

List of wood-boring beetles (Coleoptera: Bostrichidae, Curculionidae; Platypodinae, and Scolytinae) captured by ethanol-baited traps in a lower montane forest in northern Thailand

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タイ北部の低地山岳林においてエタノール誘引トラップに捕獲された穿孔虫類

(甲虫目: ナガシクイムシ科, ゾウムシ科ナガキクイムシ亜科・

キクイムシ亜科) のリスト

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1. Introduction

Bark and ambrosia beetles are ecological guilds of wood borers, which include many important forest and post-harvest pests (Coulson and Witter, 1984). Ambrosia beetles belong to the subfamilies Scolytinae and Platypodinae of the family Curculionidae (Order COLEOPTERA), whereas bark beetles belong to the subfamily Scolytinae. The subfamily Scolytinae comprises c. 6,000 species, grouped into 11 tribes and more than 247 genera (Kirkendall *et al.*, 2015). The subfamily Platypodinae comprises more than 1,400 species, grouped into 4 tribes and 29 genera (Jordal, 2015).

The family Bostrichidae includes more than 550 species, from 9 subfamilies, 11 tribes, and more than 90 genera (Borowski and Węgrzynowicz, 2007). Although the lesser grain borer, *Rhyzopertha dominica*, a sole species of the monotypic genus *Rhyzopertha*, is a ubiquitous pest of stored grains and cereal products, most species of the family Bostrichidae are known as insects infesting wood and wood products. Generally, bostrichid beetles tend to attack materials drier than those attacked by ambrosia and bark beetles. However, many species of bostrichid beetles are sometimes found from woods together with species of the subfamily

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Platypodinae and Scolytinae of the Curculionidae family (Kangkamanee *et al.*, 2010; Sarikaya, 2015).

These species have recently spread to new locations, likely via shipping of woody materials (Wood, 1993). Recently, an invasive ambrosia beetle, *Xyleborus glabratus*, caused considerable damage to avocado trees by vectoring laurel wilt fungus, *Raffaelea lauricola* in USA (Ploetz *et al.*, 2012). It is important to determine native local fauna of these groups to tackle the problem of invasive species and protect native flora and fauna. Owing to their cryptic behavior and tiny body size, it is difficult to determine the local fauna of these groups compared to other groups. Mass trapping is one of the solutions to reveal beetle assemblage in different habitats although each type of trap has both advantages and disadvantages. To compare assemblages across a wide geographical range, it is important to develop an inexpensive methodology and accumulate long-term trapping datasets in many locations. Ethanol has been used as a major component of attractants of mass trapping in many studies (Iidzuka *et al.*, 2016; Saito *et al.*, 2005; 2013) because the hosts emanate ethanol as a result of several kinds of stress (Kimmerer and Kozlowski, 1982) and most beetle species in these groups attack unhealthy, dying, and newly dead trees and also because ethanol is inexpensive.

In this study, the assemblage of wood-boring beetles (Coleoptera: Bostrichidae, Curculionidae; Platypodinae, and Scolytinae) was monitored using inexpensive ethanol-baited traps for 3 years in a lowland montane forest in northern Thailand. This paper provides valuable long-term monitoring data of the beetle assemblage, which will be useful for further comparison of assemblages of the same group across a wide geographical range in future.

2. Materials and Methods

Research site

The study was conducted at the Khun Changkhian Highland Agricultural Research and Training Station (HARTS), Faculty of Agriculture, Chiang Mai University. The HARTS is situated on the north facing slope of Mt. Doi Pui in Doi Suthep-Pui National Park, 10 km northwest of Chiang Mai City, northern Thailand (Fig. 1a). The natural vegetation in and around the HARTS is lowland montane forest, where Fagaceae is the dominant family, represented by members of the genera *Castanopsis*, *Lithocarpus*, and *Quercus* with a top canopy height of 40 m. (Marod and Duengkae, 2019). The main crop in the HARTS is coffee. Coffee plantations had been established after opening the canopy or after thinning the natural vegetation. The climate is subtropical with a long dry season and a short wet season. The average annual temperature during 1997–2013 as recorded by the Kog Ma weather station (1,200 m a.s.l.), c. 4 km from the HARTS, is 17.7°C with a minimum of 12°C and a maximum of 23.1°C. The average annual precipitation is about 1,736 mm, with most of the rainfall occurring in August (335 mm), during the rainy season. (Glomvinya *et*

al., 2016). Four locations inside the HARTS were selected for insect trapping, with elevations ranging 1,320–1,350 m a.s.l. (Fig. 1b, Table 1).

Traps

Traps were modified from plastic soda bottles (550 ml) with the branding label removed, and half of the bottle was cut around for a window (Cowell *et al.*, 2012; Steininger *et al.*, 2015) (Fig. 2). A plastic plate (17 cm in diameter) was used as a roof to prevent rain from entering the trap. The trap was hung upside-down with a wire. A conical tube (15 ml) with c. 10 ml of 95% ethanol as an attractant was suspended

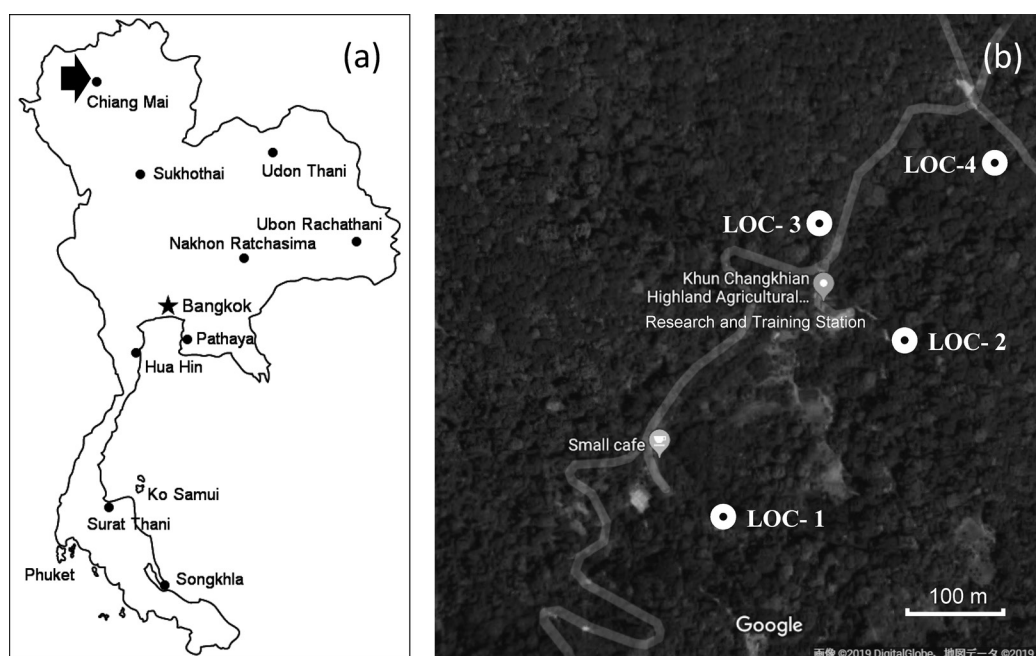


Fig. 1. Location of the Khun Changkhian Highland Agricultural Research and Training Station (HARTS), Faculty of Agriculture, Chiang Mai University (indicated by an arrow) (a) and four locations where 12 traps (three for each location) were set (b) (after Google).

Table 1. List of locations (LOC-1–LOC-4) at the Khun Changkhian Highland Agricultural Research and Training Station, Faculty of Agriculture, Chiang Mai University, Chiang Mai Province, northern Thailand: three ethanol-baited traps were set at each location from 2014 to 2016.

Location	Latitude (° N)	Longitude (° E)	Elevation (m a.s.l.)
LOC-1	18.838144	98.897389	1320
LOC-2	18.839767	98.898938	1330
LOC-3	18.841003	98.898227	1350
LOC-4	18.841414	98.899929	1350



Fig. 2. Ethanol-baited trap modified from a 550 ml soda bottle; 95% ethanol was put into a conical tube suspended inside the trap. A cotton rope was placed into the tube as a dispenser. Propylene glycol was put in the bottom of the bottle to kill and preserve insects. A plastic dish was used as a roof to prevent entry of rain.

inside the trap with a wire. A cotton rope (8 cm in length and 0.5 cm in diameter) was placed into the tube to enhance the ethanol emission. Fifty milliliter of propylene glycol was put inside the soda bottle to kill and preserve insects.

At each of the four locations, three traps were set under the forest canopy to avoid direct sunlight. Each trap was hung from a tree branch using a wire and set at c. 1.5 m above ground level. Distance between two traps was > 5 m.

