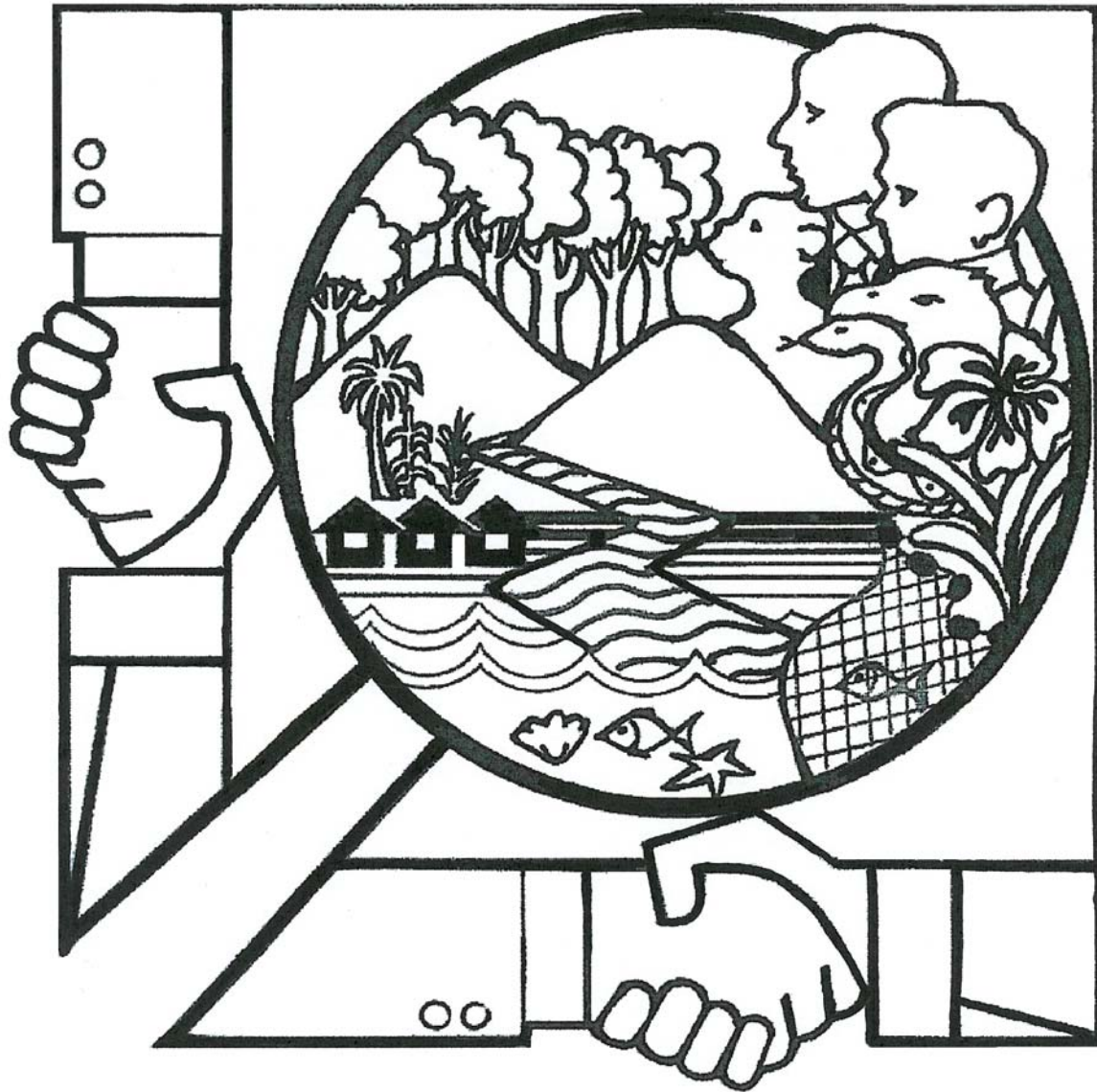


Arthropod Faunal Diversity and Relevant Interrelationships of Critical Resources in Mt. Malindang, Misamis Occidental



Myrna G. Ballentes :: Alma B. Mohagan :: Victor P. Gapud
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Biodiversity Research Programme (BRP) for Development in Mindanao:
Focus on Mt. Malindang and Environs

The Biodiversity Research Programme (BRP) for Development in Mindanao is a collaborative research programme on biodiversity management and conservation jointly undertaken by Filipino and Dutch researchers in Mt. Malindang and its environs, Misamis Occidental, Philippines. It is committed to undertake and promote participatory and interdisciplinary research that will promote sustainable use of biological resources, and effective decision-making on biodiversity conservation to improve livelihood and cultural opportunities.

BRP aims to make biodiversity research more responsive to real-life problems and development needs of the local communities, by introducing a new mode of knowledge generation for biodiversity management and conservation, and to strengthen capacity for biodiversity research and decision-making by empowering the local research partners and other local stakeholders.

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Abstract

An assessment of arthropod diversity and analysis of the interrelationships with other resources were conducted in 10 barangays in Oroquieta City, Don Victoriano, Lopez Jaena, and Calamba, Misamis Occidental from June 2003 to May 2005.

The current inventory of Mt. Malindang arthropods includes 741 species in 340 genera, 135 families, 21 orders, and 5 classes. The most speciose orders, the Coleoptera, Hemiptera, Hymenoptera, Diptera, and Araneida account for 78.37 percent of all the species.

Arthropod species diversity is generally higher in forest ecosystems than in agroecosystems. When treated per vegetation and per site, diversity is highest in the mixed dipterocarp forest of Peniel, Lopez Jaena, with 82 restricted species (60% beetles) out of 316 species.

In terms of species composition, three major clusters of similarity among vegetation types are discernible: a) five agroecosystem sites in Gandawan, Mansawan, Lake Duminagat, Mamalad, and Mialen, with Gandawan and Mansawan having the most similar arthropods; b) montane-mossy forest and agroecereal grass-dominated type and almaciga forest in Sebucal; and c) mixed lowland dipterocarp-plantation forests, agroecereal, agroforest, and mixed dipterocarp forest. Three vegetation types appeared to show little species similarities among each other or with any of the three clusters,

namely, the lowland dipterocarp forest (Mialen), submontane dipterocarp forest (Mt. Capole), and agroecereal grass-dominated system (Peniel).

In terms of proportional representation of the trophic guilds of the selected taxa, phytophagous occupies the biggest proportion, followed by the predaceous, pollinators, parasitoids, scavengers, xyloborous, and ant species.

Some species of arthropods are utilized in various ways. The honeybee, *Apis cerana*, produces honey that is popularly sold in the market today. Some consumers even prefer buying bottled honey with beehives submerged in it. Other arthropods like crabs, termites, and the larvae and adults of coconut beetles are utilized as food. Termites and naiads of Odonata are used as fish baits, while ants act as biocontrol agents for cabbage worms. Indigenous knowledge on arthropod species is very scarce and limited only to common uses of honey, butterfly color symbols, "weather forecasting" by *kalong* (crabs), ritual for tree blooms for honey foraging, and predation of a vespid wasp, *Ropalidia* sp. on the larvae of diamondback moth.

Out of 67 (mostly curculionid beetles) endemic arthropod species, at least 21 are associated with 18 endemic host plants in Mt. Malindang, a situation urging immediate conservation efforts.

Introduction

The arthropods are known for their great importance in the living world. Aside from their socioeconomic significance, they have essential roles within ecosystems. Despite their performance of these substantial functions, conservation studies on the arthropod fauna aspects of Mt. Malindang are not yet available.

An inventory of the various aspects of arthropods, especially the entomofauna may show the unique position of Mt. Malindang, as well as the significant relationship of these living creatures to vegetation zones, elevational range, and formulation of participatory conservation strategies.

Review of Literature

Arthropods are the major invertebrate life forms which far outnumber all other terrestrial animals. The most spectacular variation has been within the insects, constituting 75 percent of all animals (Daly *et al.* 1998; Triplehorn and Johnson 2005). Coleoptera (beetles) - the largest insect order - comprise almost 40 percent of the described insects (Gullan and Cranston 2000), while Curculionidae - one of the beetle families - constitute 5 percent of all animal species (Brusca and Brusca 2003).

The current inventory of Philippine insects includes about 21,000 species in 6,185 genera and 499 families, with an overall endemism of 69.8 percent. Of these, the neuropteroids (beetles, twisted-winged flies, antlions, lacewings, owlflies) account for 35.7 percent of the total insect species, followed by the panorpoids (flies, fleas, butterflies, moths, caddisflies) - 29.3 percent, Hymenoptera (ants, bees, wasps) - 14.3 percent, the hemipteroids (barklice, thrips, lice, planthoppers, leafhoppers, cicadas, true bugs) - 14.2 percent, the orthopteroids (grasshoppers, katydids, crickets, pygmy locusts, preying mantis, stick insects, earwigs, stoneflies, termites, roaches, webspinners) - 4.8 percent, the palaeopterans (mayflies, damselflies, dragonflies) - 1.5 percent, and the rest comprise 0.25 percent (Gapud 2005).

Selected groups of Philippine insects demonstrate high species richness and high levels of endemism (Gapud 2005): damselflies (186 spp), 85.5 percent endemism; pachyrrhynchine weevils (352 spp), 95 percent

endemism; butterflies and skippers (890 spp, 900 subspecies), 39.3 percent endemism; *Rhagovelia* (Veliidae, water bugs, 60 spp), many island endemics; caddisflies (Trichoptera, 319 spp), 96 percent endemism; stick and leaf insects (207 spp), 86.5 percent endemism; and *Henosepilachna* (Coccinellid beetles, 20 spp), 55 percent endemism (Bielawski 1965).

Approximately half the species of insects are phytophagous. However, the impact of insect feeding is checked by natural enemies and ameliorated by varied plant defenses. Not all relationships, though, are injurious to plants. About 80 percent of the known flowering plants owe their dispersal to pollination by insects (Lawrence 2004; Daly *et al.* 1998). A good number of arthropod groups are among the principal predators of other invertebrates. Consequently, they are major components in the diets of many terrestrial animals. Thus, arthropods play a very crucial role in food webs of practically all ecosystems (Brusca and Brusca 2003).

The Curculionids referred to as weevils have 41,000 species which are phytophagous as adults and larvae. They probably utilize almost monocotyledon and dicotyledon families, as well as various gymnosperms, ferns, and cycads. Adults feed mainly on young, tender leaves or shoots, flowers, pollen, and fruits. They are usually polyphagous and may feed on an extremely wide range of hosts in unrelated families, and often in forest litter, although their biology is still a matter of speculation (Madge *et al.* 2000).

The pollinators ensure full harvest and seed production from many agricultural crops including many orchard fruits, nuts, clovers, vegetables, and cotton (Triplehorn and Johnson 2005). They are essential components of the habitats and ecosystems that many wild animals rely on for food and shelter (Pollinator Declines 2001).

Dragonflies and damselflies are not only known for their predatory role but most of them are sensitive to pollution and favor a wide range of microhabitats. They indicate water quality and since these species prey on mosquitoes, their presence implies lesser mosquito population (Olber *et al.* 2000). Local faunal composition may be strongly affected by any change in water flow, turbidity, or aquatic or waterside vegetation. Inland fishermen identify dragonfly larvae as "mud eyes" and use them as baits while the adults are a minor food item in some countries (Trueman and Row 2001).

The parasitic Hymenoptera are a highly successful and important group of insects comprising probably over a million species. Despite the vast amount of research that has been carried out on the group over the last 100 years or so, there are still many unexplained aspects of their increasing demand for biological methods for pest control and their possible use as natural enemies. Parasitic wasps are tremendously important in research, on pollution dynamics and on host-parasite interaction (Quicke 2003).

According to Perlman and Paskowitz (1998), a new focus on intensive study of as many species as possible in limited areas, rather than coming up with the traditional haphazard description of new species one or few at a time may enable biologists to understand in detail how speciose tropical insects are, their pattern of distribution, and how they interact with other ecosystems to achieve a reasonably comprehensive level of knowledge.

Agriculture, especially monoculture has affected the natural biodiversity through the simplification of habitats and ecosystems. As a result, the loss of floristic and structured diversity leads to the reduction of faunal heterogeneity. It is in this direction that strategies could be useful in restoring or at least improving local species diversity, in terms of flora and fauna (Altieri 1991 as cited by Ceniza 1995). The key is to identify the type of biodiversity that is desirable to maintain and or enhance in order to carry out ecological services, and then to determine the best practices that will encourage the desired biodiversity components. The role of agroecologists should be to encourage those agricultural practices that increase the abundance and diversity of above- and below-ground organisms, which in turn provide key ecological services to agroecosystems (Altieri and Nicholls 2005).

Rationale

This study was geared towards knowledge generation using the participatory approach to create a better understanding of the diversity and availability of critical arthropod faunal resources in Mt. Malindang. These critical resources include the economically important, threatened, and abundant species. Efforts were directed on analysis of the interactions of the multifarious factors that affect and influence

these resources. An assessment of the scientific and indigenous knowledge systems on biodiversity conservation was also conducted. The ultimate goal was to identify, recommend and develop concrete strategies to enhance the capability of the local communities and other stakeholders towards the conservation and sound management of Mt. Malindang's biodiversity resources.

Objectives

The general objective of the study was to develop a better understanding of the landscape and management of the critical arthropod faunal resources in Mt. Malindang through assessment of the existing arthropod diversity resource and analysis of the significant interrelationships of the arthropod fauna with other resources in the area.

The specific objectives of the study were to: (1) identify the arthropods in the forest and agroecosystems in Mt. Malindang; (2) determine the richness and endemism of the arthropod faunal species; (3) identify the biodiversity parameters for designing appropriate conservation and management schemes of

critical resources; (4) assess the impact of socioeconomic-cultural activities on the arthropod biodiversity resource use; (5) harmonize indigenous knowledge system (IKS) in designing monitoring system for arthropod diversity resource use and conservation practices; (6) organize a network of stakeholders in various communities for the implementation of scientifically harmonized IKS monitoring and conservation practices; (7) promote awareness on arthropod resource diversity and conservation; and (8) develop additional integrated development and biodiversity conservation strategies in local biodiversity conservation for local communities.

Methodology

Site selection

Seventeen sites with 10 subsites were established as research areas for the arthropod fauna study (Table 1). The different sites were located within the barangays of Lake Duminagat, Gandawan, and Mansawan of Don Victoriano; Old Liboron, Sebucal, Mialen, Toliyok, and Bunga of Oroquieta City; Peniel of Lopez Jaena; and Mamalad of Calamba, Misamis Occidental.

The sites were categorized according to vegetation types with partial reference to altitude. North Peak at altitudes of 1,800-2,185 meters above sea level (masl) and Mt. Ginlajan at 1,700-1,900 masl are mossy forests. Mt. Ulohan sa Dapitan at 1,450-1,700 masl and Mt. Pungol at 1,400-1,600 masl are montane forests. Old Liboron at altitudes of 1,200-1,400 masl is an almaciga forest. Mt. Capole at 900-1,100 masl is a submontane dipterocarp forest. Sites 11 in Peniel and 16 in Mamalad at altitudes of 450-900 masl are mixed dipterocarp forests. Sites 13 in Mialen and 16a in Mamalad at altitudes ranging from 220 to 500 masl are lowland dipterocarp forests. Site 15 in Toliyok at 220-450 masl is a mixed lowland dipterocarp forest. Sites 11a in Peniel and 19 in Bunga at altitudes of 120-900 masl are plantations or degraded forests.

Ten subsites (north and south exposures) were established at the research sites of North Peak, Mt. Ulohan sa Dapitan, Mt. Capole, site 13 in Mialen, and site 15 in Toliyok.

The other sites located in barangays Lake Duminagat, Mansawan, Gandawan, Sebucal, Mialen, Toliyok, Bunga, Peniel, and Mamalad at altitudes of $\pm 1,000$ masl were categorized as agroecosystems which were either planted to vegetables, cereals or are agroforests and grass-dominated fallowed areas.

Establishment of Sampling Plots

Sampling plots with a dimension of 20 x 20 m along the N-S transect were established at every 250 m change in elevation and 500 m horizontal distance between plots using GPS or altimeter. Based on elevation gradients, the south or north

slope exposure had two sample plots along the N-S transect, representing center plots. One sample plot on each side of the center plot at the distance of 500 m was prepared. A total of six sample plots were, therefore, established.

Sampling Procedure

Visual Sampling. In every 20 x 20 m plot, one 1 x 1 m quadrat was established at the upper right corner of the main plot. However, if this quadrat was not an ideal site, another site within the plot was selected. The plants in this quadrat were examined for the presence of arthropods. Visual sampling started from the lower to the upper part of the plants. Sweep nets were used for collecting flying insects.

Arthropods were counted and recorded according to species. Samples of each species were taken as voucher specimens.

Sweep Net Sampling. For grasslands and agroecosystems, systematic sweeps were performed in two intersecting diagonal strips extending from end to end of each 20 x 20 m plot. Catches were sorted, counted, and recorded. Samples were taken as voucher specimens.

Opportunistic Sampling. Within the 20 x 20 m forest plots, opportunistic sampling was done. Vertical 250 x 10 m transects between center plots were also utilized for this sampling. Catches were sorted, counted, and recorded. Samples were taken as voucher specimens.

Threatened Faunal Species

Information of species occurrence and resource use were obtained through key informant interviews and focus group discussions (FGD). These information were needed to validate the data gathered from the field and to verify species that might not have been encountered during actual sampling. A list of threatened species based on sampling results as well as endemic, economically and culturally important species was generated after the conduct of field assessment, semi-structured interviews, and

Table 1. Vegetation types of arthropod fauna study in Mt. Malindang Range Natural Park (MMRNP).

Vegetation Types	Location	Altitude (masl)	Site/ Subsite
Mossy Forest	North Peak, Lake Duminagat, Don Victoriano	1,800-2,185	1/(1,2)
	Mt. Ginlajan, Lake Duminagat Don Victoriano	1,700-1,900	2
Montane Forest	Mt. Ulohan sa Dapitan, Lake Duminagat, Don Victoriano	1,450-1,700	3/(1,2)
	Mt. Pungol, Gandawan, Don Victoriano	1,400-1,600	4
Almaciga Forest	Old Liboron, Oroquieta City	1,200-1,400	9
Submontane Dipterocarp Forest	Mt. Capole, Sebucal, Oroquieta City	900-1,100	5/(1,2)
Mixed Dipterocarp Forest	Peniel, Lopez Jaena	450-900	11
	Mamalad, Calamba		16
Lowland Dipterocarp Forest	Mialen, Oroquieta City	220-500	13/(1,2)
	Mamalad, Calamba		16a
Mixed Lowland Dipterocarp Forest	Toliyok, Oroquieta City	220-450	15/(1,2)
Plantation and Degraded Forest	Peniel, Lopez Jaena	120-900	11a
	Bunga, Oroquieta City		19
Agroecosystem Vegetable	Lake Duminagat, Don Victoriano; Gandawan, Don Victoriano; Mansawan, Don Victoriano; Sebucal, Oroquieta City; Peniel, Lopez Jaena; Mialen, Oroquieta City	> 1,000	6; 7; 8; 10; 12 and 14
Cereals	Sebucal, Oroquieta City; Peniel, Lopez Jaena; Mialen, Oroquieta City; Toliyok, Oroquieta City; Mamalad, Calamba	< 1,000	10a; 12a; 14a; 17 and 18
Agroforestry	Mialen, Oroquieta City; Toliyok, Oroquieta City; Bunga, Oroquieta City	< 1,000	14b; 17a and 20
Grass-dominated fallowed areas	Lake Duminagat, Don Victoriano; Gandawan, Don Victoriano; Mansawan, Don Victoriano	> 1,000	6a; 7a and 8a
	Sebucal, Oroquieta City; Peniel, Lopez Jaena	< 1,000	10b and 12b

Legend:

(1,2): 1- North Exposure, 2 - South Exposure

FGD. The data generated was used in formulating mitigating measures to minimize or eliminate unsustainable resource utilization practices.

Biodiversity Indices

Data analysis includes the computations of diversity indices to evaluate diversity of arthropod taxa within sites and to assess diversity of the landscape as a whole.

For each of the sampling site, which represented an ecosystem, the following arthropod biodiversity parameters were considered:

Species Richness. Species richness refers to the actual number of species as a direct measurement.

Species Diversity. Species diversity refers to the number (species richness) and relative abundance of species in a biological community (Campbell *et al.* 2000). Shannon's index of diversity (H') measures the average degree of 'uncertainty' in predicting to what species an individual chosen at random from a collection of S species and N individuals belong. Shannon's index of diversity was computed using the formula:

$$H' = -\sum_{i=1}^S \left(\frac{n_i}{n} \ln \left(\frac{n_i}{n} \right) \right)$$

Where:

n_i = the number of individuals belonging to the i^{th} of S of species in the sample

n = the total number of individuals in the sample

Pearson's Index of Similarity (S). The Pearson's Index of Similarity (S) is a clustering analysis, measuring the degree to which the species composition is alike or different between and among sites.

Correspondence Analysis. Correspondence analysis is a type of ordination to determine community similarity, which uses reciprocal averaging to determine axis values. It is used to describe data consisting counts.

Socioeconomic-cultural Activities and Biological Properties of the Ecosystem

Workshops with the BRP socioeconomic group were conducted to integrate the findings and relate the socioeconomic data, which were derived from objectives 1, 2, and 3 of the arthropod fauna survey. Consultations with the local community were likewise conducted to validate the data gathered from the field.

Formulation of Recommendations for Increasing Awareness on Biological Diversity and Conservation

A package of recommendations that contained suggested specific information, education and communication (IEC) materials (e.g., flyers and posters), as well as set of strategies or schemes for the conservation and management of critical resources were prepared. These recommendations were based on field sampling results and information which were obtained through structured interviews and FGDs.

Data gathered especially on threatened and endemic species shall be transported for GIS mapping featuring the need for faunal conservation in selected sites.

Results and Discussion

Arthropod Composition

The various arthropod taxa of Mt. Malindang Range Natural Park (MMRNP) are shown in Table 2 and Figure 1. Seven hundred forty-one species representing five arthropod classes are recorded. The insects comprise the biggest bulk with 14 orders, namely, Odonata, Ephemeroptera, Blattodea, Dermaptera, Isoptera, Orthoptera, Phasmatodea, Mantodea, Hemiptera, Neuroptera, Coleoptera, Diptera, Lepidoptera, and Hymenoptera, while the Arachnida are represented by Acarina (mites), Araneida (spiders), Phalangida (daddy long legs), and Scorpionida (scorpions). Other classes include Crustacea (crabs), Chilopoda (centipedes), and Diplopoda (millipedes).

The most speciose taxa which account 78.37 percent are the Coleoptera (beetles) with 258 species, Hemiptera (bugs, hoppers, cicadas, etc.) with 157 species, Hymenoptera (bees, wasps, and ants) with 62 species, Diptera (true flies) with 53 species, and Araneida (spiders) with 51 species.

The Coleoptera constitute 34.86 percent of the arthropod species in Mt. Malindang. The Hemiptera ranked second, 21.08 percent, followed by Hymenoptera (8.38%), Diptera (7.16%), and Araneida (6.89%).

The remarkable proportion of Coleoptera in Mt. Malindang is undisputable just like in any Philippine arthropod inventory (Baltazar 2001; Gapud *et al.* 2001; Ceniza 1995) and on any worldwide inventory study (Daly *et al.* 1998; Gullan and Cranston 2000; Brusca and Brusca 2003). Lepidoptera, Hymenoptera, Diptera, and Hemiptera may interchange ranks from second to fifth in various arthropod assessment studies. However, in this study in Mt. Malindang, Lepidoptera ranked seventh since most moths were not included and it was represented by butterflies and skippers only.

The orders Orthoptera (grasshoppers, katydids, crickets), Lepidoptera (butterflies and skippers), Odonata (dragonflies and damselflies), Phasmatodea (stick and leaf insects), Mantodea (preying mantis), and Blattodea (cockroaches)

have corresponding ranks of sixth to eleventh representing proportions ranging from 5.14 percent for Orthoptera to 1.62 percent for Blattodea. A small proportion of the pie chart (0.68%) is represented by two species each of Dermaptera (earwigs) and Neuroptera (lacewings), and one species of Ephemeroptera (mayflies) and Isoptera (termites).

The other arthropods which comprise only 0.84 percent of the pie chart include one species each of Phalangida (phalangids), Acarina (mites), Scorpionida (scorpions), Crustacea (crabs), Chilopoda (centipedes), and Diplopoda (millipedes).

Endemic Arthropods

The current identification of Malindang arthropod species is ongoing and may take a considerable period to complete, considering that the study of the Malindang components is the first initiative. While current estimates of endemic species show a total of 17 Philippine endemics, 23 Mindanao endemics, and 67 MMRNP endemics, of which 41 species are beetles (Table 3), many more species of arthropods remain to be discovered and described. Out of the 67 endemic arthropod species, at least 21 species are associated with endemic host plants (Table 4).

Out of the 28 species of Odonata (damselflies and dragonflies), six are Philippine endemics and seven are Mindanao endemics. The Philippine endemics include the dragonflies, *Heteronaias heterodoxa* (Selys) (Corduliidae) (Figure 2); *Heliogomphus bakeri* Laidlaw (Gomphidae), and *Diplacina braueri* (Selys) (Libellulidae), as well as, the damselfies, *Vestalis melania* Selys (Calopterygidae), *Rhinocypha turconii* Selys (Chlorocyphidae), and *Prodasineura integra* (Selys) (Protoneuridae).

The Mindanao endemic Odonatans are all damselflies which include *Devadatta podolestoides basilanensis* Laidlaw (Amphipterygidae) (Figure 3), *Cyrano angustior* Hämäläinen (Chlorocyphidae), *Rhinocypha dorsosanguinea* Lieftinck (Chlorocyphidae), and three species of Platycnemididae represented

Table 2. Arthropod composition of Mt. Malindang Range Natural Park (MMRNP).

Order	Families	Genera	Number of Species	Percentage (%)
Class Insecta				
1. Odonata	11	21	28	3.78
2. Ephemeroptera	1	1	1	0.14
3. Blattodea	3	4	12	1.62
4. Dermaptera	2	2	2	0.27
5. Isoptera	1	1	1	0.14
6. Orthoptera	7	33	38	5.14
7. Phasmatodea	5	17	24	3.24
8. Mantodea	1	3	13	1.76
9. Hemiptera	30	64	156	21.08
10. Neuroptera	2	2	2	0.27
11. Coleoptera	22	86	258	34.86
12. Diptera	11	12	53	7.16
13. Lepidoptera	5	25	34	4.59
14. Hymenoptera	23	47	62	8.38
Class Arachnida				
15. Acarina	1	1	1	0.14
16. Araneida	5	16	51	6.89
17. Phalangida	1	1	1	0.14
18. Scorpionida	1	1	1	0.14
Class Crustacea				
19. Crabs	1	1	1	0.14
Class Chilopoda				
20. Centipede	1	1	1	0.14
Class Diplopoda				
21. Millipede	1	1	1	0.14
TOTAL	135	340	741	100

Table 3. Endemic arthropod species of Mt. Malindang Range Natural Park (MMRNP).

Taxa	Number of Species	Number of Endemic Species		
		Philippine endemics	Mindanao endemics	MMRNP endemics
1. Odonata	28	6	7	0
2. Ephemeroptera	1	-	-	-
3. Blattodea	12	-	-	-
4. Dermaptera	2	-	-	-
5. Isoptera	1	-	-	-
6. Orthoptera	38	4	6	0
7. Phasmatodea	24	-	-	24
8. Mantodea	13	-	-	-
9. Hemiptera	156	3	1	0
10. Neuroptera	2	-	-	-
11. Coleoptera	258	0	3	41
12. Diptera	53	-	-	-
13. Lepidoptera	34	4	6	2
14. Hymenoptera	62	-	-	-
15. Spiders	51	-	-	-
16. Other	6	-	-	-
TOTAL	741	17	23	67

¹ includes phalangids, mites, scorpion, centipedes, millipedes and crabs

Table 4. Mt. Malindang endemic arthropods and their associated endemic host plants.

MMRNP Endemic Arthropod	Associated Host Plants	
	Local name	Scientific name
COLEOPTERA Curculionidae Gymnetrinae <i>Alcidodes</i> sp. 1	Salumay	<i>Macaranga dipterocarpifolia</i> *
Entiminae: Pachrrhynchini <i>Metapocyrtus</i> sp. 1	Bintuko	<i>Melicope monophylla</i> **
<i>Metapocyrtus</i> sp. 3	Hantutungaw	<i>Astrocalyx calycina</i> **
<i>Metapocyrtus</i> sp. 6	Karupay Babakag	<i>Pinanga insignis</i> ** <i>Ascarina philippinensis</i> **
<i>Metapocyrtus</i> sp. 7	Danlugan	<i>Shorea contorta</i> *
<i>Metapocyrtus</i> sp. 12	Babasa Babakag	<i>Polyosma philippinensis</i> ** <i>Ascarina philippinensis</i> **
<i>Pachyrrhynchus</i> sp. 1	Lalago pino Karupay Silangka	<i>Cyrtandra umbellifera</i> ** <i>Pinanga insignis</i> ** <i>Impatiens montalbanica</i> **
<i>Pachyrrhynchus</i> sp. 3	Lalalago dako	<i>Cyrtandra cumingii</i> **
<i>Pachyrrhynchus</i> sp. 5	Gantaw	<i>Cyathea apoensis</i> **
Cryptorhynchinae <i>Odosyllis</i> sp. 1	Tatanak	<i>Gardenia longiflora</i> **
<i>Tragopus</i> sp.	Gantaw Balangong lagwis	<i>Cyathea apoensis</i> ** <i>Saurauria latiflora</i> **
<i>Otiorrhynchinae</i> sp. 1	Hantutungaw	<i>Astrocalyx calycina</i> **
<i>Otiorrhynchinae</i> sp. 2	Tagima	<i>Schefflera alvarezii</i> **
PHASMATODEA Aschiphasmataidae Aschiphasmatinae Aschiphasmatini <i>Orthomeria</i> sp. 1	Gantaw	<i>Cyathea apoensis</i> **
<i>Diapheromeridae</i> sp. 1	Kalingag Lalago pino Danlugan	<i>Cinnamomum mercadoi</i> * <i>Cyrtandra umbellifera</i> ** <i>Shorea contorta</i> *
<i>Lonchodes</i> sp. 1	Babakag	<i>Ascarina philippinensis</i> **
<i>Lonchodes</i> sp. 3	Buyo-buyo	<i>Piper catubiguensis</i> **
Necrosiinae	Karupay Baraas Babakag	<i>Pinanga insignis</i> ** <i>Freycinetia multiflora</i> Merr. ** <i>Ascarina philippinensis</i> **
<i>Necrosiinae</i> sp. 1	Gantaw	<i>Cyathea apoensis</i> **
Heteropterygidae Obriminae <i>Obrimini</i> sp. 1	Gantaw	<i>Cyathea apoensis</i> **
<i>Euobrimus</i> sp.	Babakag Lalago dako	<i>Ascarina philippinensis</i> ** <i>Cyrtandra cumingii</i> **

* - identified both endemic and threatened host plants by the BRP flora study

** - identified endemic host plants by the BRP flora study

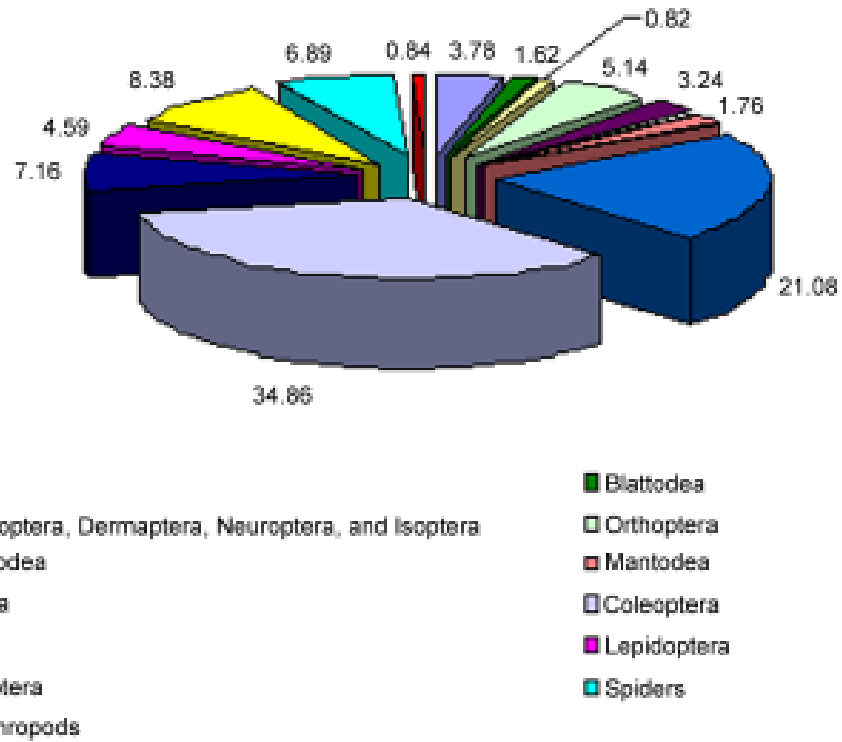


Figure 1. Proportional representation of the arthropod groups of Mt. Malindang Range Natural Park (MMRNP) with a total of 741 species.



