaria juncea Hibiscus rosa-sinensis Persea americana	Phaseolus vulgaris Tetragonia expansa	Jan. 26- Feb. 26 Sept. 16 Dec. 27	
Umbonia crassicornis Am. & Serv. Guadalupe Paso Ancho San Lucas San Pedro	Calliandra grandiflora Enterolobium cyclocar- pum Pyrus communis		May 26- July 7	Damages plants by egg scars.
Vanduzee segmentata Fowl. Orosi Paso Ancho	Acnistus arborescens Byrsonima crassifolia		Sept. 13 Oct. 7	

H Y M E N O P T E R A

Atta sexdens L. El Cacao	Many species of plants		Sept. 13 to Nov. 22	One of the serious pests of Costa Ri
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Atta sexdens--Cont'd.	C o l l e c t e d o n	Date	Notes
Grecia			
Orosi			
Santa Ana			
Solenopsis geminata Fab.	Capsicum annuum	Hibiscus rosa-sinensis	Through-
Cartago	Chalcas exotica	Hymenaea courbaril	out
Paso Ancho	Citrus aurantium	Impatiens balsamina	year
San Pedro	Citrus limonia	Malus sylvestris	
Santa Barbara	Citrus medica	Persea americana	
	Citrus nobilis de- liciosa	Poinsettia pulcherrima	
	Citrus sinensis	Psidium guajava	
	Coffea arabica	Pyrus communis	
	Diospyros kaki	Schinus molle	
	Dovyalis hebecarpa	Sterculia diversi- folia	
	Ficus religiosa	Zea mays	
Trigona amalthea Oliv.	Caesalpinia pulcherri- ma		Dec. 6
Grecia			In flowers.
Trigona cupira Smith	Asparagus officinalis	Zante deschia aethio- pica	March 13
San Pedro	Dombeya wallichii		June
	Rosa sp.		
Trigona ruficrus corvina Cr.	Citrus sinensis		Jan. 14
Escasu			Damages orange by eating flowers and tender foliage.

L E P I D O P T E R A

Agraulis junio Cr.	Passiflora edulis	Apr. 15-	Larvae damage
Paso Ancho	Passiflora ligularis	May 31	granadilla.
San Pedro			

	Collected on	Date	Notes
Agraulis poeyi Butl. San Pedro	Passiflora ligularis	Apr. 3 to March 14	Larvae damage gran- adilla.
Anteos clorinde Godt. Paso Ancho	Musa sapientum	July 29	
Automeris boucardi Druce Paso Ancho San Pedro	Erythrina rubrinervia Inga laurina Malus sylvestris	Jan. 15 July 6 Nov. 21 to Dec. 27	Defoliates apple in late December.
Automeris rubrescens Walk. Guadalupe San Pedro	Cinnamomum camphora Coffea arabica Nephrolepis sp.	Jan. 31 May 29	
Azochis gripusalis Walk. San Pedro	Ficus carica	Jan. 24 to May 2	Seriously injures fig by boring branches.
Bertholdia specularis H. & S. San Pedro	Citrus nobilis de- liciosa Citrus sinensis	Jan. 11 June 7	
Dicentria violacens H. & S. San Pedro	Diospyros virginiana	June 18	Reared on this plant
Dircenna klugii Geyer San Pedro	Solanum lanceolatum sinuatum	Jan. 25	Reared on this plant
Eantis pallida Feld. Ochomogo San Isidro San Pedro	Casimiroa edulis Citrus aurantifolia Citrus aurantium	Citrus limonia Citrus sinensis Jan. 10 to Dec. 28	Seriously injures citrus.
Ecpantheria eridane Hbn. San Pedro	Prunus salicina	Nov. 20	Taken ovipositing.