Captured insects were collected every 2 weeks with one exception between February 26 and March 19, 2014 (3-week interval). Insects captured by each trap were collected with propylene glycol into a plastic bag by removing the bottle cap. A label with trap ID (LOC-Trap) and collecting date was put into each plastic bag. The trap was refilled anew with 50 ml of propylene glycol after closing the cap. The conical tube inside was filled up to the 15 ml gauge line with 95% of ethanol using a washing bottle.

The insect samples were brought back to the laboratory at the Kamphaeng Sean Campus of Kasetsart University and then sorted into morphospecies. Specimens of each morphospecies were identified by RAB. The number of individuals of each taxon were recorded for each collection (trap and collecting date).

3. Results

Among the 7,391 individuals of the target groups collected during the 155 weeks (= 77 collections), 7,390 individuals from 87 species were identified, including 11 species of Bostrichidae (1,103 individuals except for one individual of the genus *Sinoxylon* that was identified to only the genus level owing to damage to the specimen), 7 species of Platypodinae (19 individuals), 69 species of Scolytinae (6,268 individuals and one individual of *Hadrodemius* that was identified to only the genus level owing to damage to the specimen) (Table 2). One individual was badly damaged such that its morphological identification was not possible.

The raw data for each location and each year are shown in Appendices 1–12.

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Table 2. Summary of coleopteran species belonging to the family Bostrichidae and the subfamilies Scolytinae and Platypodinae of the family Curculionidae captured using 12 ethanol-baited traps from 2014 to 2016 at the Khun Changkhan Highland Agricultural Research and Training Station, Faculty of Agriculture, Chiang Mai University, Chiang Mai Province, northern Thailand.

Family	Subfamily	Tribe	LOCATION				TTL
			1	2	3	4	
Bostrichidae							
Bostrichinae							
	Bostrichini	<i>Parabostrychus acuticollis</i> Lesne	1	2	11	10	24
	Sinoxylini	<i>Sinoxylon unidentatum</i> (F.)	2	0	0	1	3
	Sinoxylini	<i>Sinoxylon</i> sp. (damage)*† **	1	0	0	0	1
	Xyloperthini	<i>Octomeristes pusillus</i> Liu & Beaver	1	0	0	0	1
	Xyloperthini	<i>Xylocis tortilicornis</i> Lesne	7	18	12	33	70
	Xyloperthini	<i>Xylodectes ornatus</i> (F.)	4	2	0	0	6
	Xyloperthini	<i>Xylodrypta</i> sp.	5	11	28	29	73
	Xyloperthini	<i>Xylopsocus acutespinosus</i> Lesne	119	99	73	72	363
	Xyloperthini	<i>Xylopsocus capucinus</i> (F.)	117	61	44	18	240
	Xyloperthini	<i>Xylothrips flavipes</i> (Illiger)	27	75	25	79	206
Dinoderinae							
		<i>Dinoderus favosus</i> Lesne	13	16	2	2	33
		<i>Dinoderus</i> sp.	27	39	7	10	83
SUBTOTAL (Bostrichidae)			324	323	202	254	1103
Curculionidae							
Platypodinae							
	Platypodini	<i>Baiocis pernanulus</i> (Schedl)	0	2	0	0	2
	Platypodini	<i>Crossotarsus externedentatus</i> (Fairmaire)	0	0	0	1	1
	Platypodini	<i>Crossotarsus terminatus</i> Chapuis	5	1	0	4	10
	Platypodini	<i>Euplatypus parallelus</i> (F.)	0	0	0	2	2
	Platypodini	<i>Peroplatypus laosi</i> (Schedl)	0	1	1	0	2
	Platypodini	<i>Platypus vetulus</i> Schedl	0	0	1	0	1
	Platypodini	<i>Platypus</i> sp.	0	0	1	0	1
SUBTOTAL (Platypodinae)			5	4	3	7	19
Curculionidae							
Scolytinae							
	Corthylini	<i>Gnatharus tibetensis</i> Wood & Yin	1	0	0	0	1
	Cryphalini	<i>Cosmoderes</i> sp.	1	0	0	0	1
	Cryphalini	<i>Cryphalus scabricollis</i> Eichhoff	65	60	55	51	231
	Cryphalini	<i>Cryphalus</i> sp. 1	23	18	24	32	97
	Cryphalini	<i>Cryphalus</i> sp. 2	0	0	1	0	1
	Cryphalini	<i>Cryphalus</i> sp. 3	154	35	48	274	511
	Cryphalini	<i>Cryphalus</i> sp. 4	0	12	0	0	12
	Cryphalini	<i>Hypocryphalus mangiferae</i> (Stebbing)	106	65	697	451	1319
	Cryphalini	<i>Hypothenemus artocarpi</i> Browne	0	2	0	0	2
	Cryphalini	<i>Hypothenemus birmanus</i> (Eichhoff)	7	2	0	0	9
	Cryphalini	<i>Hypothenemus eruditus</i> Westwood	38	10	4	7	59
	Cryphalini	<i>Hypothenemus</i> sp.	4	0	2	0	6
	Cryphalini	<i>Scolytogenes</i> sp. 1	0	0	0	1	1
	Cryphalini	<i>Scolytogenes</i> sp. 2	123	32	3	11	169
	Cryphalini	<i>Scolytogenes</i> sp. 3	56	11	4	11	82
	Dryocoetini	<i>Coccotrypes advena</i> Blandford	1	2	1	0	4
	Dryocoetini	<i>Coccotrypes carpophagus</i> (Hornung)	0	1	0	0	1
	Dryocoetini	<i>Coccotrypes cyperi</i> (Beeson)	4	2	2	12	20
	Dryocoetini	<i>Coccotrypes graniceps</i> Eichhoff	3	2	2	2	9
	Dryocoetini	<i>Coccotrypes longior</i> (Eggers)	14	1	9	4	28
	Dryocoetini	<i>Coccotrypes papuamus</i> (Eggers)	0	0	0	1	1

Family	Subfamily	Tribe	LOCATION				TTL
			1	2	3	4	
Dryocoetini		<i>Coccotrypes rugicollis</i> (Eggers)	0	0	1	0	1
Dryocoetini		<i>Coccotrypes vulgaris</i> (Eggers)	1	0	0	0	1
Dryocoetini		<i>Coccotrypes</i> sp.	0	0	0	1	1
Dryocoetini		<i>Dryocoetiops moestus</i> (Blandford)	9	10	15	24	58
Hylurgini		<i>Pseudoxylechinus umbonatus</i> Smith et al. MS	4	1	0	7	12
Hyorrhynchini		<i>Sueus niisimai</i> (Eggers)	0	5	0	0	5
Scolytoplastypodini		<i>Scolytoplastypus brahma</i> Blandford	3	0	0	0	3
Scolytoplastypodini		<i>Scolytoplastypus mikado</i> Blandford	3	1	0	2	6
Scolytoplastypodini		<i>Scolytoplastypus minimus</i> Hagedorn	884	841	129	151	2005
Scolytoplastypodini		<i>Scolytoplastypus pubescens</i> Hagedorn	96	95	36	111	338
Scolytoplastypodini		<i>Scolytoplastypus raja</i> Blandford	3	8	0	3	14
Xyleborini		<i>Ambrosiophilus</i> sp.	0	0	0	1	1
Xyleborini		<i>Anisandrus apicalis</i> (Blandford)	1	0	0	0	1
Xyleborini		<i>Anisandrus hirtus</i> (Hagedorn)	5	0	2	1	8
Xyleborini		<i>Arixyleborus lannaensis</i> Smith et al. MS	1	0	0	0	1
Xyleborini		<i>Beaverium dihingensis</i> (Eggers)	0	1	0	0	1
Xyleborini		<i>Cnestus bicornioides</i> (Schedl)	234	57	32	21	344
Xyleborini		<i>Cnestus aterrimus</i> (Eggers)	192	48	41	32	313
Xyleborini		<i>Cnestus nitidipennis</i> (Schedl)	57	9	14	14	94
Xyleborini		<i>Cnestus testudo</i> (Eggers)	2	0	0	0	2
Xyleborini		<i>Cyclorhipidion bodoanum</i> (Reitter)	0	0	0	1	1
Xyleborini		<i>Cyclorhipidion fukiense</i> (Eggers)	3	3	4	7	17
Xyleborini		<i>Cyclorhipidion pilipenne</i> (Eggers)	2	0	0	0	2
Xyleborini		<i>Cyclorhipidion</i> aff. <i>punctatopilosum</i> (Schedl)	8	2	2	0	12
Xyleborini		<i>Cyclorhipidion</i> nr <i>punctilicolle</i> (Schedl)	0	0	1	1	2
Xyleborini		<i>Cyclorhipidion</i> sp.	1	0	0	0	1
Xyleborini		<i>Diuncus corpulentus</i> (Eggers)	3	0	0	0	3
Xyleborini		<i>Diuncus haberkorni</i> (Eggers)	10	1	2	0	13
Xyleborini		<i>Diuncus justus</i> (Schedl)	1	0	0	1	2
Xyleborini		<i>Eccoapterus limbis</i> Sampson	15	2	0	5	22
Xyleborini		<i>Euwallacea fornicatus</i> (Eichhoff)	0	6	1	0	7
Xyleborini		<i>Euwallacea velatus</i> (Sampson)	1	1	0	1	3
Xyleborini		<i>Hadrodemius comans</i> (Sampson)	3	0	0	0	3
Xyleborini		<i>Hadrodemius pseudocomans</i> (Eggers)	2	3	0	0	5
Xyleborini		<i>Hadrodemius</i> sp. (damage)*†**	1	0	0	0	1
Xyleborini		<i>Microperus alpha</i> (Beeson)	1	0	0	3	4
Xyleborini		<i>Microperus nudibrevis</i> (Schedl)	0	0	0	1	1
Xyleborini		<i>Microperus perparvus</i> (Sampson)	30	5	4	8	47
Xyleborini		<i>Planiculus bicolor</i> (Blandford)	0	0	1	0	1
Xyleborini		<i>Steptocranus fragilis</i> (Browne)	0	1	0	0	1
Xyleborini		<i>Truncaudum agnatum</i> (Eggers)	1	0	1	1	3
Xyleborini		<i>Xyleborinus andrewesi</i> (Blandford)	16	1	4	3	24
Xyleborini		<i>Xyleborinus subgranulatus</i> (Eggers)	3	0	0	0	3
Xyleborini		<i>Xyleborus</i> sp. (damage)*	1	0	0	0	1
Xyleborini		<i>Xylosandrus compactus</i> (Eichhoff)	0	1	0	0	1
Xyleborini		<i>Xylosandrus crassiusculus</i> (Motschulsky)	49	22	9	11	91
Xyleborini		<i>Xylosandrus discolor</i> (Blandford)	63	86	28	36	213
Xyleborini		<i>Xylosandrus eupatorii</i> (Eggers)	3	1	1	3	8
Xyleborini		<i>Xylosandrus subsimilis</i> (Eggers)	1	2	0	0	3
SUBTOTAL (Scolytinae)			2313	1468	1180	1307	6268
damage			0	1	0	0	1
TOTAL			2642	1796	1385	1568	7391