Figure 2. Philippine endemic dragonfly, *Heteronaias heterodoxa* (Selys), Corduliidae.



Figure 3. Mindanao endemic *Devadatta podolestoides basilanensis* Laidlaw (Amphipterygidae).



Figure 4. Greater Mindanao endemic *Risio cnemis flammea* (Selys) (Platycnemididae).

by *Coeliccia dinoceras* Laidlaw, *Risio cnemis* (R.) *appendiculata* (Brauer), and *Risio cnemis* (*Igneocnemis*) *flammea* (Selys) (Figure 4).

Damselflies in Mindanao are 28 percent endemics while 40 percent are Philippine endemics. The low endemism of damselflies in contrast to the findings of Gapud 2005 might be attributed to sampling site stations where sites were established at least 50 m away from water tributaries/bodies. Majority of endemic damselflies are residents of forested streams and brooks especially the endemic genus *Risio cnemis* (Gapud 2005).

The Orthopteran endemic species include four Philippine and six Mindanao endemic species. The Philippine endemic species include *Melicodes tenebrosa* (Walker) (Acrididae), *Diotarus verrucifer* Stal (Tetrigidae) (Figure 5) and the two species of Tettigoniidae, *Segestes* sp. nr. *vittaticeps* Stal (Mecopodinae), and *Tympanoptera* sp. nr. *philippina* (Hebard) (Pseudophyllinae) (Figure 6).

Out of the six Mindanao endemic Orthopterans, four are Tettigoniidae and one species each for Tetrigidae, *Misythus* sp. nr. *jubatus* Hebard (Figure 7), and Trigonopterygidae, *Systella philippinensis* (Walker) (Figure 8). The Tettigoniidae include *Anthractes* sp. nr. *major* Hebard (Conocephalinae) (Figure 9), *Xiphidiopsis*

drepanophra Hebard and *X. gemmicula* Hebard (Meconematinae), and *Morsimus* sp. nr. *serratus* Beier (Pseudophyllinae) (Figure 10).

The 24 Mindanao or MMRNP endemic species of Phasmatodea are enumerated in Appendix Table 19. *Orthomeria* sp. 1 represents Aschiphasmatidae; *Euobrimus* sp. for Heteropterygidae; *Phyllium* sp. for Phyllidae (Figure 11); the three species *Phobaeticus* sp., *Pharnacia*(?) sp. and *Baculum* sp. represent Phasmatidae; and the six species, *Lonchodini* sp. 1, *Lonchodes* sp., *Necrosiinae* sp., *Asceles* sp., *Marmessoidea* sp., and *Necrosia* sp. represent Diapheromeridae. Phasmatodea in Mindanao/MMRNP are all endemics. All species remain undescribed.

Out of 156 Hemiptera species of MMRNP, only three reduviid species are Philippine endemics which include *Ischnobaena macerrima* Stal, *Euagoras plagiatus* and *Veleda brevispines* Stal (Appendix Table 20). One treehopper, *Emphusis bakeri* Funkhouser (Membracidae) (Figure 12) is Mindanao endemic. No species is recorded as MMRNP endemic.

From a total of 258 Coleoptera species of MMRNP, three are Mindano endemics and 41 are MMRNP endemics (Appendix Table 21). The Mindanao endemic species include *Xenocerus striatus* Jordan, Anthribidae; *Nupserha* sp., Cerambycidae; and *Mimoplasia diversenotata* von Breuning, Cerambycidae. The 41 MMRNP endemic species are all Curculionidae (weevils) distributed as follows: two species of *Alcidodes* (Figure 13 A), two Rhynchophorinae, 14 *Metapocyrtus* (Figure 13 B-E), six species of *Pachyrrhynchus* (Figure 13 F-I), and Otiorrhynchinae, two *Odosyllis*, and one species each of *Tragopus*, *Calidiopsis*, *Paepalosomus*, *Nauphaeus*, and *Eugnathus*. The other four weevil species are undetermined.

The 41 species of Curculionidae in MMRNP are all considered endemics. This confirms the assessment of Gapud (2005) where the pachyrrhynchine weevils are specifically over 95 percent endemics. Although the Malindang pachyrrhynchines remain undescribed, all are likely to be endemic to Mindanao.

The 12 endemic butterflies (Lepidoptera) are categorized into four Philippine endemics, six Mindanao endemics, and two MMRNP endemics



Figure 5. Philippine endemic tetrigid, *Diotarus verrucifer* Stal.



Figure 6. Philippine endemic tettigoniid, *Tympanoptera* sp. nr. *philippina* Hebard.



Figure 7. Mindanao endemic tetrigid, *Misythus* sp. nr. *jubatus* Hebard.



Figure 8. Greater Mindanao endemic trigonopterygid, *Systella philippinensis* (Walker).



Figure 9. Mindanao endemic tettigoniid, *Anthracites* sp. nr. *major* Hebard.



Figure 10. Mindanao endemic tettigoniid, *Morsimus* sp. nr. *serratus* Beier.



Figure 11. Mindanao/MMRNP endemic phylliid (leaf insect), *Phyllium* sp.



Figure 12. Mindanao endemic treehopper, *Emphusis bakeri* Funkhouser.



A



B



C



D



E



F



G



H



I

Figure 13. MMRNP endemic curculionids: A. *Alcidodes* sp., B. *Metapocyrtus* sp. 1, C. *Metapocyrtus* sp. 3, D. *Metapocyrtus* sp. 7, E. *Metapocyrtus* sp. 11, F. *Pachyrrhynchus* sp. 2, G. *Pachyrrhynchus* sp. 4, H. *Pachyrrhynchus* sp. 5, I. *Pachyrrhynchus* sp. 6.

(Appendix Table 22). The Philippine endemics include *Athyma maenus semperi* (Nymphalidae) and three Papilionidae species, *Menelaides hystaspes* (Figure 14 A), *M. rumanzovia rumanzovia* (Figure 14 B), and *Troides magellanus*. The Mindanao endemic subspecies include *Choaspes plateni adhara* (Hesperiidae) (Figure 15), *Mycalesis ita imeldae* (Nymphalidae), and four subspecies of Pieridae, *Delias baracasa baracasa*, *D. henningia ochreopicta* (Figure 16), *Eurema hiurai hiurai*, and *E. sarilata sarilata*. The two MMRNP endemic subspecies are *Parantica dannatti malindangensis* (Nymphalidae) (Figure 17), and *Delias diaphana basilisae* (Pieridae) (Figure 18).

Arthropod Species Richness and Diversity

Arthropods in Mt. Malindang have varied richness and diversity values as presented per vegetation (Table 5 and Figure 19). The arthropods in the forest vegetation types are generally more diverse than the agroecosystem communities. Higher arthropod diversity indices in forest vegetation types may be attributed to the plant architecture in these types which provide more ecological niches suitable for the establishment of arthropods than the relatively simple set up within agroecosystem communities.

The arthropods are most diverse (355 species, $H' = 2.397$) in the mixed dipterocarp forest. This is followed by the arthropods in the mossy forest (169 species, $H' = 2.015$) and plantation or degraded forest (136 species, $H' = 2.002$). The lowest arthropod species inventory of 30 species with corresponding lowest diversity value of 1.252 is observed in the agro-cereal community. The mixed dipterocarp forest is a patch of the remaining natural forest. Its complex structure may have largely contributed to the high arthropod species richness and diversity. The low diversity of arthropods in the agro-cereal community might have been influenced by the simplicity of vegetation structure in monocultured cereals.

When treated per site (Table 6 and Figure 20), the arthropods in Peniel mixed dipterocarp forest has the richest (316 species) and the most diverse ($H' = 2.348$) arthropods while the agro-cereal community in Sebucah has the least diverse ($H' = 0.949$) arthropods.

Arthropod Species Similarity

Comparison of similarities of arthropod fauna among vegetation types is presented in Figure 21. Arthropod fauna are grouped into three main clusters with three outgroups.

The largest cluster is composed of agroecosystem communities. The vegetable-grass-dominated communities of Gandawan, Mansawan, and Lake Duminagat have the closest similarity of arthropods. Gandawan and Mansawan have a similarity coefficient of 0.59, while Lake Duminagat has a coefficient of 0.35. The proximity of these sites may have contributed to the similarity of the species. The arthropods of the agroforest of Mamalad compared to the agroforest-cereal of Mialen have low similarity but their connection to the Mansawan-Gandawan-Lake Duminagat sub-cluster might be due to the presence of common hosts or alternate hosts in these areas.

The second cluster of arthropod species shows the similarity of the species among the mossy, montane and almaciga forests and agro-cereal-grass-dominated communities. The similarity coefficient of 0.5 between the mossy and montane forests as regards species composition indicates proximity of these sites, while the similarity between the agro-cereal-grass-dominated community and the almaciga forest of both Sebucah sites might be due to the presence of almaciga patches near the agro-cereal-grass-dominated communities. The connectivity of these four sites might be due to the more or less equal densities of phalangids recorded in these sites.

The similarities among the mixed lowland dipterocarp of Toliyok and Mamalad, plantation forest of Bunga and Peniel and the agroforest-cereal communities of Toliyok are depicted in the third cluster. These similarities manifested proximity of these areas.

The lowland dipterocarp forest (Mialen), submontane dipterocarp forest (Mt. Capole), and agro-cereal-grass-dominated community are considered outgroups as they appear to show little species similarities among each other or with any of the three clusters.



A



B

Figure 14. Philippine endemic papilionids: A. *Menelaides hystaspes* (C & R Felder), B. *Menelaides rumanzovia rumanzovia* (Eschscholtz).



Figure 15. Mindanao endemic hesperiid, *Choaspes plateni adhara* Mabilie.



Figure 16. Mindanao endemic pierid, *Delias henningia ochreopicta* Butler.



Figure 17. MMRNP endemic nymphalid, *Parantica dannatii malindangensis* Treadaway.

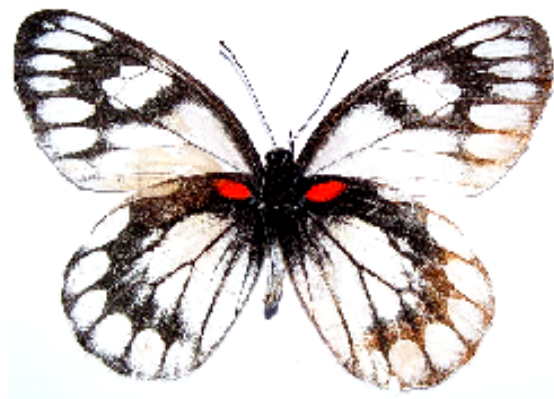


Figure 18. MMRNP endemic pierid, *Delias diaphana basilisae* Schroeder & Treadaway.

Table 5. Species richness and species diversity at different vegetation types of arthropod fauna in Mt. Malindang Range Natural Park (MMRNP).

Vegetation Types	Location	Total Individuals	Species Richness	Species Diversity
1. Mossy Forest	North Peak Mt. Ginlajan	529	169	2.015
2. Montane Forest	Mt. Ulohan sa Dapitan Mt. Pungol	478	122	1.857
3. Almaciga Forest	Old Liboron	132	54	1.529
4. Submontane Dipterocarp Forest	Mt. Capole	312	108	1.569
5. Mixed Dipterocarp Forest	Peniel Mamalad	842	355	2.397
6. Lowland Dipterocarp Forest	Mialen Mamalad	486	138	1.726
7. Mixed Lowland Dipterocarp Forest	Toliyok	195	115	1.91
8. Plantation and Degraded Forest	Peniel Bunga	279	136	2.002
9. Agroecosystem				
a. Vegetable	Lake Duminagat Gandawan Mansawan Sebucal Mialen Peniel	791	97	1.483
b. Cereals	Sebucal Mialen Toliyok Peniel Mamalad	124	30	1.252
c. Agroforest	Mialen Toliyok Bunga	71	40	1.497
d. Grass-dominated Fallowed Areas	Lake Duminagat Gandawan Mansawan Sebucal Peniel	447	81	1.626

Table 6. Species richness and diversity at various research sites of arthropod fauna in Mt. Malindang Range Natural Park (MMRNP).

Vegetation Types	Location	Total Individuals	Species Richness	Species Diversity	
1. Mossy Forest	North Peak	274	106	1.819	
	Mt. Ginlajan	255	113	1.887	
2. Montane Forest	Mt. Ulohan sa Dapitan	361	101	1.773	
	Mt. Pungol	117	53	1.611	
3. Almaciga Forest	Old Liboron	132	54	1.529	
4. Submontane Dipterocarp Forest	Mt. Capole	312	108	1.569	
5. Mixed Dipterocarp Forest	Peniel	731	316	2.348	
	Mamalad	111	79	1.826	
6. Lowland Dipterocarp Forest	Mialen	318	117	1.609	
	Mamalad	168	40	1.302	
7. Mixed Lowland Dipterocarp Forest	Toliyok	195	115	1.906	
8. Plantation and Degraded Forest	Peniel	97	60	1.7	
	Bunga	182	85	1.781	
9. Agroecosystem a. Vegetable	Lake Duminagat	751	131	1.791	
	Gandawan	1500	168	1.814	
	Mansawan	1912	158	1.591	
	Sebucal	47	17	1.162	
	Mialen	50	21	1.206	
	Peniel	484	84	1.337	
	b. Cereals	Sebucal	72	23	0.949
		Mialen	41	23	1.293
		Toliyok	25	17	1.187
		Peniel	44	29	1.395
		Mamalad	440	58	1.436
	c. Agroforestry	Mialen	62	33	1.417
		Toliyok	107	53	1.6
Bunga		45	33	1.474	
d. Grass-dominated Fallowed Areas	Lake Duminagat	1136	129	1.631	
	Gandawan	406	103	1.787	
	Mansawan	510	104	1.79	
	Sebucal	142	42	1.513	
	Peniel	41	29	1.411	

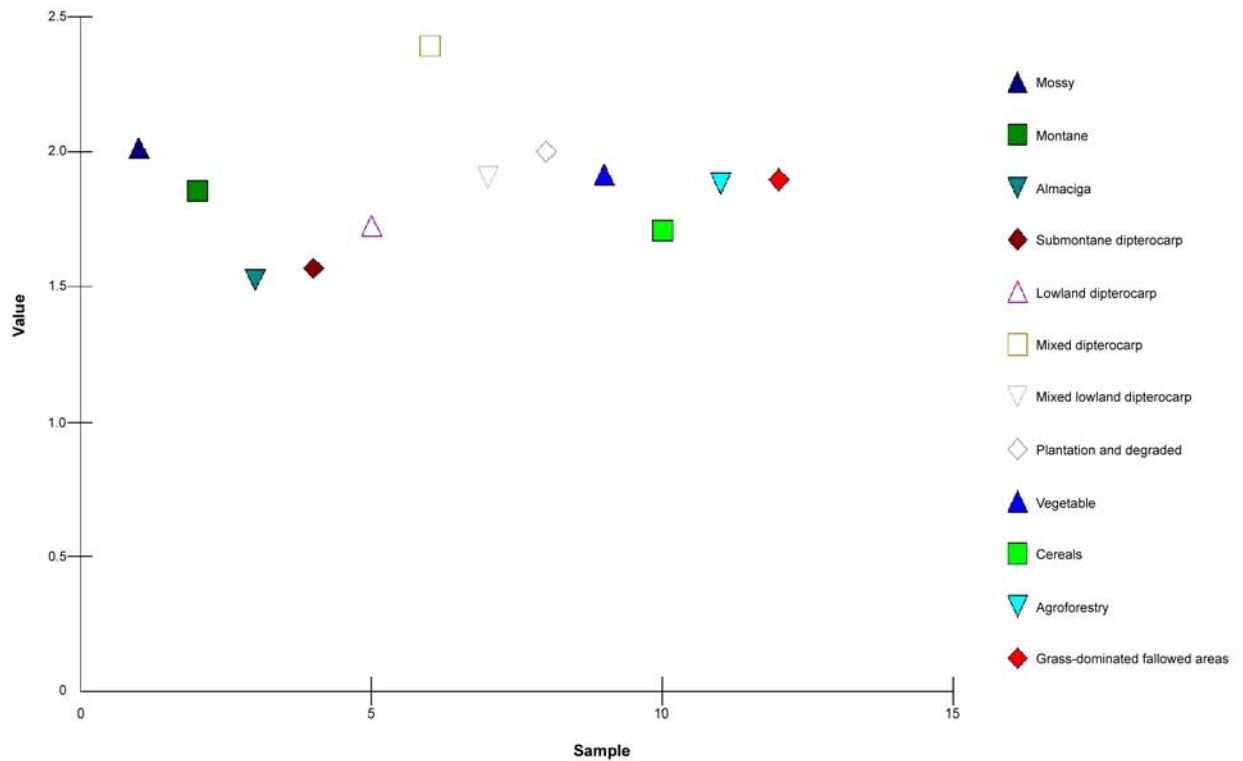


Figure 19. Species diversity of arthropod fauna per vegetation of Mt. Malindang Range Natural Park (MMRNP).

A more or less similar grouping of vegetation types is observed when correspondence analysis is used to determine similarity of species composition (Figure 22). The agroecosystem communities except the agroforest form one group. The mossy, montane, almaciga, and submontane dipterocarp forests form another group, while the third group is composed of other forests and the agroforest communities.

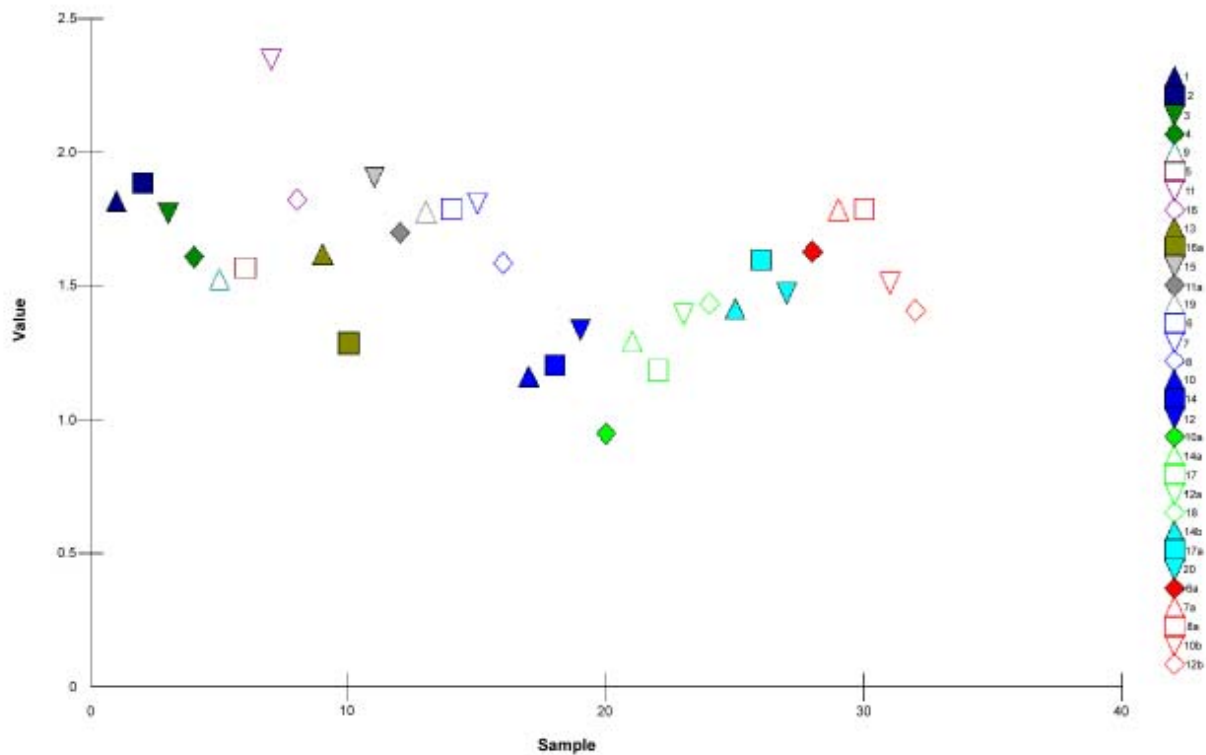
Trophic Guild Composition

Table 7 presents the number of species per trophic guild of each vegetation type. Knowledge on the biology of Mt. Malindang arthropod species is limited so the assignment of guilds was based largely on the known biology of a few species.

Approximately half of the species of arthropods are phytophagous (Figures 23-26), 26 percent

are predaceous (Figures 27-28), 7 percent are pollinators (Figure 29), 6 percent are parasitoids, 5 percent are scavengers (Figure 30), 3 percent are xyloborous (Figure 31), and 3 percent are ants. Daly *et al.* (1998) referred to this view of phytophagous proportion as related to the other guilds. The relationships of the phytophagous species with their associated host plants are partially dealt with and less efforts were spent on determining the functional relationships between specific predators and preys, parasitoids and hosts, pollinators and flowers, and other relationships. The ants have a diverse range and combination of feeding habits (Daly *et al.* 1998; Stork 1991 as cited by Ceniza 1995) so they are lumped as one guild.

The mixed dipterocarp forest has the most number of phytophagous (136), predaceous (216), xyloborous (7), and ant (15) species. The mossy forest has the most number of



Legend:

Sites: Forest ecosystem

Mossy Forest

- 1 - North Peak
- 2 - Mt. Ginlajan

Montane Forest

- 3 - Mt. Ulohan sa Dapitan
- 4 - Mt. Pungol

Almaciga Forest

- 9 - Old Liboron

Submontane Dipterocarp Forest

- 5 - Mt. Capole

Mixed Dipterocarp Forest

- 11 - Peniel
- 16 - Mamalad

Lowland Dipterocarp Forest

- 13 - Mialen
- 16a - Mamalad

Mixed Lowland Dipterocarp Forest

- 15 - Toliyok

Plantation and Degraded Forest

- 11a - Peniel
- 19 - Bunga

Agroecosystem

Vegetable

- 6 - Lake Duminagat
- 7 - Gandawan
- 8 - Mansawan
- 10 - Sebucal
- 14 - Mialen
- 12 - Peniel

Cereals

- 10a - Sebucal
- 14a - Mialen
- 17 - Toliyok
- 12a - Peniel
- 18 - Mamalad

Agroforestry

- 14b - Mialen
- 17a - Toliyok
- 20 - Bunga

Grass-dominated fallowed areas

- 6a - Lake Duminagat
- 7a - Gandawan
- 8a - Mansawan
- 10b - Sebucal
- 12b - Peniel

Figure 20. Species diversity of arthropod fauna per site in Mt. Malindang Range Natural Park (MMRNP).

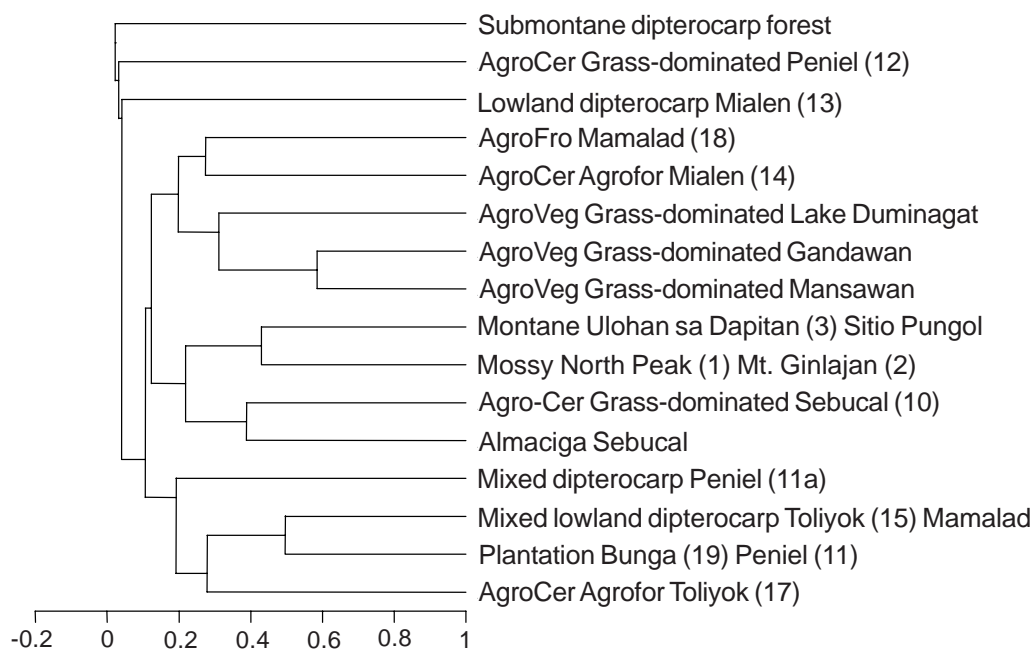


Figure 21. Community similarity matrix of arthropod fauna per vegetation using Pearson's Index of Similarity.

pollinator species (21), agro-vegetable community has 25 parasitoid species while the agro-grass-dominated fallowed community has the most number of scavengers/fungivorous (40) species.

Arthropod Fauna Resource Utilization

Arthropod fauna are largely represented in almost all types of ecosystems. However, due to their inconspicuousness - most of them are not easily recognized - they were treated with less importance. Research on the utilization of arthropod fauna in Mt. Malindang has shown that these small creatures of varied forms are equally important as the other organisms in the ecosystem.

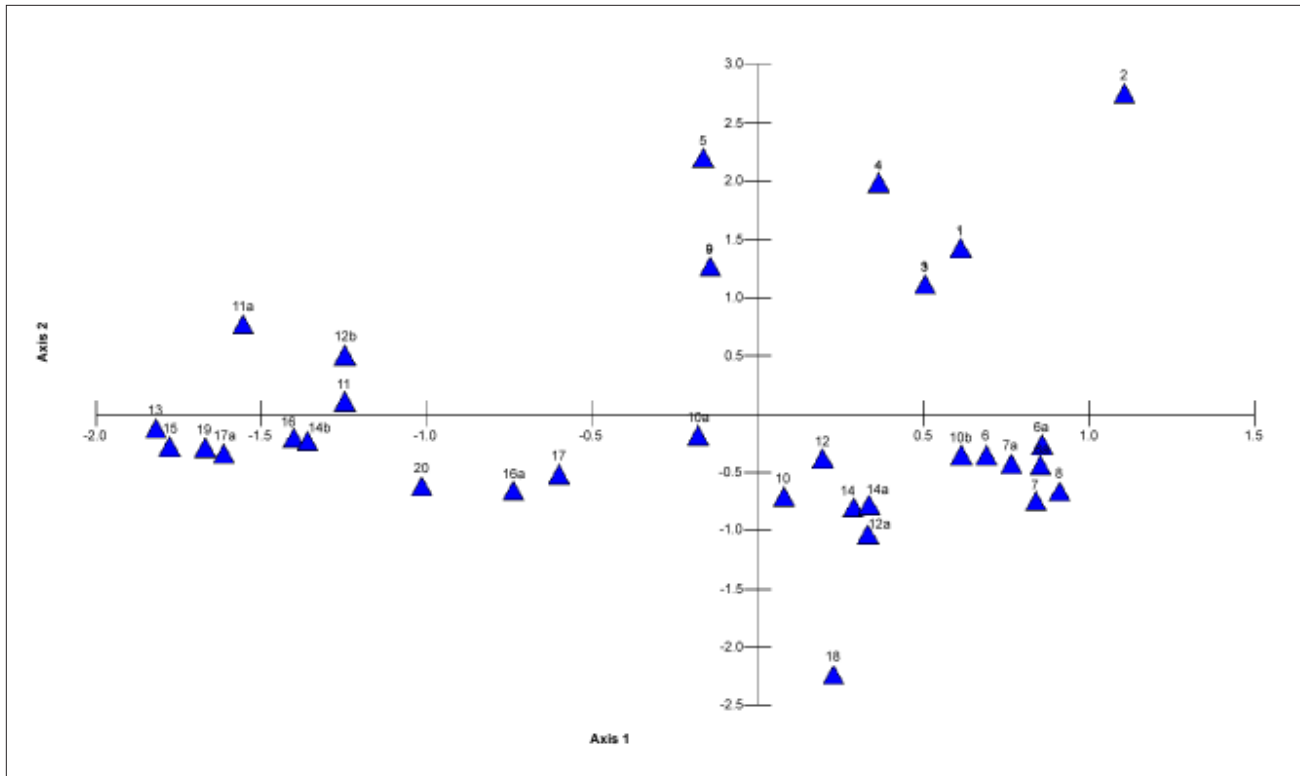
The honeybee, *Apis cerana* is well known for its honey. The male household members in Lake Duminagat, Mansawan, Sebuca, and Peniel are tasked to collect honey for family consumption, especially as medicine for children. If the harvest is about 5-6 bottles of honey per beehive, some

are sold at 100-150 pesos per bottle of 350 ml.

Some beehives containing the larvae are also collected and eaten. In some cases, the larvae are also used to feed chickens, especially the roosters for agility and endurance (as *pampaisog*) during cockfighting.

Termites, *kalong* (crabs), and coconut beetles are utilized as food and source of protein in Burgos, Lopez Jaena. Usually, the larvae and adults of coconut beetles are toasted for viand during mealtime.

The naiads of the Odonata, termites and ants are economically important, too. The naiads called *kadang-kadang* as well as termites are used as baits in fishing. The ants although recognized as playing variable roles in the ecosystem are utilized by vegetable farmers in cabbage-growing sites as control agents against worms (*bitay-bitay*). To attract the ants, they spread coconut *sapa* on cabbage plants.



Legend:

Sites: Forest ecosystem

Mossy Forest

- 1 - North Peak
- 2 - Mt. Ginlajan

Montane Forest

- 3 - Mt. Ulohan sa Dapitan
- 4 - Mt. Pungol

Almaciga Forest

- 9 - Old Liboron

Submontane Dipterocarp Forest

- 5 - Mt. Capole

Mixed Dipterocarp Forest

- 11 - Peniel
- 16 - Mamalad

Lowland Dipterocarp Forest

- 13 - Mialen
- 16a - Mamalad

Mixed Lowland Dipterocarp Forest

- 15 - Toliyok

Plantation and Degraded Forest

- 11a - Peniel
- 19 - Bunga

Agroecosystem

Vegetable

- 6 - Lake Duminagat
- 7 - Gandawan
- 8 - Mansawan
- 10 - Sebucal
- 14 - Mialen
- 12 - Peniel

Cereals

- 10a - Sebucal
- 14a - Mialen
- 17 - Toliyok
- 12a - Peniel
- 18 - Mamalad

Agroforestry

- 14b - Mialen
- 17a - Toliyok
- 20 - Bunga

Grass-dominated Fallowed Areas

- 6a - Lake Duminagat
- 7a - Gandawan
- 8a - Mansawan
- 10b - Sebucal
- 12b - Peniel

Figure 22. Correspondence analysis of arthropod fauna per site.

