



Table 5 Taxonomic list of insect in the infraorder Aculeata found in the north of Thailand.

Numbers	Superfamilies	Families	Subfamilies	Tribes	Scientific names	Common names	Thai names
NUTJ08001	Apoidea	Anthophoridae	Anthophorinae	Anthophorini	<i>Amegilla florea</i> (Smith, 1879)	blue-banded bee	แมลงงู
NUTJ08002	Apoidea	Anthophoridae	Xylocopinae	Ceratinini	<i>Ceratina liefincki</i> van der Vecht, 1952	small carpenter bee	แมลงงู
NUTJ08003	Apoidea	Anthophoridae	Xylocopinae	Ceratinini	<i>Pithilis smaragdula</i> (Fabricius, 1787)	carpenter bee	แมลงงู
NUTJ08004	Apoidea	Anthophoridae	Xylocopinae	Melectini	<i>Thyreus</i> sp.	blue carpenter bee	แมลงงู
NUTJ08005	Apoidea	Anthophoridae	Xylocopinae	Xylocopini	<i>Xylocopa confusa</i> Pérez, 1901	large carpenter bee	แมลงงู
NUTJ08006	Apoidea	Anthophoridae	Xylocopinae	Xylocopini	<i>Xylocopa latipes</i> (Drury, 1773)	large carpenter bee	แมลงงู
NUTJ08007	Apoidea	Apidae	Apinae	Apini	<i>Apis andreniformis</i> Smith, 1858	small dwarf honey bee	ผึ้งบ้าน/มีมเล็ก
NUTJ08008	Apoidea	Apidae	Apinae	Apini	<i>Apis cerana</i> Fabricius, 1793	indian honey bee	ผึ้งโพรง
NUTJ08009	Apoidea	Apidae	Apinae	Apini	<i>Apis dorsata</i> Fabricius, 1793	giant honey bee	ผึ้งหลวง
NUTJ08010	Apoidea	Apidae	Apinae	Apini	<i>Apis florea</i> Fabricius, 1787	dwarf honey bee	ผึ้งมีม
NUTJ08011	Apoidea	Apidae	Apinae	Apini	<i>Apis mellifera</i> Linnaeus, 1758	western bee	ผึ้งยุโรป/ผึ้งพันธุ์
NUTJ08012	Apoidea	Apidae	Bombinae	Bombini	<i>Bombus</i> sp.	bumble bee	ผึ้งพัง
NUTJ08013	Apoidea	Apidae	Meliponinae	Meliponini	<i>Hyoptrigona</i> sp.	stingless bee	ชันโรง
NUTJ08014	Apoidea	Apidae	Meliponinae	Meliponini	<i>Trigona apicalis</i> Smith, 1857	stingless bee	ชันโรง
NUTJ08015	Apoidea	Apidae	Meliponinae	Meliponini	<i>Trigona collina</i> Smith, 1857	stingless bee	ชันโรง
NUTJ08016	Apoidea	Apidae	Meliponinae	Meliponini	<i>Trigona fimbriata</i> Smith, 1857	stingless bee	ชันโรง
NUTJ08017	Apoidea	Apidae	Meliponinae	Meliponini	<i>Trigona fuscobalteata</i> Cameron, 1908	stingless bee	ชันโรง
NUTJ08018	Apoidea	Apidae	Meliponinae	Meliponini	<i>Trigona itama</i> Cockerell, 1918	stingless bee	ชันโรง

Table 5 (Cont.).

Numbers	Superfamilies	Families	Subfamilies	Tribes	Scientific names	Common names	Thai names
NUTJ08019	Apoidea	Apidae	Meliponinae	Meliponini	<i>Trigona laeviceps</i> Smith, 1857	stingless bee	ชันโรง
NUTJ08020	Apoidea	Apidae	Meliponinae	Meliponini	<i>Trigona melanoleuca</i> Cockerell, 1929	stingless bee	ชันโรง
NUTJ08021	Apoidea	Apidae	Meliponinae	Meliponini	<i>Trigona minor</i> Sakagami, 1978	stingless bee	ชันโรง
NUTJ08022	Apoidea	Apidae	Meliponinae	Meliponini	<i>Trigona nitidiventris</i> Smith, 1857	stingless bee	ชันโรง
NUTJ08023	Apoidea	Apidae	Meliponinae	Meliponini	<i>Trigona peninsularis</i> Cockerell, 1927	stingless bee	ชันโรง
NUTJ08024	Apoidea	Apidae	Meliponinae	Meliponini	<i>Trigona terminata</i> Smith, 1878	stingless bee	ชันโรง
NUTJ08025	Apoidea	Apidae	Meliponinae	Meliponini	<i>Trigona thoracica</i> Smith, 1857	stingless bee	ชันโรง
NUTJ08026	Apoidea	Apidae	Meliponinae	Meliponini	<i>Trigona ventralis</i> Smith, 1857	stingless bee	ชันโรง
NUTJ08027	Apoidea	Halictidae	Halictinae	Halictini	<i>Halictus</i> sp.	leafcutter bee	ผึ้งกัดไม้
NUTJ08028	Apoidea	Megachilidae	Megachilinae	Megachilini	<i>Coelioxys</i> sp.	leafcutter bee	ผึ้งกัดไม้
NUTJ08029	Apoidea	Megachilidae	Megachilinae	Megachilini	<i>Megachile</i> sp.1	leafcutter bee	ผึ้งกัดไม้
NUTJ08030	Apoidea	Megachilidae	Megachilinae	Megachilini	<i>Megachile</i> sp.2	leafcutter bee	ผึ้งกัดไม้
NUTJ08031	Apoidea	Sphecidae	Nyssoninae	Bembecini	<i>Bembix</i> sp.	sand wasp	ต่อทราย
NUTJ08032	Apoidea	Sphecidae	Sceliphroninae	Sceliphronini	<i>Chalybion</i> sp.	digger wasp	ต่อหมาว่า
NUTJ08033	Apoidea	Sphecidae	Sceliphroninae	Sceliphronini	<i>Sceliphron</i> sp.1	digger wasp	ต่อหมาว่า
NUTJ08034	Apoidea	Sphecidae	Sceliphroninae	Sceliphronini	<i>Sceliphron</i> sp.2	digger wasp	ต่อหมาว่า
NUTJ08035	Apoidea	Sphecidae	Sphecinae	Sphecini	<i>Sphex</i> sp.	digger wasp	ต่อหมาว่า
NUTJ08036	Chrysidoidea	Chrysididae	Chrysidinae	Chrysidini	<i>Chrysis</i> sp.1	kuckoo wasp	ต่อกาเหว่า

Table 5 (Cont.).

Numbers	Superfamilies	Families	Subfamilies	Tribes	Scientific names	Common names	Thai names
NUTJ08037	Chrysidoidea	Chrysididae	Chrysidinae	Chrysidini	<i>Chrysis</i> sp.2	kuckoo wasp	ต่อคาเหว่า
NUTJ08038	Chrysidoidea	Chrysididae	Chrysidinae	Chrysidini	<i>Chrysis</i> sp.3	kuckoo wasp	ต่อคาเหว่า
NUTJ08039	Chrysidoidea	Chrysididae	Chrysidinae	Chrysidini	<i>Trichrysis</i> sp.	kuckoo wasp	ต่อคาเหว่า
NUTJ08040	Chrysidoidea	Chrysididae	Chrysidinae	Chrysidini	<i>Praestochrysis</i> sp.	kuckoo wasp	ต่อคาเหว่า
NUTJ08041	Vespoidea	Formicidae	Aenictinae	Aenictini	<i>Aenictus binghami</i> Forel, 1900	army ant	มดทหารปิงแฮม
NUTJ08042	Vespoidea	Formicidae	Cerapachyinae	Cerapachyini	<i>Cerapachys sulcinodis</i> Emery, 1889	cannibal ant	มดห้อยคอติลินี
NUTJ08043	Vespoidea	Formicidae	Dolichoderinae	Dolichoderini	<i>Dolichoderus thoracicus</i> (F. Smith, 1860)	dolly ant	มดกันห้อยธรรมดา
NUTJ08044	Vespoidea	Formicidae	Dolichoderinae	Dolichoderini	<i>Dolichoderus tuberifer</i> Emery, 1887	dolly ant	มดกันห้อยแวกลม
NUTJ08045	Vespoidea	Formicidae	Dolichoderinae	Dolichoderini	<i>Iridomyrmex anceps</i> (Roger, 1863)	meat ant	มดดำฟุ้ง
NUTJ08046	Vespoidea	Formicidae	Dolichoderinae	Dolichoderini	<i>Phildris</i> sp.	golden ant	มด
NUTJ08047	Vespoidea	Formicidae	Dolichoderinae	Dolichoderini	<i>Technomyrmex kraepelini</i> Forel, 1950	house ant	มดเขวแบบโคเนนา
NUTJ08048	Vespoidea	Formicidae	Dolichoderinae	Dolichoderini	<i>Technomyrmex modiglianii</i> Emery, 1900	house ant	มดเขวแบบหัวใจ
NUTJ08049	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Camponotus camelinus</i> (F. Smith, 1857)	sugar ant	มดตะลานป่าหัวดำ
NUTJ08050	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Camponotus leonadi</i> Emery, 1889	sugar ant	มดตะลานขนทอง
NUTJ08051	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Camponotus rufoglaucus</i> (Jerdon, 1851)	sugar ant	มดตะลานชาชน
NUTJ08052	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Camponotus singularis</i> (F. Smith, 1858)	sugar ant	มดตะลานป่าหัวแดง
NUTJ08053	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Camponotus</i> sp.1	sugar ant	มดตะลาน
NUTJ08054	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Camponotus</i> sp.2	sugar ant	มดตะลาน

Table 5 (Cont.).