*: Specimen was damaged but identification to the genus level was possible.

** : These may be a species of the same genus in this list.

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Appendix 1. (Continued)

	2014												TTL															
	JAN		FEB		M		APR		MAY		JUN			JUL		AUG		SEP		OCT		NOV		DEC				
	14	29	12	26	19	26	2	17	30	14	28	11		25	9	23	6	20	3	17	1	15	29	12	26	10	24	
<i>Cryphalus</i> sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cryphalus</i> sp. 2	0	0	0	2	0	0	4	6	3	0	0	0	1	0	0	0	0	4	2	0	1	1	0	0	0	1	0	25
<i>Cryphalus</i> sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cryphalus</i> sp. 4	1	2	11	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
<i>Hypocryphalus mangiferae</i>	0	4	0	10	0	1	4	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	22
<i>Hypothenemus artocarpis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hypothenemus birmannus</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Hypothenemus eruditus</i>	0	0	1	2	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
<i>Hypothenemus</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolyogenes</i> sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolyogenes</i> sp. 2	2	10	11	16	1	0	2	1	1	3	0	1	4	0	0	1	0	1	0	0	1	0	0	1	4	7	6	72
<i>Scolyogenes</i> sp. 3	0	4	8	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	2	2	8	2	1	1	32
<i>Coccotrypes advena</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Coccotrypes carpophagus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes cyperi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes gramineus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes longior</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
<i>Coccotrypes papuanus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
<i>Coccotrypes rugicollis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes vulgaris</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dryocoetops moestus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Pseudoxylechinus umbonatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Shelus nitidus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolyotlatypus brahma</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Scolyotlatypus mikado</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolyotlatypus minimus</i>	7	52	3	10	28	55	115	4	7	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolyotlatypus pubescens</i>	4	0	0	0	2	7	10	4	1	0	0	0	1	0	0	0	0	2	0	0	1	0	0	0	0	1	2	35
<i>Scolyotlatypus raja</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<i>Ambrosiophilus</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Anisandrus apicalis</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Anisandrus hirtus</i>	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
<i>Arixyleborus lamaensis</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Beaverium dithingensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cnestus bicorniolides</i>	0	0	9	14	6	4	7	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cnestus aterrimus</i>	0	19	19	7	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	52
<i>Cnestus nitidipennis</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Cnestus testudo</i>	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Appendix I. (Continued)

	2014												TTL														
	JAN		FEB		M		APR		MAY		JUN			JUL		AUG		SEP		OCT		NOV		DEC			
	14	29	12	26	19	26	2	17	30	14	28	11		25	9	23	6	20	3	17	1	15	29	12	26	10	24
<i>Cyclorhipidion bodoanum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cyclorhipidion fukiense</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<i>Cyclorhipidion pilipense</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion</i> aff. <i>punctatopilosum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion</i> nr. <i>punctilicole</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Diuncus corpulentus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Diuncus haberkorni</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Diuncus justus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eccoipteris limbis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Enwallacea fornicatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Enwallacea velatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hadrodemius comans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hadrodemius pseudocomans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hadrodemius</i> sp. (damage)* **	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microperus alpha</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microperus nudibrevis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microperus perparvus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Planictus bicolor</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Steptocranus fragilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Truncandum agnatum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xyleborinus andrewesi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xyleborinus subgranulatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xyleborus</i> sp. (damage)*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus compactus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus crassiuscitus</i>	0	0	2	1	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus discolor</i>	0	0	0	1	1	2	3	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus eupatorii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus subsimilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL (Scolytinae)	14	91	65	69	52	82	166	26	12	5	3	4	10	3	2	6	5	2	5	4	12	11	18	17	18	17	689
damage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	15	93	68	74	60	89	169	30	13	5	4	5	11	3	2	6	5	2	5	8	17	21	23	19	19	19	752

*: Specimen was damaged but identification to the genus level was possible.

**: These may be a species of the same genus in this list.

Appendix 2. Abundance of coleopteran species belonging to the family Bostrichidae and the subfamilies Scolytinae and Platypodinae of the family Curculionidae captured using three ethanol-baited traps in 2014 from the second location (L-OC-2) at the Khun Changkhan Highland Agricultural Research and Training Station, Faculty of Agriculture, Chiang Mai University, Chiang Mai Province, northern Thailand.

	2014												TTL														
	JAN	FEB	M	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC															
	14	29	12	26	19	2	17	30	14	28	11	25	9	23	6	20	3	17	1	15	29	12	26	10	24		
Bostrichidae																											
Bostrichinae																											
<i>Parabostrychus acuticollis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Sinoxylon unidentatum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Sinoxylon</i> sp. (damage)** **	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Ocmeristes pusillus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylocis tortilicornis</i>	0	1	5	2	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	12	
<i>Xylodectes ornatus</i>	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Xylodrypta</i> sp.	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
<i>Xyloporus acutespinosus</i>	0	0	0	0	2	21	2	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	28	
<i>Xyloporus capucinus</i>	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
<i>Xylothrips flavipes</i>	0	0	0	0	0	0	5	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	12	
Dinoderinae																											
<i>Dinoderus favosus</i>	0	0	0	0	6	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	
<i>Dinoderus</i> sp.	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	5	
SUBTOTAL (Bostrichidae)	0	2	7	6	11	24	8	2	5	0	0	0	0	0	1	0	1	0	0	0	0	1	2	0	3	73	
Curculionidae																											
Platypodinae																											
<i>Baetocis pernanulus</i>	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
<i>Crossotarsus externedentatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Crossotarsus terminatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
<i>Euplatypus parvifellus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Peroplatypus laosi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Platypus vetulus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Platypus</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SUBTOTAL (Platypodinae)	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
Curculionidae																											
Scolytinae																											
<i>Gnatharus tibetensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cosmoderes</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cryphalus scabricollis</i>	0	0	0	0	15	1	2	1	0	1	0	0	0	0	0	2	0	1	1	0	0	0	0	0	0	0	24

Appendix 2. (Continued)