	C o l l e c t e d o n	Date	Notes
<i>Euglyphis melancholica</i> Butl. San Pedro	<i>Persea americana</i>	Sept. 20	
<i>Halisidota underwoodi</i> Roth. San Pedro	<i>Cydonia oblonga</i> <i>Citrus sinensis</i> <i>Ficus religiosa</i>	Jan. 5- Aug. 21	
<i>Hemerocampa costaricensis</i> Schaus San Pedro	<i>Mangifera indica</i> <i>Persea americana</i>	Feb. 6 Feb. 16	
<i>Herminodes porrecta</i> Walk. Guadalupe	<i>Alnus acuminata</i>	Jan. 19 to Apr. 15	Larvae bore in jaul.
<i>Hylesia alinda</i> Druce Guadalupe Paso Ancho San Pedro	<i>Citrus aurantium</i> <i>Lagerstroemia indica</i> <i>Malus sylvestris</i> <i>Polargonium</i> sp.	Jan. 1- July 13 Nov. 28	Larvae on apple and sour orange.
<i>Hyphypena colpodes</i> Wlsm. Guadalupe San Pedro	<i>Persea americana</i> <i>Persea drymifolia</i>	Jan. 5 to Dec. 18	Seriously damaging avocado.
<i>Hypsipyla grandella</i> Zell. Coyolar San Pedro	<i>Cedrela glaziovii</i> pub- erula <i>Cedrela montana</i> mexi- cana Guarea caoba	July 2 to Oct. 10	Damages caoba and cedro; a serious pest.
<i>Jocara claudalis</i> Mosch. Alajucla Coyolar El Cacao Guadalupe Paso Ancho San Isidro San Pedro	<i>Persea americana</i> <i>Persea drymifolia</i>	Through- out year	A serious pest of avocado.

	Collected on	Year	Notes
Jocara subcurvalis Schaus San Pedro	Persea americana Persea drymifolia	Jan. 5 to Nov. 20	A pest of avocado.
Laphygma frugiperda S. & A. San Pedro	Zea mays	Aug. 7	
Leucoptera coffeella Guer. & Prrott. El Cacao Granadilla Guadalupe San Antonio San Pedro	Coffea arabica	Jan. 24 to May 14. Oct. 25- Dec. 10	A pest of coffee.
Machimia erythema Wlsm. San Pedro	Persea americana	Feb. 18	Adult emerged from larva on avocado.
Megalopyge costaricensis Sch. Guadalupe San Pedro	Citrus limonia Citrus sinensis Coffea arabica Malus sylvestris	Jan. 10 to June 1	Larva called "gusano de pollo."
Mesocondyla concordalis Hbn. Coyolar San Pedro Santa Ana	Couralea rosea	July 12 to Nov. 22	Damaging this tree.
Papilio anchisiades idaeus Fab. Alajuela Coyolar San Jose San Pedro	Casimiroa edulis Citrus limonia Citrus nobilis de- liciosa Citrus sinensis	Feb. 23 June 5 to Nov. 22	An "orange dog," a pest of importance on citrus.

	C o l l e c t e d o n	Date	Notes
Papilio polyxenes stabilis R. & J. Ochomogo	Anethum graveolens	June 28	
Papilio thoas autocles Roth. San Jose San Pedro	Citrus sinensis Ruta graveolens	June 18 Nov. 28	Reared.
Phobetron hipparchia Cr. San Pedro	Citrus sinensis Coffea arabica Hymenaea courbaril Lagerstroemia speciosa	Malus sylvestris Persea americana Vernonia brachiata Vitis vinifera Apr. 30 July 18 to Nov. 28	Defoliates small trees.
Plutella maculipennis Curt. San Pedro	Brassica oleracea capitata	Apr. 5	Very abundant on cabbage.
Sibine apicalis Dyar Guadalupe San Pedro	Citrus sinensis Taetsia fructicosa	Feb. 5	Larvae collected on dracena Nov. 27. Adult emerged Feb. 5.
Stenoma anonella Sepp. Coyolar San Dimas San Pedro	Annona cherimola Annona muricata Annona squamosa	July 24 to Sept. 17	Destroys fruit.
Stenoma sororia Zell. Paso Ancho San Pedro	Persea americana Persea drymifolia Phoebe tonduzii	Jan. 5 to Dec. 25	A serious pest of avocado, particularly to young grafts.
Tineola uterella Wlsm. San Pedro	Household goods	Through- out year	A clothes moth.