Numbers	Superfamilies	Families	Subfamilies	Tribes	Scientific names	Common names	Thai names
NUTJ08055	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Camponotus</i> sp.2	sugar ant	มดตะลัน
NUTJ08056	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Polyrhachis abdominalis</i> F. Smith, 1858	spiny ant	มดหนามกระดิ่งแดง
NUTJ08057	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Polyrhachis armata</i> (Le Guillou, 1842)	spiny ant	มดหนามหื่นเรียบ
NUTJ08058	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Polyrhachis bihamata</i> (Drury, 1773)	spiny ant	มดหนามเดี่ยวใหญ่
NUTJ08059	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Polyrhachis dives</i> F. Smith, 1857	spiny ant	มดหนามกระดิ่งขน
NUTJ08060	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Polyrhachis flavicornis</i> F. Smith, 1857	spiny ant	มดหนามยอดไม้ดำ
NUTJ08061	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Polyrhachis furcata</i> F. Smith, 1858	spiny ant	มดหนามกระดิ่ง
NUTJ08062	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Polyrhachis hippomanes</i> F. Smith, 1861	spiny ant	มดหนามเขี้ยวปีกเล็ก
NUTJ08063	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Polyrhachis muelleri</i> Forel, 1893	spiny ant	มดหนามกระดิ่งเล็ก
NUTJ08064	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Polyrhachis proxima</i> Roger, 1863	spiny ant	มดหนามที่ปทองง่าม
NUTJ08065	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Polyrhachis tibialis</i> F. Smith, 1858	spiny ant	มดหนามกระดิ่งเทา
NUTJ08066	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Polyrhachis</i> sp.1	spiny ant	มดหนามกระดิ่ง
NUTJ08067	Vespoidea	Formicidae	Formicinae	Camponotini	<i>Polyrhachis</i> sp.2	spiny ant	มดหนามกระดิ่ง
NUTJ08068	Vespoidea	Formicidae	Formicinae	Oecophyllini	<i>Oecophylla smaragdina</i> (Fabricius, 1775)	weaver ant	มดแดง
NUTJ08069	Vespoidea	Formicidae	Formicinae	Plagirolepidini	<i>Anoplolepis gracilipes</i> (F. Smith, 1857)	crazy ant	มดน้ำผึ้ง
NUTJ08070	Vespoidea	Formicidae	Formicinae	Plagirolepidini	<i>Lepisiota</i> sp.	ant	มด
NUTJ08071	Vespoidea	Formicidae	Formicinae	Plagirolepidini	<i>Paratrechina longicornis</i> (Latreille, 1802)	black crazy ant	มดราดาคายาว
NUTJ08072	Vespoidea	Formicidae	Myrmicinae	Cataulacini	<i>Cataulacus granulatus</i> (Latreille, 1802)	ant	มดป่องไธรมดา

Table 5 (Cont.).

Numbers	Superfamilies	Families	Subfamilies	Tribes	Scientific names	Common names	Thai names
NUTJ08073	Vespoidea	Formicidae	Myrmicinae	Crematogastrini	<i>Crematogaster coriaria</i> Mayr, 1872	acrobat ant	มดยี่งอ
NUTJ08074	Vespoidea	Formicidae	Myrmicinae	Crematogastrini	<i>Crematogaster difformis</i> F. Smith, 1857	acrobat ant	มดยี่งอ
NUTJ08075	Vespoidea	Formicidae	Myrmicinae	Crematogastrini	<i>Crematogaster rogenhoferi</i> Mayr, 1879	acrobat ant	มดยี่งอ
NUTJ08076	Vespoidea	Formicidae	Myrmicinae	Formicoxenini	<i>Cardiocondyla wroughtoni</i> (Forel, 1890)	sneaking ant	มดกลัดเรียบเหลือง
NUTJ08077	Vespoidea	Formicidae	Myrmicinae	Melissotarsini	<i>Rhopalomasix janeti</i> Donisthorpe, 1936	ant	มด
NUTJ08078	Vespoidea	Formicidae	Myrmicinae	Meranoplini	<i>Meranoplus bicolor</i> (Guérin-Meneville, 1844)	shield ant	มดโล่บ้าน
NUTJ08079	Vespoidea	Formicidae	Myrmicinae	Myrmecini	<i>Pristomyrmex punctatus</i> Smith, 1860	spiny jungle ant	มดเต้าดำ
NUTJ08080	Vespoidea	Formicidae	Myrmicinae	Pheidolini	<i>Pheidole plagiaria</i> (F. Smith, 1860)	big-headed ant	มดคันใหญ่รังไฉ่
NUTJ08081	Vespoidea	Formicidae	Myrmicinae	Pheidologetonini	<i>Pheidologeton diversus</i> (Jerdon, 1851)	army ant	มดง่ามทุ่ง
NUTJ08082	Vespoidea	Formicidae	Myrmicinae	Solenopsidini	<i>Monomorium destructor</i> (Jerdon, 1851)	singapore ant	มดละเอียดยี่งอดำ
NUTJ08083	Vespoidea	Formicidae	Myrmicinae	Solenopsidini	<i>Solenopsis geminata</i> (Fabricius, 1804)	fire ant	มดคันไฟ
NUTJ08084	Vespoidea	Formicidae	Myrmicinae	Tetramorini	<i>Rhoptrymymex wroughtoni</i> Forel, 1902	ant	มดปลวกทุ่ง
NUTJ08085	Vespoidea	Formicidae	Myrmicinae	Tetramorini	<i>Tetramorium flavipes</i> Emery, 1893	pennant ant	มดริ้วขาวเหลือง
NUTJ08086	Vespoidea	Formicidae	Ponerinae	Ectatommini	<i>Gnamptogenys bicolor</i> (Emery, 1889)	army ant	มดคอมมอกแดง
NUTJ08087	Vespoidea	Formicidae	Ponerinae	Leptogenyini	<i>Leptogenys diminuta</i> (F. Smith, 1857)	genial killer ant	มดเล็บหัวอกคอด
NUTJ08088	Vespoidea	Formicidae	Ponerinae	Leptogenyini	<i>Leptogenys kitteli</i> (Mayr, 1870)	genial killer ant	มดเล็บหัวอกทรง
NUTJ08089	Vespoidea	Formicidae	Ponerinae	Odontomachini	<i>Odontomachus rioxus</i> F. Smith, 1857	trap-jaw ant	มดกระโดดเหลือง
NUTJ08090	Vespoidea	Formicidae	Ponerinae	Odontomachini	<i>Odontomachus similimus</i> F. Smith, 1858	trap-jaw ant	มดกระโดดบ้าน

Table 5 (Cont.).

Numbers	Superfamilies	Families	Subfamilies	Tribes	Scientific names	Common names	Thai names
NUTJ08091	Vespoidea	Formicidae	Ponerinae	Ponerini	<i>Diacamma sculpturata</i> (F. Smith, 1859)	bladder ant	มดหนามตัวขี้น้อง
NUTJ08092	Vespoidea	Formicidae	Ponerinae	Ponerini	<i>Diacamma vargens</i> (F. Smith, 1860)	bladder ant	มดหนามตัวดำ
NUTJ08093	Vespoidea	Formicidae	Ponerinae	Ponerini	<i>Harpegnathos venator</i> (F. Smith, 1858)	jumping ant	มดเขยว้าง
NUTJ08094	Vespoidea	Formicidae	Ponerinae	Ponerini	<i>Odontoponera denticulata</i> (F. Smith, 1858)	ant	มดไช้ดำ
NUTJ08095	Vespoidea	Formicidae	Ponerinae	Ponerini	<i>Pachycondyla astuta</i> F. Smith, 1858	striped foaming ant	มดปูเฝ้าป่า
NUTJ08096	Vespoidea	Formicidae	Ponerinae	Ponerini	<i>Pachycondyla chinensis</i> (Emery, 1895)	striped foaming ant	มดปูเฝ้าจิ้ง
NUTJ08097	Vespoidea	Formicidae	Ponerinae	Ponerini	<i>Pachycondyla luteipes</i> (Mayr, 1862)	striped foaming ant	มดปูเฝ้าจิ้งตัวเล็ก
NUTJ08098	Vespoidea	Formicidae	Ponerinae	Ponerini	<i>Pachycondyla rufipes</i> (Jerdon, 1851)	striped foaming ant	มดปูเฝ้ายชาดาลแดง
NUTJ08099	Vespoidea	Formicidae	Pseudomyrmecinae	Pseudomyrmecini	<i>Tetraponera allaborans</i> (Walker, 1859)	black tree-ant	มดตะนอยตัวเล็ก
NUTJ08100	Vespoidea	Formicidae	Pseudomyrmecinae	Pseudomyrmecini	<i>Tetraponera attenuata</i> F. Smith, 1877	black tree-ant	มดตะนอยตัวใหญ่
NUTJ08101	Vespoidea	Formicidae	Pseudomyrmecinae	Pseudomyrmecini	<i>Tetraponera rufonigra</i> (Jerdon, 1851)	black tree-ant	มดตะนอยอกส้ม
NUTJ08102	Vespoidea	Scoliidae	Scolinae	Campsomerini	<i>Campsomeris</i> sp.	hairy flower wasps	ต่อหู
NUTJ08103	Vespoidea	Scoliidae	Scolinae	Scolini	<i>Scolia</i> sp.	scoliid wasps	ต่อรู
NUTJ08104	Vespoidea	Vespidae	Eumeninae	-	<i>Delta pyrifome</i> Fabricius, 1781	wasp	ต่อ
NUTJ08105	Vespoidea	Vespidae	Eumeninae	-	<i>Delta</i> sp.	yellow jacket	แตน
NUTJ08106	Vespoidea	Vespidae	Eumeninae	-	<i>Phimenes flavopictus</i> (Blanchard, 1841)	yellow jacket	แตน
NUTJ08107	Vespoidea	Vespidae	Eumeninae	-	<i>Rhynchium</i> sp.	wasp	ต่อ
NUTJ08108	Vespoidea	Vespidae	Polistinae	Polistini	<i>Polistes olivaceus</i> (DeGeer, 1773)	paper wasp	แตน

Table 5 (Cont.).