Table 7. Trophic guilds of selected arthropods in Mt. Malindang Range Natural Park (MMRNP).

Trophic Guild/ Selected Taxa	Number of Species											
	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agroforestry	Grass-dominated Fallow Areas
Phytophagous	77	58	28	50	137	30	29	45	102	35	22	71
Predaceous	112	79	36	71	215	68	62	85	174	69	53	189
Pollinators	21	18	5	16	11	4	1	8	12	5	4	16
Parasitoids	4	4	2	3	17	4	2	1	25	15	3	17
Scavengers/ Fungivorous	10	4	0	4	6	2	4	3	6	1	0	40
Xyloborous	5	3	1	4	7	2	1	3	4	1	1	3
Ants	0	1	1	0	15	12	10	13	9	5	12	5
TOTAL	229	167	73	148	408	122	109	158	332	131	95	341

Indigenous Knowledge on Arthropod Fauna

Indigenous knowledge on arthropod fauna is very scanty that even their common names are unknown to many.

To some, knowledge of the arthropod fauna is limited only to the metamorphosis of butterflies or dragonflies, or honeybees as source of the precious honey. In some areas, fighting cock growers utilize the protein-rich bee larvae as feed additive.

It has been a belief among native folks that a red butterfly hovering around the house signals war or trouble, while a white butterfly symbolizes a coming wedding. A brown butterfly means money, and a black one hints death.

In areas where *kalongs* (crabs) are found, the locals believe that when these kalongs come out of their habitat and seen on elevated areas, it foretells a coming rain. The vespid wasp, *Ropalidia* sp. was observed preying on the larvae of diamondback moth, *Plutella xylostella*.

Blooming of a certain flower is believed to indicate honey production. If this flower fails to bloom, the people in the locality perform a ritual that is said to enhance the blooming of the flower.

Conservation Strategies

Researchers were faced with the challenge of identifying and determining the number of threatened arthropod species of Mt. Malindang. The work on the classification of threatened species with high economic value like honeybees, crabs, and other endemic species, especially those who feed on endemic host plants was done.

A serious challenge for arthropod researchers is to determine what and how many arthropod species of Mt. Malindang are considered threatened. The population of the honeybees is threatened with indiscriminate harvesting of beehives to obtain honey and larvae of bees. The same threat is faced by the native crabs which are also harvested haphazardly for food. Endemic arthropods, especially the curculionids (beetles) and walking sticks are threatened when associated host plants are not conserved.

While the collection of the basic information on threatened arthropod species remains important, initiatives to protect the identified threatened species must be given high priority. There must be a balance between conservation of plants and vertebrates, which attract public sympathy, and the protection of MMRNP where threatened species of arthropod are still abundant. Every stakeholder may play an important role in the conservation of arthropod habitats. In view of this, arthropod researchers have strong support for any conservation measures for plants and vertebrates. Meanwhile, with the knowledge that management initiatives are targeted to help preserve certain plant and vertebrate species in the park, the local people and development managers should be informed of the threatened arthropod species within. A continuous monitoring for the population of the threatened arthropod species must be implemented.

Some Phytophagous Species

Orthoptera: grasshoppers



Figure 23. Phytophagous species of Orthoptera. Acrididae: A. *Stenocatantops splendens*, B. *Melicodes tenebrosa*, C. *Aiolopus thalassinus tamulus*, D. *Gesonula mundata zonocera*, E. *Oxya hyla intricata*, F. *Cranaella* sp.; Pyrgomorphidae: G. *Attractomorpha psittacina*.

Some Phytophagous Species

Hemiptera: true bugs

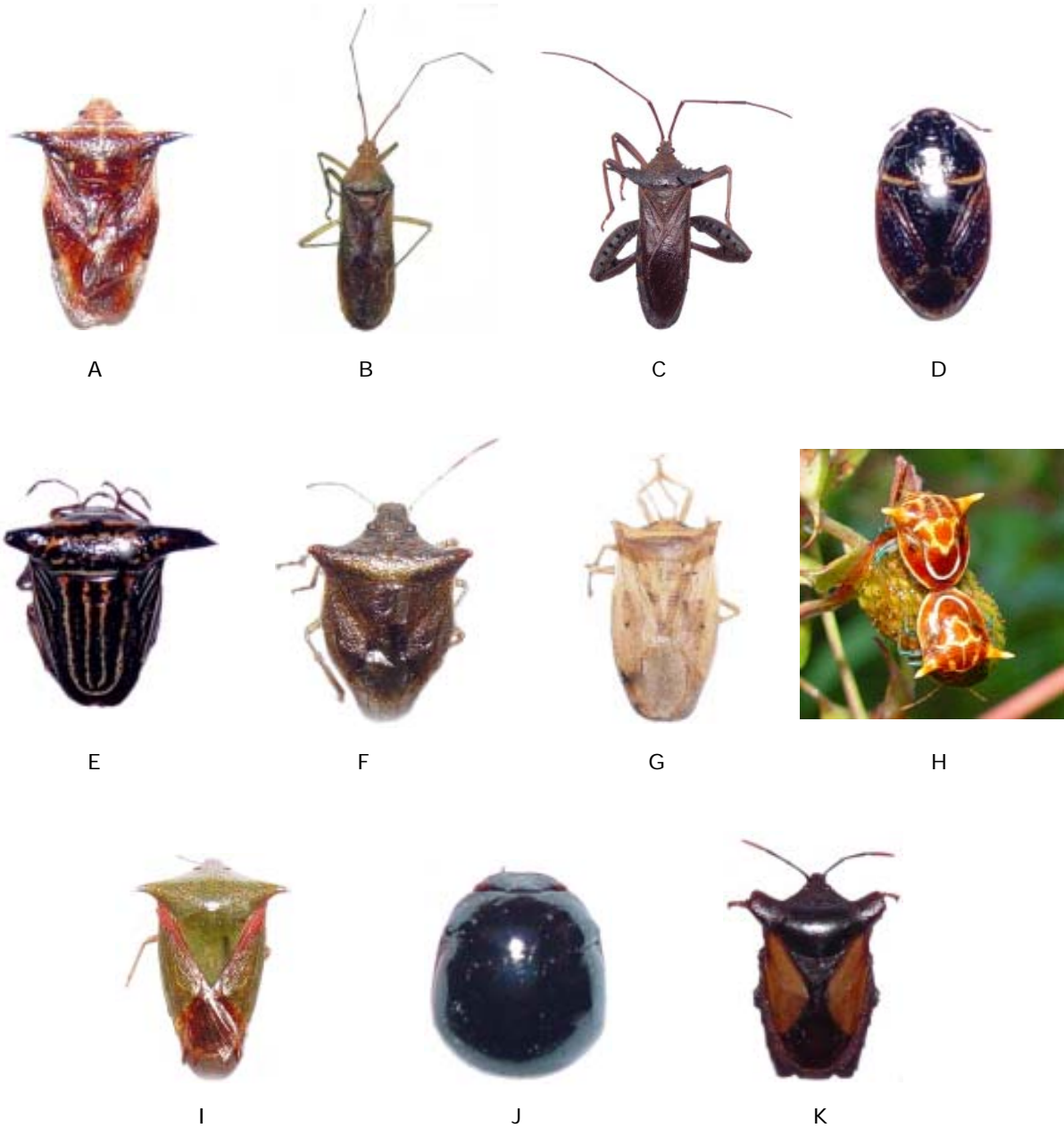


Figure 24. Phytophagous species of Hemiptera. Acanthosomatidae: A. *Sastragala* sp.; Coreidae: B. *Homoeocerus immaculatus*, C. *Prionolomia expansa*; Cydnidae: D. *Macroscytus subaeneus*; Pentatomidae: E. *Alcimocoris lineolatus*, F. *Carbula trabifera*, G. *Dalsira marginata*, H. *Hoplistodera convexa*, I. *Vitellus* sp.; Plataspidae: J. *Brachyplatys deplanatus*; Tessaratomidae: K. *Pygoplatys* sp.

Some Phytophagous Species

Coleoptera: beetles

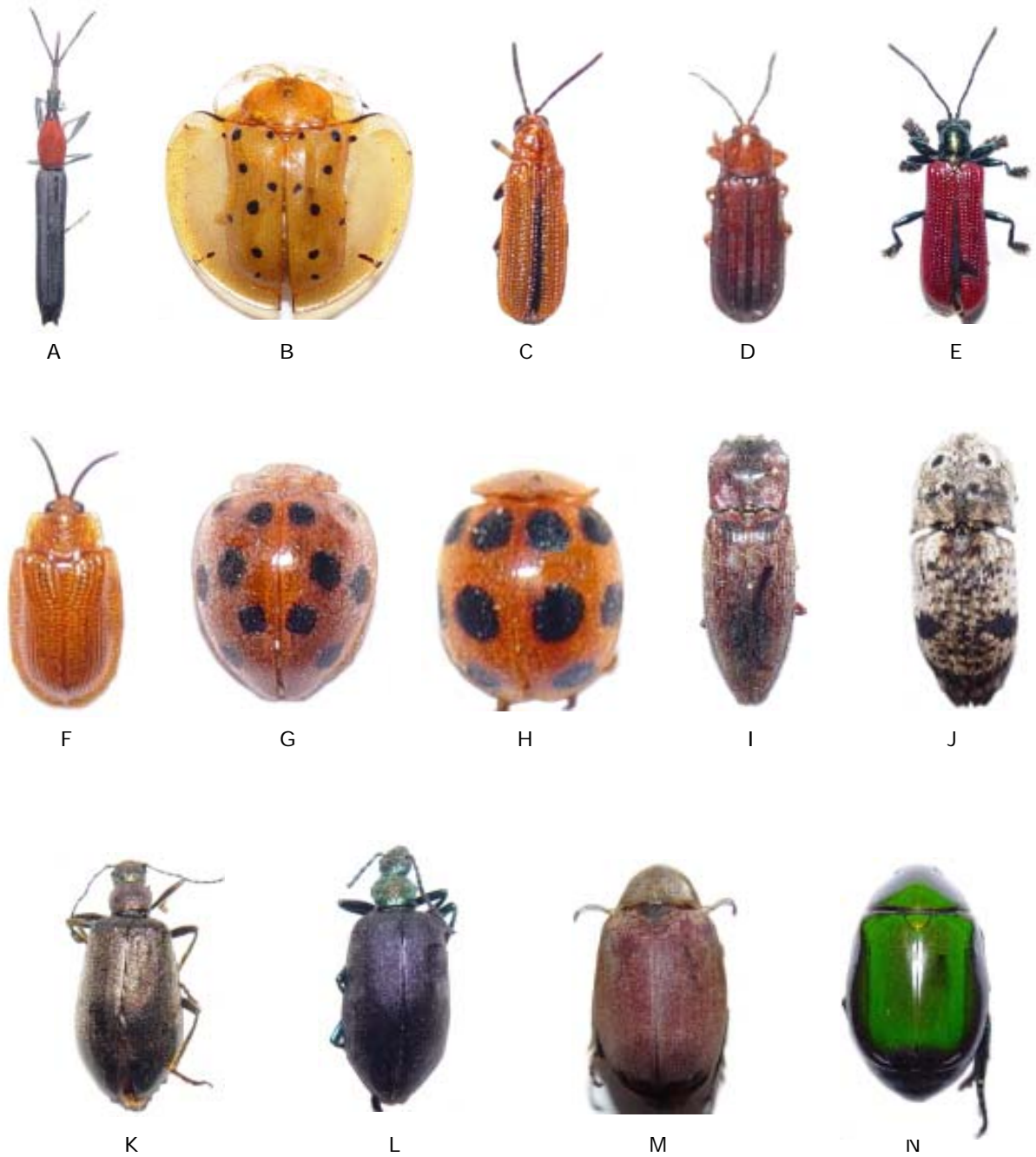


Figure 25. Phytophagous species of Coleoptera. Brenthidae: A. undet sp.; Chrysomelidae: Cassidinae: B. *Aspidomorpha miliaris*; Hispiinae: C. *Agonita* sp., D. *Wallaceana* sp., E. *Promecotheca* sp., F. *Callispa* sp.; Coccinellidae: G. *Henosepilachna boisduvali*, H. *Henosepilachna* sp.; Elateridae: I. undet sp., J. *Paracalais* sp.; Lagriidae: K. undet sp., L. undet. sp.; Scrabaeidae: M. *Leucopholis* sp., N. *Anomala* sp.

Some Phytophagous Species

Lepidoptera: butterflies



A



B



C



D



E



F

Figure 26. Phytophagous species of Lepidoptera. HesperIIDae: A. *Taractocera luzonensis luzonensis*; Nymphalidae: B. *Athyma maenas semperi*, C. *Lexias panopus miscus*, D. *Polyura athamas acuta*; Papilionidae: E. *Troides rhadamantus*; Pieridae: F. *Eurema hecabe*.

Some Predaceous Species

Mantodea: preying mantis



Coleoptera: beetles



Figure 27. Predatory species. Mantodea: Mantidae: A. Deroplatyinae, undet sp.; Mantinae: B. undet sp., C. undet sp., D. undet sp.; Coleoptera: Coccinellidae: E. *Cheilomenes sexmaculatus*, F. *Coccinella transversalis*, G. *Coccinella* sp. 3, H. *Harmonia* sp.; Cicindelidae: I. *Therates fasciatus*, J. *Tricondyla cyanipes elongata*; Lampyridae: K. undet sp.; Lycidae: L. undet sp.; M. undet sp.

Some Predaceous Species

Hymenoptera: wasps



Araneida: spiders



Figure 28. Predatory species of Hymenoptera. Vespidae: a. *Ropalidia* sp; Araneida: B. *Nephila* sp.

Some Pollinator Species

Hymenoptera: bees



A

B

C

Lepidoptera: butterflies



D

E

F

Figure 29. Pollinator species. Hymenoptera: Apidae: A. *Apis cerana*, B. *Apis dorsata*; Anthophoridae: C. *Xylocopa* sp.; Lepidoptera: Nymphalidae: D. *Danaus melanippus edmondii*, E. *Ideopsis gaura glaphyra*; Pieridae: F. *Eurema alitha alitha*.

Some Scavengers/Fungivorous Species

Coleoptera: beetles

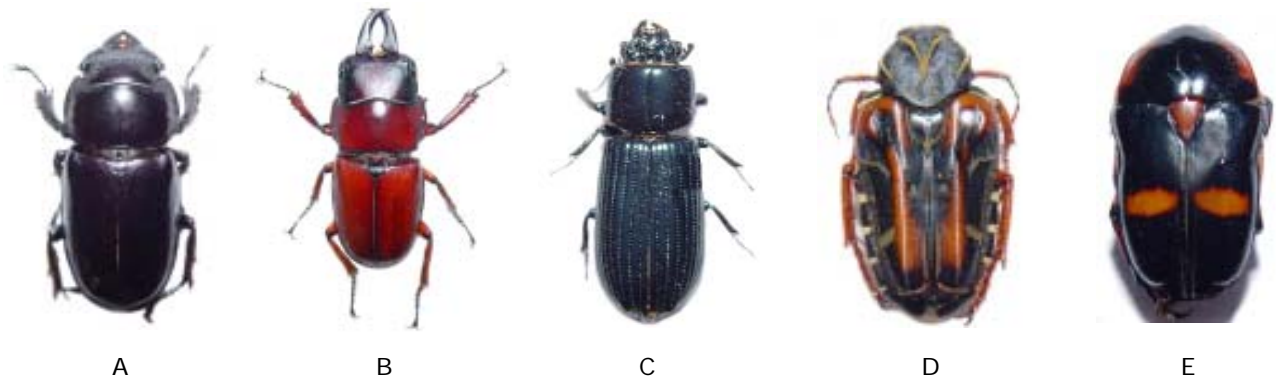


Figure 30. Scavengers/Fungivorous species of Coleoptera. Lucanidae: A. *Dorcus* sp., B. *Prosopocoilus romeoi*; Passalidae: C. undet sp.; Scarabaeidae: D. *Taeniodera* sp., E. Cetoniinae sp. 1.

Some Xyloborous Species

Coleoptera: beetles (long-horned beetles)

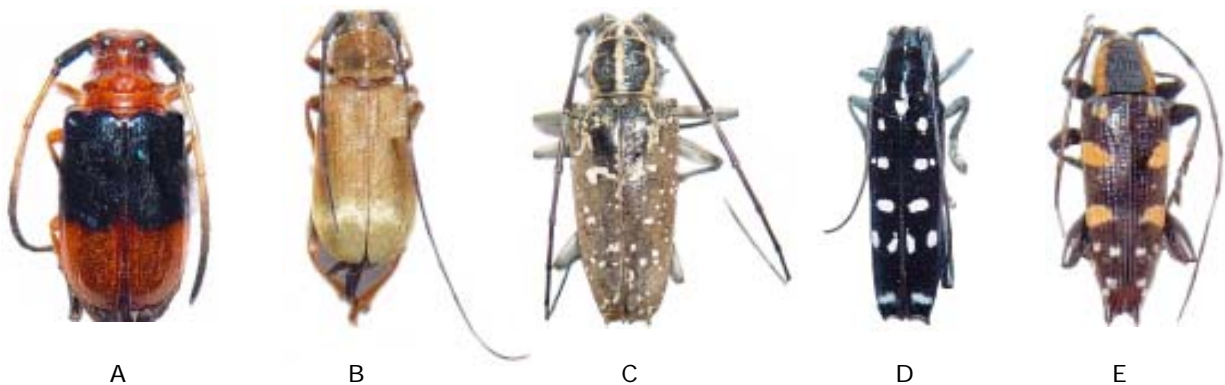


Figure 31. Xyloborous species of Coleoptera. Cerambycidae: A. *Asthates* sp., B. *Cereopsius* sp., C. *Pelargoderus* near *alcanor*, D. *Glenea beatrix*, E. *Mimoplacia diversenotata*.

Summary

The arthropod fauna study was conducted in 10 barangays in the municipalities of Don Victoriano, Lopez Jaena and Calamba, and the City of Oroquieta. The sites were categorized into vegetation types like mossy, montane, almaciga, submontane dipterocarp, mixed dipterocarp, lowland dipterocarp, mixed lowland dipterocarp and plantation or degraded forests, and the agroecosystem which includes the agroforest, vegetable, cereals, and grass-dominated fallowed communities.

The study was conducted to attain the following objectives: (1) to identify the arthropod faunal species in the forest and agroecosystems in Mt. Malindang, (2) to determine the arthropod faunal species richness and endemism, (3) to identify the biodiversity parameters for designing appropriate conservation and management schemes of critical resources, (4) to assess the impact of socioeconomic-cultural activities on the arthropod biodiversity resource use, (5) to harmonize indigenous knowledge system (IKS) in designing monitoring system for arthropod diversity resource use and conservation practices, (6) to organize a network of stakeholders in various communities for the implementation of scientifically harmonized IKS monitoring and conservation practices, (7) to promote awareness on arthropod resource diversity and conservation, and (8) to develop additional integrated development and biodiversity conservation strategies in local biodiversity conservation for local communities.

Arthropods have variable responses to weather and often highly seasonal, making it difficult to determine if the variation of the population obtained from the different sites was due to sampling variation or part of the normal fluctuation. Nonetheless, in collaboration with the other studies under the BRP Terrestrial Ecosystem Master Project (TEMP), especially the flora group, methodologies were revised/improved from time to time to obtain a more or less accurate and unbiased picture of the arthropod composition and population in the sites. The location of the 1 x 1 m quadrat for example, was no longer established strictly at the upper right corner of the 20 x 20 m plot but

at any ideal site within the plot. An ideal quadrat is the site which somewhat represents the features of the entire plot.

Among the other employed local controls was the visual counting of the arthropods within the quadrat ahead of the vegetation sampling of the flora group to minimize escape of active species. The systematic sweep net sampling was somehow standardized since it was carried out by the same personnel. The collaborative efforts of the members of the flora group in the familiarization of arthropods had increased input to the data, especially in the opportunistic and transect walk sampling.

A total of 741 arthropod species in 340 genera, 135 families, 21 orders, and 5 classes were inventoried. The 5 classes include Insecta, Arachnida, Crustacea, Diplopoda, and Chilopoda. The Class Insecta made up the biggest bulk of arthropods with Orders Coleoptera (beetles and weevils), Hemiptera, Hymenoptera, Diptera, and Araneida comprising 78.37 percent of the species.

Arthropod species diversity was higher in the forest ecosystem than in the agroecosystem. When treated per vegetation and per site, diversity was highest in the mixed dipterocarp forest, specifically at Peniel, Lopez Jaena with 82 restricted species (60% beetles) out of 316 species.

In terms of species composition, three major clusters of similarity among vegetation types are discernible: a) five agroecosystem sites in Gandawan, Mansawan, Lake Duminagat, Mamalad, and Mialen with arthropods most similar between Gandawan and Mansawan; b) montane-mossy forest and agrocereal grass-dominated type and almaciga forest in Sebucal; and c) mixed lowland dipterocarp-plantation forests, agrocereal agroforest, and mixed dipterocarp forest. Three vegetation types appeared to show little species similarities among each other or with any of the three clusters, namely, the lowland dipterocarp forest (Mialen), submontane dipterocarp forest (Mt. Capole), and agrocereal grass-dominated system (Peniel).

Proportional representation of the trophic guilds of the selected taxa indicated biggest proportion of the phytophagous, followed by the predaceous, pollinators, ants, parasitoids, scavengers, and xyloborous species.

The honeybee, *Apis cerana* is a well-known source of honey. Other arthropods providing direct benefits include larvae and adults of coconut beetle as food, termites and naiads of Odonata as fish baits, and ants as “biocontrol agents” (as an attractant) against cabbage worms.

Bits of indigenous knowledge on arthropods were gathered. A few examples include uses of honey, butterfly color symbols, “weather forecasting” by *kalong* (crab), and ritual for tree blooms for honeybee foraging, and predation of a vespid wasp, *Ropalidia* sp. on the larvae of diamondback moth.

An over all species endemism was assessed at 9 percent. Out of 67 (mostly curculionid beetles) endemic arthropod species, at least 21 species are associated with 18 endemic host plants, indicating urgency of conservation efforts. These endemic species are probably new species and new records, which remain undescribed.

Conclusions

The following conclusions are drawn from the results of the study:

- With the voluminous arthropod species in Mt. Malindang, some species are still undescribed and unidentified.
- An estimate of 741 arthropod species in this current inventory ignores the canopy and litter arthropod species, therefore, more species are yet to be accounted. The association of endemic arthropod species with endemic host plants show coexistence of these organisms.
- The generally higher arthropod species diversity in forest ecosystems (specifically the mixed dipterocarp forest) than in the agroecosystem is a manifestation of higher habitat and food resource diversity in the forest. There is no established pattern between diversity and altitude. The proximity of vegetation types provides higher percentage similarity of arthropod species.
- Knowledge on arthropod resource use is minimal and is limited to species with direct economic importance like honeybees and crabs. Arthropods, especially insects, are generally viewed as destructive organisms.

Recommendations

The following recommendations are provided:

- Taxonomic identification of the still unidentified species is necessary. It is suggested that further study along this aspect should be conducted to have a more detailed inquiry of all the species of the different groups.
- More collection efforts should be exerted to obtain year round samples of arthropods which should include canopy and litter arthropod species. Promotion of life history studies of selected groups for biodiversity conservation is also recommended. Conservation of endemic host plants is necessary to conserve endemic arthropods as well.
- Species diversity should be maintained or increased, taking into consideration, the plant architecture in the area. Structurally complex plants support more species due to greater diversity of habitat and food resource.
- Information dissemination regarding arthropod resource use is recommended. Posters, brochures, films, exhibits, and other IEC materials should be developed for awareness campaigns on the importance of arthropods and biodiversity. These materials should also include information on the current status of economic species, endemic species, beneficial and destructive species of arthropods in Mt. Malindang Range Natural Park.

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Appendix Table 1. Odonata species at different vegetation types in Mt. Malindang Range Natural Park (MMRNP).

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
1	Anisoptera Aesnidae <i>Tetracanthagyna</i> sp. nr. <i>brunnea</i>					1				
2	Corduliidae <i>Heteroniaias</i> <i>heterodoxa</i>		2		2	2	1			
3	Gomphidae <i>Heliogomphus</i> <i>bakeri</i>						1	1		
4	Libellulidae <i>Crocothemis</i> <i>servilia</i>									1
5	<i>Diplacina braueri</i>					2	1			
6	<i>Diplacodes trivialis</i>				8		2	1		1
7	<i>Nannophya</i> <i>pygmaea</i>						2	1		
8	<i>Neurothemis</i> <i>ramburii</i>			1						
9	<i>Neurothemis</i> <i>terminata</i>			1						
10	<i>Orthetrum</i> <i>pruinatum clelia</i>		1		100	1	1			
11	<i>Orthetrum sabina</i>									
12	<i>Plantala flavescens</i>					100			1	
13	<i>Rhyothemis</i> sp.						2		4	
14	<i>Thrithemis aurora</i>		2							1
15	<i>Thrithemis festiva</i>									2
16	Zygoptera Amphipterygidae <i>Devadatta</i> <i>podolestoides</i> <i>basilanensis</i>						1			

Appendix Table 1 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and degraded Forest	Agro-ecosystem
17	Calopterygidae <i>Vestalis melania</i>					1	1			
18	Chlorocyphidae <i>Cyrano angustior</i>						1	1		
19	<i>Rhinocypha dorsosanguinea</i>								1	
20	<i>Rhinocypha turconii</i>						2		2	1
21	Coenagrionidae <i>Pseudagrion pilidorsum</i>									
22	<i>Pseudagrion</i> sp.		1			1				
23	Euphaeidae <i>Euphaea amphicyana</i>						1			
24	Platycnemididae <i>Coeliccia dinoceras</i>						4		2	
25	<i>Risiocnemis appendiculata</i>					3		1		
26	<i>Risiocnemis</i> (Igneocnemis) <i>flammea</i>					2	1	2		1
27	<i>Risiocnemis</i> (Igneocnemis) sp.						1			
28	Protoneuridae <i>Prodasineura integra</i>						1			
	TOTAL	0	6	2	110	113	23	7	10	7
	SPECIES DIVERSITY	0	0.577	0.301	0.152	0.255	1.152	0.759	0.639	0.759

Appendix Table 2. Ephemeroptera species at different vegetation types in Mt. Malindang Range Natural Park (MMRNP).

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
29	Ephemeroptera	0	0	0	1	0	9	0	0	1
	TOTAL	0	0	0	1	0	9	0	0	1
	SPECIES DIVERSITY	0	0	0	0	0	0	0	0	0

Appendix Table 3. Blattodea species at different vegetation types in Mt. Malindang Range Natural Park (MMRNP).

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
30	Blaberidae Blaberidae sp. 1	5	2			1	1	3	4	2
31	Blattidae Blattidae sp. 1	1			1	1				4
32	Blattidae sp. 2									
33	Cryptoceridae Cryptoceridae sp. 1	1	1		1		2		2	3
34	Undetermined Undet sp. 1							1		
35	Undet sp. 2					1	3	1		1
36	Undet sp. 3					1	1		2	1
37	Undet sp. 4						1			1
38	Undet sp. 5						1		1	
39	Undet sp. 6									1
40	Undet sp. 7									1
41	Undet sp. 8									1
	TOTAL	7	3	0	2	4	9	5	9	15
	SPECIES DIVERSITY	0.346	0.276	0	0.301	0.602	0.728	0.413	0.553	0.88

Appendix Table 4. Dermaptera species at different vegetation types in Mt. Malindang Range Natural Park (MMRNP).

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
42	Carcinophoridae Carcinophoridae sp. 1						4			2
43	Labiidae Labiidae sp. 1	1	1							7
	TOTAL	1	1	0	0	0	4	0	0	9
	SPECIES DIVERSITY	0	0	0	0	0	0	0	0	0.23

Appendix Table 5. Isoptera species at different vegetation types in Mt. Malindang Range Natural Park (MMRNP).

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
44	Termitidae					1				
	TOTAL	0	0	0	0	1	0	0	0	0
	SPECIES DIVERSITY	0	0	0	0	0	0	0	0	0

Appendix Table 6. Orthoptera species at different vegetation types in Mt. Malindang Range Natural Park (MMRNP).

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
45	Acrididae Catantopinae <i>Stenocatantops splendens</i>						2	1	2	6
46	Catantopinae <i>Melicodes tenebrosa</i>									2
47	Undet sp. 1						1			3
48	Oedipodinae <i>Aiolopus thalassinus tamulus</i>					3			4	10
49	<i>Heteropternis respondens</i>						1	1	4	5
50	Oxyinae <i>Gesonula mundata zonocera</i>					2	1		2	12
51	<i>Oxya hyla intricata</i>									9
52	Catantopinae <i>Cranaella</i> sp.		1							4
53	<i>Gelastorhinus</i> sp.?		1							3
54	Undet sp. 1									1
55	Undet sp. 2									1
56	Gryllacrididae Gryllacridinae undet 1	1					2			2
57	Gryllacridinae undet 2						3			3
58	Gryllidae <i>Paranisitra</i> sp. 1		3			6	4	15	18	50
59	Eneopterinae sp. 1	5				1	2			5
60	Eneopterinae sp. 2					7	3			10
61	Eneopterinae sp. 3				7		1	1	2	15
62	Trigonidiinae						4	2		
63	Undet sp. 1					5	1	7	2	22
64	Pyrgomorphidae <i>Atractomorpha psittacina</i>						2		1	18

Appendix Table 6 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
	Tetrigidae									
65	<i>Diotarus verrucifer</i>					4	2	4	1	1
66	<i>Misythus</i> sp. nr. <i>jubatus</i>					2	3	1		1
67	<i>Scelimena</i> sp.					1	3	2	1	1
	Tettigoniidae									
	Conocephalinae									
68	<i>Anthracites</i> sp. nr. <i>major</i>						2		1	3
69	<i>Conocephalus</i> sp.						1		1	4
	Listrosclinae									
70	<i>Hexacentrus mundus</i>	1								2
	Meconematinae									
71	<i>Xiphidiopsis drepanophora</i>	2					1		1	7
72	<i>Xiphidiopis gemmicula</i>						1	1	1	
	Mecopodinae									
73	<i>Mecopoda elongata</i>				1	2	1			5
74	<i>Segestes</i> sp. nr. <i>vittaticeps</i>			1			2			
	Phaneropterinae									
75	<i>Ducetia japonica</i>	1			1		1			2
76	<i>Elimaea bakeri</i>									17
77	<i>Phaneroptera furcifera</i>	1	5				3		1	5
78	<i>Furnia</i> sp.						1			8
	Pseudophyllinae									
79	<i>Morsimus</i> sp. nr. <i>serratus</i>						1		1	1
80	<i>Phyllominus</i> sp. nr. <i>acutipennis</i>	2								1
81	<i>Tympanoptera</i> sp. nr. <i>philippina</i>						1		1	4
	Trigonopterygidae									
82	<i>Systella philippinensis</i>		5	1	2		3			
	TOTAL	13	15	2	16	33	53	35	44	243
	SPECIES DIVERSITY	0.752	0.615	0.301	0.758	0.921	1.392	0.768	0.966	1.298

Appendix Table 7. Phasmatodea species at different vegetation types in Mt. Malindang Range Natural Park (MMRNP).

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
	Aschiphasmataidae									
83	Aschiphasmatinae Aschiphasmatini <i>Orthomeria</i> sp. 1				1	1	2	1		
	Diapheromeridae									
84	Diapheromeridae sp. 1	1	1		7				1	1
85	Lonchodinae	1								
86	Lonchodini sp. 1						2			
87	<i>Lonchodes</i> sp. 1		2							1
88	<i>Lonchodes</i> sp. 2			1	1	1		1		
89	<i>Lonchodes</i> sp. 3	3		1	2		2		2	
90	Necrosiinae	4	3	1	1		6	1		
91	Necrosiinae sp. 1	5	3				1			
92	Necrosiinae sp. 2				1					
93	Necrosiinae sp. 3						2		2	
94	<i>Asceles</i> sp. 1			1			1			
95	<i>Asceles</i> sp. 2		1							
96	<i>Asceles</i> sp. 3				1		1			
97	Marmessoidea sp. 1						1			
98	<i>Necrosia</i> sp.1						1			1
	Heteropterygidae									
99	Obriminae <i>Obrimini</i> sp. 1	2					1			
100	<i>Euobrimus</i> (near) <i>atherura</i>						1			
101	<i>Euobrimus</i> sp.	2	2				1			
	Phasmatidae									
102	Pharnaciini <i>Phobaeticus</i> sp. 1			1						3
103	<i>Pharnacia</i> sp. 1							1		
104	Baculini <i>Baculum</i> sp. 1			1				1		
105	Platycraninae sp. 1									
106	Phylliidae <i>Phyllium</i> sp. 1	1								
	TOTAL	19	12	6	14	2	22	5	5	6
	SPECIES DIVERSITY	0.829	0.74	0.778	0.681	0.301	1.021	0.699	0.458	0.54

Appendix Table 8. Mantodea species at different vegetation types in Mt. Malindang Range Natural Park (MMRNP).