	2014												TTL												
	JAN		FEB		M		APR		MAY		JUN			JUL		AUG		SEP		OCT		NOV		DEC	
	14	29	12	26	19	2	17	30	14	28	11	25		9	23	6	20	3	17	1	15	12	26	10	24
<i>Cyclorhipidion bodoanum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cyclorhipidion fukiense</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Cyclorhipidion pilipense</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cyclorhipidion</i> aff. <i>punctatopilosum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cyclorhipidion</i> nr <i>punctilicole</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cyclorhipidion</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Diuncus corpulentus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Diuncus haberkorni</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Diuncus justus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Eccoptyterus limbatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Enwallacea fornicatus</i>	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	
<i>Enwallacea velatus</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Hadrodemius comans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Hadrodemius pseudocomans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Hadrodemius</i> sp. (damage)* **	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Microperus alpha</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Microperus nudibrevis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Microperus perparvus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Planiculus bicolor</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Steptoceramus fragilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Truncandum agnatum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xyleborinus andrewesi</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Xyleborinus subgranulatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xyleborus</i> sp. (damage)*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylosandrus compactus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylosandrus crassiuscitus</i>	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	2	
<i>Xylosandrus discolor</i>	0	0	0	0	4	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	
<i>Xylosandrus eupatorii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylosandrus subimitis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SUBTOTAL (Scolytinae)	0	61	43	45	161	152	87	15	14	4	12	13	6	7	4	3	1	6	3	0	3	0	7	15	
damage	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
TOTAL	0	64	51	51	172	176	95	17	19	5	12	13	6	7	5	4	2	6	3	0	4	2	7	18	
																								757	

*: Specimen was damaged but identification to the genus level was possible.

**: These may be a species of the same genus in this list.

Appendix 3. (Continued)

	2014												TTL														
	JAN		FEB		M		APR		MAY		JUN			JUL		AUG		SEP		OCT		NOV		DEC			
	14	29	12	26	19	26	2	17	30	14	28	11		25	9	23	6	20	3	17	1	15	29	12	26	10	24
<i>Cryphalus</i> sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cryphalus</i> sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cryphalus</i> sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cryphalus</i> sp. 4	0	0	1	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
<i>Hypocryphalus mangiferae</i>	0	0	0	0	3	15	13	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
<i>Hypothenemus artocarpis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hypothenemus birmamus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hypothenemus eruditus</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Hypothenemus</i> sp.	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Scolyogenes</i> sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolyogenes</i> sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Scolyogenes</i> sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2
<i>Coccotrypes advena</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Coccotrypes carpophagus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes cyperi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes gramineps</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes longior</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes papuanus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes rugicollis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes vulgaris</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dryocoetops moestus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
<i>Pseudoxylechinus umbonatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sueus nitidus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolyoplatus brahmi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolyoplatus mikado</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolyoplatus minimus</i>	0	1	0	2	3	4	33	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
<i>Scolyoplatus pubescens</i>	0	4	2	1	1	1	9	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
<i>Scolyoplatus raja</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ambrosiophilus</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Anisandrus apicalis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Anisandrus hirtus</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<i>Artixyleborus lamaensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Beaverium dithingensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cnestus bicornitoides</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cnestus aterrimus</i>	0	1	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
<i>Cnestus nitidipennis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cnestus testudo</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3. (Continued)

	2014												TTL												
	JAN		FEB		M		APR		MAY		JUN			JUL		AUG		SEP		OCT		NOV		DEC	
	14	29	12	26	19	2	17	30	14	28	11	25		9	23	6	20	3	17	1	15	12	26	10	24
<i>Cyclorhipidion bodoanum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cyclorhipidion fukiense</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cyclorhipidion pilipense</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cyclorhipidion</i> aff. <i>punctatopilosum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cyclorhipidion</i> nr <i>punctilicole</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cyclorhipidion</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Diuncus corpulentus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Diuncus haberkorni</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Diuncus justus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Eccoipterus limbis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Euwallacea fornicatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Euwallacea velatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Hadrodemius comans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Hadrodemius pseudocomans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Hadrodemius</i> sp. (damage)* **	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Microperus alpha</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Microperus nudibrevis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Microperus perparvus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Planiculus bicolor</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Steptocranus fragilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Truncandum agnatum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xyleborinus andrewesi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xyleborinus subgranulatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xyleborus</i> sp. (damage)*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylosandrus compactus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylosandrus crassiusculus</i>	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylosandrus discolor</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylosandrus eupatorii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylosandrus subimitis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SUBTOTAL (Scolytinae)	0	7	8	6	12	22	68	14	9	2	1	0	2	3	1	1	1	0	1	1	0	0	1	0	
damage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	0	9	10	6	15	27	71	16	9	2	1	0	2	3	1	1	1	0	4	2	2	3	3	5	

*: Specimen was damaged but identification to the genus level was possible.

**: These may be a species of the same genus in this list.

Appendix 4. Abundance of coleopteran species belonging to the family Bostrichidae and the subfamilies Scolytinae and Platypodinae of the family Curculionidae captured using three ethanol-baited traps in 2014 from the fourth location (LOC-4) at the Khun Changkhan Highland Agricultural Research and Training Station, Faculty of Agriculture, Chiang Mai University, Chiang Mai Province, northern Thailand.

	2014												TTL														
	JAN	FEB	M	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC															
	14	29	12	26	19	2	17	30	14	28	11	25		9	23	6	20	3	17	1	15	29	12	26	10	24	
Bostrichidae																											
Bostrichinae																											
<i>Parabostrychus acuticollis</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	
<i>Sinoxylon unidentatum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Sinoxylon</i> sp. (damage)** **	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Ocmeristes pusillus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylocis tortlicornis</i>	0	0	3	0	1	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	
<i>Xylodectes ornatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylodrypta</i> sp.	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
<i>Xylopsocus acutespinosus</i>	0	0	0	0	6	7	2	1	1	2	0	0	0	0	0	0	0	0	0	0	1	2	5	1	0	29	
<i>Xylopsocus capucinus</i>	0	0	0	0	3	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	
<i>Xylothrips flavipes</i>	0	0	0	0	4	5	6	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	26	
Dinoderinae																											
<i>Dinoderus favosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Dinoderus</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	3	
SUBTOTAL (Bostrichidae)	0	2	5	3	4	15	12	8	8	1	3	1	0	0	0	0	0	0	1	1	2	6	1	2	7	3	
Curculionidae																											
Platypodinae																											
<i>Baetocis permanulus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Crossotarsus externedentatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Crossotarsus terminatus</i>	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
<i>Euplatypus parvifellus</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Peroplatypus laosi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Platypus vetulus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Platypus</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SUBTOTAL (Platypodinae)	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
Curculionidae																											
Scolytinae																											
<i>Gnatharus tibetensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cosmoderes</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cryphalus scabricollis</i>	0	0	0	0	1	17	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	

Appendix 4. (Continued)

	2014												TTL													
	JAN	FEB	M	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC														
	14	29	12	26	19	2	17	30	14	28	11	25	9	23	6	20	3	17	1	15	29	12	26	10	24	
<i>Cyclorhipidion bodoanum</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Cyclorhipidion fukiense</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3
<i>Cyclorhipidion pilipenne</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion</i> aff. <i>punctatopilosum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion</i> nr <i>punctilicole</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
<i>Cyclorhipidion</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Diuncus corpulentus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Diuncus haberkorni</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Diuncus justus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eccoptopterus limbatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Enwallacea fornicatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Enwallacea velatus</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Hadrodemius comans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hadrodemius pseudocomans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hadrodemius</i> sp. (damage)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microperus alpha</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Microperus nudibrevis</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Microperus perparvus</i>	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	5
<i>Planiculus bicolor</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Steptocranus fragilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Truncandum agnatum</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Xyleborinus andrewesi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xyleborinus subgranulatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xyleborus</i> sp. (damage)*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus compactus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus crassiuscitus</i>	0	0	0	0	0	1	1	2	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	7
<i>Xylosandrus discolor</i>	0	0	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
<i>Xylosandrus eupatorii</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Xylosandrus subsimilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL (Scolytinae)	0	22	16	40	96	110	60	19	9	7	4	9	4	1	1	3	2	5	0	0	3	1	4	4	4	425
damage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	24	21	43	101	125	72	27	17	8	7	12	4	1	1	3	2	6	6	2	6	4	3	11	7	513

*: Specimen was damaged but identification to the genus level was possible.

** : These may be a species of the same genus in this list.

Appendix 5. Abundance of coleopteran species belonging to the family Bostrichidae and the subfamilies Scolytinae and Platypodinae of the family Curculionidae captured using three ethanol-baited traps in 2015 from the first location (LOC-1) at the Khun Changkhan Highland Agricultural Research and Training Station, Faculty of Agriculture, Chiang Mai University, Chiang Mai Province, northern Thailand.