Numbers	Superfamilies	Families	Subfamilies	Tribes	Scientific names	Common names	Thai names
NUTJ08109	Vespoidea	Vespidae	Polistinae	Polistini	<i>Polites</i> sp.	paper wasp	แตน
NUTJ08110	Vespoidea	Vespidae	Polistinae	Ropalidiini	<i>Parapolybia varia</i> (Fabricius, 1787)	paper wasp	แตน
NUTJ08111	Vespoidea	Vespidae	Polistinae	Ropalidiini	<i>Polybioides</i> sp.	paper wasp	แตน
NUTJ08112	Vespoidea	Vespidae	Polistinae	Ropalidiini	<i>Ropalidia</i> sp.1	paper wasp	แตน
NUTJ08113	Vespoidea	Vespidae	Polistinae	Ropalidiini	<i>Ropalidia</i> sp.2	paper wasp	แตน
NUTJ08114	Vespoidea	Vespidae	Stenogastrinae	-	<i>Parischnogaster</i> sp.	hover wasp	แตน
NUTJ08115	Vespoidea	Vespidae	Vespinae	-	<i>Provespa anomala</i> (de Saussure, 1905)	wasp	แตน
NUTJ08116	Vespoidea	Vespidae	Vespinae	-	<i>Vespa affinis</i> (Linnaeus, 1764)	tiger wasp	ต่อหัวเสือ
NUTJ08117	Vespoidea	Vespidae	Vespinae	-	<i>Vespa mandarina</i> Smith, 1852	wasp	ต่อหลวง
NUTJ08118	Vespoidea	Vespidae	Vespinae	-	<i>Vespa soror</i> du Buysson, 1905	giant yellow jacket	ต่อหัวเหลือง
NUTJ08119	Vespoidea	Vespidae	Vespinae	-	<i>Vespa tropica</i> (Linnaeus, 1758)	giant yellow jacket	ต่อหลุม
NUTJ08120	Vespoidea	Vespidae	Vespinae	-	<i>Vespa velutina</i> Lepeletier, 1836	oriental wasp	ต่อภาคพื้น

Table 6 Species composition and species richness of the aculeate bees collected from 8 different habitats: deciduous with bamboo forest (BB/DF), deciduous dipterocarp forest (DDF), evergreen forest (EGF), hill evergreen forest (HEGF), mixed evergreen and deciduous forest (MXF), grassland (GL), forest area (FA) and cultivated area (CA).

No.	Scientific names	BB/DF	DDF	EGF	HEGF	MXF	GL	FA	CA
1	<i>Amegilla florea</i>	/						/	/
2	<i>Ceratina lieftincki</i>	/						/	/
3	<i>Pithilis smaragdula</i>				/			/	
4	<i>Thyreus</i> sp.	/			/			/	
5	<i>Xylocopa confusa</i>	/	/	/	/	/		/	/
6	<i>Xylocopa latipes</i>	/	/	/	/	/		/	/
7	<i>Apis andreniformis</i>	/		/	/	/		/	/
8	<i>Apis cerana</i>		/	/	/	/		/	/
9	<i>Apis dorsata</i>	/	/	/	/	/		/	/
10	<i>Apis florea</i>	/	/	/	/	/		/	/
11	<i>Apis mellifera</i>	/		/	/	/		/	/
12	<i>Bombus</i> sp.			/	/	/		/	/
13	<i>Hypotrigona</i> sp.			/	/	/		/	/
14	<i>Trigona apicalis</i>	/		/	/	/		/	/
15	<i>Trigona collina</i>	/		/	/	/		/	/
16	<i>Trigona fimbriata</i>	/		/	/	/		/	/

Table 6 (Cont.).

No.	Scientific names	BB/DF	DDF	EGF	HEGF	MXF	GL	FA	CA
17	<i>Trigona fuscobalteata</i>	/			/	/		/	
18	<i>Trigona itama</i>	/			/			/	
19	<i>Trigona laeviceps</i>	/			/			/	
20	<i>Trigona melanoleuca</i>	/			/			/	
21	<i>Trigona minor</i>	/			/			/	
22	<i>Trigona nitidiventris</i>	/			/			/	
23	<i>Trigona peninsularis</i>	/			/			/	
24	<i>Trigona terminata</i>	/			/			/	
25	<i>Trigona thoracica</i>	/			/			/	
26	<i>Trigona ventalis</i>	/			/			/	
27	<i>Halictus</i> sp.	/			/			/	
28	<i>Coelioxys</i> sp.	/			/			/	
29	<i>Megachile</i> sp.1	/			/			/	
30	<i>Megachile</i> sp.2	/			/			/	
31	<i>Bembix</i> sp.	/			/			/	
32	<i>Chalybion</i> sp.	/			/			/	
33	<i>Sceliphron</i> sp.1	/			/			/	
34	<i>Sceliphron</i> sp.2	/			/			/	

Table 6 (Cont.).

No.	Scientific names	BB/DF	DDF	EGF	HEGF	MXF	GL	FA	CA
35	<i>Sphex</i> sp.	/	/	/	/	/	/	/	/
36	<i>Chrysis</i> sp.1	/	/	/	/	/	/	/	/
37	<i>Chrysis</i> sp.2	/	/	/	/	/	/	/	/
38	<i>Chrysis</i> sp.3	/	/	/	/	/	/	/	/
39	<i>Trichrysis</i> sp.	/	/	/	/	/	/	/	/
40	<i>Praetochrysis</i> sp.	/	/	/	/	/	/	/	/
41	<i>Aenictus binghami</i>	/	/	/	/	/	/	/	/
42	<i>Cerapachys sulcinodis</i>	/	/	/	/	/	/	/	/
43	<i>Dolichoderus thoracicus</i>	/	/	/	/	/	/	/	/
44	<i>Dolichoderus tuberifer</i>	/	/	/	/	/	/	/	/
45	<i>Iridomyrmex anceps</i>	/	/	/	/	/	/	/	/
46	<i>Philidris</i> sp.	/	/	/	/	/	/	/	/
47	<i>Technomyrmex kraepelini</i>	/	/	/	/	/	/	/	/
48	<i>Technomyrmex modiglianii</i>	/	/	/	/	/	/	/	/
49	<i>Anoplolepis gracilipes</i>	/	/	/	/	/	/	/	/
50	<i>Camponotus camelinus</i>	/	/	/	/	/	/	/	/
51	<i>Camponotus leonadi</i>	/	/	/	/	/	/	/	/
52	<i>Camponotus rufoglaucus</i>	/	/	/	/	/	/	/	/

Table 6 (Cont.).

No.	Scientific names	BB/DF	DDF	EGF	HEGF	MXF	GL	FA	CA
53	<i>Camponotus singularis</i>	/	/	/				/	
54	<i>Camponotus</i> sp.1	/						/	
55	<i>Camponotus</i> sp.2	/						/	
56	<i>Lepisiota</i> sp.				/			/	/
57	<i>Oecophylla smaragdina</i>				/			/	/
58	<i>Paratrechina longicornis</i>			/				/	
59	<i>Plagiolepis</i> sp.	/						/	
60	<i>Polyrhachis abdominalis</i>	/						/	
61	<i>Polyrhachis armata</i>	/				/		/	/
62	<i>Polyrhachis bikamata</i>	/				/		/	
63	<i>Polyrhachis dives</i>	/				/		/	
64	<i>Polyrhachis flavicornis</i>	/				/		/	
65	<i>Polyrhachis furcata</i>	/				/		/	
66	<i>Polyrhachis hippomanes</i>	/				/		/	
67	<i>Polyrhachis muelleri</i>	/			/	/		/	
68	<i>Polyrhachis proxima</i>	/			/	/		/	
69	<i>Polyrhachis tibialis</i>	/			/			/	
70	<i>Polyrhachis</i> sp.1	/						/	

Table 6 (Cont.).



No.	Scientific names	BB/DF	DDF	EGF	HEGF	MXF	GL	FA	CA
71	<i>Polyrhachis</i> sp.2	/				/		/	
72	<i>Cardiocondyla wroughtonii</i>	/		/		/		/	
73	<i>Cataulacus granulatus</i>	/		/		/		/	
74	<i>Crematogaster coriaria</i>	/				/		/	
75	<i>Crematogaster difformis</i>	/				/		/	/
76	<i>Crematogaster rogenhoferi</i>	/		/		/		/	/
77	<i>Meranophus bicolor</i>	/				/	/	/	
78	<i>Monomorium destructor</i>	/				/		/	
79	<i>Pheidole plagiaria</i>	/		/		/		/	/
80	<i>Pheidologeton diversus</i>	/		/		/		/	
81	<i>Pristomyrmex punctatus</i>	/		/		/		/	
82	<i>Rhopalomastix janeti</i>	/				/		/	
83	<i>Rhoptromyrmex wroughtoni</i>	/		/		/		/	/
84	<i>Solenopsis geminata</i>	/				/		/	
85	<i>Tetramorium flavipes</i>	/		/		/		/	/
86	<i>Diacamma sculphurata</i>	/				/	/	/	
87	<i>Diacamma vargens</i>	/				/		/	
88	<i>Gnamptogenys bicolor</i>	/		/		/		/	

Table 6 (Cont.).

No.	Scientific names	BB/DF	DDF	EGF	HEGF	MXF	GL	FA	CA
89	<i>Harpegnathos venator</i>	/		/				/	
90	<i>Leptogenys diminuta</i>	/						/	
91	<i>Leptogenys kitteli</i>	/						/	
92	<i>Odontomachus rixosus</i>	/						/	
93	<i>Odontomachus similimus</i>	/						/	
94	<i>Odontoponera denticulata</i>	/					/	/	
95	<i>Pachycondyla astuta</i>	/						/	
96	<i>Pachycondyla chinensis</i>	/						/	
97	<i>Pachycondyla luteipes</i>	/						/	
98	<i>Pachycondyla rufipes</i>	/						/	
99	<i>Tetraponera allaborans</i>	/				/		/	/
100	<i>Tetraponera attenuata</i>	/						/	
101	<i>Tetraponera rufonigra</i>	/				/		/	
102	<i>Campsomeris</i> sp.	/						/	
103	<i>Scolia</i> sp.	/			/			/	/
104	<i>Delta pyriforme</i>	/						/	/
105	<i>Delta</i> sp.	/						/	/
106	<i>Phimenes flavopictus</i>	/			/			/	/

Table 6 (Cont.).