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
107	Mantidae <i>Hierodula</i> sp.			1		1				4
108	Deroplatyinae					1				
109	Mantinae sp. 1					1	1	2		1
110	Mantinae sp. 2					1				
111	Mantinae sp. 3						1			
112	Mantinae sp. 4									1
113	Mantinae sp. 5									2
114	Mantinae sp. 6						2	1		
115	Mantinae sp. 7							1		
116	Mantinae sp. 8							1		
117	Mantinae sp. 9						1			
118	Mantinae sp. 10						1			
119	Mantinae sp. 11								1	
	TOTAL	0	0	1	0	4	6	5	1	8
	SPECIES DIVERSITY	0	0	0	0	0.602	0.679	0.578	0	0.528

Appendix Table 9. Hemiptera species at different vegetation types in Mt. Malindang Range Natural Park (MMRNP).

Spp. No.	Species	Mossy Forest	Montane Forest	Almაცiga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
120	Heteroptera Acanthosomatidae <i>Sastragala</i> sp.	1								
121	Alydidae <i>Noliphus spinosus</i>									8
122	<i>Riptortus linearis</i> ?						3			
123	Aradidae Aradidae sp. 1	4								
124	Colobathristidae <i>Phaenacantha</i> sp.									3
125	Colobathristidae sp. 1				1					
126	Coreidae <i>Anoplocnemis phasiana</i>						2		1	
127	<i>Colpura obscuricornis</i>		3					2		8
128	<i>Dindymus mundus</i>	1	1			1		1		2
129	<i>Homoeocerus immaculatus</i>						1			
130	<i>Prionolomia expansa</i>						1	1		3
131	Cydnidae <i>Macroscytus subaeneus</i>	1								1
132	Enicocephalidae Enicocephalidae sp.1	1	2							
133	Notonectidae <i>Enithares</i> sp.		1							
134	Lygaeidae <i>Faelicianus</i> sp.							1		
135	<i>Metochus uniguttatus</i>	1					2			14
136	<i>Nysius caledoniae</i>									12
137	<i>Nysius vinitor</i>	1						1		4
138	<i>Paraeucosmetus</i> sp.		1							9
139	<i>Paraeucosmetus pallicornis</i>						3			
140	<i>Paraeucosmetus malayus</i>									3
141	Miridae <i>Cyrtopeltis tenius</i>		7							16
142	Miridae sp. 1									21
143	Miridae sp. 2	1								96
144	Miridae sp. 3									16

Appendix Table 9 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
145	Miridae sp. 4	1								19
146	Miridae sp. 5									8
147	Miridae sp. 6									2
148	Miridae sp. 7									1
149	Miridae sp. 8	1								
150	Miridae on Melastoma					3				
	Pentatomidae									
151	<i>Alcimocoris lineolatus</i>						1			
152	<i>Carbula trabifera</i>									26
153	<i>Dalsira marginata</i>						1			
154	<i>Hoplistodera convexa</i>	1								1
155	<i>Plautia</i> sp. 1	2					1		1	
156	<i>Sepontia</i> sp.									1
157	<i>Tolumnia trinotata</i>								1	
158	<i>Vitellus</i> sp.						3			
	Plataspidae									
159	<i>Brachyplatys deplanatus</i>									2
160	<i>Coptosoma</i> sp. 1									1
161	<i>Coptosoma</i> sp. 2						1			
	Reduviidae									
162	<i>Euagoras</i> sp. 1					5	1			16
163	<i>Ischnobaena macerrima</i>						1	1		1
164	<i>Gardena melinarthum</i>									2
165	<i>Euagoras plagiatus</i>			1						6
166	Reduviidae sp. 1				1	2		1	1	
167	Reduviidae sp. 2				1					
168	Reduviidae sp. 3						1			2
169	<i>Sirthena</i> sp.				1					2
170	<i>Neoscadra</i> sp.					3	1			
171	<i>Veleda brevispina</i>					1			1	
	Nabidae									
172	Nabidae sp. 1					1				
173	Nabidae sp. 2		1							
	Tessaratomidae									
174	<i>Pygoplatys</i> sp.						9			
	Undetermined									
175	Undet sp. 1								1	37
176	Undet sp. 2	1						1		3

Appendix Table 9 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
177	Undet sp. 3									
178	Undet sp. 4	1				1				3
179	Undet sp. 5							1	3	1
180	Undet sp. 6							1		
	Homoptera									
	Achilidae									
181	Achilidae sp. 1	1								
182	Achilidae sp. 2		2							17
	Aphididae									
183	Aphididae sp. 1	2								97
184	Aphididae sp. 2									5
185	Aphididae sp. 3	2					5			48
	Aphrophoridae									
186	<i>Perinoia</i> sp.									1
	Cercopidae									
187	Cercopidae sp. 1	4								3
188	Cercopidae sp. 2	3					2			
189	Cercopidae sp. 3	2				1		3		
190	Cercopidae sp. 4									1
191	Cercopidae sp. 5								1	
192	Cercopidae sp. 6						2			1
193	Cercopidae sp. 7						2			1
194	Cercopidae sp. 8									1
	Cicadellidae									
195	<i>Bothrogonia</i> sp.	8	25	2	2	5	13	1	1	35
196	<i>Cofana spectra</i>						3			2
197	<i>Nephotettix nigropictus</i>									21
198	<i>Nephotettix virescens</i>									33
199	<i>Nirvana</i> sp.	6	3		1		2			126
200	Cicadellidae sp. 1	2	1			1	1		1	34
201	Cicadellidae sp. 2						2			293
202	Cicadellidae sp. 3	1					4			41
203	Cicadellidae sp. 4	7								
204	Cicadellidae sp. 5	1		1					1	
205	Cicadellidae sp. 6				1			1		
206	Cicadellidae sp. 7									3
207	Cicadellidae sp. 8						1			37
208	Cicadellidae sp. 9									1

Appendix Table 9 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
209	Cicadellidae sp. 10				1		1			1
210	Cicadellidae sp. 11	3					4			
211	Cicadellidae sp. 12						2			
	Cicadidae									
212	Cicadidae sp. 1	2								
213	Cicadidae sp. 2	1								
214	Cicadidae sp. 3						1			1
215	Cicadidae sp. 4						1			
216	Cicadidae sp. 5					1				1
217	Cicadidae sp. 6						1			1
	Cixiidae									
218	Cixiidae sp. 1	12								
219	Cixiidae sp. 2					4				
220	Cixiidae sp. 3	1								
221	Cixiidae sp. 4						1		4	
222	Cixiidae sp. 5							3		
223	Cixiidae sp. 6				6					
224	Cixiidae sp. 7				3					
225	Cixiidae sp. 8						1			
226	Cixiidae sp. 9	1								
	Derbidae									
227	<i>Proutista moesta</i>						1	1		
228	Derbidae sp. 1	1								
229	Derbidae sp. 2	4	2							1
230	Derbidae sp. 3	1								
	Delphacidae									
231	Delphacidae sp. 1						2			16
232	Delphacidae sp. 2						1			48
	Flatidae									
233	Flatidae sp. 1	1	4							
234	Flatidae sp. 2		1							
235	Flatidae sp. 3						1			
236	Flatidae sp. 4									1
237	Flatidae sp. 5						2			
	Issidae									
238	<i>Hemisphaerius</i> sp.		2	1		3			2	
239	Issidae sp. 1		1				1			
240	Issidae sp. 2							1	3	
241	Issidae sp. 3							1	3	
242	Issidae sp. 4									3

Appendix Table 9 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
243	Issidae sp. 5									1
244	Issidae sp. 6									2
245	Issidae sp. 7							1		
246	Issidae sp. 8								3	
247	Issidae sp. 9									1
248	Issidae sp. 10									1
249	Lophophidae <i>Serida latens</i>									1
250	Meenoplidae <i>Nisia</i> sp.	5								2
251	Meenoplidae sp. 1									51
252	Membracidae <i>Emphusis bakeri</i>						1			
253	<i>Gargara</i> sp. 1	1								1
254	<i>Gargara</i> sp. 2						3			
255	<i>Gargara</i> sp. 3						2			
256	Tropiduchidae Tropiduchidae sp. 1									1
257	Tropiduchidae sp. 2									1
258	Tropiduchidae sp. 3						2			
259	Undetermined Undet sp. 1		1							7
260	Undet sp. 2						1			24
261	Undet sp. 3						2			50
262	Undet sp. 4	2								
263	Undet sp. 5						2			
264	Undet sp. 6						2			
265	Undet sp. 7			2		1				
266	Undet sp. 8			1			1			2
267	Undet sp. 9						2	1		4
268	Undet sp. 10						1			
269	Undet sp. 11						1			
270	Undet sp. 12					1				1
271	Undet sp. 13					1		1		
272	Undet sp. 14									1
273	Undet sp. 15					3	4		2	1
274	Undet sp. 16					2				1
275	Undet sp. 17					1			1	
	TOTAL	89	61	8	18	41	113	25	33	1412
	SPECIES DIVERSITY	1.411	0.98	0.753	0.883	1.215	1.605	1.259	1.217	1.423

Appendix Table 10. Neuroptera species at different vegetation types in Mt. Malindang Range Natural Park (MMRNP).

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
276	Chrysopidae Chrysopidae sp. 1	4								
277	Hemerobiidae Hemerobiidae sp. 1	6		1	3					5
	TOTAL	10	0	1	3	0	0	0	0	5
	SPECIES DIVERSITY	0.292	0	0	0	0	0	0	0	0

Appendix Table 11. Coleoptera species at different vegetation types in Mt. Malindang Range Natural Park (MMRNP).

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
278	Anthribidae <i>Xenocerus striatus</i>						1			
279	Brenthidae Apioninae sp. 1	1								
280	Apioninae sp. 2						2			1
281	Cantharidae Cantharidae sp. 1		8							7
282	Carabidae Carabidae sp. 1	1								4
283	Carabidae sp. 2									2
284	Carabidae sp. 3					1	1			
285	Carabidae sp. 4									1
286	Carabidae sp. 5								1	
287	Cerambycidae Cerambycinae <i>Demonax sulfurisignatus</i>		1		1					
288	<i>Nupserha</i> sp. 1 Lamiinae									2
289	<i>Agapanthini</i> sp. 1	1	8	1						
290	<i>Asthatas</i> sp.				1					14

Appendix Table 11 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
291	<i>Pelargoderus</i> near <i>alcanor</i>					2				1
292	<i>Epepeotes</i> sp. 1						1		1	
293	<i>Epepeotes</i> sp. 2						4		11	
294	<i>Epepeotes</i> sp. 3						1			
295	<i>Mimoplacia</i> sp.							1		
296	<i>Cereopsius</i> sp.						1			
297	<i>Cleptometopus</i> sp.	9				1				1
298	<i>Glenea baetrix</i>	1			2		1			
299	<i>Mimoplacia diversenotata</i>	1								
300	<i>Phelipara</i> sp.	3								
301	Prioninae <i>Megopis lumawigi</i>		1						2	2
302	Cerambycidae undet sp. 1				2					1
303	Undetermined Cerambycidae undet sp. 2									1
304	Cerambycidae undet sp. 3						1			
305	Cerambycidae undet sp. 4						3			
	Chrysomelidae									
	Alticinae									
306	Alticinae sp. 1	1	11							8
307	Alticinae sp. 2				1	6		1		4
308	Alticinae sp. 3		3		1					25
309	Alticinae sp. 4	2		9						18
310	Alticinae sp. 5							2		14
311	Alticinae sp. 6	4					1			1
312	Alticinae sp. 7	2					4			13
313	Alticinae sp. 8	2					3			
314	Alticinae sp. 9						4			7
315	Alticinae sp. 10									1
316	Alticinae sp. 11						1			2
317	Alticinae sp. 12									4
	Cassidinae									
318	<i>Aspidomorpha miliaris</i>									1
319	<i>Cassida</i> sp. 1		3							5

Appendix Table 11 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
320	<i>Cassida</i> sp. 2		1							3
321	<i>Cassida</i> sp. 3									14
322	<i>Lacoptera philippinensis</i>									7
323	Cryptocephalinae Cryptocephalinae sp. 1		3							6
324	Cryptocephalinae sp. 2	2								10
325	Galerucinae <i>Aulacophora coffea</i>						6			6
326	<i>Aulacophora indica</i>						1			4
327	<i>Aulacophora</i> sp. 1		6		1					2
328	<i>Aulacophora</i> sp. 2		7		3					21
329	<i>Aulacophora</i> sp. 3		2				1			7
330	<i>Aulacophora</i> sp. 4	3								3
331	<i>Atrachya</i> sp.					2	2	1		34
332	<i>Calomicrus</i> sp.						2			7
333	<i>Liroetiella</i> sp. 1									21
334	<i>Liroetiella</i> sp. 2						3	1		
335	<i>Medythia</i> sp.		3	1						4
336	<i>Pseudocophora</i> sp. 1	5								
337	Galerucinae undet sp. 1		2	4	3	1		1		30
338	Galerucinae undet sp. 2	1		3			4			12
339	Galerucinae undet sp. 3	1					1			11
340	Galerucinae undet sp. 4					1	3		1	7
341	Galerucinae undet sp. 5		1	3			1			1
342	Galerucinae undet sp. 6								1	1
343	Galerucinae undet sp. 7			2						1
344	Galerucinae undet sp. 8			1			1			1
345	Galerucinae undet sp. 9			3			1			3

Appendix Table 11 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
346	Galerucinae undet sp. 10				1					3
347	Galerucinae undet sp. 11				1				1	
348	Galerucinae undet sp. 12					2				
349	Galerucinae undet sp. 13									3
350	Galerucinae undet sp. 14						1			
351	Galerucinae undet sp. 15				1					
352	Galerucinae undet sp. 16				1					
353	Galerucinae undet sp. 17						1			
354	Galerucinae undet sp. 18						1			
355	Hispinae <i>Agonita</i> sp. 1					1	2		1	
356	<i>Agonita</i> sp. 2						1			
357	<i>Anisodera</i> sp.						1			
358	<i>Botryonopa</i> sp.								1	
359	<i>Callispa</i> sp.						2			
360	<i>Dactylispa</i> sp.								1	
361	<i>Gonophora</i> sp.						1	1		
362	<i>Promecothea</i> sp. 1		2							
363	<i>Promecothea</i> sp. 2						1			
364	<i>Uroplata</i> sp.									21
365	<i>Wallaceana</i> sp.						6			1
	Cicindelidae									
	Cicindelinae									
366	<i>Heptodonta lumawigi</i>						2			
367	<i>Therates coracinus</i>						4			
368	<i>Therates fasciatus pseudolatrielle</i>									3
	Collyrinae									
369	<i>Tricondyla cyanipes elongta</i>		3				3			

Appendix Table 11 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
370	<i>Collyris</i> (<i>Neocollyris</i>) <i>affinis</i>									1
371	Coccinellidae <i>Cheilomenes</i> <i>sexmaculatus</i>						1			2
372	<i>Coccinella</i> <i>transversalis</i>									3
373	<i>Coccinella</i> sp. 1					1				1
374	<i>Coccinella</i> sp. 2	1								
375	<i>Coccinella</i> sp. 3					1	2		2	
376	<i>Coccinella</i> sp. 4					1	1			
377	<i>Cryptogonus</i> <i>orbiculus</i>						1			5
378	<i>Henosipalachna</i> sp.						1			
379	<i>Henosipalachna</i> <i>boisduvali</i>						2			
380	<i>Henosipalachna</i> <i>kaszabi</i>		2							6
381	<i>Micraspis</i> sp.							1		25
382	<i>Scymnus</i> sp.	1					1			11
383	Coccinellidae undet sp. 1					2	5			
384	Coccinellidae undet sp. 2							5		
385	Curculionidae Gymnetrinae <i>Alcidodes</i> <i>leucospilus conflexus</i>				1		1			
386	<i>Alcidodes</i> <i>leucospilus</i> <i>erichsoni</i>						6			3
387	<i>Alcidodes</i> <i>mindanauensis</i>						5			
388	<i>Alcidodes</i> <i>turpis</i>						3			
389	<i>Alcidodes</i> sp. 1					1	2			2
390	<i>Alcidodes</i> sp. 2	1								
391	Rynchphorinae Rynchphorinae sp. 1		1	3			1			1

Appendix Table 11 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almაცiga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
392	Rynchphorinae sp. 2								3	2
393	Anthonominae <i>Parimera</i> sp. nr. <i>negrito</i>								1	
394	<i>Megarrhinus curvipes</i>									1
	Pachyrrhynchinae									
395	<i>Metapocytrus</i> sp. 1	3								
396	<i>Metapocytrus</i> sp. 2						4		1	
397	<i>Metapocytrus</i> sp. 3									1
398	<i>Metapocytrus</i> sp. 4					1				
399	<i>Metapocytrus</i> sp. 5					3				
400	<i>Metapocytrus</i> sp. 6	2								
401	<i>Metapocytrus</i> sp. 7				1		1		1	
402	<i>Metapocytrus</i> sp. 8						4			
403	<i>Metapocytrus</i> sp. 9					1	3	1		3
404	<i>Metapocytrus</i> sp. 10					1				
405	<i>Metapocytrus</i> sp. 11					1				
406	<i>Metapocytrus</i> sp. 12	6	6	2	1	1	13	1	1	39
407	<i>Metapocytrus</i> sp. 13		7						1	8
408	<i>Metapocytrus</i> sp. 14						1			
409	<i>Pachyrrhynchus</i> sp. 1	3	31	5	1					5
410	<i>Pachyrrhynchus</i> sp. 2		4		2		3		1	1
411	<i>Pachyrrhynchus</i> sp. 3						1			
412	<i>Pachyrrhynchus</i> sp. 4						1			
413	<i>Pachyrrhynchus</i> sp. 5						3			
414	<i>Pachyrrhynchus</i> sp. 6			1						
	Cryptorrhynchinae									
415	<i>Odosyllis</i> sp. 1	1								
416	<i>Odosyllis</i> sp. 2					2				
417	<i>Tragopus</i> sp.	6	12			1				
418	<i>Trigonopterus paucisquamosus</i>	1					1	1	5	5
419	<i>Calidiopsis</i> sp. 1					1	2			
	Otiorrhynchinae									
420	Otiorrhynchinae sp. 1					1	1			
421	Otiorrhynchinae sp. 2		2		6			1		35
422	Otiorrhynchinae sp. 3	4								9
423	Otiorrhynchinae sp. 4									2
424	Otiorrhynchinae sp. 5						1			1

Appendix Table 11 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
425	Otiorrhynchinae sp. 6						2		1	1
426	Hylobiinae <i>Paepalosomus</i> sp.						1			
427	Zygopinae <i>Nauphaeus</i> sp.				1					
428	Entiminae Sitorini <i>Eugnathus</i> sp.						1			
429	Curculionidae undet sp. 1						4			2
430	Curculionidae undet sp.2						1			1
431	Curculionidae undet sp. 3				2					
432	Curculionidae undet sp.4						1	2	1	1
	Elateridae									
433	Elateridae sp. 1		1						2	1
434	Elateridae sp. 2				1					3
435	Elateridae sp. 3									2
436	Elateridae sp. 4				1					
437	Elateridae sp. 5						2			
438	Elateridae sp. 6								1	1
439	Elateridae sp. 7						1			
440	Elateridae sp. 8						1			
441	Elateridae sp. 9						1			
	Eucnemidae									
442	Eucnemidae sp. 1						1			
	Endomychidae									
443	Endomychidae sp. 1	1	1							2
444	Endomychidae sp. 2		1		3					
445	Endomychidae sp. 3				2					
446	Endomychidae sp. 4					3	1			
	Erotylidae									
447	Erotylidae sp. 1				1					
448	Erotylidae sp. 2				1					
	Lagriidae									
449	Lagriidae sp. 1	7	6							2
450	Lagriidae sp. 2		1							
451	Lagriidae sp. 3				2	1				2

Appendix Table 11 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
452	Lagriidae sp. 4				2		1			6
453	Lagriidae sp. 5						3			1
454	Lagriidae sp. 6			2						
455	Lagriidae sp. 7			1			2			
	Lampyridae									
456	Lampyridae sp. 1									2
457	Lampyridae sp. 2	2	6							2
458	Lampyridae sp. 3					1				
459	Lampyridae sp. 4									10
460	Lampyridae sp. 5	4				1				2
461	Lampyridae sp. 6									3
462	Lampyridae sp. 7									1
463	Lampyridae sp. 8						1	2		
464	Lampyridae sp. 9						1			
465	Lampyridae sp. 10							1		
466	Lampyridae sp. 11							2		
467	Lampyridae sp. 12									1
468	Lampyridae sp. 13						1			
469	Lampyridae sp. 14						2			
470	Lampyridae sp. 15						3			
	Lucanidae									
471	<i>Dorcus</i> sp.									1
472	<i>Prosopocoilus romeoi</i>	2								
	Lycidae									
473	Lycidae sp.1	2	4				1			
474	Lycidae sp.2	3			1					
475	Lycidae sp.3									1
476	Lycidae sp.4	1					1			
477	Lycidae sp.5	4					1			1
478	Lycidae sp.6				1		2			
479	Lycidae sp.7			1		2	7			1
	Passalidae									
480	Passalidae sp. 1									1
	Scarabaeidae									
	Cetoniinae									
481	<i>Euglypta</i> sp.	1	1			1	2	1		
482	<i>Taeniodera</i> sp.		4					1		
483	Cetoniinae sp. 1				1					
484	Cetoniinae sp. 2									2

Appendix Table 11 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
485	Cetoniinae sp. 3	1								
486	Cetoniinae sp. 4	1								
487	Cetoniinae sp. 5	1								
488	Cetoniinae sp. 6				1					
489	Cetoniinae sp. 7						1			
490	Melolonthinae <i>Leucospholis irrorata</i>						2			
491	<i>Leucospholis</i> sp.								1	
492	Melolonthinae sp. 1						1	1		
493	Melolonthinae sp. 2						1			
494	Melolonthinae sp. 3						1			
495	Melolonthinae sp. 4						2			
496	Melolonthinae sp. 5						2			
497	Rutelinae <i>Anomala</i> sp.						3			
498	Rutelinae sp. 1	1								
499	Rutelinae sp. 2						3			
	Staphylinidae									
500	Staphylinidae sp. 1	1	2							
501	Staphylinidae sp. 2									7
502	Staphylinidae sp. 3									17
503	Staphylinidae sp. 4									2
504	Staphylinidae sp. 5				2	2				
	Tenebrionidae									
505	Tenebrionidae sp. 1	1								2
506	Tenebrionidae sp. 2									1
507	Tenebrionidae sp. 3	1								
508	Tenebrionidae sp. 4	1								
509	Tenebrionidae sp. 5								2	2
510	Tenebrionidae sp. 6						1			
511	Tenebrionidae sp. 7						2			
512	Tenebrionidae sp. 8						1			
513	Tenebrionidae sp. 9								2	
514	Tenebrionidae sp.10						1			
	Trogossitidae									
515	Trogossitidae sp.1						2			1
	Undetermined									
516	Coleop undet sp. 1		1							9
517	Coleop undet sp. 2	2	2				1	1		25

Appendix Table 11 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
518	Coleop undet sp. 3									5
519	Coleop undet sp. 4		1							3
520	Coleop undet sp. 5									6
521	Coleop undet sp. 6	1	1				2			4
522	Coleop undet sp. 7		3				2		1	1
523	Coleop undet sp. 8		2		1		1			2
524	Coleop undet sp. 9	7			4					4
525	Coleop undet sp. 10									3
526	Coleop undet sp. 11				1					2
527	Coleop undet sp. 12					1				2
528	Coleop undet sp. 13	3			2					
529	Coleop undet sp. 14	1					2			
530	Coleop undet sp. 15						2			
531	Coleop undet sp. 16						1			
532	Coleop undet sp. 17						1			
533	Coleop undet sp. 18						2			
534	Coleop undet sp. 19						3			
535	Coleop undet sp. 20						1			
	TOTAL	118	167	42	61	48	238	29	48	710
	SPECIES DIVERSITY	1.59	1.407	1.099	1.51	1.437	1.972	1.259	1.277	1.828

Appendix Table 12. Diptera species at different vegetation types in Mt. Malindang Range Natural Park (MMRNP).

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
536	Agromyzidae									521
	Asilidae									
537	Asilidae sp. 1					1	7	3	1	4
538	Asilidae sp. 2					1	3		1	8
539	Asilidae sp. 3					1	2			1
	Calliphoridae									
540	Calliphoridae sp. 1	5	8		1			2	22	
541	Calliphoridae sp. 2	2					1			4
542	Calliphoridae sp. 3					3				1
543	Calliphoridae sp. 4									1
	Culicidae									
544	Culicidae sp. 1		8		4	1	1	7	4	
545	Culicidae sp. 2						1	1		1
546	Culicidae sp. 3							1	2	
547	Culicidae sp. 4								1	
	Dolichopodidae									
548	Undet sp. 1		1							
	Heleomyzidae									
549	Heleomyzidae sp. 1									303
	Muscidae									
550	Muscidae sp. 1	39	12			2	7	1	3	137
551	Muscidae sp. 2	18	32		2	1	3	1	1	159
552	Muscidae sp. 3	4	5	1	2	5	1	1		29
553	Muscidae sp. 4						2			21
554	Muscidae sp. 5									20
	Pipunculidae									
555	Pipunculidae sp. 1									12
	Syrphidae									
556	Syrphidae sp. 1		10			1	1			55
557	Syrphidae sp. 2	1								24
558	Syrphidae sp. 3				6			1		16
559	Syrphidae sp. 4						2			6
560	Syrphidae sp. 5				1		3			10
561	Syrphidae sp. 6						1			6
562	Syrphidae sp. 7		2							2
563	Syrphidae sp. 8								1	
	Tachinidae									
564	Tachinidae sp. 1	3			4					33
565	Tachinidae sp. 2	1								14
566	Tachinidae sp. 3									20

Appendix Table 12 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
567	Tachinidae sp. 4						1	1		24
568	Tipulidae									
	Tipulidae sp. 1	5	10	1			9			14
569	Tipulidae sp. 2	8			1		4			10
570	Tipulidae sp. 3	10		1				2	1	10
571	Tipulidae sp. 4	5	1		5	1	3	1	8	26
572	Tipulidae sp. 5	8				1	1			14
573	Tipulidae sp. 6	2					1			10
574	Tipulidae sp. 7	1					1			
575	Undetermined									
	Diptera undet sp. 1	2	6		1		1		2	163
576	Diptera undet sp. 2	2	6				3		1	114
577	Diptera undet sp. 3					2	2	1		109
578	Diptera undet sp. 4	4	14			34	3			330
579	Diptera undet sp. 5							1		180
580	Diptera undet sp. 6	2							1	92
581	Diptera undet sp. 7	4			1	1	2		1	131
582	Diptera undet sp. 8	2					1	1	2	34
583	Diptera undet sp. 9	2				1	3		2	171
584	Diptera undet sp. 10						2	1	2	211
585	Diptera undet sp. 11						4			71
586	Diptera undet sp. 12					1	6			32
587	Diptera undet sp. 13									74
588	Diptera undet sp. 14									41
	TOTAL	130	115	3	23	61	82	18	39	3295
	SPECIES DIVERSITY	1.095	0.973	0.477	0.85	0.792	1.383	1.142	1.125	1.34

Appendix Table 13. Lepidoptera species at different vegetation types in Mt. Malindang Range Natural Park (MMRNP).

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and degraded Forest	Agro-ecosystem
	Hesperiidae									
589	<i>Bibasis gomata</i>	1								
590	<i>Choaspes plateni adhara</i>	2	2		1					4
591	<i>Potanthus mingo mingo</i>	2	1		2					7
592	<i>Taractrocera luzonensis luzonensis</i>	1								
593	<i>Xantheneura telesinus</i>						2		1	2
	Lycaenidae									
594	<i>Jamides alecto manilana</i>		7	14	5	1	2		1	40
595	<i>Tajura</i> sp.						1		1	
	Nymphalidae									
596	<i>Athyma maenas semperi</i>				2		2		1	1
597	<i>Danaus melanippus edmondii</i>	4	3							
598	<i>Faunis phaon leucis</i>				1					2
599	<i>Hypolimnas anomala anomala</i>				1					
600	<i>Ideopsis gaura glaphyra</i>	3	2		2					1
601	<i>Lexias panopus miscus</i>	1							1	5
602	<i>Mycalesis ita imeldae</i>	1	6	1	1					5
603	<i>Parantica dannatti malindangensis</i>	2	10							
604	<i>Parantica luzonensis luzonensis</i>	7								
605	<i>Polyura athamas acuta</i>						1			1
606	<i>Ragadia melindina melindina</i>		1		1					1
607	<i>Ypthima lisondra lisondra</i>	1			1					6

Appendix Table 13 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
608	<i>Ypthima conjuncta conjuncta</i>		1		1				1	3
609	Undet 1 nymphal			1		1	1			1
Papilionidae										
610	<i>Menelaides hystspes</i>	3	3							
611	<i>Menelaides rumanzovia rumanzovia</i>		1						1	
612	<i>Graphium sarpedon sarpedon</i>	1	1							9
613	<i>Troides rhadamantus</i>	1			2					
614	<i>Troides magellanus</i>	1			1					
Pieridae										
615	<i>Catopsilia scylla asema</i>	1	1							5
616	<i>Delias henningia ochreopicta</i>	4		3	2		1			2
617	<i>Delias baracasa baracasa</i>	1								
618	<i>Delias diaphana basilisae</i>				4					
619	<i>Eurema alitha alitha</i>		1							
620	<i>Eurema hiurai hiurai</i>	21	1							8
621	<i>Eurema hecabe tamiathis</i>	2		2						1
622	<i>Eurema sarilata sarilata</i>				1					1
TOTAL		60	41	21	28	2	10	0	7	105
SPECIES DIVERSITY		1.049	1.012	0.461	1.129	0.301	0.819	0	0.845	1.006

Appendix Table 14. Hymenoptera species at different vegetation types in Mt. Malindang Range Natural Park (MMRNP).