	2015																								TTL			
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	2015															
	7	21	4	18	4	18	1	15	29	13	27	10	24	8	22	5	19	2	16	30	14	28	11	25	9	23		
Bostrichidae																												
Bostrichinae																												
<i>Parabostrychus acuticollis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Sinoxylon unidentatum</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Sinoxylon</i> sp. (damage)** **	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Oetomeristes pusillus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylocis tortilicornis</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Xylodectes ornatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylodrypta</i> sp.	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
<i>Xylopoecus acutespinosus</i>	2	0	3	1	1	3	5	6	0	1	1	1	2	5	0	1	0	1	0	0	1	0	0	2	0	1	4	
<i>Xylopoecus capucinus</i>	0	0	0	0	1	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	
<i>Xylotrips flavipes</i>	6	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	
Dinoderinae																												
<i>Dinoderus favosus</i>	0	0	0	0	1	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
<i>Dinoderus</i> sp.	1	2	1	0	3	4	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	
SUBTOTAL (Bostrichidae)	9	4	5	2	5	8	16	10	3	4	3	1	2	5	0	1	0	0	1	0	0	0	0	2	0	1	4	
Curculionidae																												
Platypodinae																												
<i>Baitocis pernanutus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Crossotarsus extermedentatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Crossotarsus terminatus</i>	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
<i>Euplatypus parvifellus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Peroplatypus taosi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Platypus ventulus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Platypus</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SUBTOTAL (Platypodinae)	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
Curculionidae																												
Scolytinae																												
<i>Gnatharus tibetensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cosmoderes</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cryphalus scabrifollis</i>	0	0	0	4	0	0	0	0	0	0	1	3	0	1	0	0	1	0	0	1	0	0	1	1	0	0	0	13

Appendix 5. (Continued)

	2015																								TTL		
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	OCT		NOV		DEC										
	7	21	4	18	4	18	1	15	29	13	27	10	24	8	22	5	19	2	16	30	14	28	11	25	9	23	
<i>Cryphalus</i> sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cryphalus</i> sp. 2	4	1	21	24	49	7	2	6	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	116
<i>Cryphalus</i> sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cryphalus</i> sp. 4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Hypocryphalus mangiferae</i>	0	0	0	0	3	3	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6
<i>Hypothenemus artocarp</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hypothenemus birmanus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hypothenemus eruditus</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Hypothenemus</i> sp.	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Scolytogenes</i> sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytogenes</i> sp. 2	25	5	4	4	2	1	1	1	0	1	1	0	0	2	1	0	0	0	0	0	0	0	2	0	0	0	49
<i>Scolytogenes</i> sp. 3	1	0	2	1	7	2	0	2	0	0	0	0	1	1	0	0	0	0	0	0	3	1	0	3	0	0	24
<i>Coccotrypes advena</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes carpophagus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes cyperei</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes graniceps</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes longior</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Coccotrypes papuanus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
<i>Coccotrypes rugicollis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes vulgaris</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Coccotrypes</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dryocoetips moestus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	3
<i>Pseudoxylechinus umbonatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
<i>Sueus nissimai</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytoplatus brahma</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<i>Scolytoplatus mikado</i>	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
<i>Scolytoplatus minimus</i>	24	9	4	15	7	14	39	51	34	9	5	5	4	0	0	1	0	0	2	1	0	0	0	7	2	40	276
<i>Scolytoplatus pubescens</i>	3	1	3	0	5	2	8	7	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	31
<i>Scolytoplatus raja</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ambrosiophilus</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Anisandrus apicalis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Anisandrus hirtus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
<i>Arixyleborus lamaensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Beaverium diligenis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cnestus bicornitoides</i>	3	0	2	2	13	18	4	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
<i>Cnestus aterrimus</i>	6	0	15	3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
<i>Cnestus nitidipennis</i>	0	0	0	0	0	0	1	6	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
<i>Cnestus testudo</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 5. (Continued)

	2015												TTL														
	JAN 7-21	FEB 4-18	MAR 4-18	APR 1-15	MAY 13-27	JUN 10-24	JUL 8-22	AUG 5-19	SEP 2-16	OCT 14-28	NOV 11-25	DEC 9-23															
<i>Cyclohrupidion bodoonum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Cyclohrupidion fukiense</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Cyclohrupidion pilipenne</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	0													
<i>Cyclohrupidion</i> aff. <i>punctatopilosum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	3													
<i>Cyclohrupidion</i> nr <i>punctilicolle</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Cyclohrupidion</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Diuncus corpulentus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Diuncus haberkorni</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1													
<i>Diuncus justus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Eccoptopterus limbatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Enwallacea fornicatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Enwallacea velatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Hadrodemius comans</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	1													
<i>Hadrodemius pseudocomans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Hadrodemius</i> sp. (damage)* **	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Microperus alpha</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1													
<i>Microperus nudibrevis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Microperus parparvus</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	3													
<i>Planitulus bicolor</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Steptocranus fragilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Truncaudum agnatum</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	1													
<i>Xyleborinus andrewesi</i>	0	0	0	0	1	1	0	0	0	0	0	0	1	4													
<i>Xyleborinus subgranulatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	2													
<i>Xyleborus</i> sp. (damage)*	0	0	0	0	0	0	0	0	0	0	0	0	0	1													
<i>Xylosandrus compactus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Xylosandrus crassiusculus</i>	2	1	3	2	1	0	1	2	1	0	0	1	0	19													
<i>Xylosandrus discolor</i>	0	0	0	0	2	4	0	0	1	2	0	0	0	14													
<i>Xylosandrus eupatorii</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	1													
<i>Xylosandrus subsimilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1													
SUBTOTAL (Scolytinae)	68	17	55	56	95	53	61	82	49	22	9	10	5	10	2	5	2	1	4	8	7	6	8	11	12	67	725
damage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	77	21	60	58	101	62	77	92	52	26	12	11	7	15	2	6	2	1	5	8	7	6	10	11	13	71	813

*: Specimen was damaged but identification to the genus level was possible.

** : These may be a species of the same genus in this list.

Appendix 6. Abundance of coleopteran species belonging to the family Bostrichidae and the subfamilies Scolytinae and Platypodinae of the family Curculionidae captured using three ethanol-baited traps in 2015 from the second location (L-OC-2) at the Khun Changkhan Highland Agricultural Research and Training Station, Faculty of Agriculture, Chiang Mai University, Chiang Mai Province, northern Thailand.

	2015												TTL																	
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC																		
	7	21	4	18	4	18	1	15	29	13	27	10	24	8	22	5	19	2	16	30	14	28	11	25	9	23				
Bostrichidae																														
Bostrichinae																														
<i>Parabostrychus acuticollis</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2		
<i>Sinoxylon unidentatum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Sinoxylon</i> sp. (damage)** **	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Oetomeristes pusillus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylocis tortilicornis</i>	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
<i>Xylocetes ornatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylodrypta</i> sp.	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
<i>Xylopoecus acutespinosus</i>	0	1	2	1	0	4	3	1	0	1	0	2	1	0	0	0	1	1	0	0	1	1	6	3	0	0	1	29		
<i>Xylopoecus capucinus</i>	1	0	0	0	0	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
<i>Xylotrips flavipes</i>	3	0	0	1	0	0	0	6	10	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	
Dinoderinae																														
<i>Dinoderus favosus</i>	0	0	0	1	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
<i>Dinoderus</i> sp.	0	0	0	0	4	21	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	30	
SUBTOTAL (Bostrichidae)	4	1	5	4	6	26	11	11	10	3	1	4	0	1	0	0	0	0	0	1	1	1	6	3	0	0	3	102		
Curculionidae																														
Platypodinae																														
<i>Baitocis pernamulus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Crossotarsus externidentatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Crossotarsus terminatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Euplatypus parvifellus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Peroplatypus taosi</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Platypus ventulus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Platypus</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SUBTOTAL (Platypodinae)	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Curculionidae																														
Scolytinae																														
<i>Gnatharus tibetensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cosmoderes</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cryphalus scabrifollis</i>	0	0	0	4	0	0	0	0	0	1	1	0	2	2	5	0	2	0	3	1	0	0	0	0	0	0	0	0	0	21

Appendix 6. (Continued)

	2015												TTL														
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC															
	7	21	4	18	4	18	1	15	29	13	27	10	24	8	22	5	19	2	16	30	14	28	11	25	9	23	
<i>Cyclorhipidion bodocum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion fikiense</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion pilipenne</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion</i> aff. <i>punctatopilosum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion</i> nr <i>punctilicollis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Diuncus corpulentus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Diuncus haberkorni</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Diuncus justus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eccoipterus limbatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Enwallacea formicatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Enwallacea velatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hadrodentius comans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hadrodentius pseudocomans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hadrodentius</i> sp. (damage)***	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microperus alpha</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microperus nudibrevis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microperus perparvus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Platicallus bicolor</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Steptoceramus fragilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Truncaudum agnatum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xyleborinus andrewesi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xyleborinus subgranulatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xyleborus</i> sp. (damage)*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus compactus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus crassiusculus</i>	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0
<i>Xylosandrus discolor</i>	0	0	0	0	1	4	0	3	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus eupatorii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus subsimilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL (Scolytinae)	25	15	27	19	43	46	114	61	35	13	7	18	7	3	5	0	3	1	4	2	0	7	6	5	5	13	484
damage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	29	16	32	23	49	72	125	72	45	16	8	23	7	4	5	0	3	1	5	3	1	13	9	5	5	16	587

*: Specimen was damaged but identification to the genus level was possible.