No.	Scientific names	BB/DF	DDF	EGF	HEGF	MXF	GL	FA	CA
107	<i>Rhynchium</i> sp.	/	/					/	/
108	<i>Parapolybia varia</i>	/		/	/			/	
109	<i>Polistes olivaceus</i>	/		/	/	/		/	/
110	<i>Polites</i> sp.	/		/	/	/		/	
111	<i>Polybioides</i> sp.	/		/	/	/		/	/
112	<i>Ropalidia</i> sp.1	/		/	/	/		/	/
113	<i>Ropalidia</i> sp.2	/		/	/	/		/	
114	<i>Parischnogaster</i> sp.	/		/	/	/		/	/
115	<i>Provespa anomala</i>	/		/	/	/		/	/
116	<i>Vespa affinis</i>	/		/	/	/		/	/
117	<i>Vespa mandarinia</i>	/		/	/	/		/	/
118	<i>Vespa soror</i>	/		/	/	/		/	/
119	<i>Vespa tropica</i>	/		/	/	/		/	/
120	<i>Vespa velutina</i>	/		/	/	/		/	/
Total		96	29	21	70	38	6	120	54

Table 7 Species composition and species richness of the aculeate bees collected from each type of habitats: deciduous with bamboo forest (BB/DF), deciduous dipterocarp forest (DDF), evergreen forest (EGF), hill evergreen forest (HEGF), mixed evergreen and deciduous forest (MXF), grassland (GL) and cultivated area (CA) in each study area.

Type of Habitats	No.	Scientific names	Study areas				
			CM1	CR	KP	MHS	NSW
BB/DF	1	<i>Amegilla florea</i>	/	/	/	/	/
	2	<i>Ceratina lieftincki</i>	/	/		/	
	3	<i>Pithilis smaragdula</i>	/	/			/
	4	<i>Thyreus</i> sp.	/	/		/	
	5	<i>Xylocopa confusa</i>	/	/	/	/	/
	6	<i>Xylocopa latipes</i>	/	/	/	/	/
	7	<i>Apis andreniformis</i>	/	/		/	
	8	<i>Apis cerana</i>	/	/	/	/	/
	9	<i>Apis dorsata</i>	/	/	/	/	/
	10	<i>Apis florea</i>	/	/	/	/	/
	11	<i>Apis mellifera</i>					
	12	<i>Trigona apicalis</i>	/	/	/	/	/
	13	<i>Trigona collina</i>	/	/	/	/	/
	14	<i>Trigona fimbriata</i>	/	/	/	/	/
	15	<i>Trigona fuscobalteata</i>	/	/		/	/
	16	<i>Trigona laeviceps</i>	/	/		/	/
	17	<i>Trigona melanoleuca</i>	/	/		/	
	18	<i>Trigona nitidiventris</i>	/	/		/	
	19	<i>Trigona peninsularis</i>	/	/			
	20	<i>Trigona terminata</i>	/	/		/	/
	21	<i>Trigona thoracica</i>					
	22	<i>Trigona ventralis</i>	/	/		/	
	23	<i>Halictus</i> sp.		/			
	24	<i>Megachile</i> sp.1	/	/	/	/	/
	25	<i>Megachile</i> sp.2				/	-
	26	<i>Chalybion</i> sp.	/	/	/	/	/
	27	<i>Sceliphron</i> sp.1	/	/			
	28	<i>Sceliphron</i> sp.2	/	/			/
	29	<i>Sphex</i> sp.	/	/		/	/
	30	<i>Chrysis</i> sp.1	/	/	/	/	/
	31	<i>Chrysis</i> sp.2	/	/			
	32	<i>Praestochrysis</i> sp.					
	33	<i>Dolichoderus thoracicus</i>					
	34	<i>Dolichoderus tuberifer</i>	/	/			/
	35	<i>Philidris</i> sp.					
	36	<i>Camponotus leonadi</i>			/	/	
	37	<i>Camponotus rufoglaucus</i>					
	38	<i>Camponotus singularis</i>					

Table 7 (Cont.).

Type of Habitats	No.	Scientific names	Study areas				
			CMI	CR	KP	MHS	NSW
	39	<i>Camponotus</i> sp.1					
	40	<i>Camponotus</i> sp.2					
	41	<i>Oecophylla smaragdina</i>	/				/
	42	<i>Paratrechina longicornis</i>	/				
	43	<i>Plagiolepis</i> sp.					
	44	<i>Polyrhachis abdominalis</i>					
	45	<i>Polyrhachis armata</i>	/	/	/	/	/
	46	<i>Polyrhachis bihamata</i>					
	47	<i>Polyrhachis dives</i>					
	48	<i>Polyrhachis flavicornis</i>	/	/			
	49	<i>Polyrhachis furcata</i>		/			
	50	<i>Polyrhachis hippomanes</i>	/			/	
	51	<i>Polyrhachis muelleri</i>					
	52	<i>Polyrhachis proxima</i>		/		/	
	53	<i>Polyrhachis tibialis</i>		/	/	/	
	54	<i>Polyrhachis</i> sp.1					
	55	<i>Cataulacus granulatus</i>		/	/		
	56	<i>Crematogaster coriaria</i>	/	/		/	
	57	<i>Crematogaster difformis</i>		/		/	/
	58	<i>Crematogaster rogenhoferi</i>	/				
	59	<i>Monomorium destructor</i>	/	/	/	/	
	60	<i>Pheidole plagiaria</i>				/	/
	61	<i>Pheidologeton diversus</i>		/		/	/
	62	<i>Pristomyrmex punctatus</i>	/	/	/		
	63	<i>Rhopalomastix janeti</i>					
	64	<i>Rhoptromyrmex wroughtoni</i>					
	65	<i>Solenopsis geminata</i>					
	66	<i>Tetramorium flavipes</i>					
	67	<i>Diacamma sculpturata</i>	/	/	/	/	/
	68	<i>Diacamma vargens</i>		/		/	/
	69	<i>Gnamptogenys bicolor</i>	/		/		
	70	<i>Leptogenys diminuta</i>	/				/
	71	<i>Leptogenys kitteli</i>					
	72	<i>Odontomachus rixosus</i>		/		/	
	73	<i>Odontomachus similimus</i>					
	74	<i>Odontoponera denticulata</i>				/	
	75	<i>Pachycondyla astuta</i>					
	76	<i>Pachycondyla chinensis</i>					
	77	<i>Pachycondyla rufipes</i>					
	78	<i>Tetraponera allaborans</i>	/	/	/	/	/
	79	<i>Campsomeris</i> sp.	/	/			
	80	<i>Scolia</i> sp.	/	/	/	/	/
	81	<i>Delta pyriforme</i>		/	/	/	
	82	<i>Delta</i> sp.	/	/	/	/	/
	83	<i>Phimenes flavopictus</i>	/	/	/		
	84	<i>Rhynchium</i> sp.	/	/	/	/	/

Table 7 (Cont.).

Type of Habitats	No.	Scientific names	Study areas				
			CM1	CR	KP	MHS	NSW
	85	<i>Parapolybia varia</i>			/		
	86	<i>Polistes olivaceus</i>		/		/	
	87	<i>Polites</i> sp.					
	88	<i>Polybioides</i> sp.	/		/	/	/
	89	<i>Ropalidia</i> sp.1	/	/	/	/	/
	90	<i>Ropalidia</i> sp.2	/	/	/	/	/
	91	<i>Provespa anomala</i>	/	/		/	
	92	<i>Vespa affinis</i>	/	/	/	/	/
	93	<i>Vespa mandarinia</i>	/	/	/	/	/
	94	<i>Vespa soror</i>	/	/			
	95	<i>Vespa tropica</i>	/	/	/	/	/
	96	<i>Vespa velutina</i>	/	/	/	/	/
	Total		55	59	34	51	38

Type of Habitats	No.	Scientific names	Study areas				
			N	PY	PB	PL1	PL2
BB/DF (Cont.).	1	<i>Amegilla florea</i>	/	/	/	/	/
	2	<i>Ceratina lieftincki</i>				/	
	3	<i>Pithilis smaragdula</i>				/	
	4	<i>Thyreus</i> sp.			/	/	/
	5	<i>Xylocopa confusa</i>	/	/	/	/	/
	6	<i>Xylocopa latipes</i>	/	/	/	/	/
	7	<i>Apis andreniformis</i>	/		/	/	
	8	<i>Apis cerana</i>	/		/	/	/
	9	<i>Apis dorsata</i>	/		/	/	/
	10	<i>Apis florea</i>	/		/	/	/
	11	<i>Apis mellifera</i>	/				
	12	<i>Trigona apicalis</i>	/		/	/	/
	13	<i>Trigona collina</i>	/		/	/	/
	14	<i>Trigona fimbriata</i>	/		/	/	/
	15	<i>Trigona fuscobalteata</i>					
	16	<i>Trigona laeviceps</i>			/	/	/
	17	<i>Trigona melanoleuca</i>	/	/			
	18	<i>Trigona nitidiventris</i>		/		/	/
	19	<i>Trigona peninsularis</i>					
	20	<i>Trigona terminata</i>				/	/
	21	<i>Trigona thoracica</i>					
	22	<i>Trigona ventalis</i>					
	23	<i>Halictus</i> sp.					
	24	<i>Megachile</i> sp.1	/	/	/	/	/
	25	<i>Megachile</i> sp.2			/		/
	26	<i>Chalybion</i> sp.	/	/	/	/	/
	27	<i>Sceliphron</i> sp.1				/	/
	28	<i>Sceliphron</i> sp.2				/	
	29	<i>Sphex</i> sp.			/	/	
	30	<i>Chrysis</i> sp.1	/	/	/	/	/
	31	<i>Chrysis</i> sp.2			/	/	/

Table 7 (Cont.).