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
623	Agaonidae						2			12
	Apidae									
624	<i>Apis cerana</i>		1			4	6		2	17
625	<i>Apis dorsata</i>									5
626	<i>Apis</i> sp. 1	1	3			2	7	1		17
627	<i>Bombus</i> sp.		5				2			6
	Anthophoridae									
628	<i>Xylocopa</i> sp.						5			1
	Braconidae									
	Agathidinae									
629	<i>Mesocoelus</i> sp.						2			44
	Alysiinae									
630	<i>Alysia</i> sp.		3				3			9
	Blacinae									
631	Blacinae sp. 1						2			37
	Braconinae									
632	Braconinae sp. 1	3	2			6	7	2		166
633	Braconinae sp. 2	8					3			37
634	Braconinae sp. 3	3								31
	Cheloninae									
635	<i>Chelonus</i> sp.									21
	Microgasterinae									
636	Microgasterinae sp. 1						2			20
	Chalcididae									
	Brachymerinae									
637	<i>Brachymeria</i> sp.				1					
	Epitraninae									
638	Epitraninae sp. 1						1			9
	Hatichelinae									
639	Hatichelinae sp. 1									5
	Chrysididae									
640	Chrysididae sp. 1									42
	Cynipidae									
641	Cynipidae sp. 1									8
	Diapriidae									
642	Diapriinae sp. 1									1
	Encyrtidae									
643	Encyrtidae sp. 1		1							7
	Eucoilidae									
644	Eucoilidae sp. 1									11

Appendix Table 14 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
645	Eumenidae Eumenidae sp. 1					1	1			
646	Eulophidae Eulophidae sp. 1						2			11
647	Eupelmidae Eupelmidae sp. 1						2			1
648	Evaniidae Evaniidae sp. 1		4				3			18
649	Ichneumonidae Cryptinae Cryptinae sp. 1					2	1			17
650	Ichneumoninae Ichneumoninae sp. 1	1		1				1		59
651	Ichneumoninae sp. 2			1			3			13
652	Mesochorinae <i>Mesochorus</i> sp.						1			6
653	Ophioninae Ophioninae sp.						1			
654	Pimplinae <i>Pimpla</i> sp.									8
655	Pompilidae Pompilidae sp.				1	1	1			
656	Proctotrupidae Proctotrupidae sp.				3					
657	Sphecidae Sphecidae sp.					3	22	1	1	19
658	Scelionidae Scelionidae sp. 1									8
659	Vespidae Vespidae sp. 1				1	3	5	1	1	36
660	Vespidae sp. 2					2			1	30
661	Stenogaster sp.						21			
662	Tiphiidae Tiphiidae sp. 1								2	
663	Undet sp. 1						4			
664	<i>Ropalidia</i> sp.									3
665	Scoliidae <i>Scolia</i> sp.?									13

Appendix Table 14 continued...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
666	Formicidae <i>Anoplolepis gracilipes</i>					15	6	1	3	31
667	<i>Camponotus</i> sp.?							1		
668	<i>Camponotus</i> sp.					8	3	15	4	3
669	<i>Camponotus</i> sp. 2		2				1		1	6
670	<i>Diacamma</i> sp. 1									24
671	<i>Diacamma</i> sp. 2					1	9			20
672	<i>Dolichoderus</i> ?								3	3
673	<i>Dolichoderus</i> sp.			2		15	3	3	3	59
674	<i>Iridomyrmex</i> sp.					16	3	3		71
675	<i>Iridomyrmex</i> sp. 1					1	6		1	35
676	<i>Iridomyrmex</i> sp. 2						3			13
677	<i>Odontomachus</i> sp.					11		2	2	8
678	<i>Oecophylla smaragdina</i>					17	3			33
679	<i>Polyrhachis</i> sp. 1					7	11	1	2	
680	<i>Polyrhachis</i> sp. 2					1	20	2	6	9
681	<i>Polyrhachis</i> sp. 3					3	4	2	3	3
682	<i>Polyrhachis</i> sp. 4					4	3		3	2
683	Myrmeciinae						3	1	3	18
684	Undet formicid						2		3	11
	TOTAL	16	21	4	6	123	189	37	44	1097
	SPECIES DIVERSITY	0.574	0.847	0.452	0.54	1.15	1.422	0.949	1.2	1.503

Appendix Table 15. Araneida (Spider) species at different vegetation types in Mt. Malindang Range Natural Park (MMRNP).

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
685	<i>Nephila</i> sp.				1		2			
686	<i>Gasteracantha</i> sp.					2				4
687	<i>Gasteracantha</i> sp. 2	9				3	1			51
688	<i>Gasteracantha</i> sp. 3						4			9
689	<i>Gasteracantha</i> sp. 4				2					
	Aranaeidae									
690	Aranaeidae					2				
691	<i>Hippasa</i> sp.?						4			29
692	<i>Neoscona</i> sp.?			1	1	2	4	3	3	9
693	<i>Neoscona</i> sp. 2			4	1		3			10
694	nr. <i>Neoscona</i>			1						
695	Undet genus		1	1						1
	Oxyopidae									
696	Oxyopidae				6		2			8
697	<i>Oxyopes</i> sp. 1					19	1	6	6	201
698	<i>Oxyopes</i> sp. 2			9						
699	<i>Oxyopes</i> sp. 3				2					14
	Salticidae									
700	Salticidae	1		3		2	2			7
701	Salticidae undet sp. 1						1			
702	Salticidae undet sp. 2	1								
703	<i>Phidippus</i>						1			
704	<i>Phidippus</i> ?	1			3	2	3		4	1
	Sparrasidae									
705	Sparrasidae					2				
	Thomisidae									
706	Thomisidae					1		2	3	
707	<i>Thomisus</i> sp.				1		1		1	3
	Undetermined									
708	Undet sp. 1	1	2				1	1		4
709	Undet sp. 2	5		3	1	1	1	1	1	12
710	Undet sp. 3	3	1			2		2		10
711	Undet sp. 4	5		3			1	1	3	23
712	Undet sp. 5	6	1			1	3	1	2	6

Appendix Table 15 continued ...

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
713	Undet sp. 6	3							1	2
714	Undet sp. 7	8	1							4
715	Undet sp. 8	1	2				1		1	
716	Undet sp. 9					7	2	2	2	5
717	Undet sp. 10						3			11
718	Undet sp. 11						1			19
719	Undet sp. 12								1	
720	Undet sp. 13									2
721	Undet sp. 14						1	2		1
722	Undet sp. 15						2			1
723	Undet sp. 16					2				2
724	Undet sp. 17						1			
725	Undet sp. 18									9
726	Undet sp. 19				1				1	
727	Undet sp. 20				1					58
728	Undet sp. 21								1	1
729	Undet sp. 22						1	1		
730	Undet sp. 23						1			
731	Undet sp. 24						1			
732	Undet sp. 25							1		
733	Undet sp. 26						1			37
734	Undet sp. 27						3			
735	Undet sp. 28						2	3	1	4
	TOTAL	44	8	25	20	48	55	26	31	558
	SPECIES DIVERSITY	0.954	0.753	0.786	0.936	0.922	1.413	1.033	1.086	1.082

Appendix Table 16. Other arthropods species at different vegetation types in Mt. Malindang Range Natural Park (MMRNP).

Spp. No.	Species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
736	Scorpionida Scorpion					1	1	1	1	
737	Phalangida Phalangids	22	17	17	10	4	18	1	7	140
738	Acarina Eriophyidae <i>Eriophyes</i> sp.									192
739	Chilopoda Centipede						4			3
740	Diplopoda Millipede							1		
741	Crustacea Crabs		11			2	6			
	TOTAL	22	28	17	10	7	29	3	8	335
	SPECIES DIVERSITY	0	1.1	0	0	0.416	0.439	0.477	0.164	0.315

Appendix Table 17. Endemic species of Odonata in Mt. Malindang Range Natural Park (MMRNP).

Taxa	Philippines	Mindanao	MMRNP
Anisoptera Corduliidae <i>Heteronaias heterodoxa</i> (Selys)	/		
Gomphidae <i>Heliogomphus bakeri</i> Laidlaw	/		
Libellulidae <i>Diplacina braueri</i> (Selys)	/		
Zygoptera Amphipterygidae <i>Devadatta podolestoides basilanensis</i> Laidlaw		/	
Calopterygidae <i>Vestalis melania</i> Selys	/		
Chlorocyphidae <i>Cyrano angustior</i> Hämäläinen <i>Rhinocypha dorsosanguinea</i> Lieftinck		/	
<i>Rhinocypha turconii</i> Selys	/		
Euphaeidae <i>Euphaea amphicyana</i> Ris		/	
Platycnemididae <i>Coeliccia dinoceras</i> Laidlaw		/	
<i>Risocnemis</i> (R.) <i>appendiculata</i> (Brauer)		/	
<i>Risocnemis</i> (Igneoctnemis) <i>flammea</i> (Selys)		/	
Protoneuridae <i>Prodasineura integra</i> (Selys)	/		
TOTAL	6	7	0

Total Odonatan species recorded in MMRNP = 28

Appendix Table 18. Endemic species of Orthoptera in Mt. Malindang Range Natural Park (MMRNP).

Taxa	Philippines	Mindanao	MMRNP
Acrididae Catantopinae <i>Melicodes tenebrosa</i> (Walker)	/		
Tetrigidae <i>Diotarus verrucifer</i> Stal	/		
<i>Misythus</i> sp. nr. <i>jubatus</i> Hebard		/	
Tettigoniidae Conocephalinae <i>Anthracites</i> sp. nr. <i>major</i> Hebard		/	
Meconematinae <i>Xiphidiopsis drepanophora</i> Hebard		/	
<i>Xiphidiopsis drepanophora</i> Hebard		/	
Mecopodinae <i>Segestes</i> sp. nr. <i>vitticeps</i> Stal	/		
Pseudophyllinae <i>Morsimus</i> sp. nr. <i>serratus</i> Beier		/	
<i>Tympanoptera</i> sp. nr. <i>philippina</i> (Hebard)	/		
Trigonopterygidae <i>Systema philippinensis</i> (Walker)		/	
TOTAL	4	6	0

Total Orthopteran species recorded in MMRNP = 38

Appendix Table 19. Endemic species of Phasmatodea in Mt. Malindang Range Natural Park (MMRNP).

TAXA	Philippines	Mindanao/MMRNP
Aschiphasmatae Aschiphasmatae <i>Orthomeria</i> sp. 1		/
Diapheromeridae sp. 1		/
Lonchodinae		/
Lonchodini sp. 1		/
<i>Lonchodes</i> sp. 1		/
<i>Lonchodes</i> sp. 2		/
<i>Lonchodes</i> sp. 3		/
Necrosiinae		/
Necrosiinae sp. 1		/
Necrosiinae sp. 2		/
Necrosiinae sp. 3		/
<i>Asceles</i> sp. 1		/
<i>Asceles</i> sp. 2		/
<i>Asceles</i> sp. 3		/
<i>Marmessoidea</i> sp. 1		/
<i>Necrosia</i> sp. 1		/
Heteropterygidae Obriminae <i>Obrimini</i> sp. 1		/
<i>Euobrimus</i> (near) <i>atherura</i>		/
<i>Euobrimus</i> sp.		/
Phasmatidae Pharnaciini <i>Phobaeticus</i> sp. 1		/
Pharnacia ?? sp. 1		/
Baculini <i>Baculum</i> sp. 1		/
Platycraninae sp. 1		/
Phylliidae Phylliini <i>Phyllium</i> sp. 1		/
TOTAL	0	24

Total Phasmatodean species recorded in MMRNP = 24

Appendix Table 20. Endemic species of Hemiptera in Mt. Malindang Range Natural Park (MMRNP).

Taxa	Philippines	Mindanao	MMRNP
Reduviidae <i>Ischnobaena macerrima</i> Stal	/		
<i>Euagoras plagietus</i>	/		
<i>Veleda brevispina</i> Stal	/		
Membracidae <i>Emphusis bakeri</i> Funkhouser		/	
TOTAL	3	1	0

Total Hemipteran species recorded in MMRNP = 156

Appendix Table 21. Endemic species of Coleoptera in Mt. Malindang Range Natural Park (MMRNP).

Taxa	Philippines	Mindanao	MMRNP
Anthribidae <i>Xenocerus striatus</i> Jordan		/	
Cerambycidae <i>Nupserha</i> sp.		/	
<i>Mimoplacia diversenotata</i> von Breuning		/	
Curculionidae Gymnetrinae <i>Alcidodes</i> sp. 1			/
<i>Alcidodes</i> sp. 1			/
<i>Rynchophorinae</i> sp. 1			/
<i>Rynchophorinae</i> sp. 2			/
Pachrrynchinae <i>Metapocyrtus</i> sp. 1			/
<i>Metapocyrtus</i> sp. 2			/
<i>Metapocyrtus</i> sp. 3			/
<i>Metapocyrtus</i> sp. 4			/
<i>Metapocyrtus</i> sp. 5			/
<i>Metapocyrtus</i> sp. 6			/
<i>Metapocyrtus</i> sp. 7			/
<i>Metapocyrtus</i> sp. 8			/
<i>Metapocyrtus</i> sp. 9			/
<i>Metapocyrtus</i> sp. 10			/
<i>Metapocyrtus</i> sp. 11			/
<i>Metapocyrtus</i> sp. 12			/
<i>Metapocyrtus</i> sp. 13			/
<i>Metapocyrtus</i> sp. 14			/
<i>Pachyrrhynchus</i> sp. 1			/
<i>Pachyrrhynchus</i> sp. 2			/
<i>Pachyrrhynchus</i> sp. 3			/
<i>Pachyrrhynchus</i> sp. 4			/
<i>Pachyrrhynchus</i> sp. 5			/

Appendix Table 21 continued....

Taxa	Philippines	Mindanao	MMRNP
<i>Pachyrrhynchus</i> sp. 6			/
Cryptorrhynchinae <i>Odosyllis</i> sp. 1			/
<i>Odosyllis</i> sp. 2			/
<i>Tragopus</i> sp.			/
<i>Calidiopsis</i> sp. 1			/
Otiorrhynchinae sp. 1			/
Otiorrhynchinae sp. 2			/
Otiorrhynchinae sp. 3			/
Otiorrhynchinae sp. 4			/
Otiorrhynchinae sp. 5			/
Otiorrhynchinae sp. 6			/
Hylobiinae <i>Paepalosomus</i> sp.			/
Zygopinae <i>Nauphaeus</i> sp.			/
Entiminae Sitonini <i>Eugnathus</i> sp.			/
Undetermined sp. 1			/
Undetermined sp. 2			/
Undetermined sp. 3			/
Undetermined sp. 4			/
TOTAL	0	3	41

Total Coleopteran species recorded in MMRNP = 258

Appendix Table 22. Endemic species of Lepidoptera in Mt. Malindang Range Natural Park (MMRNP).

Taxa	Philippines	Mindanao	MMRNP
Hesperiidae <i>Choaspes plateni adhara</i> Mabille		/	
Nymphalidae <i>Athyma maenas semperi</i>	/		
<i>Mycalesis ita imeldae</i> Aoki and Uemura		/	
<i>Parantica dannatti malindangensis</i> Treadaway			/
Papilionidae <i>Menelaides hystaspes</i> (C & R Felder)	/		
<i>Menelaides rumanzonia rumanzovia</i> (Eschscholtz)	/		
<i>Troides magellanus</i> C & R Felder	/		
Pieridae <i>Delias baracasa baracasa</i> Semper		/	
<i>Delias diaphana basilisae</i> Schroeder & Treadaway			/
<i>Delias henningia ochreopicta</i> Butler		/	
<i>Eurema hiurai hiurai</i> Schirozu & Yata		/	
<i>Eurema sarilata sarilata</i> Semper		/	
TOTAL	4	6	2

Total Lepidopteran species recorded in MMRNP = 34

Appendix Table 23. Mt. Malindang endemic species of arthropod fauna per vegetation.

Endemic species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
Coleoptera: BEETLES									
Curculionidae									
Gymnetrinae									
<i>Alcidodes</i> sp. 1					/	/			/
<i>Alcidodes</i> sp. 2	/								
Rynchophorinae									
Rynchophorinae sp. 1		/	/		/				/
Rynchophorinae sp. 2								/	/
Pachrrhynchinae									
<i>Metapocyrtus</i> sp. 1	/								
<i>Metapocyrtus</i> sp. 2					/			/	
<i>Metapocyrtus</i> sp. 3									/
<i>Metapocyrtus</i> sp. 4						/			
<i>Metapocyrtus</i> sp. 5						/			
<i>Metapocyrtus</i> sp. 6	/								
<i>Metapocyrtus</i> sp. 7				/	/			/	
<i>Metapocyrtus</i> sp. 8					/				
<i>Metapocyrtus</i> sp. 9					/	/	/		/
<i>Metapocyrtus</i> sp. 10						/			
<i>Metapocyrtus</i> sp. 11						/			
<i>Metapocyrtus</i> sp. 12	/	/	/	/	/	/	/	/	/
<i>Metapocyrtus</i> sp. 13		/						/	/
<i>Metapocyrtus</i> sp. 14					/				
<i>Pachyrrhynchus</i> sp. 1	/	/	/	/					/
<i>Pachyrrhynchus</i> sp. 2		/		/	/			/	/
<i>Pachyrrhynchus</i> sp. 3					/				
<i>Pachyrrhynchus</i> sp. 4					/				
<i>Pachyrrhynchus</i> sp. 5					/				
<i>Pachyrrhynchus</i> sp. 6			/						
Cryptorrhynchinae									
<i>Odosyllis</i> sp. 1	/								
<i>Odosyllis</i> sp. 2						/			

Appendix Table 23 continued...

Endemic species	Mossy Forest	Montane Forest	Almáciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
<i>Tragopus</i> sp.	/	/				/			
<i>Calidiopsis</i> sp. 1					/	/			
Otiorrhynchinae sp. 1					/	/			
Otiorrhynchinae sp. 2		/		/			/		/
Otiorrhynchinae sp. 3	/								/
Otiorrhynchinae sp. 4									/
Otiorrhynchinae sp. 5					/				/
Otiorrhynchinae sp. 6					/			/	/
Hylobiinae <i>Paepalosomus</i> sp.					/				
Zygopinae <i>Nauphaeus</i> sp.				/					
Entiminae Sitorini <i>Eugnathus</i> sp.					/				
Undetermined sp. 1					/				/
Undetermined sp. 2					/				/
Undetermined sp. 3				/					
Undetermined sp. 4					/		/	/	/
Phasamtodea: WALKING STICKS									
Aschiphasmatae Aschiphasmatinae Aschiphasmatini <i>Orthomeria</i> sp. 1				/	/	/	/		
Diapheromeridae Diapheromeridae sp. 1	/	/		/				/	/
Lonchodinae	/								
Lonchodinae sp. 1					/				
<i>Lonchodes</i> sp. 1		/							/
<i>Lonchodes</i> sp. 2			/	/		/			
<i>Lonchodes</i> sp. 3	/		/	/	/			/	

Appendix Table 23 continued...

Endemic species	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Agro-ecosystem
Necrosiinae	/	/	/	/	/				
Necrosiinae sp. 1	/	/			/				
Necrosiinae sp. 2				/					
Necrosiinae sp. 3					/			/	
<i>Asceles</i> sp. 1			/		/				
<i>Asceles</i> sp. 2									
<i>Asceles</i> sp. 3				/	/				
Marmessoidea sp. 1					/				
<i>Necrosia</i> sp. 1					/				/
Heteropterygidae Obriminae <i>Obrimini</i> sp. 1	/				/				
<i>Euobrimus</i> (near) <i>atherura</i>					/				
<i>Euobrimus</i> sp.	/	/							
Phasmatidae Pharnaciini <i>Phobaeticus</i> sp. 1			/						/
<i>Pharnacia</i> sp. 1							/		
Baculini <i>Baculum</i> sp. 1			/				/		
Platycraninae sp. 1					/				
Phylliidae <i>Phyllium</i> sp. 1	/								
Lepidoptera: BUTTERFLY									
Nymphalidae <i>Parantica dannatti</i> <i>malindangensis</i>	/								
Pieridae <i>Delias diaphana</i> <i>basilisae</i>				/					
TOTAL	17	14	10	15	34	13	8	11	21

Appendix Table 24. Mt. Malindang endemic species of arthropod fauna per site in the forest ecosystem.

ENDEMIC ARTHROPOD	1	2	3	4	9	5	11	16	13	16a	15	11a	19
Coleoptera: BEETLES (Weevils)													
Curculionidae													
Gymnetrinae													
<i>Alcidodes</i> sp. 1							/	/	/				
<i>Alcidodes</i> sp. 2		/											
Rynchophorinae													
Rynchophorinae sp. 1			/		/								
Rynchophorinae sp. 2													/
Pachrrynchinae													
<i>Metapocyrtus</i> sp. 1		/											
<i>Metapocyrtus</i> sp. 2												/	
<i>Metapocyrtus</i> sp. 3													
<i>Metapocyrtus</i> sp. 4									/				
<i>Metapocyrtus</i> sp. 5									/				
<i>Metapocyrtus</i> sp. 6		/											
<i>Metapocyrtus</i> sp. 7						/	/					/	
<i>Metapocyrtus</i> sp. 8							/						
<i>Metapocyrtus</i> sp. 9							/	/	/		/		
<i>Metapocyrtus</i> sp. 10									/				
<i>Metapocyrtus</i> sp. 11									/				
<i>Metapocyrtus</i> sp. 12	/	/	/	/	/	/	/	/	/		/	/	
<i>Metapocyrtus</i> sp. 13			/									/	
<i>Metapocyrtus</i> sp. 14								/					
<i>Pachyrrhynchus</i> sp. 1		/	/		/	/							
<i>Pachyrrhynchus</i> sp. 2			/			/	/					/	

Legend:**Sites: Forest-ecosystem**

- 1 - North Peak, Mossy Forest
- 2 - Mt. Ginlajan, Mossy Forest
- 3 - Mt. Ulohan sa Dapitan, Montane Forest
- 4 - Mt. Pungol, Montane Forest
- 9 - Old Liboron, Almaciga Forest
- 5 - Mt. Capole, Submontane Dipterocarp Forest
- 11 - Peniel, Mixed Dipterocarp Forest

- 16 - Mamalad, Mixed Dipterocarp Forest
- 13 - Mialen, Lowland Dipterocarp Forest
- 16a - Mamalad, Lowland Dipterocarp Forest
- 15 - Toliyok, Mixed Lowland Dipterocarp Forest
- 11a - Peniel, Plantation and Degraded Forest
- 19 - Bunga, Plantation and Degraded Forest

Appendix Table 24 continued...

ENDEMIC ARTHROPOD	1	2	3	4	9	5	11	16	13	16a	15	11a	19
<i>Pachyrrhynchus</i> sp. 3							/						
<i>Pachyrrhynchus</i> sp. 4							/						
<i>Pachyrrhynchus</i> sp. 5							/						
<i>Pachyrrhynchus</i> sp. 6					/								
Cryptorrhynchinae													
<i>Odosyllis</i> sp. 1		/											
<i>Odosyllis</i> sp. 2									/				
<i>Tragopus</i> sp.	/	/	/	/					/				
<i>Caldiopsis</i> sp. 1							/	/	/				
Otiorrhynchinae sp. 1							/		/				
Otiorrhynchinae sp. 2			/	/		/					/		
Otiorrhynchinae sp. 3		/											
Otiorrhynchinae sp. 4													
Otiorrhynchinae sp. 5							/						
Otiorrhynchinae sp. 6							/					/	
Hylobiinae													
<i>Paepalosomus</i> sp.							/						
Zygopinae													
<i>Nauphaeus</i> sp.						/							
Entiminae													
Sitorini								/					
<i>Eugnathus</i> sp.													
Undetermined sp. 1							/						
Undetermined sp. 2							/						
Undetermined sp. 3													
Undetermined sp. 4								/			/		/
Phasmatodea:													
WALKING STICKS													
Aschiphasmatidae													
Aschiphasmatinae							/	/	/		/		
Aschiphasmatini													
<i>Orthomeria</i> sp. 1													
Diapheromeridae													
Diapheromeridae sp. 1		/	/			/							/
Lonchodinae	/												

Appendix Table 24 continued...

ENDEMIC ARTHROPOD	1	2	3	4	9	5	11	16	13	16a	15	11a	19
Lonchodini sp. 1							/						
<i>Lonchodes</i> sp. 1				/									
<i>Lonchodes</i> sp. 2					/	/			/		/		
<i>Lonchodes</i> sp. 3	/	/			/	/	/					/	
Necrosiinae	/	/		/	/	/	/				/		
Necrosiinae sp. 1	/		/	/			/						
Necrosiinae sp. 2						/							
Necrosiinae sp. 3							/					/	
<i>Asceles</i> sp. 1					/		/						
<i>Asceles</i> sp. 2				/									
<i>Asceles</i> sp. 3						/	/						
Marmessoidea sp. 1							/						
<i>Necrosia</i> sp. 1							/						
Heteropterygidae													
Obriminae													
<i>Obrimini</i> sp. 1	/	/					/						
<i>Euobrimus</i> (near <i>atherura</i>)								/					
<i>Euobrimus</i> sp.	/	/	/										
Phasmatidae													
Pharnaciini													
<i>Phobaeticus</i> sp. 1					/								
<i>Pharnacia</i> sp. 1											/		
Baculini													
<i>Baculum</i> sp. 1					/						/		
Platycraninae sp. 1							/						
Phylliidae													
<i>Phyllium</i> sp. 1	/												
Lepidoptera: BUTTERFLY													
Nymphalidae													
<i>Parantica dannatti</i> <i>malindangensis</i>		/	/										
Pieridae													
<i>Delias diaphana</i> <i>basilisae</i>													
TOTAL	9	14	11	7	10	14	30	8	13	0	9	8	3

Appendix Table 25. Mt. Malindang endemic species of arthropod fauna per site in the agroecosystem.

ENDEMIC ARTHROPOD	6	7	8	10	14	12	10a	14a	17	12a	18	14b	17a	20	6a	7a	8a	10b	12b	
Coleoptera: BEETLES (Weevils)																				
Curculionidae																				
Gymnetrinae																				
<i>Alcidodes</i> sp. 1			/																	
<i>Alcidodes</i> sp. 2																				
Rhynchophorinae																				
Rynchophorinae sp. 1						/														
Rynchophorinae sp. 2							/				/									
Pachyrrhynchinae																				
<i>Metapocyrtus</i> sp. 1																				
<i>Metapocyrtus</i> sp. 2																				
<i>Metapocyrtus</i> sp. 3			/																	
<i>Metapocyrtus</i> sp. 4																				
<i>Metapocyrtus</i> sp. 5																				
<i>Metapocyrtus</i> sp. 6																				
<i>Metapocyrtus</i> sp. 7																				
<i>Metapocyrtus</i> sp. 8																				
<i>Metapocyrtus</i> sp. 9						/														
<i>Metapocyrtus</i> sp. 10																				

Legend:

Sites: Agroecosystem

- 6 - Lake Duminagat, Vegetable
- 7 - Gandawan, Vegetable
- 8 - Mansawan, Vegetable
- 10 - Sebucal, Vegetable
- 14 - Mialen, Vegetable
- 12 - Peniel, Vegetable
- 10a - Sebucal, Cereals
- 14a - Mialen, Cereals
- 17 - Toliyok, Cereals

- 12a - Peniel, Cereals
- 18 - Mamalad, Cereals
- 14b - Mialen, Agroforestry
- 17a - Toliyok, Agroforestry
- 20 - Bunga, Agroforestry
- 6a - Lake Duminagat, Grass-dominated fallowed areas
- 7a - Gandawan, Grass-dominated fallowed areas
- 8a - Mansawan, Grass-dominated fallowed areas
- 10b - Sebucal, Grass-dominated fallowed areas
- 12b - Peniel, Grass-dominated fallowed areas

Appendix Table 25 continued...

ENDEMIC ARTHROPOD	6	7	8	10	14	12	10a	14a	17	12a	18	14b	17a	20	6a	7a	8a	10b	12b
<i>Metapocyrtus</i> sp. 11																			
<i>Metapocyrtus</i> sp. 12	/	/	/			/									/	/	/		/
<i>Metapocyrtus</i> sp. 13						/													
<i>Metapocyrtus</i> sp. 14	/		/																
<i>Pachyrrhynchus</i> sp. 1																			
<i>Pachyrrhynchus</i> sp. 2															/				
<i>Pachyrrhynchus</i> sp. 3																			
<i>Pachyrrhynchus</i> sp. 4																			
<i>Pachyrrhynchus</i> sp. 5						/													
<i>Pachyrrhynchus</i> sp. 6																			
Cryptorrhynchinae																			
<i>Odosyllis</i> sp. 1																			
<i>Odosyllis</i> sp. 2																			
<i>Tragopus</i> sp.																			
<i>Calidiopsis</i> sp. 1																			
Otiorrhynchinae sp. 1																			/
Otiorrhynchinae sp. 2	/	/	/												/	/	/		
Otiorrhynchinae sp. 3	/		/															/	
Otiorrhynchinae sp. 4			/																
Otiorrhynchinae sp. 5						/													
Otiorrhynchinae sp. 6			/																
Hylobiinae																			
<i>Paepalosomus</i> sp.																			
Zygopinae																			
<i>Nauphaeus</i> sp.																			
Entiminae																			
Sitorini																			
<i>Eugnathus</i> sp.																			
Undetermined sp. 1						/													
Undetermined sp. 2																			
Undetermined sp. 3																			
Undetermined sp. 4												/							

Appendix Table 25 continued...

ENDEMIC ARTHROPOD	6	7	8	10	14	12	10a	14a	17	12a	18	14b	17a	20	6a	7a	8a	10b	12b	
Phasamtodea:																				
WALKING STICKS																				
Aschiphasmataidae																				
Aschiphasmatinae																				
Aschiphasmatini	/																			
<i>Orthomeria</i> sp. 1																				
Diapheromeridae																				
Diapheromeridae sp. 1																				
Lonchodinae																				
Lonchodini sp. 1																				
<i>Lonchodes</i> sp. 1											/									
<i>Lonchodes</i> sp. 2																				
<i>Lonchodes</i> sp. 3																				
Necrosiinae																				
Necrosiinae sp. 1																				
Necrosiinae sp. 2																				
Necrosiinae sp. 3																				
<i>Asceles</i> sp. 1																				
<i>Asceles</i> sp. 2																				
<i>Asceles</i> sp. 3																				
Marmessoidea sp. 1																				
<i>Necrosia</i> sp. 1							/													
Heteropterygidae																				
Obriminae																				
Obrimini sp. 1																				
<i>Euobrimus</i> (near)																				
<i>atherura</i>																				
<i>Euobrimus</i> sp.																				
Phasmatidae									/											
Pharnaciini																				
<i>Phobaeticus</i> sp. 1																				

Appendix Table 25 continued...

ENDEMIC ARTHROPOD	6	7	8	10	14	12	10a	14a	17	12a	18	14b	17a	20	6a	7a	8a	10b	12b
<i>Pharnacia</i> sp. 1																			
Baculini <i>Baculum</i> sp. 1																			
Platycraninae sp. 1																			
Phylliidae <i>Phyllium</i> sp. 1																			
Lepidoptera: BUTTERFLY																			
Nymphalidae <i>Parantica dannatti</i> <i>malindangensis</i>																			
Pieridae <i>Delias diaphana</i> <i>basilisae</i>																			
TOTAL	5	2	8	0	0	6	2	1	1	1	2	0	1	0	3	2	2	1	2

Appendix Table 26. Mt. Malindang endemic arthropods and their associated host plants.

MMRNP Endemic Arthropod	Associated Host Plants	
	Local name	Scientific name
COLEOPTERA Curculionidae Gymnetrinae <i>Alcidodes</i> sp. 1	Baho-baho Camote Pusaw Salumay	<i>Sapium luzonicum</i> <i>Ipomoea batatas</i> <i>Homalomena</i> sp. <i>Macaranga dipterocarpifolia</i> *
<i>Alcidodes</i> sp. 2		
Rynchophorinae <i>Rynchophorinae</i> sp. 1	Bogang	<i>Cyperus</i> sp.
<i>Rynchophorinae</i> sp. 2		
Pachrrynchinae <i>Metapocyrtus</i> sp. 1	Bintuko	<i>Melicope monophylla</i>
<i>Metapocyrtus</i> sp. 2	Bugang	<i>Cyperus</i> sp.
<i>Metapocyrtus</i> sp. 3	Hantutungaw	<i>Astrocalyx calycina</i>
<i>Metapocyrtus</i> sp. 4	Payaw	<i>Callocasia</i> sp.
<i>Metapocyrtus</i> sp. 5	Kumpay	
<i>Metapocyrtus</i> sp. 6	Karupay Babakag	<i>Pinanga insignis</i> <i>Ascarina philippinensis</i>
<i>Metapocyrtus</i> sp. 7	Pulayo pula Danlugan	<i>Syzygium</i> sp. <i>Shorea contorta</i> *
<i>Metapocyrtus</i> sp. 8	Agik-ik	<i>Monophrynium faciculatum</i>
<i>Metapocyrtus</i> sp. 9	Salawag Mani-mani	
<i>Metapocyrtus</i> sp. 10	Ulingon	<i>Decaspermum fruticosum</i>
<i>Metapocyrtus</i> sp. 11	Tagibokbok Pandan Camote	<i>Mastixia premnoides</i> <i>Pandanus</i> sp. <i>Ipomoea batatas</i>
<i>Metapocyrtus</i> sp. 12	Babasa Tambal hilo Kayupo lagwis Babakag	<i>Polyosma philippinensis</i> <i>Drymis piperita</i> <i>Medinilla clementis</i> <i>Ascarina philippinensis</i>
<i>Metapocyrtus</i> sp. 13	Kayupo Lagwis Fern Cassava	<i>Medinilla clementis</i> <i>Syngame</i> sp. <i>Manihot esculenta</i>

Legend :

* - identified both endemic and threatened host plants by the BRP flora study

** - identified endemic host plants by the BRP flora study

Appendix Table 26 continued...