O R T H O P T E R A

	C o l l e c t e d o n		Date	Notes
Cocconotus ravus Rehn San Pedro	Amygdalus persica Annona squamosa Citrus grandis Citrus nobilis de- liciosa Citrus sinensis Coffea arabica Malus sylvestris	Passiflora ligularis Pelargonium zonale Saccharum officinarum Taetsia fruticosa Trichopilia suavis Zantedeschia aetheo- pica Zea mays	Through- out. year	Eats leaves and tender stems of a wide variety of plants; also damages plants by ovipositing slits; also a pantry pest.
Conocephalus cinereus Thunb. El Cacao San Pedro	Panicum barbinode Phaseolus vulgaris Rosa sp.	Tetragonia expansa Tripsacum laxum	May 24 Nov. 7 to Dec. 27	A tettigoniid; es- pecially harmful on grasses.
Ellipes minuta Scudd. El Cacao San Pedro	Capriola dactylon Capsicum annuum Fragaria chiloensis	Persea americana Phaseolus vulgaris Tetragonia expansa	Jan. 9 Oct. 5 to Dec. 27	
Insara intermedia Bruner Coyolar Gundalupe San Pedro	Acalypha sp. Casuarina equiseti- folia Citrus aurantium Hibiscus rosa-sinensis	Malus sylvestris Musa paradisiaca Rumex crispus	Jan. 10 to Sept. 18 Dec. 13 Dec. 31	Harmful.
Neoxabea bipunctata DeG. San Pedro	Amygdalus persica Persea americana	Persea drymifolia	Jan. 18 June 4	A gryllid.
Panchlora cubensis Sauss. San Pedro	Coffea arabica Zea mays		Oct. 1 to Nov. 13	A green roach.
Paratettix mexicanus abortus Hancock San Pedro	Galinsoga hispida		Aug. 30	Acridid.

	C o l l e c t e d o n		Date	Notes
Periplaneta australasiae Fab. San Pedro	Stored products		Dec. June	Very troublesome household pest.
Pycnopalpa bicordata Serv. San Pedro	Citrus sinensis		Oct. 22	
Rhipipteryx biolleyi Sauss. San Pedro	Annona cherimola Annona reticulata Ipomoea batatas	Malacra radiata Tripsacum laxum	May 2 to Oct. 5	
Schistocerca impleta Walk. Ochomogo Paso Ancho San Pedro	Amygdalus persica Beta cicla. Boehmeria nivea Citrus aurantium Citrus limonia Citrus nobilis de- liciosa Citrus sinensis Citrus sp. (tangelo) Coffea arabica Cupressus benthami	Dahlia rosea Ficus carica Fortunella japonica Fragaria chiloensis Hibiscus rosa-sinensis Malus sylvestris Persea drymifolia Tetragonia expansa Vigna sesquipedalis	Feb. 17 to July 12 Oct. 5 to Dec. 27	Nymphs and adults very harmful to a wide variety of plants.
Taeniopoda varipennis Rehn San Pedro	Asparagus plumosus Coleus blumei Coreopsis lanceolata Cucurbita pepo Hemerocallis sp.	Hibiscus rosa-sinensis Rosa sp. Sambucus mexicana Spiraea prunifolia	Sept. 5	Acridid; very abundant in cemeteries, where it destroys flowers.

C O R R O D E N T I A

Nescus flavatus Navas San Isidro San Pedro	Dovyalis hebecarpa Morus rubra Punica granatum	Jan. 26 Apr. 18 Aug. 6
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THYSANOPTERA

	C o l l e c t e d o n	Date	Notes
Gynaikothrips uzeli Zimm. El Cacao	Ficus nitida	Nov. 12	Causes new leaves to curl: effect disappears later.
Liethrips zeteki Hood Paso Ancho San Pedro	Persea americana Persea drymifolia	Jan. 9 to March 27 Aug. 20 to Dec. 27	A serious pest of avocado, particu- larly to newly budded stock.
Selenothrips rubrocinctus Giard Peralta	Mangifera indica	Feb. 14	

DERMAPTERA

Doru lineare Esch. Santa Ana	Oryza sativa Zea mays	Nov. 22
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