Type of Habitats	No.	Scientific names	Study areas				
			N	PY	PB	PL1	PL2
	32	<i>Praestochrysis</i> sp.					
	33	<i>Dolichoderus thoracicus</i>				/	/
	34	<i>Dolichoderus tuberifer</i>	/		/		/
	35	<i>Philidris</i> sp.				/	
	36	<i>Camponotus leonadi</i>			/	/	/
	37	<i>Camponotus rufoglaucus</i>		/			/
	38	<i>Camponotus singularis</i>					
	39	<i>Camponotus</i> sp.1					/
	40	<i>Camponotus</i> sp.2					/
	41	<i>Oecophylla smaragdina</i>	/	/	/	/	/
	42	<i>Paratrechina longicornis</i>		/	/		
	43	<i>Plagiolepis</i> sp.					/
	44	<i>Polyrhachis abdominalis</i>				/	
	45	<i>Polyrhachis armata</i>	/	/	/	/	/
	46	<i>Polyrhachis bihamata</i>				/	
	47	<i>Polyrhachis dives</i>				/	
	48	<i>Polyrhachis flavicornis</i>				/	/
	49	<i>Polyrhachis furcata</i>				/	/
	50	<i>Polyrhachis hippomanes</i>				/	
	51	<i>Polyrhachis muelleri</i>				/	/
	52	<i>Polyrhachis proxima</i>				/	
	53	<i>Polyrhachis tibialis</i>	/			/	
	54	<i>Polyrhachis</i> sp.1				/	
	55	<i>Cataulacus granulatus</i>		/		/	
	56	<i>Crematogaster coriaria</i>		/		/	
	57	<i>Crematogaster difformis</i>	/	/	/		/
	58	<i>Crematogaster rogenhoferi</i>			/		
	59	<i>Monomorium destructor</i>	/			/	
	60	<i>Pheidole plagiaria</i>				/	
	61	<i>Pheidologeton diversus</i>	/	/	/	/	/
	62	<i>Pristomyrmex punctatus</i>			/	/	
	63	<i>Rhopalomastix janeti</i>				/	
	64	<i>Rhoptromyrmex wroughtoni</i>				/	
	65	<i>Solenopsis geminata</i>				/	
	66	<i>Tetramorium flavipes</i>				/	
	67	<i>Diacamma sculpturata</i>	/	/		/	/
	68	<i>Diacamma vargens</i>		/		/	
	69	<i>Gnamptogenys bicolor</i>	/		/	/	
	70	<i>Leptogenys diminuta</i>	/			/	
	71	<i>Leptogenys kitteli</i>	/	/	/	/	
	72	<i>Odontomachus rixosus</i>		/		/	
	73	<i>Odontomachus similimus</i>				/	
	74	<i>Odontoponera denticulata</i>	/	/			
	75	<i>Pachycondyla astuta</i>				/	
	76	<i>Pachycondyla chinensis</i>				/	
	77	<i>Pachycondyla rufipes</i>				/	

Table 7 (Cont.).

Type of Habitats	No.	Scientific names	Study areas				
			N	PY	PB	PL1	PL2
	78	<i>Tetraponera allaborans</i>	/		/	/	
	79	<i>Campsomeris</i> sp.	/			/	
	80	<i>Scolia</i> sp.	/	/	/	/	
	81	<i>Delta pyriforme</i>		/		/	/
	82	<i>Delta</i> sp.	/			/	/
	83	<i>Phimenes flavopictus</i>	/	/	/	/	/
	84	<i>Rhynchium</i> sp.			/	/	/
	85	<i>Parapolybia varia</i>			/	/	/
	86	<i>Polistes olivaceus</i>			/	/	
	87	<i>Polistes</i> sp.				/	
	88	<i>Polybioides</i> sp.				/	/
	89	<i>Ropalidia</i> sp.1	/	/	/	/	/
	90	<i>Ropalidia</i> sp.2	/	/	/	/	/
	91	<i>Provespa anomala</i>	/			/	
	92	<i>Vespa affinis</i>	/	/	/	/	/
	93	<i>Vespa mandarinia</i>		/	/		
	94	<i>Vespa soror</i>		/		/	
	95	<i>Vespa tropica</i>	/		/	/	/
	96	<i>Vespa velutina</i>					
		Total	37	29	40	75	44
			PL3	ST	T1	T2	UD
BB/DF (Cont.)	1	<i>Amegilla florea</i>	/	/	/	/	/
	2	<i>Ceratina lieftincki</i>					
	3	<i>Pithilis smaragdula</i>			/	/	
	4	<i>Thyreus</i> sp.	/				
	5	<i>Xylocopa confusa</i>	/	/	/	/	/
	6	<i>Xylocopa latipes</i>	/	/	/	/	/
	7	<i>Apis andreniformis</i>		/		/	/
	8	<i>Apis cerana</i>	/	/	/	/	/
	9	<i>Apis dorsata</i>	/	/	/	/	/
	10	<i>Apis florea</i>	/	/	/	/	/
	11	<i>Apis mellifera</i>					
	12	<i>Trigona apicalis</i>	/	/	/	/	/
	13	<i>Trigona collina</i>	/	/	/	/	/
	14	<i>Trigona fimbriata</i>	/	/	/	/	/
	15	<i>Trigona fuscobalteata</i>			/	/	
	16	<i>Trigona laeviceps</i>					
	17	<i>Trigona melanoleuca</i>		/	/	/	
	18	<i>Trigona nitidiventris</i>		/	/	/	
	19	<i>Trigona peninsularis</i>			/	/	
	20	<i>Trigona terminata</i>		/	/	/	
	21	<i>Trigona thoracica</i>			/		
	22	<i>Trigona ventalis</i>					
	23	<i>Halictus</i> sp.					
	24	<i>Megachile</i> sp.1	/	/	/	/	/

Table 7 (Cont.).

Type of Habitats	No.	Scientific names	Study areas				
			CMI	CR	KP	MHS	NSW
	25	<i>Megachile</i> sp.2			/	/	
	26	<i>Chalybion</i> sp.	/	/	/	/	/
	27	<i>Sceliphron</i> sp.1	/	/	/		
	28	<i>Sceliphron</i> sp.2			/		
	29	<i>Sphex</i> sp.	/	/	/		
	30	<i>Chrysis</i> sp.1	/	/	/	/	/
	31	<i>Chrysis</i> sp.2		/			
	32	<i>Praestochrysis</i> sp.				/	
	33	<i>Dolichoderus thoracicus</i>			/	/	
	34	<i>Dolichoderus tuberifer</i>	/	/			/
	35	<i>Philidris</i> sp.					
	36	<i>Camponotus leonadi</i>					/
	37	<i>Camponotus rufoglaucus</i>		/	/		
	38	<i>Camponotus singularis</i>	/	/			/
	39	<i>Camponotus</i> sp.1					
	40	<i>Camponotus</i> sp.2					
	41	<i>Oecophylla smaragdina</i>		/		/	/
	42	<i>Paratrechina longicornis</i>	/			/	
	43	<i>Plagiolepis</i> sp.					
	44	<i>Polyrhachis abdominalis</i>					
	45	<i>Polyrhachis armata</i>	/	/	/	/	/
	46	<i>Polyrhachis bihamata</i>			/		
	47	<i>Polyrhachis dives</i>	/		/		
	48	<i>Polyrhachis flavicornis</i>	/		/	/	
	49	<i>Polyrhachis furcata</i>	/		/	/	/
	50	<i>Polyrhachis hippomanes</i>		/		/	
	51	<i>Polyrhachis muelleri</i>		/	/		/
	52	<i>Polyrhachis proxima</i>	/		/		/
	53	<i>Polyrhachis tibialis</i>	/		/	/	
	54	<i>Polyrhachis</i> sp.1					
	55	<i>Catantopus granulatus</i>	/	/			
	56	<i>Crematogaster coriaria</i>			/		
	57	<i>Crematogaster difformis</i>		/		/	
	58	<i>Crematogaster rogenhoferi</i>	/			/	/
	59	<i>Monomorium destructor</i>	/	/	/		
	60	<i>Pheidole plagiaria</i>	/	/	/		
	61	<i>Pheidologeton diversus</i>	/	/	/		/
	62	<i>Pristomyrmex punctatus</i>	/	/	/		/
	63	<i>Rhopalomastix janeti</i>	/		/		
	64	<i>Rhoptrormymex wroughtoni</i>				/	
	65	<i>Solenopsis geminata</i>			/		
	66	<i>Tetramorium flavipes</i>			/		
	67	<i>Diacamma sculpturata</i>		/	/	/	
	68	<i>Diacamma vargens</i>	/	/	/		/
	69	<i>Gnamptogenys bicolor</i>	/	/	/		/
	70	<i>Leptogenys diminuta</i>		/	/		

Table 7 (Cont.).