MMRNP Endemic Arthropod	Associated Host Plants	
	Local name	Scientific name
<i>Metapocyrtus</i> sp. 14		
<i>Pachyrrhynchus</i> sp. 1	Babate Lalago pino Karupay Chayote Silangka	<i>Elaeocarpus calomela</i> <i>Cyrtandra umbellifera</i> ** <i>Pinanga insignis</i> ** <i>Sechium edule</i> ** <i>Impatiens montalbanica</i> **
<i>Pachyrrhynchus</i> sp. 2	Lalambing Lumbilan Dila-dila	<i>Elatostema</i> sp. <i>Leucosyke capitellata</i>
<i>Pachyrrhynchus</i> sp. 3	Lalago dako	<i>Cyrtandra cumingii</i> **
<i>Pachyrrhynchus</i> sp. 4	Tambis-tambis Pako-pako	Undetermined sp.
<i>Pachyrrhynchus</i> sp. 5	Pulayo Gantaw Mahogany	<i>Syzygium hutchinsonii</i> <i>Cyathea apoensis</i> ** <i>Swietenia macrophylla</i>
<i>Pachyrrhynchus</i> sp. 6	Ulingon	<i>Decaspermum fruticosum</i>
Cryptorrhynchinae <i>Odosyllis</i> sp. 1	Tatanak	<i>Gardenia longiflora</i> **
<i>Odosyllis</i> sp. 2	Payaw	<i>Callocasia</i> sp.
<i>Tragopus</i> sp.	Tambal hilo Gantaw Balangong lagwis Igem Sakam	<i>Drymis piperita</i> <i>Cyathea apoensis</i> <i>Saurauria latiflora</i> <i>Dacrycarpus cumingii</i> <i>Clethra lancifolia</i>
<i>Calidiopsis</i> sp. 1	Tinapalis Pako-pako	<i>Pinanga</i> sp.
Otiorrhynchinae sp. 1	Hantutungaw	<i>Astrocalyx calycina</i> **
Otiorrhynchinae sp. 2	Tagima Sambinit Pulayo Bali-batang	<i>Schefflera alvarezii</i> ** <i>Robus</i> sp. <i>Syzygium hutchinsonii</i> <i>Commelina</i> sp.
Otiorrhynchinae sp. 3	Babate Cassava Kayupo lagwis	<i>Elaeocarpus calomela</i> <i>Manihot esculenta</i> <i>Medinilla clementis</i>
Otiorrhynchinae sp. 4	Bogang Gabi Mani-mani	<i>Cyperus</i> sp. <i>Colocasia esculenta</i>

Appendix Table 26 continued...

MMRNP Endemic Arthropod	Associated Host Plants	
	Local name	Scientific name
Otiorrhynchinae sp. 5	Potato Bogang	<i>Solanum tuberosum</i> <i>Cyperus</i> sp.
Otiorrhynchinae sp. 6	Papaga Camote Tagbak	<i>Rapanea arenis</i> <i>Ipomoea batatas</i> <i>Kalowratia elegans</i>
Hylobiinae <i>Paepalosomus</i> sp.	Pandan	<i>Pandanus</i> sp.
Zygopinae <i>Nauphaeus</i> sp.		
Entiminae Sitorini <i>Eugnathus</i> sp.	Marang	<i>Artocarpus oclorratissimus</i>
Undetermined sp. 1	Gabi Ube Balangong	<i>Colocasia esculenta</i> <i>Dioscorea alata</i> <i>Saurauria latiflora</i> **
Undetermined sp. 2	Beans Bolokawe	<i>Glycine max</i> <i>Schitochium diffusum</i>
Undetermined sp. 3	Payaw Bugang	<i>Callocasia</i> sp. <i>Cyperus</i> sp.
Undetermined sp. 4	Rice	<i>Oryza sativa</i>
PHASMATODEA Aschiphasmatidae Aschiphasmatinae Aschiphasmatini <i>Orthomeria</i> sp. 1	Pandan Payaw Gantaw	<i>Pandanus</i> sp. <i>Cyathea apoensis</i>
Diapheromeridae sp. 1	Kalingag Lalago pino Salawag Danlugan	<i>Cinnamomum mercadoi</i> * <i>Cyrtandra umbellifera</i> ** <i>Shorea contorta</i>
Lonchodinae		
<i>Lonchodini</i> sp. 1		
<i>Lonchodes</i> sp. 1	Babakag Bulase Lagundi	<i>Asarina philippinensis</i> ** <i>Cypholophus moluccanus</i>
<i>Lonchodes</i> sp. 2	Pusaw Payaw Baho-baho	<i>Homalomena</i> sp. <i>Callocasia</i> sp. <i>Viburnum</i> sp.

Appendix Table 26 continued...

MMRNP Endemic Arthropod	Associated Host Plants	
	Local name	Scientific name
<i>Lonchodes</i> sp. 3	Palomaria Tumating Buyo-buyo	<i>Calophyllum blancoi</i> Pl. & Tr. <i>Anisoptera thurifera</i> spp. <i>thurifera</i> <i>Piper catubiguensis</i> **
Necrosiinae	Karupay Baraas Payaw Babakag	<i>Pinanga insignis</i> ** <i>Freycinetia multiflora</i> Merr. ** <i>Callocasia</i> sp. <i>Ascarina philippinensis</i> **
Necrosiinae sp. 1	Babate Gantaw	<i>Elaeocarpus calomala</i> (Bl.) Merr. <i>Cyathea apoensis</i> **
Necrosiinae sp. 2	Lukdo-lukdo	
Necrosiinae sp. 3	Tubog	<i>Ficus latsoni</i>
<i>Asceles</i> sp. 1		
<i>Asceles</i> sp. 2		
<i>Asceles</i> sp. 3	Salawag	
<i>Marmessoidea</i> sp. 1	Balagon	
<i>Necrosia</i> sp. 1		
Heteropterygidae Obriminae <i>Obrimini</i> sp. 1	Gantaw Balangong-lagwis	<i>Cyathea apoensis</i> ** <i>Saurauia fasciculifera</i>
<i>Euobrimus</i> (near) <i>atherura</i>		
<i>Euobrimus</i> sp. 1	Babakag Kupong-kupong Lalago dako	<i>Ascarina philippinensis</i> ** <i>Cyrtandra cumingii</i>
Phasmatidae Pharnaciini <i>Phobaeticus</i> sp. 1	Pulayo	<i>Syngium hutchinsonii</i>
<i>Pharnacia</i> ?? sp. 1		
Baculini <i>Baculum</i> sp. 1	Pandan	<i>Pandanus</i> sp.
Platyraninae sp. 1		
Phylliidae Phylliini <i>Phyllium</i> sp.1	Pako-pako	
LEPIDOPTERA Nymphalidae <i>Parantica dannatti</i> <i>malindangensis</i> Yamamoto & Takei	Tagbak	<i>Kalowratia elegans</i>
Pieridae <i>Catopsilia scylla asema</i> Standing	Bulase	<i>Cypholophus moluccanus</i>

Appendix Table 27. Distribution range and associated host plants of Odonata species in Mt. Malindang Range Natural Park (MMRNP).

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Odonata Anisoptera Aeshnidae <i>Tetracanthagyna</i> sp. nr. <i>brunnea</i> <i>Maclachlan</i>	Malaysia; Thailand; Palawan; Mindanao (endemic)		
Corduliidae <i>Heteronaias</i> <i>heterodoxa</i> (Selys)	Philippine endemic	Babate Pulayo Lakno	<i>Elaeocarpus calomala</i> (Bl.) Merr. <i>Syzygium</i> sp. 1 <i>Asplenium militare</i>
Gomphidae <i>Heliogomphus</i> <i>bakeri</i> Laidlaw	Philippine endemic (excl. Palawan and Sulu)		
Libellulidae <i>Crocothemis</i> <i>servilia</i> (Drury)	Ethiopian; Palaearctic; Oriental (widespread)		
<i>Diplacina braueri</i> (Selys)	Philippine endemic (excl. Palawan)		
<i>Diplacodes trivialis</i> (Rambur)	Palaearctic; Oriental; N. Guinea; S. Pacific		
<i>Nannophya pygmaea</i> Rambur	Oriental; Japan; New Guinea; Australia		
<i>Neurothemis ramburii</i> (Brauer)	Southeast Asia		
<i>Neurothemis terminata</i> Ris	Southeast Asia; Japan		
<i>Orthetrum pruinatum</i> (Selys)	Subspecies (Indonesia; Philippines; Taiwan)	Hagnaya	
<i>Orthetrum sabina</i> (Drury)	Palaearctic; Oriental; New Guinea	Weeds	
<i>Pantala flavescens</i> (Fabricius)	Circumtropical		
<i>Rhyothemis</i> sp.	For species ID		
<i>Trithemis aurora</i> (Burmeister)	Oriental; Japan		
<i>Trithemis festiva</i> (Rambur)	Palaearctic; Oriental; Irian Jaya		
Zygoptera Amphipterygidae <i>Devadatta</i> <i>podolestoides</i> <i>basilanensis</i> Laidlaw	Mindanao (subspecies endemic)	Sakanwayan	
Calopterygidae <i>Vestalis melania</i> Selys	Philippine endemic (excl. Palawan and W. Visayas)	Lalago Nato	<i>Aeschyandra</i> sp. <i>Palaquim luzoniense</i>
Chlorocyphidae <i>Cyrano angustior</i> Hämäläinen	Mindanao (endemic)		
<i>Rhinocypha dorsosanguinea</i> Lieftinck	Mindanao (endemic)	Bolukawe	<i>Schitochium diffusum</i>
<i>Rhinocypha turconii</i> Selys	Philippines (endemic) excl. Mindoro; Palawan; W. Visayas; Sulu	Bugang	<i>Cyperus</i> sp.

Appendix Table 27 continued...

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Coenagrionidae			
<i>Pseudagrion pilidorsum</i> (Brauer)	China; Taiwan; Japan; Philippines (widespread)		
<i>Pseudagrion</i> sp.	For species ID		
Euphaeidae			
<i>Euphaea amphicyana</i> Ris	Mindanao to Eastern Visayas (endemic)	Salawag	
Platycnemididae			
<i>Coelliccia dinoceras</i> Laidlaw	Mindanao to Eastern Visayas (endemic)		
<i>Risiocnemis</i> (R.) <i>appendiculata</i> (Brauer)	Mindanao to Eastern Visayas (endemic)		
<i>Risiocnemis</i> (Igneocnemis) <i>flammea</i> (Selys)	Mindanao to Eastern Visayas (endemic)		
<i>Risiocnemis</i> (Igneocnemis) sp.	For species ID		
Protoneuridae			
<i>Prodasineura integra</i>	Philippine endemic		

Appendix Table 28. Distribution range and associated host plants of Ephemeroptera species in Mt. Malindang Range Natural Park (MMRNP).

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Ephemeroptera		Tagima Busyong Hagonoy Hantutungaw Lubi-lubi	<i>Schefflera alvarezii</i> <i>Ficus nota</i> <i>Diplazium</i> sp. <i>Astrocalyx calycina</i> (Vidal) Merr

Appendix Table 29. Distribution range and associated host plants of Blattodea species in Mt. Malindang Range Natural Park (MMRNP).

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
BLATTODEA Blaberidae Sp. 1		Tagilumboy Babakag Pandan Banana Lagnob Coconut	<i>Syzygium</i> sp. <i>Justicia</i> sp. <i>Pandanus</i> sp. 1 <i>Musa sapientum</i> <i>Ficus septica</i> Burm. F <i>Cocos nucifera</i>
Blattidae Sp. 1		Pulayo Lalambo Camote Corn	<i>Syzygium</i> sp. <i>Ipoemea batatas</i> <i>Zea mays</i>
Sp. 2			
Cryptoceridae Sp. 1		Karupay Likway Kanding-kanding Manga-manga	<i>Pinanga philippinensis</i> Becc. <i>Procris</i> sp. <i>Elaeagnus</i> sp.
Undetermined Sp. 1			
Sp. 2		Tambok-tambok	<i>Crassocephalum crepidioides</i> (Benth.) S. Moore
		Labid Papaga	<i>Philodendron eichleri</i> <i>Ardisia</i> sp.
Sp. 3		Baraas	<i>Freycinetia multiflora</i> Merr.
Sp. 4			
Sp. 5			
Sp. 6			
Sp. 7			
Sp. 8			

Appendix Table 30. Distribution range and associated host plants of Dermaptera species in Mt. Malindang Range Natural Park (MMRNP).

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
DERMAPTERA Carcinophoridae Sp. 1			
Labiidae Sp. 1		Latipo Babate	<i>Medinella malindangensis</i> <i>Elaeocarpus calomala</i> (Bl.) Merr

Appendix Table 31. Distribution range and associated host plants of Orthoptera species in Mt. Malindang Range Natural Park (MMRNP).

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Orthoptera Acrididae Catantopinae <i>Stenocatantops spendens</i> (Thunberg)	South to Southeast Asia	Tilapya Magamatong Hagonoy	<i>Neolitsea vidalli</i> Merr.
Catantopinae <i>Melicodes tenebrosa</i> (Walker)	Philippine endemic		
Undetermined sp. 1	For species ID		
Oedipodinae <i>Aiolopus thalassinus tamulus</i> (Fabr.)	Oriental region; New South Wales	Gabi Camote Hantutungaw Magamatong Pusaw	<i>Colocasia esculenta</i> <i>Ipomea batatas</i> <i>Astrocalyx calycina</i> (Vidal) <i>Neolitsea vidalli</i> Merr. <i>Homalomena</i> sp.
<i>Heteropternis respondens</i>	Oriental; S. China; S. Japan	Tungaw-tungaw Balete Guma-guma	<i>Astronia cumingiana</i> Vid. var. <i>cumingiana</i> <i>Ficus</i> sp.
Oxyinae <i>Gesonula mundata zonocera</i> (Navas)	Sub species Palawan; Mindanao; Leyte; Luzon	Pusaw Gabi Corn	<i>Homalomena</i> sp. <i>Colocasia esculenta</i> <i>Zea mays</i>
<i>Oxya hyla intricata</i> (Stal)	Southeast Asia	Kalabasa Rice	<i>Cucurbita maxima</i> <i>Oryza sativa</i>
Catantopinae <i>Cranaella</i> sp.		Dila-dila	
<i>Gelastorhinus</i> sp.?		Tatanak Camote	<i>Ficus botryocarpa</i> Mig. var. <i>botryocarpa</i> <i>Ipomea batatas</i>
Undetermined sp. 1	For species ID		
Undetermined sp. 2	For species ID		
Gryllacridinae Undetermined sp. 1 Undetermined sp. 2	For species ID For species ID	Pusaw Kanaka	<i>Homalomena</i> sp.
Gryllidae <i>Paranisitra</i> sp. 1		Lagundi Igem Tambok-tambok Sayote Laberay Manga-manga Salumay Lakatan Mais	<i>Elmerillia platyphylla</i> <i>Dacrycarpus cumingii</i> <i>Crassocephalum crepidioides</i> (Benth.) S. Moore <i>Sechium edule</i> <i>Alstonia macrophylla</i> <i>Elaeagnus</i> sp. <i>Macaranga</i> cf. <i>conifera</i> <i>Paspalum</i> sp. <i>Zea mays</i>
Eneopterinae sp. 1		Babasa Macaringan Tagobahi Lagnob	<i>Polyosma cyanea</i> Elm. <i>Phyllocladus hypophyllus</i> <i>Decaspermum</i> sp. <i>Ficus septica</i> Burm. F.

Appendix Table 31 continued...

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Eneopterinae sp. 2		Hantutungaw Bagwas Cogon	<i>Astrocalyx calycina</i> (Vidal) Merr. <i>Imperata cylindrica</i> (L.) P. Beauv.
Eneopterinae sp. 3		Pusaw Lakno Bolukawe Agik-ik Nito Tagima Lukdo-lukdo Danlugan	<i>Homalomena</i> sp. <i>Asplenium militare</i> <i>Schitochium diffusum</i> <i>Monophrynum faciculatum</i> <i>Schefflera odorata</i> (Blco.) Merr. & Rolfe <i>Shorea contorta</i>
Trigonidinae		Balagon	
Undetermined sp. 1		Tagbak Pandan Busikad Hagonoy Babakag Payaw	<i>Kolowratia elegans</i> <i>Pandanus</i> sp. <i>Cyperus</i> sp. <i>Diplazium</i> sp. <i>Justicia</i> sp. <i>Callocasia</i> sp.
Pyrgomorphidae <i>Atractomorpha psittacina</i> (de Haan)	Southeast Asia; S. China	Gabi Pechay Camote Humay	<i>Colocasia esculenta</i> <i>Brassica campestris</i> <i>Ipomea batatas</i> <i>Oryza sativa</i>
Tetrigidae <i>Diotarus verrucifer</i> Stal	Philippine endemic	Silangka Molave Gulayan	<i>Impatiens montalbanica</i> Hook <i>Lithocarpus</i> sp.
<i>Misythus</i> sp. nr. <i>jubatus</i> Hebard	Mindanao (endemic)	Silangka Tomating	<i>Impatiens montalbanica</i> Hook <i>Anisoptera thurifera</i> spp. <i>thurifera</i>
<i>Scelimena</i> sp.	For species ID	Mamangpang Lukdo-lukdo Baraas Lawaan	<i>Begonia copelandii</i> <i>Freycinetia multiflora</i> Merr. <i>Shorea</i> sp.
Tettigoniidae Conocephalinae <i>Anthracites</i> sp. nr. <i>major</i> Hebard	Mindanao (Surigao) (endemic)		
<i>Conocephalus</i> sp.	For species ID	Pako-pako Mais Humay	<i>Zea mays</i> <i>Oryza sativa</i>
Litrosclinae <i>Hexacentrus mundus</i> (Walker)	Ceram; Philippines	Kumpay Salisip	<i>Cyrtandra parviflora</i> Merr.
Meconematinae <i>Xiphidiopsis drepanophora</i> Hebard	Mindanao (endemic)	Balangong lagwis Guma-guma	<i>Saurauia fasciculifera</i>
<i>Xiphidiopsis gemmicula</i> Hebard	Mindanao (endemic)		

Appendix Table 31 continued...

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Mecopodinae <i>Mecapoda elongata</i> (Linnaeus)	China; Japan; Taiwan; Philippines; Vietnam; India; Malacca; Sunda islands; Moluccas; Sulawesi; Buru; Aru; New Guinea; East Australia	Tagbak Busikad Tinapalis	<i>Kalowratia elegans</i> <i>Cyperus</i> sp. <i>Pinanga</i> sp.
<i>Segestes</i> sp. nr. <i>vitticeps</i> Stal	Philippines (endemic)	Tinapalis Gabi	<i>Pinanga</i> sp. <i>Colocasia esculenta</i>
Phaneropterinae <i>Ducetia japonica</i> (Thunberg)	Japan; Philippines	Tambok- tambok Lalambo Kanaka Gapas-gapas	<i>Crassocephalum crepidiodes</i>
<i>Elimea bakeri</i> Hebard	Indomalayan	Subing-diwata Lagitlit	<i>Podocarpus neriifolius</i> D. Don <i>Oplismenus</i> sp.
<i>Phaneroptera furcifera</i>	Philippines (Manila, Malindang)	Baraas Babakag Tatanak Kaliskis ahas	<i>Freycinetia multiflora</i> Merr. <i>Justicia</i> sp. <i>Ficus botryocarpa</i> Mig. var <i>botryocarpa</i>
<i>Furnia</i> sp. nr.	Mindanao (endemic)	Lakatan	<i>Pasapalum conjugatum</i>
Pseudophyllinae <i>Morsimus</i> sp. nr. <i>serratus</i> Beier	Sulu; Mindanao (endemic)		
<i>Phyllominus</i> sp. nr. <i>acutipennis</i> Brunner V. W.	Philippines	Banisilk Karupay Ube	<i>Psychotria</i> sp. <i>Pinanga</i> sp. <i>Dioscorea alata</i>
<i>Tympanoptera</i> sp. nr. <i>philippina</i> (Hebard)	Mindanao; Luzon (Phil. endemic)	Bali-batang Hagonoy Bolukawe	<i>Commelina</i> sp. <i>Diplazium</i> sp. <i>Schitochium diffusum</i>
Trigonopterygidae <i>Systella philippinensis</i> (Walker)	Mindanao; Bohol; Leyte; Siargao (endemic)	Lukdo-lukdo Pako-pako	

Appendix Table 32. Distribution range and associated host plants of Phasmatodea species in Mt. Malindang Range Natural Park (MMRNP).

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
PHASMATODEA Aschiphasmatidae Aschiphasmatinae Aschiphasmatini <i>Orthomeria</i> sp. 1		Pandan Payaw Gantaw	<i>Pandanus</i> sp. <i>Cyathea apoensis</i>
Diapheromeridae sp. 1		Kalingag Lalago pino Salawag Danlugan	<i>Cinnamomum mercadoi</i> <i>Cyrtandra umbellifera</i> <i>Shorea contorta</i>
Lonchodinae			
<i>Lonchodini</i> sp. 1			
<i>Lonchodes</i> sp. 1		Babakag Bulase Lagundi	<i>Ascarina philippinensis</i> <i>Cypholophus moluccanus</i>
<i>Lonchodes</i> sp. 2		Pusaw Payaw Baho-baho	<i>Homalomena</i> sp. <i>Callocasia</i> sp. <i>Viburnum</i> sp.
<i>Lonchodes</i> sp. 3		Palomaria Tumating Buyo-buyo	<i>Calophyllum blancoi</i> Pl. & Tr. <i>Anisoptera thurifera</i> spp. <i>thurifera</i> <i>Piper catubiguensis</i>
Necrosiinae		Karupay Baraas Payaw Babakag	<i>Pinanga insignis</i> <i>Freycinetia multiflora</i> <i>Callocasia</i> sp. <i>Ascarina philippinensis</i>
Necrosiinae sp. 1		Babate Gantaw	<i>Elaeocarpus calomala</i> (Bl.) Merr. <i>Cyathea apoensis</i>
Necrosiinae sp. 2		Lukdo-lukdo	<i>Ficus latsoni</i>
Necrosiinae sp. 3		Tubog	
<i>Asceles</i> sp. 1			
<i>Asceles</i> sp. 2			
<i>Asceles</i> sp. 3		Salawag	
<i>Marmessoidea</i> sp. 1		Balagon	
<i>Necrosia</i> sp. 1			
Heteropterygidae Obriminae Obrimini sp. 1		Gantaw Balangong-lagwis	<i>Cyathea apoensis</i> <i>Saurauia fasciculifera</i>
<i>Euobrimus</i> (near) <i>atherura</i>		Babakag	<i>Ascarina philippinensis</i>
<i>Euobrimus</i> sp.		Kupong-kupong Lalago dako	<i>Cyrtandra cumingii</i>
Phasmatidae Pharnaciini <i>Phobaeticus</i> sp. 1 <i>Pharnacia</i> ?? sp. 1		Pulayo	<i>Syzgium hutchinsonii</i>
Baculini <i>Baculum</i> sp. 1 Platycraninae sp. 1		Pandan	<i>Pandanus</i> sp.
Phylliidae Phylliini <i>Phyllium</i> sp. 1		Pako-pako	

Appendix Table 33. Distribution range and associated host plants of Mantodea species in Mt. Malindang Range Natural Park (MMRNP).

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
MANTODEA			
Mantidae			
<i>Hierodula</i> sp.		Baraas Lagnob	<i>Freycinetia multiflora</i> Merr. <i>Ficus septica</i> Burm. F.
Deroplatyinae		Pusaw	<i>Homalomena</i> sp.
Sp. 1		Pusaw	<i>Homalomena</i> sp.
Sp. 2			
Sp. 3		Danlugan	<i>Shorea contorta</i>
Sp. 4		Talisay	<i>Baccaurea</i> sp.
Sp. 5			
Sp. 6		Baraas	<i>Freycinetia multiflora</i> Merr.
Sp. 7		Oway	<i>Calamus ornatus</i>
Sp. 8		Pandan	<i>Pandanus</i> sp.
Sp. 9			
Sp. 10			
Sp. 11			

Appendix Table 34. Distribution range and associated host plants of Hemiptera species in Mt. Malindang Range Natural Park (MMRNP).

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
HEMIPTERA			
Heteroptera Acanthosomatidae <i>Sastragala</i> sp.		Bonot-bonot	
Alydidae <i>Noliphus spinosus</i> Ahmad <i>Riptortus linearis</i> ??		Gabi	<i>Colocasia esculenta</i>
Aradidae Sp. 1		Gantaw Lakno	
Colobathristidae <i>Phaenacantha</i> sp. sp. 1		Pulayo Bali-batang Kumpay	<i>Cyathea apoensis</i> <i>Hymenophyllum emarginatum</i> <i>Syzygium hutchinsonii</i> <i>Commelina</i> sp.
Coreidae <i>Anoplocnemis phasiana</i> Fabr. <i>Colpura obscuricornis</i>		Sakam Bentangol Dila-dila Mani-mani	<i>Clethra lancifolia</i> <i>Callophyllum</i> sp.
<i>Dindymus mundus</i> Stal		Babasa Payaw	<i>Polyosma cyanea</i> Elm. <i>Callocasia</i> sp.
<i>Homoeocerus immaculatus</i> Stal			
<i>Prionolomia expansa</i> Stal		Pusaw Pandan	<i>Homalomena</i> sp. <i>Pandanus</i> sp.
Cydnidae <i>Macroscytus subaeneus</i> Stal		Karupay Cabbage	<i>Pinanga philippinensis</i> Becc. <i>Brassica</i> sp.
Enicocephalidae Sp. 1		Karupay Babakag	<i>Pinanga philippinensis</i> Becc. <i>Justicia</i> sp.
Notonectidae <i>Enithares</i> sp.			
Lygaeidae <i>Faelicianus</i> sp.		Pusaw	<i>Homalomena</i> sp.
<i>Metochus uniguttatus</i> (Thunberg)		Karupay Kanding-kanding Salapid Salawag	<i>Pinanga philippinensis</i> Becc. <i>Dendrobium</i> sp.
<i>Nysius caledoniae</i> Distant		Ube Corn	<i>Dioscorea alata</i> <i>Zea mays</i>
<i>Nysius vinitor</i> Bergroth		Hantutungaw Lukdo-lukdo	<i>Astrocalyx calycina</i> (Vidal) Merr.
<i>Paraucosmetus</i> sp.		Tilapya Cogon	<i>Imperata cylindrica</i>
<i>Paraucosmetus pallicornis</i> (Dallas)			
<i>Paraucosmetus malayus</i> (Stal)		Mani-mani	

Appendix Table 34 continued...

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Miridae <i>Cyrtopeltis tenius</i>		Pangnan Sinaw-sinaw	<i>Lithocarpus sulitii</i> <i>Gomphrena</i> sp.
Sp. 1		Gabi Baho-baho	<i>Colocasia esculenta</i> <i>Viburnum</i> sp.
Sp. 2		Lakatan Onion Guma-guma Cabbage Likway Gabi Sayote	<i>Paspalum conjugatum</i> <i>Allium cepa</i> <i>Brassica</i> sp. <i>Aloelmoschus moschantus</i> <i>Colocasia esculenta</i> <i>Sechium edule</i>
Sp. 3		Bali-batang Banitlong	<i>Commelina</i> sp.
Sp. 4		Gantaw	<i>Cyathea brevipes</i>
Sp. 5		Bulase	<i>Cypholophus moluccanus</i>
Sp. 6		Mais	<i>Zea mays</i>
Sp. 7		Mango	<i>Mangifera indica</i>
Sp. 8			
Miridae on Melastoma			
Pentatomidae <i>Alcimocoris lineolatus</i> (Dallas)		Hantutungaw	<i>Astrocalyx calycina</i> (Vidal)
<i>Carbula trabifera</i> Breddin		Kalabasa Tilapya	<i>Cucurbita maxima</i> <i>Pasapalum</i> sp.
<i>Dalsira marginata</i> Amyot & Serville		Pakong kalabaw	
<i>Hoplistodera convexa</i> (Dallas)			
<i>Plautia</i> sp. 1		Babakag Avocado Hagonoy	<i>Justicia</i> sp. <i>Persea americana</i> <i>Diplazium</i> sp.
<i>Sepontia</i> sp.			
<i>Tolumnia trinotata</i> (Westwood)			
<i>Vitellus</i> sp.			
Platyspidae <i>Brachyplatys daplanatus</i> (Eschscholtz)		Pandan	
<i>Coptosoma</i> sp. 1			
<i>Coptosoma</i> sp. 2		Hagnaya	
Reduviidae <i>Euagoras</i> sp. 1		Gabi Camote Sayote Pusaw Molave Durian	
<i>Ischnobaena mecarrima</i> Stal		Pusaw Gapas-gapas Lawag	
<i>Gardena melinarthum</i> Dohrn		Agik-ik Red lawaan Lukdo-lukdo Mais	

Appendix Table 34 continued...

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
<i>Euagoras plagietus</i> Sp. 1		Salawag Manga-manga	<i>Elaeagnus</i> sp. <i>Pandrus</i> sp.
Sp. 2		Pandan Bugang	<i>Cyperus</i> sp.
Sp. 3		Agutay	
<i>Sirthena</i> sp.		Hagimit Mais	<i>Ficus minahasse</i> (Teijsn. & de vr.) Mig. <i>Zea mays</i>
<i>Neoscadra</i> sp.			
<i>Veleda brevispina</i>	Philippine endemic		
Nabidae Sp. 1			
Sp. 2			
Tessaratomidae <i>Pygoplatys</i> sp.			
Undetermined Sp. 1		Kanaka Bali-batang Gabi-gabi	<i>Eurya</i> sp. <i>Colocasia</i> sp. <i>Commelina</i> sp.
Sp. 2		Butitay	<i>Selaginella philippina</i>
Sp. 3		Gabi Tulanmok Dil-dila Bino-bino Mani-mani	<i>Colocasia esculenta</i> <i>Chionanthus</i> sp. <i>Polygala paniculatum</i>
Sp. 4		Gabi Sibuyas Gapas-gapas	<i>Colocasia esculenta</i> <i>Allium cepa</i>
Sp. 5		Pusaw Fern Mani-mani	<i>Homalomena</i> sp.
Sp. 6		Lakatan	<i>Paspalum conjugatum</i>
HOMOPTERA			
Achilidae Sp. 1		Babasa	<i>Polyosma cyanea</i> Elm.
Sp. 2		Salisip	<i>Cyrtandra parviflora</i> Merr.
Aphididae Sp. 1		Muti-muti	
Sp. 2		Lukdo-lukdo	
Sp. 3		Manga-manga	<i>Elaeagnus</i> sp.
Aphrophoridae <i>Perinoia</i> sp.			
Cercopidae Sp. 1		Babakag Silangka Kalingag	<i>Justicia</i> sp. <i>Impatiens montalbanica</i> Hook <i>Cinnamomum mercadoi</i>
Sp. 2		Butitay Polayo Gantaw	<i>Syzygium</i> sp. <i>Cyathea apoensis</i>
Sp. 3		Baraas Polayo Pandan Molave	<i>Freycinetia multiflora</i> Merr. <i>Syzygium</i> sp. <i>Pandanus</i> sp.

Appendix Table 34 continued...