**: These may be a species of the same genus in this list.

Appendix 7. Abundance of coleopteran species belonging to the family Bostrichidae and the subfamilies Scolytinae and Platypodinae of the family Curculionidae captured using three ethanol-baited traps in 2015 from the third location (LOC-3) at the Khun Changkhan Highland Agricultural Research and Training Station, Faculty of Agriculture, Chiang Mai University, Chiang Mai Province, northern Thailand.

	2015																								TTL				
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	OCT		NOV		DEC												
	7	21	4	18	4	18	1	15	29	13	27	10	24	8	22	5	19	2	16	30	14	28	11	25	9	23			
Bostrichidae																													
Bostrichinae																													
<i>Parabostrychus acuticollis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	
<i>Sinoxylon unidentatum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Sinoxylon</i> sp. (damage)* **	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Octomeristes pusillus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylocis tortilicornis</i>	0	0	0	1	1	0	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylodectes ornatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylodrypta</i> sp.	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xyloporococcus acutespinosus</i>	1	0	0	0	0	1	4	1	1	0	1	0	1	0	1	0	1	0	0	1	1	3	0	0	0	0	0	17	
<i>Xyloporococcus capucinus</i>	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Xylotrips flavipes</i>	5	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	9	
Dinoderinae																													
<i>Dinoderus favosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Dinoderus</i> sp.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
SUBTOTAL (Bostrichidae)	7	0	3	1	1	3	6	1	2	1	1	0	3	0	1	0	1	0	0	1	2	3	0	1	5	6	49		
Curculionidae																													
Platypodinae																													
<i>Batocis pernamulus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Crossotarsus extermidentatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Crossotarsus terminatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Euplatypus parallelus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Peroplatypus laosi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Platypus vertilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Platypus</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SUBTOTAL (Platypodinae)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Curculionidae																													
Scolytinae																													
<i>Gnatharus tibetensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cosmoderes</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cryphalus scabricollis</i>	0	0	0	1	0	0	0	0	0	0	0	0	3	3	9	5	0	1	0	0	1	1	2	7	0	1	0	34	

Appendix 7. (Continued)

	2015																								TTL		
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	NOV		DEC												
	7	21	4	18	4	18	1	15	29	13	27	10	24	8	22	5	19	2	16	30	14	28	11	25	9	23	
<i>Cryphalus</i> sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Cryphalus</i> sp. 2	1	0	0	0	0	0	1	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
<i>Cryphalus</i> sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cryphalus</i> sp. 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hypocryphalus mangiferae</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	10	16
<i>Hypothenemus artocarpii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hypothenemus birmanus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hypothenemus eruditus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hypothenemus</i> sp.	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytogenes</i> sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Scolytogenes</i> sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytogenes</i> sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<i>Coccotrypes advena</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes carpophagus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes cyperei</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes graniceps</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes longior</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
<i>Coccotrypes papuanus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes rugicollis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Coccotrypes vulgaris</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dryocoetops moestus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Pseudoxylechinus umbonatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sueus nissimai</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytoplatypus brahma</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytoplatypus mikado</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytoplatypus minimus</i>	0	0	1	1	0	1	14	8	4	1	1	5	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytoplatypus pubescens</i>	1	2	0	2	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
<i>Scolytoplatypus raja</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytoplatypus</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Anisandrus apicalis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Anisandrus hirtus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Arixyleborus lamaensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Beaverium diligenensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cnestus bicornitoides</i>	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cnestus aterrimus</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<i>Cnestus nitidipennis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
<i>Cnestus testudo</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 7. (Continued)

	2015																														TTL							
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	9		23																							
	7	21	4	18	4	18	1	15	29	13	27	10	24	8	22	5	19	2	16	30	14	28	11	25	9	23												
<i>Cyclorhipidion bodocium</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
<i>Cyclorhipidion fikiense</i>	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3			
<i>Cyclorhipidion pilipenne</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
<i>Cyclorhipidion</i> aff. <i>punctatopilosum</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1			
<i>Cyclorhipidion</i> nr <i>punctilicolle</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
<i>Cyclorhipidion</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
<i>Diuncus corpuilentus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
<i>Diuncus haberkorni</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
<i>Diuncus justus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
<i>Eccoptopterus limbis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
<i>Enwallacea formicatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
<i>Enwallacea velatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Hadrodentius comans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Hadrodentius pseudocomans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Hadrodentius</i> sp. (damage)* **	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Microperus alpha</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Microperus nudibrevis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Microperus parparvus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Platiculus bicolor</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Steptoceramus fragilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Truncaudum agnatum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xyleborinus andrewesi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xyleborinus subgranulatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xyleborus</i> sp. (damage)*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylosandrus compactus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylosandrus crassiusculus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylosandrus discolor</i>	0	0	0	1	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
<i>Xylosandrus eupatorii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylosandrus subsimilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SUBTOTAL (Scolytinae)	3	2	2	5	11	14	17	22	9	4	2	9	5	11	5	3	1	0	3	5	2	3	8	2	11	24	183											
damage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	10	2	5	6	12	17	23	23	11	5	3	9	8	11	6	3	2	0	3	6	4	6	8	3	16	30	232											

*: Specimen was damaged but identification to the genus level was possible.

** : These may be a species of the same genus in this list.

Appendix 8. Abundance of coleopteran species belonging to the family Bostrichidae and the subfamilies Scolytinae and Platypodinae of the family Curculionidae captured using three ethanol-baited traps in 2015 from the fourth location (L-OC-4) at the Khun Changkhan Highland Agricultural Research and Training Station, Faculty of Agriculture, Chiang Mai University, Chiang Mai Province, northern Thailand.

	2015																								TTL						
	JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		OCT		NOV		DEC								
	7	21	4	18	4	18	1	15	15	29	13	27	10	24	8	22	5	19	2	16	30	14	28	11	25	9	23				
Bostrichidae																															
Bostrichinae																															
<i>Parabostrychus acuticollis</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2		
<i>Sinoxylon unidentatum</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Sinoxylon</i> sp. (damage)** **	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Oetomeristes pusillus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylocis tortilicornis</i>	1	0	3	0	0	1	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	
<i>Xylodectes ornatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylodrypta</i> sp.	0	1	2	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	8		
<i>Xylopoecus acutespinosus</i>	0	0	0	0	0	2	1	2	0	0	1	1	0	1	0	1	0	0	0	2	1	4	2	1	4	2	1	2	0	21	
<i>Xylopoecus capucinus</i>	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
<i>Xylotrips flavipes</i>	4	0	0	0	3	0	0	5	7	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	
Dinoderinae																															
<i>Dinoderus favosus</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Dinoderus</i> sp.	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	
SUBTOTAL (Bostrichidae)	8	1	5	3	3	4	6	11	11	1	1	1	1	1	0	2	0	1	0	0	2	1	4	2	1	4	2	1	5	1	74
Curculionidae																															
Platypodinae																															
<i>Baitocis pernamutus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Crossotarsus extermedentatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Crossotarsus terminatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<i>Euplatypus parallelus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Peroplatypus taosi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Platypus ventulus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Platypus</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SUBTOTAL (Platypodinae)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Curculionidae																															
Scolytinae																															
<i>Gnatharus tibetensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cosmoderes</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cryphalus scabrifollis</i>	0	0	0	0	0	0	0	0	0	0	1	0	2	2	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	7

Appendix 8. (Continued)