Type of Habitats	No.	Scientific names	Study areas				
			CMI	CR	KP	MHS	NSW
	71	<i>Leptogenys kitteli</i>			/		/
	72	<i>Odontomachus rixosus</i>		/	/		
	73	<i>Odontomachus simillimus</i>			/		
	74	<i>Odontoponera denticulata</i>	/		/		/
	75	<i>Pachycondyla astuta</i>			/		
	76	<i>Pachycondyla chinensis</i>	/		/		
	77	<i>Pachycondyla rufipes</i>			/		
	78	<i>Tetraponera allaborans</i>	/	/	/		/
	79	<i>Campsomeris</i> sp.		/			
	80	<i>Scolia</i> sp.		/	/		/
	81	<i>Delta pyriforme</i>	/		/		/
	82	<i>Delta</i> sp.				/	
	83	<i>Phimenes flavopictus</i>		/	/	/	/
	84	<i>Rhynchium</i> sp.	/		/	/	/
	85	<i>Parapolybia varia</i>			/		/
	86	<i>Polistes olivaceus</i>	/			/	
	87	<i>Polites</i> sp.				/	
	88	<i>Polybioides</i> sp.	/				
	89	<i>Ropalidia</i> sp.1	/	/	/	/	/
	90	<i>Ropalidia</i> sp.2	/	/	/	/	/
	91	<i>Provespa anomala</i>			/		
	92	<i>Vespa affinis</i>	/	/	/	/	/
	93	<i>Vespa mandarinia</i>					/
	94	<i>Vespa soror</i>	/	/	/		/
	95	<i>Vespa tropica</i>	/		/	/	
	96	<i>Vespa velutina</i>			/	/	
	Total		45	45	64	43	39
DDF	1	<i>Xylocopa confusa</i>	PY	PB	PL 1	PL2	PL3
	2	<i>Xylocopa latipes</i>	/	/	/	/	/
	3	<i>Apis cerana</i>	/	/	/	/	/
	4	<i>Apis dorsata</i>	/	/	/	/	/
	5	<i>Apis florea</i>	/	/	/	/	/
	6	<i>Megachile</i> sp.1	/	/	/	/	/
	7	<i>Chalybion</i> sp.	/	/	/	/	/
	8	<i>Dolichoderus thoracicus</i>			/		
	9	<i>Dolichoderus tuberifer</i>	/	/	/		
	10	<i>Iridomyrmex anceps</i>			/	/	
	11	<i>Technomyrmex kraepelini</i>	/		/	/	
	12	<i>Technomyrmex modiglianii</i>		/			/
	13	<i>Camponotus rufoglaucus</i>	/	/			/
	14	<i>Camponotus singularis</i>			/	/	/
	15	<i>Polyrhachis abdominalis</i>		/	/	/	
	16	<i>Polyrhachis muelleri</i>			/		
	17	<i>Monomorium destructor</i>		/		/	

Table 7 (Cont.).

Type of Habitats	No.	Scientific names	Study areas				
			CMI	CR	KP	MHS	NSW
	18	<i>Tetramorium flavipes</i>		/		/	
	19	<i>Diacamma vargens</i>		/		/	
	20	<i>Delta pyriforme</i>		/		/	
	21	<i>Delta</i> sp.	/	/		/	
	22	<i>Phimenes flavopictus</i>		/			
	23	<i>Rhynchium</i> sp.	/			/	/
	24	<i>Ropalidia</i> sp.1		/	/		
	25	<i>Vespa affinis</i>	/	/	/	/	/
	26	<i>Vespa mandarinia</i>					
	27	<i>Vespa soror</i>		/	/	/	/
	28	<i>Vespa tropica</i>	/	/	/	/	/
	29	<i>Vespa velutina</i>					
	Total		14	21	18	20	14
DDF (Cont.).			ST	T1	T2	UD	
	1	<i>Xylocopa confusa</i>	/	/	/	/	
	2	<i>Xylocopa latipes</i>	/	/	/	/	
	3	<i>Apis cerana</i>	/	/	/	/	
	4	<i>Apis dorsata</i>	/	/	/	/	
	5	<i>Apis florea</i>	/	/	/	/	
	6	<i>Megachile</i> sp.1	/	/	/	/	
	7	<i>Chalybion</i> sp.	/	/	/	/	
	8	<i>Dolichoderus thoracicus</i>		/			
	9	<i>Dolichoderus tuberifer</i>		/		/	
	10	<i>Iridomyrmex anceps</i>			/		
	11	<i>Technomyrmex kraepelini</i>	/	/	/		
	12	<i>Technomyrmex modiglianii</i>	/				
	13	<i>Camponotus rufoglaucus</i>		/	/	/	
	14	<i>Camponotus singularis</i>					
	15	<i>Polyrhachis abdominalis</i>		/	/	/	
	16	<i>Polyrhachis muelleri</i>		/			
	17	<i>Monomorium destructor</i>			/		
	18	<i>Tetramorium flavipes</i>			/		
	19	<i>Diacamma vargens</i>	/	/	/	/	
	20	<i>Delta pyriforme</i>	/	/	/	/	
	21	<i>Delta</i> sp.	/	/	/		
	22	<i>Phimenes flavopictus</i>	/		/		
	23	<i>Rhynchium</i> sp.					
	24	<i>Ropalidia</i> sp.1				/	
	25	<i>Vespa affinis</i>	/	/	/	/	
	26	<i>Vespa mandarinia</i>		/		/	
	27	<i>Vespa soror</i>		/	/		
	28	<i>Vespa tropica</i>	/	/	/	/	
	29	<i>Vespa velutina</i>		/	/	/	
	Total		15	21	21	17	

Table 7 (Cont.).

Type of Habitats	No.	Scientific names	Study areas				
			CM2	MHS	T3		
EVG	1	<i>Xylocopa confusa</i>	/	/	/		
	2	<i>Xylocopa latipes</i>	/	/	/		
	3	<i>Apis cerana</i>	/	/	/		
	4	<i>Apis dorsata</i>	/	/	/		
	5	<i>Apis florea</i>	/	/	/		
	6	<i>Bombus</i> sp.	/	/	/		
	7	<i>Trigona melanoleuca</i>	/	/	/		
	8	<i>Trigona minor</i>	/	/	/		
	9	<i>Chalybion</i> sp.	/	/	/		
	10	<i>Sphex</i> sp.	/		/		
	11	<i>Trichrysis</i> sp.			/		
	12	<i>Praestochrysis</i> sp.			/		
	13	<i>Dolichoderus tuberifer</i>	/	/	/		
	14	<i>Technomyrmex kraepelini</i>			/		
	15	<i>Technomyrmex modiglianii</i>			/		
	16	<i>Camponotus singularis</i>		/	/		
	17	<i>Polyrhachis hippomanes</i>			/		
	18	<i>Polyrhachis proxima</i>			/		
	19	<i>Pristomyrmex punctatus</i>		/	/		
	20	<i>Vespa affinis</i>		/	/		
	21	<i>Vespa mandarinia</i>		/	/		
Total			11	14	21		
HEGF			CM1	PB	MHS	T3	N
	1	<i>Thyreus</i> sp.		/	/		/
	2	<i>Xylocopa confusa</i>	/		/	/	
	3	<i>Xylocopa latipes</i>	/	/	/	/	/
	4	<i>Apis andreniformis</i>	/	/	/	/	/
	5	<i>Apis cerana</i>		/	/	/	/
	6	<i>Apis dorsata</i>	/	/	/	/	/
	7	<i>Apis florea</i>	/	/	/	/	/
	8	<i>Apis mellifera</i>	/				
	9	<i>Bombus</i> sp.	/				
	10	<i>Hyoptrigona</i> sp.	/	/			
	11	<i>Trigona apicalis</i>	/	/	/	/	/
	12	<i>Trigona collina</i>	/	/	/	/	/
	13	<i>Trigona fimbriata</i>	/	/	/	/	/
	14	<i>Trigona fuscobalteata</i>	/	/	/	/	/
	15	<i>Trigona itama</i>			/		
	16	<i>Trigona melanoleuca</i>	/	/			
	17	<i>Trigona minor</i>	/				
	18	<i>Trigona nitidiventris</i>	/	/	/	/	/
	19	<i>Trigona terminata</i>	/	/	/	/	/
	20	<i>Coelioxys</i> sp.			/	/	
21	<i>Bembix</i> sp.		/		/		

Table 7 (Cont.).

Type of Habitats	No.	Scientific names	Study areas				
			CM1	PB	MHS	T3	N
	22	<i>Chalybion</i> sp.		/			/
	23	<i>Sceliphron</i> sp.1			/		
	24	<i>Sceliphron</i> sp.2		/	/		/
	25	<i>Chrysis</i> sp.3		/			
	26	<i>Trichrysis</i> sp.		/			
	27	<i>Praestochrysis</i> sp.			/		
	28	<i>Aenictus binghami</i>				/	
	29	<i>Cerapachys sulcinodis</i>				/	
	30	<i>Dolichoderus thoracicus</i>		/	/	/	/
	31	<i>Dolichoderus tuberifer</i>	/	/	/	/	/
	32	<i>Iridomyrmex anceps</i>	/	/		/	/
	33	<i>Camponotus camelinus</i>	/	/		/	/
	34	<i>Camponotus leonadi</i>		/		/	/
	35	<i>Lepisiota</i> sp.				/	
	36	<i>Oecophylla smaragdina</i>	/	/			
	37	<i>Paratrechina longicornis</i>	/	/	/	/	
	38	<i>Plagiolepis</i> sp.		/			
	39	<i>Polyrhachis armata</i>	/	/	/	/	/
	40	<i>Polyrhachis dives</i>	/	/		/	/
	41	<i>Polyrhachis flavicornis</i>		/			
	42	<i>Polyrhachis muelleri</i>	/	/			
	43	<i>Polyrhachis proxima</i>	/	/	/	/	/
	44	<i>Polyrhachis tibialis</i>		/			
	45	<i>Cardiocondyla wroughtoni</i>	/	/			
	46	<i>Cataulacus granulatus</i>			/		/
	47	<i>Pheidole plagiaria</i>		/	/	/	
	48	<i>Pheidologeton diversus</i>	/	/	/		
	49	<i>Pristomyrmex punctatus</i>		/	/		/
	50	<i>Rhoptromyrmex wroughtoni</i>	/	/		/	
	51	<i>Tetramorium flavipes</i>	/		/		/
	52	<i>Gnamptogenys bicolor</i>	/		/	/	
	53	<i>Harpegnathos venator</i>		/			/
	54	<i>Odontomachus simillimus</i>			/		
	55	<i>Odontoponera denticulata</i>		/			
	56	<i>Pachycondyla luteipes</i>			/		/
	57	<i>Tetraoponera attenuata</i>	/		/		/
	58	<i>Scolia</i> sp.		-	/	/	
	59	<i>Phimenes flavopictus</i>		/		/	
	60	<i>Parapolybia varia</i>	/		/		
	61	<i>Polistes olivaceus</i>			/		
	62	<i>Polites</i> sp.		/	/	/	
	63	<i>Polybioides</i> sp.			/		
	64	<i>Ropalidia</i> sp.1		/			
	65	<i>Ropalidia</i> sp.2		/			
	66	<i>Vespa affinis</i>	/	/	/		

Table 7 (Cont.).