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Sp. 4		Pusaw	<i>Homalomena</i> sp.
Sp. 5		Lagnob	<i>Ficus septica</i> Burm. F.
Sp. 6		Bagnay	
Sp. 7		Tinapalis Tagobahi	<i>Pinanga</i> sp. <i>Decaspermum</i> sp.
Sp. 8		Fern	<i>Diplazium</i> sp.
Cicadellidae <i>Bothrogonia</i> sp.		Babakag Pusaw Lakno Karupay Sakam Lalago Bintoko Laberay	<i>Justicia</i> sp. <i>Homalomena</i> sp. <i>Pinanga philippinensis</i> Becc. <i>Pinanga insignis</i> <i>Aeschyandra</i> sp. <i>Melicope acuminata</i> Merr. <i>Melicope confuse</i> <i>Alstonia macrophylla</i>
<i>Cofana spectra</i>			
<i>Nephotettix nigropectus</i>		Rice	<i>Oryza sativa</i>
<i>Nephotettix virescence</i>		Rice	<i>Oryza sativa</i>
<i>Nirvana</i> sp.		Banisil Silangka Tagima Dila-dila Tilapya Lagitlit Limbas-limbas Tagima Bugang	<i>Psychotria</i> sp. <i>Impatiens montalbanica</i> Hook <i>Schefflera odorata</i> (Blco.) Merr. & Rolfe <i>Oplismenus</i> sp. <i>Dianellia insignis</i> <i>Schefflera odorata</i> (Blco.) Merr. & Rolfe <i>Cyperus</i> sp.
Sp. 1		Pangnan Tilapya Dila-dila Silangka Pusaw	<i>Impatiens montalbanica</i> Hook <i>Homalomena</i> sp.
Sp. 2		Cabbage Bali-batang Lakatan Bino-bino Kanding-kanding	<i>Brassica</i> sp. <i>Commelina</i> sp. <i>Paspalum conjugatum</i> <i>Polygala paniculatum</i> <i>Lantana camara</i>
Sp. 3		Karupay Babasa Carrots Salapid Butitay	<i>Pinanga philippinensis</i> Becc. <i>Polyosma cyanea</i> Elm. <i>Daucus carota</i> <i>Dendrobium</i> sp.
Sp. 4		Baraas Gantaw Pulayo Malabago	<i>Ficus negrosensis</i> Merr. <i>Cyathea apoensis</i> <i>Syzygium hutchinsonii</i> <i>Weinmania</i> sp.
Sp. 5		Tambal-hilo Gulayan	<i>Drymis piperita</i> <i>Lithocarpus</i> sp.
Sp. 6		Oway Tagbak	<i>Calamus ornatus</i> <i>Kalowratia elegans</i>
Sp. 7		Rice	<i>Oryza sativa</i>
Sp. 8		Rice	<i>Oryza sativa</i>
Sp. 9		Rice	<i>Oryza sativa</i>

Appendix Table 34 continued...

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Sp. 10		Gantaw	<i>Cyathea brevipes</i>
Sp. 11			
Sp. 12			
Cicadidae			
Sp. 1			
Sp. 2		Pulayo pula Bintuko	<i>Syzygium</i> sp. <i>Melicope monophylla</i>
Sp. 3			
Sp. 4			
Sp. 5		Nato	<i>Palaquim luzoniense</i>
Sp. 6			
Cixiidae			
Sp. 1		Magalablab Tambal-hilo Danlugan	<i>Marratia pellucida</i> <i>Drymis piperita</i> <i>Shorea mindanensis</i>
Sp. 2			
Sp. 3			
Sp. 4		Tambal hilo	<i>Drymis piperita</i>
Sp. 5			
Sp. 6			
Sp. 7			
Sp. 8		Lalaping	<i>Sapindus saponaria</i> L.
Sp. 9			
Derbidae			
<i>Proutista moesta</i> (Westwood)			
Sp. 1		Bulase	<i>Cypholophus moluccanus</i> (Bl.) Mig.
Sp. 2		Busyong Lukdo-lukdo Gantaw	<i>Ficus nota</i> <i>Cyathea apoensis</i>
Sp. 3		Macarningan	<i>Phyllocladus hypophyllus</i>
Delphacidae			
Sp. 1		Lukdo-lukdo	
Sp. 2		Kumpay Gabi Lakatan	<i>Colocasia esculenta</i> <i>Paspalum conjugatum</i>
Flatidae			
Sp. 1		Sinaw-sinaw Papaga Lalago Bintuko	<i>Gomphrena</i> sp. <i>Rapanea</i> sp. <i>Aeschyandra</i> sp. <i>Melicope monophylla</i>
Sp. 2			
Sp. 3			
Sp. 4		Gabi	<i>Colocasia esculenta</i>
Sp. 5			
Issidae			
<i>Hemisphaeriuns</i> sp.		Bintuko Pandan Payaw Apatot	<i>Melicope monophylla</i> <i>Pandanus</i> sp. <i>Callocasia</i> sp.
Sp. 1			
Sp. 2		Pandan Lagitlit	<i>Pandanus</i> sp. <i>Oplismenus</i> sp.
Sp. 3		Bitanghol	<i>Calophyllum blancoi</i> Pl. & Tr.

Appendix Table 34 continued...

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Sp. 4			
Sp. 5			
Sp. 6			
Sp. 7			
Sp. 8			
Sp. 9		White flower	<i>Dendrochilum</i> sp.
Sp. 10			
Lophopidae <i>Serida latens</i> (Walker)			
Meenoplidae <i>Nisia</i> sp.		Atay-atay Lalago Babakag	<i>Clerodendrum</i> sp. <i>Aeschyandra</i> sp. <i>Ascarina philippinensis</i>
Sp. 1		Rice Gabi Onion	<i>Oryza sativa</i> <i>Colocasia esculenta</i> <i>Allium cepa</i>
Membracidae	Mindanao endemic		
<i>Emphusis bakeri</i> Funkhouser			
<i>Gargara</i> sp. 1			
<i>Gargara</i> sp. 2			
<i>Gargara</i> sp. 3			
Tropiduchidae			
Sp. 1			
Sp. 2			
Sp. 3			
Undetermined			
Sp. 1		Camote Wild strawberry	<i>Ipomea batatas</i> <i>Cristella</i> sp.
Sp. 2		Bayanti Payaw Bangnay	<i>Homalanthus poulneus</i> pax var. <i>laeuis</i> <i>Callocasia</i> sp. <i>Selaginella</i> sp.
Sp. 3		Kumpay Bino-bino Salawag	<i>Polygala paniculatum</i>
Sp. 4		Bosyong Gantaw	<i>Ficus nota</i> <i>Cyathea apoensis</i>
Sp. 5		Magalablab	<i>Marratia pellucida</i>
Sp. 6		Danlugan Agik-ik	<i>Shorea contorta</i> <i>Monophrynum faciculatum</i>
Sp. 7		Pandan Manga-manga Bangnay	<i>Pandanus</i> sp. <i>Elaeagnus</i> sp. <i>Selaginella</i> sp.
Sp. 8		Pandan Bulokawe	<i>Pandanus</i> sp. <i>Schitochium diffusum</i>
Sp. 9		Manga manga Agik-ik	<i>Elaeagnus</i> sp. <i>Monophrynum faciculatum</i>
Sp. 10		Pusaw Butitay	<i>Homalomena</i> sp. <i>Diplaziopsis javanica</i> (Bl.) Christen
Sp. 11			
Sp. 12		Butitay Hagonoy	<i>Diplaziopsis javanica</i> (Bl.) Christen <i>Diplazium</i> sp.

Appendix Table 34 continued...

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Sp. 13		Payaw Coconut	<i>Callocasia</i> sp. <i>Cocos nucifera</i>
Sp. 14		Pusaw	<i>Homalomena</i> sp.
Sp. 15		Payaw Agik-ik Daat Tagbak	<i>Callocasia</i> sp. <i>Monophrynium faciculatum</i> <i>Scleria scrobiculata</i> Ness & Mey. ex Ness <i>Kalowratia elegans</i>
Sp. 16		Payaw	<i>Callocasia</i> sp.
Sp. 17		Gantaw	<i>Cyathea apoensis</i>

Appendix Table 35. Distribution range and associated host plants of Neuroptera species in Mt. Malindang Range Natural Park (MMRNP).

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
NEUROPTERA Chrysopidae Sp. 1		Babasa Onion	<i>Polyosma philippinensis</i> Merr. <i>Allium cepa</i>
Hemerobiidae Sp. 1		Salumay Magalablab Lakno Cogon	<i>Macaranga</i> cf. <i>conifera</i> <i>Marratia pellucida</i> <i>Hymenophyllum emarginatum</i> <i>Imperata cylindrica</i>

Appendix Table 36. Distribution range and associated host plants of Coleoptera species in Mt. Malindang Range Natural Park (MMRNP).

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
COLEOPTERA			
Anthribidae <i>Xenocerus striatus</i> Jordan	Mindanao endemic		
Brenthidae Apioninae Sp. 1			
Sp. 2		Magalablab	<i>Marratia pellucida</i>
Cantharidae Sp. 1		Camote	<i>Ipomea batatas</i>
Carabidae Sp. 1		Pisaw pisaw Camote Onion	<i>Ipomea batatas</i> <i>Allium cepa</i>
Sp. 2			
Sp. 3		Pandan	<i>Pandanus</i> sp.
Sp. 4		Pusaw	<i>Homalomena</i> sp.
Sp. 5		Mangume	
Cerambycidae Cerambycinae <i>Demonax sulfurisignatus</i> Hudepohl	Luzon, Mindanao new record	Tagibokbok Pako-pako	<i>Mastixia premnoides</i>
<i>Nupserha</i> sp. 1	Mindanao endemic	Camote Gabi	<i>Ipomea batatas</i> <i>Colocasia esculenta</i>
Lamiinae Agapanthini Sp. 1		Butitay Talipaso Pusaw Magulemon	<i>Diplaziopsis javanica</i> <i>Trichosporum</i> sp. <i>Homalomena</i> sp. <i>Dioscorea</i> sp.
<i>Asthates</i> sp.		Lakno Camote Lakatan	<i>Hymenophyllum emarginatum</i> <i>Ipomea batatas</i> <i>Paspalum conjugatum</i>
<i>Pelargoderus</i> near <i>alcanor</i> Newman	Mindanao		
<i>Epepeotes</i> sp. 1		Pusaw	<i>Homalomena</i> sp.
<i>Epepeotes</i> sp. 2	Mindanao	Tan-agili Lawaan	
<i>Epepeotes</i> sp. 3			
<i>Mimoplacia</i> sp.			
<i>Cereopsius</i> sp.		Balagon	
<i>Cleptomtopus</i> sp.		Fern Babakag Galang nunok	<i>Pteris</i> sp. <i>Ascarina philippinensis</i> <i>Ficus binnendykii</i> Miq. var. <i>coriacea</i> Corner
<i>Glenea beatrix</i>		Ligad Sabon-sabon Payaw	<i>Rhodomyrtus</i> sp. <i>Gordonia luzonica</i> Vid. <i>Callocasia</i> sp.
<i>Mimoplacia diversenotata</i> von Breuning	Mindanao endemic	Balete	<i>Ficus</i> sp.
<i>Phelipara</i> sp.		Gantaw Baraas	<i>Cyathea apoensis</i> <i>Freycinetia multiflora</i> Merr.
Prioninae <i>Megopsis lumawigi</i>	Luzon, Mindanao	Lagnob Gantaw	<i>Ficus septica</i> var <i>septica</i> Burm. F. <i>Cyathea apoensis</i>

Appendix Table 36 continued...

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Undetermined Sp. 1		Palomarya Danlugan	<i>Calophyllum blancoi</i> Pl. & Tr. <i>Shorea contorta</i>
Undetermined Sp. 2			
Undetermined Sp. 3		Babakag Hantutungaw	<i>Ascarina philippinensis</i> <i>Astrocalyx calycina</i> (Vidal) Merr.
Undetermined Sp. 4		Silangka Fern	<i>Impatiens montalbanica</i>
Chrysomelidae			
Alticinae Sp. 1		Babakag Pandan Luy-a-luy-a Silangka Corn Onion	<i>Ascarina philippinensis</i> <i>Pandanus</i> sp. <i>Zingiber</i> sp. <i>Impatiens montalbanica</i> Hook <i>Zea mays</i> <i>Allium cepa</i>
Sp. 2		Vine Karupay	<i>Philodendron</i> sp. <i>Pinanga philippinensis</i>
Sp. 3		Luy-a-luy-a Pandan Onion Corn	<i>Zingiber</i> sp. <i>Pandanus</i> sp. <i>Allium cepa</i> <i>Zea mays</i>
Sp. 4		Tagibokbok Salumay Onion Baho-baho Bali-batang	<i>Mastixia premnoides</i> <i>Macaranga philippinensis</i> <i>Allium cepa</i> <i>Sapium luzonicum</i> <i>Commelina</i> sp.
Sp. 5		Oway Anesthicia Lakatan Onion Kapusong	<i>Calamus ornatus</i> <i>Paspalum conjugatum</i> <i>Allium cepa</i> <i>Hydangea clinensis</i> Maxim
Sp. 6		Hantutungaw Talipaso	<i>Astrocalyx calycina</i> (Vidal) Merr. <i>Trichosporum</i> sp.
Sp. 7		Tagbak	<i>Kalowratia elegans</i>
Sp. 8		Lukdo-lukdo Papaga Pandan	<i>Rapanea</i> sp. <i>Pandanus</i> sp.
Sp. 9		Malabago	<i>Helicia</i> sp.
Sp. 10		Pusaw	<i>Homalomena</i> sp.
Sp. 11		Rice	<i>Oryza sativa</i>
Sp. 12			
Cassidinae			
<i>Aspidomorpha miliaris</i> (F.)		Sakam	<i>Clethra lancifolia</i>
<i>Cassida</i> sp. 1		Tujabang	<i>Molinaria capitulata</i>
<i>Cassida</i> sp. 2		Lakatan Gabi	<i>Paspalum conjugatum</i> <i>Colocasia esculenta</i>
<i>Cassida</i> sp. 3		Camote Lalikway	<i>Ipomoea batatas</i> <i>Procris</i> sp.
<i>Laccoptera philippinensis</i>		Cabbage Camote Lalikway	<i>Brassica</i> sp. <i>Ipomoea batatas</i> <i>Procris</i> sp.
Cryptocephalinae			
Sp. 1		Corn	<i>Zea mays</i>
Sp. 2		Sugarcane	<i>Saccharum officinalis</i>

Appendix Table 36 continued...

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Galerucinae <i>Aulacophora coffeae</i>		Corn Lakatan	<i>Zea mays</i> <i>Paspalum conjugatum</i>
<i>Aulacophora indica</i>		Banana Hantutungaw Babakag	<i>Musa sapientum</i> <i>Astrocalyx calycina</i> <i>Justicia</i> sp.
<i>Aulacophora</i> sp. 1		Lagundi Tapay tapay Squash	<i>Elmerilia platyphylla</i> <i>Lasianthus appresifolius</i> Simizu <i>Cucurbita maxima</i>
<i>Aulacophora</i> sp. 2		Magaringan Sampinit Tapay tapay Baho-baho Corn	<i>Phyllocladus hypophyllus</i> Hook.f. <i>Robus moluccanus</i> <i>Lasianthus appresifolius</i> Simizu <i>Sapium luzonicum</i> <i>Zea mays</i>
<i>Aulacophora</i> sp. 3		Baraas Mani-mani Karupay Hantutungaw	<i>Freycinitia negrosensis</i> <i>Pinanga philippinensis</i> <i>Astrocalyx calycina</i>
<i>Atrachya</i> sp.		Salisip Camote Kanaka	<i>Cyrtandra parviflora</i> Merr. <i>Ipomoea batatas</i> <i>Colocasia</i> sp.
<i>Calomicrus</i> sp.		Onion Lagnob Luy-a luy-a	<i>Allium cepa</i> <i>Ficus septica</i> var. <i>septica</i> <i>Zingiber</i> sp.
<i>Liroetiella</i> sp. 1		Corn Ube Camote	<i>Zea mays</i> <i>Dioscorea alata</i> <i>Ipomoea batatas</i>
<i>Liroetiella</i> sp. 2		Fern	
<i>Medythia</i> sp.		Babasa Tagibokbok Pandan Ube	<i>Polyosma philippinensis</i> <i>Mastixia premnoides</i> <i>Pandanus</i> sp. <i>Dioscorea alata</i>
<i>Pseudocophora</i> sp. 1			
Undetermined sp. 1		Magalablab Lakno Pako-pako Tulay-tulay Gabi	<i>Marratia pellucida</i> <i>Hymenophyllum emarginatum</i> <i>Colocasia esculenta</i>
Undetermined sp. 2		Gantaw Pako-pako Corn Lepata	<i>Cyathea apoensis</i> <i>Zea mays</i> <i>Dysozylum</i> sp.
Undetermined sp. 3		Latepo Lukdo-lukdo Lagitlit	<i>Medinilla clementis</i> <i>Oplismenus</i> sp.
Undetermined sp. 4		Lalikway Hantutungaw Ube Tagbak	<i>Procris</i> sp. <i>Astrocalyx calycina</i> (Vidal) Merr. <i>Dioscorea alata</i> <i>Kalowratia elegans</i>
Undetermined sp. 5		Camote	<i>Ipomoea batatas</i>
Undetermined sp. 6		Babakag Gantaw	<i>Ascarina philippinensis</i> <i>Cyathea apoensis</i>
Undetermined sp. 7		Corn	<i>Zea mays</i>
Undetermined sp. 8		Pandan Malabago	<i>Pandanus</i> sp. <i>Pometia pinnata</i>
Undetermined sp. 9		Tagima Fern	<i>Schefflera</i> sp.

Appendix Table 36 continued...

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Undetermined sp. 10		Bugang Ube	<i>Cyperus</i> sp. <i>Dioscorea</i> sp.
Undetermined sp. 11		Danlugan Tubog Lakno	<i>Shorea contorta</i> <i>Ficus latsoni</i> <i>Hymenophyllum emarginatum</i>
Undetermined sp. 12			
Undetermined sp. 13		Camote	<i>Ipomoea batatas</i>
		Silangka Hantutungaw	<i>Impatiens montalbanica</i> Hook <i>Astrocalyx calycina</i> (Vidal) Merr
Undetermined sp. 14		Hantutungaw	<i>Astrocalyx calycina</i> (Vidal) Merr
Undetermined sp. 15		Tagbak	<i>Kalowratia elegans</i>
Undetermined sp. 16			
Undetermined sp. 17		Bulokawe	<i>Schitochium diffusum</i>
Undetermined sp. 18		Kalingag	<i>Cinnamomum mercadoi</i>
Hispininae			
<i>Agonita</i> sp. 1			
<i>Agonita</i> sp. 2		Baraas Magalablab Lalambo	<i>Freycinitia negrosensis</i> <i>Marratia pellucida</i>
<i>Anisodera</i> sp.		Magalablab	<i>Marratia pellucida</i>
<i>Botryonopa</i> sp.		Tambok-tambok	<i>Crassocephalum crepidioides</i> (Benth.) S. Moore
<i>Callispa</i> sp.		Mangagam	<i>Cristella</i> sp.
<i>Dactylispa</i> sp.		Lukdo-lukdo	
<i>Gonophora</i> sp.			
<i>Promecotheca</i> sp. 1			
<i>Promecotheca</i> sp. 2			
<i>Uroplata</i> sp.		Chayote Otot demonyo	<i>Sechium edule</i> <i>Lantana camara</i>
<i>Wallaceana</i> sp.			
Cicindelidae			
Cicindelinae			
<i>Hepdodonta lumawigi</i> Cassola			
<i>Therates coracinus</i> Erichson			
<i>Therates fasciatus pseudolatreillei</i> Horn	Philippines (Mindanao)	Bal-as	
Collyrinae			
<i>Tricondyla</i> (Tricondyla) <i>cyanipes elongata</i> Horn	Philippines (Mindanao, Mindoro)		
<i>Collyris</i> (Neocollyris) <i>affinis</i> Horn	Philippines (Luzon, Mindanao)		
Coccinellidae			
<i>Cheilomenos sexmaculatus</i> F.		Gabi-gabi	
<i>Coccinella transversalis</i> F.		Lakatan Dila-dila	<i>Paspalum conjugatum</i>
<i>Coccinella</i> sp. 1			
<i>Coccinella</i> sp. 2		Babakag	<i>Ascarina philippinensis</i>
<i>Coccinella</i> sp. 3		Lagnob Lanutan	<i>Ficus septica</i> var. <i>septica</i> <i>Helicia rigidiflora</i>
<i>Coccinella</i> sp. 4		Corn	<i>Zea mays</i>
<i>Cryptogonus orbiculus</i> (Gylenlan)	Oriental region, China, Japan	Corn	<i>Zea mays</i>
<i>Henosipalachna</i> sp.			

Appendix Table 36 continued...

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
<i>Henosipalachna boisduvali</i>			
<i>Henosepilachna kaszabi</i> (Biel et Fürsch)	Burma; Andaman Islands, Philippines	Gantaw	<i>Cyathea apoensis</i>
<i>Micraspis</i> sp.		Rice	<i>Oryza sativa</i>
<i>Scymnus</i> sp.		Balangong lagwis	<i>Saurauia fasciculifera</i>
Undetermined		Payaw Luy-a luy-a Banag Lawaan	<i>Callocasia</i> sp. <i>Zingiber</i> sp. <i>Smilax</i> sp. <i>Shorea contorta</i>
Curculionidae Gymnetrinae <i>Alcidodes leucospilus conflexus</i>		Lagnob	<i>Ficus septica</i> var. <i>septica</i>
<i>Alcidodes leucospilus erichsoni</i> Heller	Philippines	Magalablab	<i>Marratia pellucida</i>
<i>Alcidodes mindanaoensis</i> Shultze		Agusahis	
<i>Alcidodes turpis</i> Dührn			
<i>Alcidodes</i> sp. 1		Baho-baho Camote Pusaw Salumay	<i>Sapium luzonicum</i> <i>Ipomoea batatas</i> <i>Homalomena</i> sp. <i>Macaranga dipterocarpifolia</i>
<i>Alcidodes</i> sp. 2			
Rynchophorinae <i>Rynchophorinae</i> sp. 1		Bogang	<i>Cyperus</i> sp.
<i>Rynchophorinae</i> sp. 2			
Anthonominae <i>Parimera</i> sp. nr. <i>negrito</i> Heller	Philippines (Luzon)	Hantutungaw	<i>Astrocalyx calycina</i>
<i>Megarhinus curvipes</i> Heller		Marang	<i>Artocarpus odoratissimus</i>
Pachrrynchinae <i>Metapocyrtus</i> sp. 1		Bintuko	<i>Leea guineensis</i>
<i>Metapocyrtus</i> sp. 2		Bugang	<i>Cyperus</i> sp.
<i>Metapocyrtus</i> sp. 3		Hantutungaw	<i>Astrocalyx calycina</i>
<i>Metapocyrtus</i> sp. 4		Payaw	<i>Callocasia</i> sp.
<i>Metapocyrtus</i> sp. 5		Kumpay	
<i>Metapocyrtus</i> sp. 6		Karupay green Babakag	<i>Pinanga</i> sp. <i>Ascarina philippinensis</i>
<i>Metapocyrtus</i> sp. 7		Pulayo pula Danlugan	<i>Syzygium</i> sp. <i>Shorea contorta</i>
<i>Metapocyrtus</i> sp. 8		Agik-ik	<i>Monophrynium faciculatum</i>
<i>Metapocyrtus</i> sp. 9		Salawag Mani-mani	
<i>Metapocyrtus</i> sp. 10		Ulingon	<i>Decaspermum fruticosum</i>
<i>Metapocyrtus</i> sp. 11		Tagibokbok Pandani Camote	<i>Mastixia premnoides</i> <i>Pandanus</i> sp. <i>Ipomoea batatas</i>
<i>Metapocyrtus</i> sp. 12		Babasa Tambal hilo Kayupo lagwis Babakag	<i>Polyosma philippinensis</i> <i>Drymis piperita</i> <i>Medinilla clementis</i> <i>Ascarina philippinensis</i>

Appendix Table 36 continued...

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Metapocyrtus sp. 13		Kayupo Lagwis Fern Cassava	<i>Medinilla clementis</i> <i>Syngrame</i> sp. <i>Manihot esculenta</i>
<i>Pachyrrhynchus</i> sp. 1		Babate Lalago Karupay Chayote Silangka	<i>Elaeocarpus calomela</i> <i>Aeschyandra</i> sp. <i>Pinanga philippinensis</i> <i>Sechium edule</i> <i>Impatiens montalbnica</i>
<i>Pachyrrhynchus</i> sp. 2		Lalambing Lumbilan Dila-dila	<i>Elatostema</i> sp. <i>Leucosyke capitellata</i>
<i>Pachyrrhynchus</i> sp. 3		Lalago	<i>Aeschyandra</i> sp.
<i>Pachyrrhynchus</i> sp. 4		Tambis-tambis Pako-pako	
<i>Pachyrrhynchus</i> sp. 5		Pulayo Gantaw Mahogany	<i>Syzygium hutchinsonii</i> <i>Cyathea apoensis</i> <i>Swietenia macrophylla</i>
<i>Pachyrrhynchus</i> sp. 6		Ulingon	<i>Decaspermum fruticosum</i>
Cryptorrhynchinae		Tatanak	<i>Ficus botryocarpa</i> var. <i>botryocarpa</i>
<i>Odosyllis</i> sp. 1			
<i>Odosyllis</i> sp. 2		Payaw	<i>Callocasia</i> sp.
<i>Tragopus</i> sp.		Tambal hilo Gantaw Balangong lagwis Igem Sakam	<i>Drymis piperita</i> <i>Cyathea apoensis</i> <i>Saurauia fasciculifera</i> <i>Dacrycarpus cumingii</i> <i>Clethra lancifolia</i>
<i>Trigonopterus paucisquamosus</i> (Heller)		Tagilumboy Camote Fern	<i>Adinandra robinsonii</i> <i>Ipomoea batatas</i> <i>Syngrame</i> sp.
<i>Calidiopsis</i> sp. 1		Tinapalis Pako-pako	<i>Pinanga</i> sp.
<i>Otiorrhynchinae</i> sp. 1		Hantutungaw	<i>Astrocalyx calycina</i>
<i>Otiorrhynchinae</i> sp. 2		Tagima Sambinit Pulayo Bali-batang	<i>Schefflera</i> sp. <i>Robus</i> sp. <i>Syzygium hutchinsonii</i> <i>Commelina</i> sp.
<i>Otiorrhynchinae</i> sp. 3		Babate Cassava Kayupo lagwis	<i>Elaeocarpus calomela</i> <i>Manihot esculenta</i> <i>Medinilla clementis</i>
<i>Otiorrhynchinae</i> sp. 4		Bogang Gabi Mani-mani	<i>Cyperus</i> sp. <i>Colocasia esculenta</i>
<i>Otiorrhynchinae</i> sp. 5		Potato Bogang	<i>Solanum tuberosum</i> <i>Cyperus</i> sp.
<i>Otiorrhynchinae</i> sp. 6		Papaga Camote Tagbak	<i>Rapanea avenis</i> <i>Ipomoea batatas</i> <i>Kalowratia elegans</i>
Hylobiinae			
<i>Paepalosomus</i> sp.		Pandan	<i>Pandanus</i> sp.
Zygopinae			
<i>Nauphaeus</i> sp.			
Entiminae			
Sitorini			
<i>Eugnathus</i> sp.		Marang	<i>Artocarpus oclorratissimus</i>

Appendix Table 36 continued...

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Undetermined sp. 1		Gabi Ube Balangong balhibuon	<i>Colocasia esculenta</i> <i>Dioscorea alata</i> <i>Saurauia glabrifolia</i>
Undetermined sp. 2		Beans Bolokawe	<i>Glycine max</i> <i>Schitochium diffusum</i>
Undetermined sp. 3		Payaw Bugang	<i>Callocasia</i> sp. <i>Cyperus</i> sp.
Undetermined sp. 4		Rice	<i>Oryza sativa</i>
Elateridae			
Sp. 1		Gantaw Squash	<i>Cyathea apoensis</i> <i>Cucurbita maxima</i>
Sp. 2		Bolokawe	<i>Schitochium diffusum</i>
Sp. 3		Balatong	
Sp. 4		Sakam	<i>Clethra lancifolia</i>
Sp. 5		Bolokawe Bosyong Lukdo-lukdo	<i>Schitochium diffusum</i> <i>Ficus</i> sp.
Sp. 6			
Sp. 7		Sakam	<i>Clethra lancifolia</i>
Sp. 8		Kayupo lagwis	<i>Medinella clementis</i>
Sp. 9		Gantaw	<i>Cyathea apoensis</i>
Eucnemidae			
Sp. 1			
Endomychidae			
Sp. 1		Babakag Bino-bino	<i>Ascarina philippinensis</i> <i>Polygala paniculatum</i>
Sp. 2		Pusaw Danlugan	<i>Homalomena</i> sp. <i>Shorea contorta</i>
Sp. 3		Gulayan Sakam	<i>Lithocarpus ovalis</i> <i>Clethra lancifolia</i>
Sp. 4		Lukdo-lukdo Payaw	<i>Callocasia</i> sp.
Erotylidae			
Sp. 1			
Sp. 2			
Lagriidae			
Sp. 1		Malabago Mgalablab Salisip Butitay Silangka	<i>Pometia pinnata</i> <i>Marratia pellucida</i> <i>Hydragea chinensis</i> <i>Selaginella philippina</i> <i>Impatiens montalbanica</i>
Sp. 2		Bintuko Gantaw Tagima Babakag	<i>Melicope monophylla</i> <i>Cyathea apoensis</i> <i>Schefflera alvarezii</i> <i>Ascarina philippinensis</i>
Sp. 3		Bolokawe Baraas	<i>Schitochium diffusum</i> <i>Freycinitia negrosensis</i>
Sp. 4		Bolokawe Cassava Lagnob	<i>Schitochium diffusum</i> <i>Manihot esculenta</i> <i>Ficus septica</i> var. <i>septica</i>
Sp. 5		Rice	<i>Oryza sativa</i>
Sp. 6		Pandan Byalong Aglusay	<i>Pandanus</i> sp. <i>Clausena</i> sp. <i>Carex</i> sp.
Sp. 7		Pulayo Baraas Lagnob	<i>Syzygium hutchinsonii</i> <i>Freycinitia negrosensis</i> <i>Ficus septica</i> var. <i>septica</i>

Appendix Table 36 continued...

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Lampyridae			
Sp. 1			
Sp. 2		Karupay Salisip Lukdo-lukdo	<i>Pinanga insignis</i> <i>Hydragea chinensis</i>
Sp. 3			
Sp. 4		Camote	<i>Ipomoea batatas</i>
Sp. 5		Gantaw Lalago Kayupo lagwis	<i>Cyathea apoensis</i> <i>Aeschyandra</i> sp. <i>Medinilla clementis</i>
Sp. 6			
Sp. 7			
Sp. 8			
Sp. 9			
Sp. 10			
Sp. 11			
Sp. 12			
Sp. 13			
Sp. 14			
Sp. 15			
Lucanidae			
<i>Dorcus</i> sp.			
<i>Prosopocoilus romeoi</i>		Gantaw	<i>Cyathea apoensis</i>
Lycidae			
Sp. 1		Tatanak Balete Lagnob	<i>Gardenia longiflora</i> <i>Ficus</i> sp. <i>Ficus septica</i> var. <i>septica</i>
Sp. 2		Baraas Tingbangan	<i>Freycinitia negrosensis</i>
Sp. 3		Hagonoy	
Sp. 4		Lambalong Bosyong	<i>Ficus nota</i>
Sp. 5		Sambinit Baraas Papaga Sakam Dapaw-dapaw	<i>Robus</i> sp. <i>Freycinitia negrosensis</i> <i>Rapanea arenis</i> <i>Clethra lancifolia</i>
Sp. 6		Pugahan Magalablab Hantutungaw	<i>Caryota cumingii</i> <i>Marratia pellucida</i> <i>Atrocalyx calycina</i>
Sp. 7		Pusaw	<i>Homalomena</i> sp.
Passalidae			
Sp. 1		Hantutungaw Pandan	<i>Astrocalyx calycina</i> <i>Pandanus</i> sp.
Scarabaeidae			
Cetoniinae			
<i>Euglypta</i> sp.		Tagubahe Gantaw	<i>Decaspermum</i> sp. <i>Cyathea apoensis</i>
<i>Taeniodera</i> sp.		Gantaw Salisip	<i>Cyathea apoensis</i> <i>Hydragea chinensis</i>
Sp. 1		Tambok-tambok	
Sp. 2			
Sp. 3		Karupay	<i>Pinanga insignis</i>
Sp. 4		Tagbak	<i>Kalowratia elegans</i>
Sp. 5			
Sp. 6			
Sp. 7			

Appendix Table 36 continued...