	2015												TTL														
	JAN 7 21	FEB 4 18	MAR 4 18	APR 1 15 29	MAY 13 27	JUN 10 24	JUL 8 22	AUG 5 19	SEP 2 16 30	OCT 14 28	NOV 11 25	DEC 9 23															
<i>Cyclorhipidion bodoicum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Cyclorhipidion fikiense</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Cyclorhipidion pilipenne</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Cyclorhipidion</i> aff. <i>punctatopilosum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Cyclorhipidion</i> nr <i>punctilicolle</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Cyclorhipidion</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Diuncus corputentus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Diuncus haberkorni</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Diuncus justus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Eccoptopterus limbatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Enwallacea formicatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Enwallacea velatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Hadrodentius comans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Hadrodentius pseudocomans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Hadrodentius</i> sp. (damage)***	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Microperus alpha</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	2													
<i>Microperus nudibrevis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Microperus perparvus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Platicallus bicolor</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Steptoceramus fragilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Truncaudum agnatum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Xyleborinus andrewesi</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	1													
<i>Xyleborinus subgranulatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Xyleborus</i> sp. (damage)*	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Xylosandrus compactus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Xylosandrus crassiusculus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Xylosandrus discolor</i>	0	0	0	2	0	1	0	0	0	0	0	1	0	8													
<i>Xylosandrus eupatorii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
<i>Xylosandrus subsimilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
SUBTOTAL (Scolytinae)	30	7	56	38	53	78	39	61	30	5	2	6	3	2	2	3	2	0	0	1	2	0	2	2	5	429	
damage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	38	8	61	41	56	82	45	72	41	6	3	7	4	5	3	4	2	0	0	2	2	6	2	3	7	6	506

*: Specimen was damaged but identification to the genus level was possible.

** : These may be a species of the same genus in this list.

Appendix 9. (Continued)

	2016												TTL
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
	6-20	3-17	2-16	13-27	11-25	8-22	6-20	3-17	14-28	12-26	9-23	7-21	
<i>Cryphalus</i> sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cryphalus</i> sp. 2	0	0	10	0	0	1	0	0	0	0	0	0	13
<i>Cryphalus</i> sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cryphalus</i> sp. 4	0	0	0	0	0	0	0	1	0	0	0	0	1
<i>Hypocryphalus mangiferae</i>	3	5	12	5	8	6	8	0	0	0	0	0	65
<i>Hypothenemus artocarpae</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hypothenemus birmanus</i>	0	0	0	6	0	0	0	0	0	0	0	0	6
<i>Hypothenemus eruditus</i>	0	0	0	11	8	1	1	1	0	0	1	1	30
<i>Hypothenemus</i> sp.	0	0	0	0	0	2	0	0	0	0	0	0	3
<i>Scolytogenes</i> sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytogenes</i> sp. 2	0	0	0	0	1	0	0	0	0	0	0	0	2
<i>Scolytogenes</i> sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes advena</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes carpophagus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes cyperei</i>	0	0	0	0	0	0	0	2	0	0	0	0	4
<i>Coccotrypes graniceps</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes longior</i>	0	0	0	0	0	0	0	0	0	0	0	0	9
<i>Coccotrypes papuanus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes rugicollis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes vulgaris</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dryocoetops moestus</i>	0	0	0	0	0	0	0	0	1	1	1	0	6
<i>Pseudoxylechinus umbonatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	2
<i>Sueus nissimai</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytoplatypus brahma</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytoplatypus mikado</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytoplatypus minimus</i>	3	1	5	26	28	61	46	33	29	58	5	7	312
<i>Scolytoplatypus pubescens</i>	0	3	2	1	6	5	4	4	3	1	0	0	30
<i>Scolytoplatypus raja</i>	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Ambrosiophilus</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Anisandrus apicalis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Anisandrus hirtus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Arixyleborus lamaensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Beaverium diligenis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cnestus bicornitoides</i>	0	1	4	21	27	56	14	4	4	1	2	1	135
<i>Cnestus aterrimus</i>	4	6	1	25	13	26	4	3	0	1	0	0	87
<i>Cnestus nitidipennis</i>	0	0	0	0	1	3	3	2	7	21	4	0	41
<i>Cnestus testudo</i>	0	0	0	0	1	0	0	0	0	0	0	0	1

Appendix 9. (Continued)

	2016												TTL													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC														
	6	20	3	17	2	16	30	13	27	11	25	8	22	6	20	3	17	31	14	28	12	26	9	23	7	21
<i>Cyclorhhipidion bodoanum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhhipidion fukiense</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhhipidion philippense</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhhipidion</i> aff. <i>punctatopilosum</i>	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
<i>Cyclorhhipidion</i> nr <i>punctilicolle</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhhipidion</i> sp.	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Diuncus corpiulentus</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Diuncus haberkorni</i>	0	0	0	0	0	0	1	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
<i>Diuncus justus</i>	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Eccoptopterus limbatus</i>	0	0	0	0	0	1	1	4	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
<i>Enwallacea formicatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Enwallacea velatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hadrodemius comans</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Hadrodemius</i> sp. (damage)** **	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<i>Microperus alpha</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microperus midlbrevis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microperus parparvus</i>	0	0	0	4	16	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	22
<i>Planicalus bicolor</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Steptocranus fragilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Truncatulum egnatum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xyleborinus andrewesi</i>	0	1	0	0	0	1	0	1	2	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	8
<i>Xyleborinus subgranulatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xyleborus</i> sp. (damage)*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus compactus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus crassiuscatus</i>	0	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus discolor</i>	0	0	0	1	1	2	2	4	3	15	8	0	0	0	0	1	0	0	0	0	0	0	0	1	0	12
<i>Xylosandrus eupatorii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus subsimilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL (Scolytinae)	14	15	17	100	112	182	98	78	76	105	41	14	3	0	1	6	4	1	1	0	2	3	3	6	6	11
damage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	14	15	17	104	116	197	140	127	104	113	46	17	7	4	1	6	4	3	1	1	2	4	5	10	7	12

*: Specimen was damaged but identification to the genus level was possible.

** : These may be a species of the same genus in this list.

Appendix 10. Abundance of coleopteran species belonging to the family Bostrichidae and the subfamilies Scolytinae and Platypodinae of the family Curculionidae captured using three ethanol-baited traps in 2016 from the second location (LOC-2) at the Khun Changkhian Highland Agricultural Research and Training Station, Faculty of Agriculture, Chiang Mai University, Chiang Mai Province, northern Thailand.

	2016																					TTL						
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC																
	6	20	3	17	2	16	30	13	27	11	25	8	22	6	20	3	17	31	14	28	12	26	9	23	7	21		
Bostrichidae																												
Bostrichinae																												
<i>Parabostrychus acuticollis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Sinoxylon unidentatum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Sinoxylon</i> sp. (damage)** **	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Oetomeristes pusillus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Xylocis tortilicornis</i>	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
<i>Xylodectes ornatus</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Xylodrypta</i> sp.	0	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
<i>Xyloporocis acutespinosus</i>	1	1	0	0	0	1	8	14	1	3	2	3	1	1	0	0	0	0	0	0	0	0	1	1	2	1	42	
<i>Xyloporocis capucinus</i>	0	0	0	0	2	9	19	8	8	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	
<i>Xylotrips flavipes</i>	0	0	0	0	0	4	5	11	8	6	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	
Dinoderinae																												
<i>Dinoderus favosus</i>	0	0	0	0	0	0	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
<i>Dinoderus</i> sp.	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	
SUBTOTAL (Bostrichidae)	1	2	3	1	4	15	35	36	19	13	6	4	1	1	0	0	0	0	0	0	0	0	1	2	2	1	148	
Curculionidae																												
Platypodinae																												
<i>Baitocis pernamulus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Crossotarsus extermedentatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Crossotarsus terminatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Euplatypus parvifellus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Peroplatypus taosi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Platypus ventulus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Platypus</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SUBTOTAL (Platypodinae)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Curculionidae																												
Scolytinae																												
<i>Gnatharus tibetensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cosmoderes</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cryphalus scabrifollis</i>	0	0	0	0	0	5	1	2	1	4	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	15	

Appendix 10. (Continued)

	2016												TTL												
	JAN		FEB		MAR		APR		MAY		JUN			JUL		AUG		SEP		OCT		NOV		DEC	
	6	20	3	17	2	16	30	13	27	11	25	8		22	6	20	3	17	31	14	28	12	26	9	23
<i>Cyclorhipidion bodoanum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion fukiense</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion pilipenne</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion</i> aff. <i>punctatopilosum</i>	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion</i> nr <i>punctiticolle</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Diuncus corpulentus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Diuncus haberkorni</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Diuncus justus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eccoptopterus limbatus</i>	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<i>Enwallacea fornicatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Enwallacea velatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hadrodemius comans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hadrodemius pseudocomans</i>	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<i>Hadrodemius</i> sp. (damage)* **	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microperus alpha</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microperus nudibrevis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microperus parvulus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Planiculus bicolor</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	3
<i>Steptocranus fragilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Truncaudum agnatum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xyleborinus andrewesi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xyleborinus subgranilatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xyleborus</i> sp. (damage)*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus compactus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus crassiusculus</i>	0	0	0	0	0	1	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Xylosandrus discolor</i>	0	0	0	0	0	1	2	2	12	42	1	0	0	0	0	0	0	0	0	0	0	0	0	0	9
<i>Xylosandrus eupatorii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus subsimilis</i>	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL (Scolytinae)	6	23	17	3	27	44	27	28	22	31	52	4	1	1	1	2	5	1	2	0	3	1	2	0	304
damage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	7	25	20	4	31	59	62	64	41	44	58	8	2	2	1	2	5	1	0	3	1	3	1	2	452

*: Specimen was damaged but identification to the genus level was possible.