Type of Habitats	No.	Scientific names	Study areas				
			CM1	PB	MHS	T3	N
	67	<i>Vespa mandarinia</i>	/				/
	68	<i>Vespa soror</i>	/	/	/	/	/
	69	<i>Vespa tropica</i>	/	/	/	/	/
	70	<i>Vespa velutina</i>	/		/		
	Total		38	47	41	34	31
MXF			CM1	CR	NSW	PB	T2
	1	<i>Xylocopa confusa</i>	/	/	/	/	/
	2	<i>Xylocopa latipes</i>	/	/	/	/	/
	3	<i>Apis cerana</i>	/	/	/	/	/
	4	<i>Apis dorsata</i>	/	/	/	/	/
	5	<i>Apis florea</i>	/	/	/	/	/
	6	<i>Trigona fuscobalteata</i>	/	/	/	/	/
	7	<i>Trigona peninsularis</i>	/		/		
	8	<i>Bembix</i> sp.		/	/		/
	9	<i>Chalybion</i> sp.	/	/		/	
	10	<i>Aenictus binghami</i>		/	/	/	/
	11	<i>Dolichoderus tuberifer</i>	/	/	/	/	/
	12	<i>Technomyrmex kraepelini</i>		/	/	/	/
	13	<i>Technomyrmex modiglianii</i>	/			/	/
	14	<i>Oecophylla smaragdina</i>	/				/
	15	<i>Polyrhachis bihamata</i>	/	/			
	16	<i>Polyrhachis dives</i>	/		/		/
	17	<i>Polyrhachis flavicornis</i>	/	/		/	
	18	<i>Polyrhachis furcata</i>	/		/		/
	19	<i>Polyrhachis hippomanes</i>	/		/		/
	20	<i>Polyrhachis muelleri</i>			/		/
	21	<i>Polyrhachis proxima</i>	/	/		/	
	22	<i>Polyrhachis</i> sp.2					/
	23	<i>Cardiocondyla wroughtonii</i>	/			/	
	24	<i>Crematogaster rogenhoferi</i>	/	/			
	25	<i>Meranoplus bicolor</i>			/	/	
	26	<i>Pheidole plagiaria</i>	/				
	27	<i>Pristomyrmex punctatus</i>	/				
	28	<i>Tetramorium flavipes</i>					/
	29	<i>Tetraponera allaborans</i>					/
	30	<i>Tetraponera rufonigra</i>		/			/
	31	<i>Scolia</i> sp.	/				
	32	<i>Polistes olivaceus</i>	/				
	33	<i>Polistes</i> sp.				/	
	34	<i>Ropalidia</i> sp.1			/		
	35	<i>Parischnogaster</i> sp.				/	
	36	<i>Provespa anomala</i>			/	/	
	37	<i>Vespa affinis</i>	/	/	/	/	/
	38	<i>Vespa tropica</i>	/	/	/	/	/
	Total		25	18	20	20	22

Table 7 (Cont.).

Type of Habitats	No.	Scientific names	Study areas				
			CM 2	PL1	PL2		
GL	1	<i>Iridomyrmex anceps</i>	/	/	/		
	2	<i>Anoplolepis gracilipes</i>	/	/			
	3	<i>Oecophylla smaragdina</i>	/		/		
	4	<i>Monomorium destructor</i>		/	/		
	5	<i>Diacamma vargens</i>	/	/			
	6	<i>Odontoponera denticulata</i>		/	/		
Total			4	5	5		
CA			CM2	LPA	LPU	PC	PR
	1	<i>Amegilla florea</i>	/	/	/	/	/
	2	<i>Ceratina lieftincki</i>	/				
	3	<i>Xylocopa confusa</i>	/	/	/	/	/
	4	<i>Xylocopa latipes</i>	/	/	/	/	/
	5	<i>Apis andreniformis</i>	/				/
	6	<i>Apis cerana</i>	/	/	/	/	/
	7	<i>Apis dorsata</i>	/	/	/	/	/
	8	<i>Apis florea</i>	/	/	/	/	/
	9	<i>Apis mellifera</i>	/	/	/	/	/
	10	<i>Trigona apicalis</i>	/	/	/	/	/
	11	<i>Trigona collina</i>	/	/	/	/	/
	12	<i>Trigona fimbriata</i>	/	/	/	/	/
	13	<i>Trigona laeviceps</i>	/	/	/	/	/
	14	<i>Trigona melanoleuca</i>	/	/	/		/
	15	<i>Trigona nitidiventris</i>	/	/			/
	16	<i>Trigona peninsularis</i>	/	/	/		
	17	<i>Trigona terminata</i>	/	/	/		/
	18	<i>Trigona thoracica</i>	/				
	19	<i>Trigona ventralis</i>	/	/	/		
	20	<i>Halictus</i> sp.	/				
	21	<i>Coelioxys</i> sp.	/	/			
	22	<i>Megachile</i> sp.1	/	/	/	/	/
	23	<i>Megachile</i> sp.2	/	/	/	/	/
	24	<i>Bembix</i> sp.	/				
	25	<i>Chalybion</i> sp.	/	/	/	/	/
	26	<i>Chrysis</i> sp.1	/	/	/	/	/
	27	<i>Chrysis</i> sp.2	/	/	/	/	/
	28	<i>Dolichoderus tuberifer</i>	/	/	/	/	/
	29	<i>Technomyrmex kraepelini</i>		/			/
	30	<i>Technomyrmex modiglianii</i>			/		/
	31	<i>Camponotus camelinus</i>	/	/			
	32	<i>Lepisiota</i> sp.	/				
	33	<i>Oecophylla smaragdina</i>	/	/	/	/	/
32	<i>Lepisiota</i> sp.	/					
33	<i>Oecophylla smaragdina</i>	/	/	/	/	/	
34	<i>Polyrhachis bihamata</i>	/					

Table 7 (Cont.).

Type of Habitats	No.	Scientific names	Study areas				
			CM2	LPA	LPU	PC	PR
	32	<i>Lepisiota</i> sp.	/				
	33	<i>Oecophylla smaragdina</i>	/	/	/	/	/
	34	<i>Polyrhachis bihamata</i>	/				
	35	<i>Crematogaster rogenhoferi</i>	/	/			/
	36	<i>Meranoplus bicolor</i>	/	/	/	/	/
	37	<i>Pheidologeton diversus</i>		/	/	/	
	38	<i>Solenopsis geminata</i>	/	/	/	/	/
	39	<i>Diacamma sculpturata</i>	/	/			
	40	<i>Tetraponera allaborans</i>	/	/			
	41	<i>Delta pyriforme</i>		/	/		/
	42	<i>Delta</i> sp.				/	
	43	<i>Phimenes flavopictus</i>	/	/			
	44	<i>Rhynchium</i> sp.	/			/	
	45	<i>Polistes olivaceus</i>	/			/	/
	46	<i>Polites</i> sp.		/	/		
	47	<i>Ropalidia</i> sp.1	/	/		/	/
	48	<i>Ropalidia</i> sp.2	/	/	/	/	/
	49	<i>Provespa anomala</i>	/	/	/	/	/
	50	<i>Vespa affinis</i>	/	/	/	/	/
	51	<i>Vespa mandarinia</i>	/	/			/
	52	<i>Vespa soror</i>	/	/			
	53	<i>Vespa tropica</i>	/	/	/	/	/
	54	<i>Vespa velutina</i>	/				
	Total		48	41	32	29	35

Table 8 The Pielou's index (J') and Simpson's index (C) of aculeate bee species structure in 7 habitat types: deciduous dipterocarp forest, evergreen forest, hill evergreen forest, mixed evergreen and deciduous forest, grassland and cultivated area.

Type of habitats	Habitats	Ecological indices	
		J'	C
Deciduous with bamboo forests	Chiang Mai 1	0.819	0.035
	Chiang Rai	0.840	0.030
	Kamphaeng Phet	0.719	0.052
	Mae Hong Son	0.808	0.034
	Nakhon Sawan	0.759	0.039
	Nan	0.707	0.059
	Phayao	0.708	0.046
	Phetchabun	0.738	0.050
	Phitsanulok 1	0.859	0.032
	Phitsanulok 2	0.760	0.043
	Phitsanulok 3	0.753	0.049
	Sukhothai	0.791	0.034
	Tak 1	0.848	0.030
	Tak 2	0.782	0.036
	Uttaradit	0.749	0.043
Deciduous dipterocarp forests	Phayao	0.777	0.076
	Phetchabun	0.892	0.052
	Phitsanulok 1	0.843	0.062
	Phitsanulok 2	0.877	0.055
	Phitsanulok 3	0.772	0.078
	Sukhothai	0.780	0.080
	Tak 1	0.876	0.058
	Tak 2	0.890	0.053
	Uttaradit	0.807	0.076
Evergreen forests	Chiang Mai 2	0.739	0.120
	Mae Hong Son	0.843	0.082
	Tak 3	0.955	0.061
Hill evergreen forests	Chiang Mai 1	0.840	0.030
	Mae Hong Son	0.852	0.030
	Nan	0.769	0.046

Table 8 (Cont.).

Type of habitats	Habitats	Ecological indices	
		J'	C
Mixed evergreen and deciduous forests	Phitsanulok 1	0.888	0.025
	Tak 3	0.803	0.038
	Chiang Mai 1	0.842	0.053
	Chiang Rai	0.728	0.092
	Nakhon Sawan	0.781	0.068
	Phetchabun	0.777	0.068
	Tak 2	0.807	0.060
Grasslands	Chiangmai 1	0.381	0.250
	Phitsanulok 1	0.428	0.220
	Phitsanulok 2	0.379	0.253
Cultivated areas	Chiang Mai 2	0.876	0.043
	Lampang	0.826	0.052
	Lamphun	0.764	0.063
	Phichit	0.737	0.069
	Phrae	0.814	0.050

Table 9 The Sorensen's similarity coefficient (S_s) of aculeate species in 7 habitat types: deciduous with bamboo forest, deciduous dipterocarp forest, evergreen forest, hill evergreen forest, mixed evergreen and deciduous forest, grassland and cultivated area.

Type of habitats	Comparison of areas	S_s
Deciduous with bamboo forests	Chiang Mai and Kamphaeng Phet	0.674
	Chiang Mai and Mae Hong Son	0.757
	Chiang Mai and Nakhon Sawan	0.733
	Chiang Mai and Nan	0.784
	Chiang Mai and Phayao	0.521
	Chiang Mai and Phetchabun	0.688
	Chiang Mai and Phitsanulok 1	0.698
	Chiang Mai and Phitsanulok 2	0.633
	Chiang Mai and Phitsanulok 3	0.646
	Chiang Mai and Sukhothai	0.708
	Chiang Mai and Tak 1	0.648
	Chiang Mai and Tak 2	0.714
	Chiang Mai and Uttaradit	0.600
	Chiang Rai and Chiang Mai	0.842
	Chiang Rai and Kamphaeng Phet	0.638
	Chiang Rai and Mae Hong Son	0.815
	Chiang Rai and Nakhon Sawan	0.731
	Chiang Rai and Nan	0.646
	Chiang Rai and Phayao	0.539
	Chiang Rai and Phetchabun	0.673
	Chiang Rai and Phitsanulok 1	0.758
	Chiang Rai and Phitsanulok 2	0.660
	Chiang Rai and Phitsanulok 3	0.667
	Chiang Rai and Sukhothai	0.706
	Chiang Rai and Tak 1	0.746
	Chiang Rai and Tak 2	0.660
	Chiang Rai and Uttaradit	0.594
	Kamphaeng Phet and Nakhon Sawan	0.718
	Kamphaeng Phet and Nan	0.706
	Kamphaeng Phet and Phayao	0.508
	Kamphaeng Phet and Phetchabun	0.694

Table 9 (Cont.).

Type of habitats	Comparison of areas	S_p
	Kamphaeng Phet and Phitsanulok 1	0.582
	Kamphaeng Phet and Phitsanulok 2	0.641
	Kamphaeng Phet and Phitsanulok 3	0.584
	Kamphaeng Phet and Sukhothai	0.608
	Kamphaeng Phet and Tak 1	0.563
	Kamphaeng Phet and Tak 2	0.613
	Kamphaeng Phet and Uttaradit	0.675
	Mae Hong Son and Kamphaeng Phet	0.690
	Mae Hong Son and Nakhon Sawan	0.742
	Mae Hong Son and Phayao	0.557
	Mae Hong Son and Phetchabun	0.659
	Mae Hong Son and Phitsanulok 1	0.683
	Mae Hong Son and Phitsanulok 2	0.638
	Mae Hong Son and Phitsanulok 3	0.653
	Mae Hong Son and Sukhothai	0.660
	Mae Hong Son and Tak 1	0.678
	Mae Hong Son and Tak 2	0.660
	Mae Hong Son and Uttaradit	0.598
	Mae Hong Son and Nan	0.651
	Nakhon Sawan and Nan	0.685
	Nakhon Sawan and Phayao	0.508
	Nakhon Sawan and Phetchabun	0.701
	Nakhon Sawan and Phitsanulok 1	0.715
	Nakhon Sawan and Phitsanulok 2	0.584
	Nakhon Sawan and Phitsanulok 3	0.617
	Nakhon Sawan and Sukhothai	0.767
	Nakhon Sawan and Tak 1	0.608
	Nakhon Sawan and Tak 2	0.642
	Nakhon Sawan and Uttaradit	0.641
	Nan and Phayao	0.600
	Nan and Phetchabun	0.780
	Nan and Phitsanulok 1	0.566
	Nan and Phitsanulok 2	0.612
	Nan and Phitsanulok 3	0.718
	Nan and Sukhothai	0.773
	Nan and Uttaradit	0.865
	Phetchabun and Phayao	0.545
	Phetchabun and Sukhothai	0.718

Table 9 (Cont.).

Type of habitats	Comparison of areas	S_r
	Phetchabun and Uttaradit	0.785
	Phitsanulok 1 and Phayao	0.567
	Phitsanulok 1 and Phetchabun	0.678
	Phitsanulok 1 and Phitsanulok 2	0.758
	Phitsanulok 1 and Phitsanulok 3	0.667
	Phitsanulok 1 and Sukhothai	0.733
	Phitsanulok 1 and Uttaradit	0.679
	Phitsanulok 2 and Phayao	0.488
	Phitsanulok 2 and Phetchabun	0.741
	Phitsanulok 2 and Phitsanulok 3	0.704
	Phitsanulok 2 and Sukhothai	0.737
	Phitsanulok 2 and Uttaradit	0.706
	Phitsanulok 3 and Phayao	0.500
	Phitsanulok 3 and Phetchabun	0.756
	Phitsanulok 3 and Sukhothai	0.723
	Phitsanulok 3 and Uttaradit	0.762
	Sukhothai and Phayao	0.564
	Sukhothai and Uttaradit	0.783
	Tak 1 and Nan	0.594
	Tak 1 and Phayao	0.511
	Tak 1 and Phetchabun	0.667
	Tak 1 and Phitsanulok 1	0.803
	Tak 1 and Phitsanulok 2	0.602
	Tak 1 and Phitsanulok 3	0.626
	Tak 1 and Sukhothai	0.654
	Tak 1 and Tak 2	0.598
	Tak 1 and Uttaradit	0.611
	Tak 2 and Nan	0.625
	Tak 2 and Phayao	0.548
	Tak 2 and Phetchabun	0.625
	Tak 2 and Phitsanulok 1	0.566
	Tak 2 and Phitsanulok 2	0.682
	Tak 2 and Phitsanulok 3	0.545
	Tak 2 and Sukhothai	0.575
	Tak 2 and Uttaradit	0.543
	Uttaradit and Phayao	0.500

Table 9 (Cont.).

Type of habitats	Comparison of areas	S_s
Deciduous dipterocarp forests	Phetchabun and Phayao	0.686
	Phetchabun and Sukhothai	0.778
	Phetchabun and Uttaradit	0.789
	Phitsanulok 1 and Phayao	0.710
	Phitsanulok 1 and Phetchabun	0.649
	Phitsanulok 1 and Phitsanulok 2	0.737
	Phitsanulok 1 and Phitsanulok 3	0.688
	Phitsanulok 1 and Sukhothai	0.606
	Phitsanulok 1 and Uttaradit	0.686
	Phitsanulok 2 and Phayao	0.706
	Phitsanulok 2 and Phetchabun	0.780
	Phitsanulok 2 and Phitsanulok 3	0.706
	Phitsanulok 2 and Sukhothai	0.743
	Phitsanulok 2 and Uttaradit	0.649
	Phitsanulok 3 and Phayao	0.786
	Phitsanulok 3 and Phetchabun	0.686
	Phitsanulok 3 and Sukhothai	0.714
	Phitsanulok 3 and Uttaradit	0.645
	Sukhothai and Phayao	0.759
	Sukhothai and Uttaradit	0.710
	Tak 1 and Phayao	0.743
	Tak 1 and Phetchabun	0.750
	Tak 1 and Phitsanulok 1	0.769
	Tak 1 and Phitsanulok 2	0.750
	Tak 1 and Phitsanulok 3	0.629
	Tak 1 and Sukhothai	0.722
	Tak 1 and Tak 2	0.821
	Tak 1 and Uttaradit	0.824
	Tak 2 and Phayao	0.706
	Tak 2 and Phetchabun	0.872
	Tak 2 and Phitsanulok 1	0.649
	Tak 2 and Phitsanulok 2	0.878
	Tak 2 and Phitsanulok 3	0.647
	Tak 2 and Sukhothai	0.800
	Tak 2 and Uttaradit	0.757
	Uttaradit and Phayao	0.710

Table 9 (Cont.).

Type of habitats	Comparison of areas	S_s
Evergreen forests	Chiang Mai 2 and Mae Hong Son	0.783
	Chiang Mai 2 and Tak 3	0.688
	Mae Hong Son and Tak 3	0.800
Hill evergreen forests	Chiang Mai 1 and Mae Hong Son	0.605
	Chiang Mai 1 and Nan	0.638
	Chiang Mai 1 and Phitsanulok 1	0.667
	Chiang Mai and Tak 3	0.606
	Mae Hong Son and Nan	0.676
	Mae Hong Son and Tak 3	0.649
	Phitsanulok 1 and Mae Hong Son	0.575
	Phitsanulok 1 and Nan	0.667
	Phitsanulok 1 and Tak 3	0.667
	Tak 3 and Nan	0.646
Mixed evergreen and deciduous forests	Chiang Mai 1 and Chiang Rai	0.651
	Chiang Mai 1 and Nakhon Sawan	0.591
	Nakhon Sawan and Chiang Rai	0.632
	Phetchabun and Chiang Mai 1	0.636
	Phetchabun and Chiang Rai	0.750
	Phetchabun and Nakhon Sawan	0.650
	Tak 2 and Chiang Mai 1	0.609
	Tak 2 and Chiang Rai	0.650
	Tak 2 and Nakhon Sawan	0.781
	Tak 2 and Phetchabun	0.571
Grasslands	Phitsanulok 1 and Phitsanulok 2	0.670
	Phitsanulok 1 and Chiang Mai 2	0.670
	Phitsanulok 2 and Chiang Mai 2	0.500
Cultivated areas	Chiang Mai 2 and Lampang	0.831
	Chiang Mai 2 and Lamphun	0.700
	Chiang Mai 2 and Phichit	0.693
	Chiang Mai 2 and Phrae	0.771
	Lampang and Lamphun	0.861
	Lampang and Phichit	0.754
	Lampang and Phrae	0.827
	Lamphun and Phichit	0.820
	Lamphun and Phrae	0.875
	Phichit and Phrae	0.813