**: These may be a species of the same genus in this list.

Appendix 11. (Continued)

	2016												TTL
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
	6-20	3-17	2-16	13-27	11-25	8-22	6-20	3-17	14-28	12-26	9-23	7-21	
<i>Cryphalus</i> sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cryphalus</i> sp. 2	0	0	0	1	17	0	0	0	0	0	0	0	18
<i>Cryphalus</i> sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cryphalus</i> sp. 4	0	0	0	0	13	0	0	0	1	1	0	2	18
<i>Hypocryphalus mangiferae</i>	9	2	56	61	64	127	76	96	53	46	36	12	647
<i>Hypothenemus artocarp</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hypothenemus birmanus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hypothenemus eruditus</i>	0	0	0	0	1	0	0	0	0	0	0	0	3
<i>Hypothenemus</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytogenes</i> sp. 1	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytogenes</i> sp. 2	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytogenes</i> sp. 3	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes advena</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes carpophagus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes cyperei</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes graniceps</i>	0	0	0	0	1	0	0	0	1	0	0	0	2
<i>Coccotrypes longior</i>	1	1	0	0	0	0	0	0	0	1	0	0	2
<i>Coccotrypes papuanus</i>	0	0	0	0	0	0	0	0	0	0	0	0	5
<i>Coccotrypes rugicollis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes vulgaris</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Coccotrypes</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dryocoetops moestus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Pseudoxylechinus umbonatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sueus nitidus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytoplatypus brahma</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytoplatypus mikado</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Scolytoplatypus minimus</i>	0	1	4	3	2	6	6	4	1	6	0	1	37
<i>Scolytoplatypus pubescens</i>	1	0	1	2	1	1	1	0	0	0	0	0	7
<i>Scolytoplatypus raja</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ambrosiophilus</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Anisandrus apicalis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Anisandrus hirtus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Arixyleborus lamaensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Beaverium diligenensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cnestus bicornitoides</i>	0	1	1	2	4	8	2	0	0	0	0	0	18
<i>Cnestus aterrimus</i>	5	1	0	3	2	5	2	0	1	0	0	0	20
<i>Cnestus nitidipennis</i>	0	0	0	0	0	1	0	0	0	0	0	0	7
<i>Cnestus testudo</i>	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 11. (Continued)

	2016												TTL													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC														
	6	20	3	17	2	16	30	13	27	11	25	8	22	6	20	3	17	31	14	28	12	26	9	23	7	21
<i>Cyclorhipidion bodoicum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion fikiense</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion pilipenne</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion</i> aff. <i>punctatopilosum</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion</i> nr <i>punctilicolle</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyclorhipidion</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Diuncus corpuentus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Diuncus haberkorni</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Diuncus justus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eccoptopterus limbis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Enwallacea formicatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Enwallacea velatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hadrodemius comans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hadrodemius pseudocomans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hadrodemius</i> sp. (damage)***	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microperus alpha</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microperus nudibrevis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microperus perparvus</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
<i>Platicalus bicolor</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Steptoceramus fragilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Truncaudum agnatum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xyleborinus andrewesi</i>	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<i>Xyleborinus subgranulatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xyleborus</i> sp. (damage)*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus compactus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus crassiusculus</i>	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
<i>Xylosandrus discolor</i>	0	0	0	0	2	2	3	3	2	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Xylosandrus eupatorii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus subsimilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL (Scolytinae)	16	6	62	73	76	151	94	144	63	59	45	16	2	0	0	2	1	2	2	2	1	4	2	1	6	7
damage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	25	13	63	76	82	157	117	167	78	64	50	18	4	1	0	2	1	2	2	2	2	4	6	10	6	7

*: Specimen was damaged but identification to the genus level was possible.

**: These may be a species of the same genus in this list.

Appendix 12. Abundance of coleopteran species belonging to the family Bostrichidae and the subfamilies Scolytinae and Platypodinae of the family Curculionidae captured using three ethanol-baited traps in 2016 from the fourth location (LOC-4) at the Khun Changkhian Highland Agricultural Research and Training Station, Faculty of Agriculture, Chiang Mai University, Chiang Mai Province, northern Thailand.

	2016																								TTL			
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	NOV		DEC													
	6	20	3	17	2	16	30	13	27	11	25	8	22	6	20	3	17	31	14	28	12	26	9	23	7	21		
Bostrichidae																												
Bostrichinae																												
<i>Parabostrychus acuticollis</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
<i>Sinoxylon unidentatum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sinoxylon</i> sp. (damage)** **	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Oetomeristes pusillus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylocis tortilicornis</i>	0	0	0	0	0	1	3	4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	9
<i>Xylodectes ornatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylodrypta</i> sp.	2	4	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	16
<i>Xyloporocis acutespinosus</i>	0	0	0	0	0	0	3	1	1	0	1	2	3	2	1	0	0	3	0	0	1	0	1	2	0	1	22	
<i>Xyloporocis capucinus</i>	0	0	0	1	2	1	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	10	
<i>Xylothrips flavipes</i>	0	0	0	0	0	0	1	12	7	8	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	32	
Dinoderinae																												
<i>Dinoderus favosus</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Dinoderus</i> sp.	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
SUBTOTAL (Bostrichidae)	4	5	2	5	2	2	10	19	9	8	3	2	3	3	1	0	0	4	0	0	2	0	1	3	6	1	95	
Curculionidae																												
Platypodinae																												
<i>Baitocis pernamutis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Crossotarsus extermedentatus</i>	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
<i>Crossotarsus terminatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Euplatypus parvifellus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Peroplatypus taosi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Platypus ventilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Platypus</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SUBTOTAL (Platypodinae)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Curculionidae																												
Scolytinae																												
<i>Gnatharus tibetensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cosmoderes</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cryphalus scabrifollis</i>	0	0	0	0	0	3	3	1	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	

Appendix 12. (Continued)

	2016												TTL																	
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC																		
	6	20	3	17	2	16	30	13	27	11	25	8	22	6	20	3	17	31	14	28	12	26	9	23	7	21				
<i>Cyclorhipidion bodoicum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
<i>Cyclorhipidion fukiense</i>	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3		
<i>Cyclorhipidion pilipenne</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
<i>Cyclorhipidion</i> aff. <i>punctatopilosum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
<i>Cyclorhipidion</i> nr <i>punctilicolle</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
<i>Cyclorhipidion</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
<i>Diuncus corpulentus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
<i>Diuncus haberkorni</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
<i>Diuncus justus</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
<i>Eccoipterus limbatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
<i>Enwallacea formicatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
<i>Enwallacea velatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Hadrodentius comans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Hadrodentius pseudocomans</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Hadrodentius</i> sp. (damage)***	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Microperus alpha</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Microperus nudibrevis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Microperus perparvus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Platicallus bicolor</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Steptocerus fragilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Truncaudum agnatum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xyleborinus andrewesi</i>	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<i>Xyleborinus subgranulatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xyleborus</i> sp. (damage)*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus compactus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Xylosandrus crassiusculus</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
<i>Xylosandrus discolor</i>	0	0	0	0	1	0	2	3	0	3	11	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
<i>Xylosandrus eupatorii</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Xylosandrus subsimilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL (Scolytinae)	10	13	17	97	41	47	70	48	20	15	29	8	2	1	7	4	2	2	3	3	4	2	1	1	6	0	453			
damage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	14	18	19	102	43	49	81	67	29	23	32	10	5	4	8	4	2	6	3	3	6	2	1	7	6	0	549			

*: Specimen was damaged but identification to the genus level was possible.

**: These may be a species of the same genus in this list.