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Melolonthinae			
<i>Leucopholis irrorata</i>			
<i>Leucopholis</i> sp.			
Sp. 1		Coconut Tutungaw	<i>Cocos nucifera</i> <i>Evirittia pulcherima</i>
Sp. 2		Magalablab Butitay	<i>Marratia pellucida</i> <i>Selaginella philippina</i>
Sp. 3		Balagon Labanog	<i>Dimorpanthera apoana</i>
Sp. 4		Hagonoy Coconut Kalambing	<i>Cocos nucifera</i>
Sp. 5		Carabao grass	<i>Paspalum conjugatum</i>
Tenebrionidae			
Sp. 1		Tagilumboy	<i>Ternstroenia megacarpa</i> Merr.
Sp. 2		Lalago	<i>Cyrtandra</i> sp.
Sp. 3			
Sp. 4		Hantutungaw Pusaw	<i>Astrocalyx calycina</i> <i>Homalomena</i> sp.
Sp. 5			
Sp. 6			
Sp. 7			
Sp. 8			
Sp. 9			
Sp. 10			
Trogossitidae			
Sp. 1		Pako-pako	
Undetermined			
Sp. 1		Baraas Pandan Gulayan Buyo-buyo Gabi	<i>Freycinia negrosensis</i> <i>Pandanus</i> sp. <i>Lithocarpus philippinensis</i> <i>Piper retrofractum</i> Vahl. <i>Colocasia esculenta</i>
Sp. 2		Pandan Agik-ik	<i>Pandanus</i> sp. <i>Schitochium diffusum</i>
Sp. 3		Corn Likway Gantaw	<i>Zea mays</i> <i>Procris</i> sp. <i>Cyathea apoensis</i>
Sp. 4		Tapay-tapay Banlo-banlo Karupay	<i>Pinanga insignis</i>
Sp. 5		Bugang	
Sp. 6		Babakag Cabbage Himbis-himbis	<i>Justicia</i> sp. <i>Brassica</i> sp.
Sp. 7		Tatanak Lagnob Gusahis	<i>Gardenia philippinensis</i> <i>Ficus septica</i> var. <i>septica</i>
Sp. 8		Pandan Babakag Lalago	<i>Pandanus</i> sp. <i>Ascarina philippinensis</i> <i>Cyrtandra</i> sp.
Sp. 9		Baraas Byalong Bolokawe Dila-kanding Camote	<i>Freycinia negrosensis</i> <i>Clausena</i> sp. <i>Schitochium diffusum</i> <i>Ipomoea batatas</i>
Sp. 10		Camote	<i>Ipomoea batatas</i>
Sp. 11			

Appendix Table 36 continued...

Species	Distribution Range	Associated Host Plants	
		Local Name	Scientific Name
Sp. 12		Dila-dila	
Sp. 13		Lakno Tumating	<i>Plagiogyria glauca</i> <i>Anisoptera thurifera</i> spp. <i>thurifera</i>
Sp. 14		Balangong lagwis	<i>Saurauia fasciculifera</i>
Sp. 15			
Sp. 16			
Sp. 17		Lawaan	<i>Shorea contorta</i>
Sp. 18			
Sp. 19			
Sp. 20		Pusaw Babakag Dila-dila Baho-baho	<i>Callocasia</i> sp. <i>Ascarina philippinensis</i> <i>Sapium luzonicum</i>

Appendix Table 37. Distribution range and associated host plants of Diptera species in Mt. Malindang Range Natural Park (MMRNP).

Species	Distribution Range	Associated Host Plants	
		Local name	Scientific name
DIPTERA Agromyzidae		Pusaw	<i>Homalomena</i> sp.
		Babakag	<i>Ascarina philippinensis</i>
		Dila-dila	
		Baho-baho	<i>Sapium luzonicum</i>
Asilidae Sp. 1		Gulayan	<i>Lithocarpus</i> sp.
		Beans	<i>Phaseolus lunatus</i>
Asilidae Sp. 2		Tagima	<i>Schefflera odorata</i> (Blco.) Merr. & Rolfe
		Lanuta	<i>Helicia rigidiflora</i>
Sp. 3		Kanaka	<i>Collocasia</i> sp.
		Pako-pako	
		Yam	<i>Dioscorea alata</i>
Calliphoridae Sp. 1		Tambal hilo	<i>Drymis piperita</i>
		Pako-pako	<i>Freycinetia negrosensis</i> Merr.
Sp. 2		Baraas	
		Bititay	<i>Sealaginella philippina</i>
Sp. 3		Bosyong	<i>Ficus nota</i>
Sp. 4		Payaw	<i>Collocasia</i> sp.
Culicidae Sp. 1		Gantaw	<i>Cyathea apoensis</i>
		Lukdo-lukdo	<i>Pteridium</i> sp.
Sp. 2		Baraas	<i>Freycinetia negrosensis</i> Merr.
		Pusaw	<i>Homalomena</i> sp.
Sp. 3		Himbis-himbis	
Sp. 4		Kape-kape	
Dolichopodidae Undet Sp. 1		Agik-ik	<i>Monophrynum faciculatum</i>
Heleomyzidae Sp. 1		Dila-dila	
		Himbis-himbis	
Muscidae Sp. 1		Gantaw	<i>Cyathea apoenses</i>
		Manga-manga	<i>Eleagnus</i> sp.
Sp. 2		Tagilumboy	<i>Ternstroemia megacarpa</i>
		Wild Strawberry	<i>Cristella</i> sp.
Sp. 3		Babasa	<i>Polyosma philippinensi</i>
Sp. 4		Bunot-bunot	<i>Taluma reticulate</i>
		Gantaw	<i>Cyathea apoensis</i>
Sp. 3		Lakno	<i>Nephrolepis clementis</i>
Sp. 4		Malabago	<i>Pometia pinnata</i>
		Baho-baho	<i>Sapium luzonicum</i>
Sp. 4		Karupay	<i>Pinanga insignis</i>
		Fern	<i>Marratia</i> sp.
		Likway	<i>Abelmoschus moschantus</i>

Appendix Table 37 continued...

Species	Distribution Range	Associated Host Plants	
		Local name	Scientific name
Sp. 5		Pine tree Pulayo Kanding-kanding Sweet pepper	<i>Dacrycarpus cumingii</i> <i>Syzygium</i> sp. <i>Capsicum annum</i>
Pipunculidae Sp. 1		Magalablab Lakatan Hot pepper	<i>Marratia pellucida</i> <i>Paspalum conjugatum</i> <i>Capsicum frutescens</i>
Syrphidae Sp. 1		Lagnob Malakape Babakag	<i>Ficus septica</i> var. <i>septica</i> <i>Tarenna</i> sp. <i>Ascarina philippinensis</i>
Sp. 2		Dila-dila Baho-baho	<i>Sapium luzonicum</i>
Sp. 3		Palm Pako-pako Babakag	<i>Cyrtostachys lakka</i> <i>Ascarina philippinensis</i>
Sp. 4		Ulingon Pako-pako	<i>Decaspernu fruticosum</i>
Sp. 5		Pandan Daat	<i>Pandanus</i> sp. <i>Scleria serobiculata</i>
Sp. 6		Bolokawe Gantaw	<i>Schitchium diffusum</i> <i>Cythea apoensis</i>
Sp. 7		Camote Bali-batang	<i>Ipomoea batatas</i> <i>Commelina</i> sp.
Sp. 8		Guma-guma	
Tachinidae Sp. 1		Lalambo Ulingon	<i>Decaspernum fruticosum</i>
Sp. 2		Tagbak	<i>Kalowratia elegans</i>
Sp. 3		Guma-guma	
Sp. 4		Tinapalis	<i>Pinanga</i> sp.
Tipulidae Sp. 1		Tambal-hilo Hantungaw Tagima	<i>Drymis piperita</i> <i>Astrocalyx calycina</i> <i>Schefflera alvarezii</i>
Sp. 2		Pusaw Corn Cabbage	<i>Homalomena</i> sp. <i>Zea mays</i> <i>Brassica</i> sp.
Sp. 3		Gantaw Papaga Subing diwata Tambal hilo Lalago	<i>Cythea apoensis</i> <i>Rapanea avenis</i> <i>Podocarpus nerifolius</i> <i>Drymis piperita</i> <i>Crytandra</i> sp.
Sp. 4		Tagilumboy Babakag Magalablab Subing diwata Serehlak	<i>Adinandra robinsonni</i> <i>Ascarina philippinensis</i> <i>Marratia pellucida</i> <i>Podocarpus nerrifolius</i> <i>Humata obtusata</i>

Appendix Table 37 continued...

Species	Distriubution Range	Associated Host Plants	
		Local name	Scientific name
Sp. 5		Tagima Salumay Babakag	<i>Schefflera alvarezi</i> <i>Macaranga dipterocarpifolia</i> <i>Ascarina philippinensis</i>
Sp. 6		Magalablab Sambinit	<i>Marratia pellucida</i> <i>Robus</i> sp.
Sp. 7		Pako-pako hagonoy	
Undetermined Sp. 1		Likway Nopol Kanding-kanding	<i>Abelmoschus moschantus</i> <i>Poikilospermum grande</i>
Sp. 2		Moss Balikoko Lagundi	<i>Decaspermum</i> sp. <i>Tapeinidum lineare</i> <i>Elmerillia platyphyla</i>
Sp. 3		Lukdo-lukdo Dila-kanding	
Sp. 4		Pako-pako Subing diwata Balikoko Tatanak	<i>Podocarpus nerrifolius</i> <i>Decaspermum</i> sp. <i>Gardenia longiflora</i>
Sp. 5		Bagon Gabi Bali-batang	<i>Psycotria diffusa</i> <i>Colocasia esculenta</i> <i>Commelina</i> sp.
Sp. 6		Lalago Fern Lakatan Chayote	<i>Cyrtandra</i> sp. <i>Linsai</i> sp. <i>Paspalum conjugatum</i> <i>Sechium edule</i>
Sp. 7		Gantaw Pako-pako Onion	<i>Cyathea apoensis</i> <i>Allium cepa</i>
Sp. 8		Bintuka Banlo-banlo	<i>Melicope monophylla</i>
Sp. 9		Manga-manga Banitlong	<i>Eleagnus</i> sp.
Sp. 10		Vine Lakno Tilapya Guma-guma	<i>Philodendron</i> sp. <i>Asplenium militare</i>
Sp. 11		Bolakawe Pusaw	<i>Schitochium diffusum</i> <i>Homalomena</i> sp.
Sp. 12		Tagima Lalambo	<i>Schefflera alvarezii</i>
Sp. 13		Ulingon Lanutan	<i>Decaspermum fruticosum</i> <i>Symplocus villarii</i>
Sp. 14		Lakatan	<i>Paspalum conjugatum</i>

Appendix Table 38. Distribution range and associated host plants of Lepidoptera species in Mt. Malindang Range Natural Park (MMRNP).

Species	Distribution Range	Associated Host Plants	
		Local name	Scientific name
Lepidoptera Hesperiidae <i>Bibasis gomata</i>	Luzon, Mindoro, Palawan, W. Visayas, E. Visayas, Mindanao		
<i>Chaspes plateni</i>	Mindanao (subspecies endemic)	Silangka	<i>Impatiens motalbanica</i>
<i>Pothanthus mingo mingo</i>	Luzon, Mindoro, Palawan, W. Visayas, E. Visayas, Mindanao	Limbas-limbas	<i>Dianella insignis</i>
<i>Taractrocera luzonensis luzonensis</i> Staudinger	Luzon, Mindoro, Palawan, W. Visayas, E. Visayas, Mindanao		
<i>Xanthoneura telesinus</i> Mabille	Luzon, Mindoro, Leyte, Bohol, Samar, Negros Mindanao	Gantaw	<i>Cyathea apoensis</i>
Lycaenidae <i>Jamides alecto manilana</i> (Toxopeus)	Luzon, Negros, Cebu, Leyte, Mindanao	Lakatan	<i>Paspalum conjugatum</i>
<i>Tajura</i> sp.		Agusahis	
Nymphalidae <i>Athyma maenas semperi</i>	Philippine endemic	Silangka Sambulawan	<i>Impatiens motalbanica</i> <i>Sambucus javanica</i>
<i>Danaus melanippus edmondi</i> Lesson	Philippine (excl. Balacbac), Taiwan, Guam		
<i>Faunis phaon leucis</i> C & R Felder	Basilan, Mindanao	Silangka	<i>Impatiens montalbanica</i>
<i>Hypolimnias anomala anomala</i>			
<i>Ideopsis gaura glaphyra</i> Moore	Mindanao, excl. E/S/SE Mindanao		
<i>Lexias panopus miscus</i>		Payaw	<i>Callocasia</i> sp.
<i>Mycalesis ita imelda</i> Aoki & Uemura	Mindanao		
<i>Parantica danatti malindangensis</i> Yamamoto & Takei	NW Mindanao (Mt. Malindang)	Tagbak	<i>Kalowratia elegans</i>

Appendix Table 38 continued...

Species	Distribution Range	Associated Host Plants	
		Local name	Scientific name
<i>Parantica luzonensis luzonensis</i> C & R Felder	Philippines, excl. Balabac & Palawan	Gantaw	<i>Cyathea apoensis</i>
<i>Polyura athamas acuta</i> Rothschild	Philippines, excl. Palawan & Camiguin de Luzon		
<i>Regadia melendina</i> Melendina C & R Felder	Camiguin Mindanao Sarangani		
<i>Ypthima lisandra lisandra</i> Cramer			
<i>Ypthima conjuncta conjuncta</i> Cramer			
Undetermined sp. 1		Lagnob	<i>Ficus septica</i> var. <i>septica</i>
<i>Papilionidae menelaide hystaspes</i> (C & R Felder)	Philippines, excl. Palawan, Sulu (endemic)		
<i>Menelaides rumanzonia Rumanzovia</i> (Eschscholtz)	Philippines, excl. C & S Palawan, & Tawi-Tawi, Talaut, Sangir		
<i>Graphium sarpedon sarpedon</i> Linnaeus		Cabbage	<i>Brassica</i> sp.
<i>Troides rharamantus</i> Lucas	Philippines, excl. Palawan		
<i>Troides magellanus</i> C & R Felder	Luzon, Mindoro, W. Visayas, E. Visayas, Mindanao		
Pieridae <i>Captosilia scylla asema</i> Standinger		Bulase	<i>Cypholophus moluccanus</i>
<i>Delias henningia ochreopicta</i> (?) Butler	Subsp. Mindanao endemic	Gantaw	<i>Cyathea apoensis</i>
<i>Delias baracasa baracasa</i>	Mindanao endemic		
<i>Delias diaphana basilisae</i> Treadaway			
<i>Eurema hiurii huirai</i> Schirozu & Yata	Mindanao endemic	Babakag Pulayo Lagnob Bino-bino	<i>Ascarina philippinensis</i> <i>Syzygium hutchinsonii</i> <i>Ficus septica</i> var. <i>septica</i> <i>Polygala paniculatum</i>

Appendix Table 38 continued...

Species	Distribution Range	Associated Host Plants	
		Local name	Scientific name
<i>Eurema hecabe tamiathis</i> Fruhstorfer	Philippines excl. Mindoro, N. Luzon & Palawan	Bangnay	<i>Selaginella</i> sp.
<i>Eurema sarilata sarilata</i> Semper	E. Visayas, Panao, Dinagat, Mindanao endemic	Butitay Molave	<i>Diplaziopsis javanica</i> (Bl.) Christen

Appendix Table 39. Distribution range and associated host plants of Hymenoptera species in Mt. Malindang Range Natural Park (MMRNP).

Species	Distribution Range	Associated Host Plants	
		Local name	Scientific name
HYMENOPTERA Agaonidae		Tilapya Corn	<i>Zea mays</i>
Apidae <i>Apis cerana</i>		Lakno Camote Dila-dila Gabi	<i>Hymenophyllum emarginatum</i> <i>Ipomoea batatas</i> <i>Colocasia esculenta</i>
<i>Apis dorsata</i>		Banitlong	
<i>Apis</i> sp. 1		Magaringan Salisip Magatapalak Agik-ik	<i>Phyllocladus hypophyllum</i> <i>Hydragea chinensis</i> <i>Gardenia longiflora</i> <i>Monophrynium faciculatum</i>
<i>Bombus</i> sp.		Dalamdam Orchids	<i>Goodyera</i> sp. <i>Orchids</i> sp.
Anthoporidae <i>Xylocopa</i> sp.		Molave	
Braconidae Agathidinae <i>Mesocoelus</i> sp.		Cabbage Chayote	<i>Brassica</i> sp. <i>Sechium edule</i>
Alysiinae <i>Alysia</i> sp.		Tumating Fern	<i>Anisoptera thurifera</i> spp. <i>thurifera</i> <i>Pterogona</i> sp.
Blacinae Sp. 1		Pusaw Pandan Tilapya	<i>Homalomena</i> sp. <i>Pandanus</i> sp.
Braconinae Sp. 1		Babakag Lalago Babasa Tapay-tapay Rice	<i>Ascarina philippinensis</i> <i>Cyrtandra</i> sp. <i>Polyosma philippinensis</i> <i>Urophyllum</i> sp. <i>Oryza sativa</i>
Sp. 2		Moss Gantaw Camote	<i>Cyathea apoensis</i> <i>Ipomoea batatas</i>
Sp. 3		Pulayo Salisip	<i>Syzygium hutchinsonii</i> <i>Hydragea chinensis</i>
Cheloninae <i>Chelonus</i> sp.		Cassava	<i>Manihot esculenta</i>
Microgasterinae Sp. 1		Rice Banlo-banlo	<i>Oryza sativa</i>
Chalcididae Brachymerinae <i>Brachymeria</i> sp.			
Microgasterinae Sp. 1			
Epitraninae sp. 1		Cabbage Corn	<i>Brassica</i> sp. <i>Zea mays</i>

Appendix Table 39 continued...

Species	Distribution Range	Associated Host Plants	
		Local name	Scientific name
Haltichelinae sp. 1		Busikad	<i>Cyperus</i> sp.
Chrysididae Sp. 1		Hagnaya	
Cynipidae Sp. 1		Bali-batang	<i>Commelina</i> sp.
Diapriidae Diapriinae Sp. 1		Papaga	<i>Rapanea avenis</i>
Encyrtidae Sp. 1		Bogang	<i>Cyperus</i> sp.
Eucoilidae Sp. 1		Baraas	<i>Freycinetia negrosensis</i>
Eulophidae Sp. 1		Pusaw	<i>Homalomena</i> sp.
Eumenidae Sp. 1		Baraas	<i>Freycinetia negrosensis</i>
Eupelmidae Sp. 1		Manga-manga Magamatong	<i>Eleagnus</i> sp. <i>Neolitsea vidalli</i> Merr.
Evaniidae Sp. 1		Lalikway Kalingang Silangka Baho-baho	<i>Procris</i> sp. <i>Cinamomum mercadoi</i> <i>Impatiens montalbanica</i> <i>Sapium luzonicum</i>
Ichneumonidae Cryptinae Sp. 1		Pagaypay Camote Pusaw	<i>Ipomoea batatas</i> <i>Homalomena</i> sp.
Ichneumoninae Sp. 1		Lagnob Camote	<i>Ficus septica</i> var. <i>septica</i> <i>Ipomoea batatas</i>
Sp. 2		Camote Pandan Lawaan	<i>Ipomoea batatas</i> <i>Pandanus</i> sp.
Mesochorinae <i>Mesochorus</i> sp.		Camote	<i>Ipomoea batatas</i>
Ophioninae Sp. 1			
Pimplinae <i>Pimpla</i> sp.		Malakape	<i>Tarena</i> sp.
Pompilidae Sp. 1		Tujabang	<i>Molinaria capitulata</i> (Lour) Herbert
Proctotrupidae Sp. 1			
Scelionidae Sp. 1		Bitanghol Rotten logs Tilapya	<i>Callophyllum blancoi</i> Pl. & Tr.
Sphecidae Sp. 1		Pusaw Corn Onion	<i>Homalomena</i> sp. <i>Zea mays</i> <i>Allium cepa</i>

Appendix Table 39 continued...

Species	Distribution Range	Associated Host Plants	
		Local name	Scientific name
Vespidae Sp. 1		Beans Onion	<i>Glycine max</i> <i>Allium cepa</i>
Sp. 2		Balagon Onion	<i>Dimorphanthera aoana</i> (Merr.) Schltr. <i>Allium cepa</i>
<i>Ropalidia</i> sp.			
<i>Stenogaster</i> sp.		Lukdo-lukdo	
Scoliidae <i>Scolia</i> sp.?		Lukdo-lukdo	
Tiphiidae Sp. 1			
Undetermined Sp. 1		Camote	<i>Ipomoea batatas</i>
Formicidae <i>Anoplolepis gracilipes</i>		Gulayan Corn Payaw	<i>Zea mays</i> <i>Callocasia</i> sp.
<i>Camponotus</i> sp.		Pandan	<i>Pandanus</i> sp.
<i>Camponotus</i> sp.?			
<i>Camponotus</i> sp. 2		Baraas Himbabawod	<i>Freycinetia negrosensis</i>
<i>Diacamma</i> sp. 1		Banlo-banlo Wild strawberry Lukdo-lukdo	<i>Pteridium</i> sp.
<i>Diacamma</i> sp. 2		Karupay Cogon Tagima	<i>Pinanga philippinensis</i> <i>Imperata cylindrical</i> <i>Schefflera</i> sp.
<i>Dolichoderus</i> sp.		Nato Nopol	<i>Palaquim luzoniense</i> <i>Poikilopermum grande</i>
<i>Dolichoderus</i> sp. ?		Salawag Pisong diwata Babakag Onion	<i>Ascarina philippinensis</i> <i>Allium cepa</i>
<i>Iridomyrmex</i> sp.		Manga-manga Pandan Cogon	<i>Eleagnus</i> sp. <i>Padanus</i> sp. <i>Imperata cylindrica</i>
<i>Iridomyrmex</i> sp. 1		Sakam Gantaw Puguan	<i>Clethra lancifolia</i> <i>Cyathea apoensis</i>
<i>Iridomyrmex</i> sp. 2		Ube Bosyong Balagon	<i>Dioscorea alata</i> <i>Cyperus</i> sp. <i>Dimorphanthera apoana</i> (Merr.) Schltr.

Appendix Table 39 continued...

Species	Distribution Range	Associated Host Plants	
		Local name	Scientific name
<i>Odontomachus</i> sp.		Pandan Fern Baraas	<i>Pandanus</i> sp. <i>Osmunda</i> sp. <i>Freycinetia neagrosensis</i>
<i>Oecophylla smaragdina</i> (Fabr.)		Busikad Goborobod Pusaw	<i>Cyperus</i> sp. <i>Oreocnide rubecens</i> <i>Homalomena</i> sp.
<i>Polyrhachis</i> sp. 1		Sakam Tagima Magalablab	<i>Clethra lancifolia</i> <i>Schefflera</i> sp. <i>Marratia pellucida</i> Presl.
<i>Polyrhachis</i> sp. 2		Bolokawe Goborobod Nato Gabi	<i>Scitochium diffusum</i> <i>Oreocnide rubecens</i> <i>Palaquim luzoniense</i> <i>Colocasia esculenta</i>
<i>Polyrhachis</i> sp. 3		Bagon Tinapalis	<i>Pinanga</i> sp.
<i>Polyrhachis</i> sp. 4		Agik-ik Baraas Lukdo-lukdo	<i>Monophrynum faciculatum</i> <i>Freycinetia negrosensis</i> <i>Pteridium</i> sp.
Myrmeciinae		Pandan Bino-bino	<i>Panadanus</i> sp. <i>Polygala paniculatum</i>
Undetermined		Tago bahi Tumating	<i>Decaspermum</i> sp. <i>Anisoptera thurifera</i> spp. <i>thurifera</i>

Appendix Table 40. Distribution range and associated host plants of Araneida species in Mt. Malindang Range Natural Park (MMRNP).

Species	Distribution Range	Associated Host Plants	
		Local name	Scientific name
SPIDERS <i>Nephila</i> sp.		Sakam Tinapalis Babakag	<i>Clethra lancifolia</i> <i>Pinanga</i> sp. <i>Ascarina philippinensis</i>
<i>Gasteracantha</i> sp.		Fern Puguan Payaw Pako-pako	<i>Nephrolepis</i> sp. <i>Callocasia</i> sp.
<i>Gasteracantha</i> sp. 2		Lukay Payaw Onion Bolokawe	<i>Callocasia</i> sp. <i>Allium cepa</i>
<i>Gasteracantha</i> sp. 3		Bracken fern Bogang Camote	<i>Schitochium diffusum</i> <i>Cyperus</i> sp. <i>Ipomoea batatas</i>
<i>Gasteracantha</i> sp. 4			
Aranaeidae <i>Hippasa</i> sp.?		Tagbak Cabbage Gabi Kanaka	<i>Kalowratia elegans</i> <i>Brassica</i> sp. <i>Colocasia esculenta</i> <i>Collocasia</i> sp.
<i>Neoscona</i> sp.?		Lawag Tago bahi Pogahan	<i>Decaspermum</i> sp. <i>Caryota cumingii</i>
<i>Neoscona</i> sp. 2		Oway Tungating Busikad	<i>Calamus ornatus</i>
Undet. genus			
Oxyopidae			
<i>Oxyopes</i> sp. 1		Gabi	<i>Colocasia esculenta</i>
<i>Oxyopes</i> sp. 2			
<i>Oxyopes</i> sp. 3			
Salticidae			
Salticidae undet sp. 1			
Salticidae undet sp. 2			
<i>Phidippus</i>			
<i>Phidippus</i> sp.?		Talisay Oway Tagbak	<i>Calamus ornatus</i> <i>Kalowratia elegans</i>

Appendix Table 40. continued...

Species	Distribution Range	Associated Host Plants	
		Local name	Scientific name
Sparassidae			
Thomisidae		Tambok-tambok Hagonoy	
<i>Thomisus</i> sp.		Ube Pusaw	<i>Dioscorea alata</i> <i>Homalomena</i> sp.
Undetermined Sp. 1		Tapay-tapay Gulayan Bangnay	<i>Lithocarpus</i> sp. <i>Selaginella</i> sp.
Sp. 2		Polayo Begonia Babakag	<i>Syzygium</i> sp. <i>Justicia</i> sp.
Sp. 3		Camote Lalikway Agik-ik	<i>Ipomoea batatas</i> <i>Procris</i> sp. <i>Monophrynium faciculatum</i>
Sp. 4		Kalingang Dila-dila Pandan Lukdo-lukdo	<i>Cinnamomum mercadoi</i> Vidal <i>Pandanus</i> sp. <i>Pteridium</i> sp.
Sp. 5		Sakam Gabi Onion Sambinit	<i>Clethra lancifolia</i> <i>Colocasia esculenta</i> <i>Allium cepa</i> <i>Robus</i> sp.
Sp. 6		Gantaw Papaga Salumay	<i>Cyathea apoensis</i> <i>Rapanea arenis</i> <i>Macaranga dipteroctenifolia</i>
Sp. 7		Luy-a luy-a Magalablab Gantaw	<i>Zingiber</i> sp. <i>Marratia pellucida</i> <i>Cyathea apoensis</i>
Sp. 8		Butitay Gantaw Hagonoy	<i>Diplaziopsis javanica</i> <i>Cyathea brevipes</i>
Sp. 9		Pusaw Agik-ik Bagon Hagonoy	<i>Homalomena</i> sp. <i>Monophrynium faciculatum</i>
Sp. 10		Cabbage Onion Ananagon	<i>Brassica</i> sp. <i>Allium cepa</i>
Sp. 11		Wild strawberry Himbis-himbis Lukdo-lukdo	<i>Cristella</i> sp. <i>Pteridium</i> sp.
Sp. 12		Gulayan	<i>Lithocarpus</i> sp.
Sp. 13			
Sp. 14		Pusaw	<i>Homalomena</i> sp.
Sp. 15		Dried leaves	

Appendix Table 40. continued...

Species	Distribution Range	Associated Host Plants	
		Local name	Scientific name
Sp. 16		Bagon Gabi	<i>Colocasia esculenta</i>
Sp. 17			
Sp. 18			
Sp. 19		Hantutungaw	<i>Astrocalyx calycina</i> (Vidal) Merr.
Sp. 20			
Sp. 21		Pusaw	<i>Homalomena</i> sp.
Sp. 22			
Sp. 23		Oway	<i>Calamus ornatus</i>
Sp. 24			
Sp. 25		Banana	<i>Musa sapientum</i>
Sp. 26		Mahogany	<i>Swietenia macrophylla</i>
Sp. 27			
Sp. 28		Pusaw	<i>Homalomena</i> sp.

Appendix Table 41. Distribution range and associated host plants of other arthropod species in Mt. Malindang Range Natural Park (MMRNP).

Species	Distribution Range	Associated Host Plants	
		Local name	Scientific name
Other arthropods Class Arachnida SCORPIONIDA Scorpion			
PHALANGIDA		Boksakan Bolokawe Polayo Onion Gabi Malakape Lumbilan	<i>Schitochium diffusum</i> <i>Syzygium</i> sp. <i>Allium cepa</i> <i>Colocasia esculenta</i> <i>Tarenna</i> sp. <i>Leucosyke capitellata</i>
ACARINA Mites Eriophyidae <i>Eriophyes</i> sp.		Camote	<i>Ipomoea batatas</i>
Class Chilopoda CENTIPEDE		Tutugnaw Gabi-gabi Bolokawe	<i>Schitochium diffusum</i>
Class Diplopoda MILLIPEDE		Vine	<i>Philodendron</i> sp.
Class Crustacea CRABS			
Class Gasropoda SNAILS			

Appendix Table 42. Trophic guilds of selected arthropods in Mt. Malindang Range Natural Park (MMRNP).

Trophic Guilds/ Selected Taxa	Number of Species											
	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Diptero- carp Forest	Mixed Lowland Diptero- carp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- Dominated Fallowed Areas
PHYTOPHAGOUS												
ORTHOPTERA		2			4	2	2	4	10	3	3	1
Acrididae												
Pyrgomorphae					1			1	1	1	1	1
PHASMATODEA				1	1	1	1					
Aschiphasmatae												
Diapheromeridae	5	5	4	6	9	1	2	3	1	2		
Heteropterygidae	2	1			2							
Phasmatae			2		1		2			1		
Phyllidae	1											
HEMIPTERA	1											
Heteroptera												
Acanthasomatidae												
Alydidae					1				1			1
Coreidae		1			2		1	1	1	1	1	1
Cydnidae	1								1			
Lygaeidae	1						1		2			
Pentatomidae		2			4			2	1		1	2
Plataspidae					1				2		1	
Tessaratomidae					1							
Homoptera	1	1							1			
Achilidae												
Aphididae	2				1				2			2
Aphrophoridae												1
Cercopidae					3	1	1	1		1	2	3
Cicadellidae	7	3	2	4	10	2	2	3	5	9	1	5
Cicadidae	2				3	1					1	2

Appendix Table 42 continued...

Trophic Guilds/ Selected Taxa	Number of Species											
	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro-forestry	Grass-Dominated Fallowed Areas
Cixiidae	3			2	2	1	1	1				
Derbidae	3	1			1		1					1
Delphacidae					2				2	2		2
Flatidae									1			
Issidae		2	1		1	1	3	4	1	1	1	2
Lophophidae												
Meenoplidae	1								2	1		1
Membracidae	1				3				1			
Tropiduchidae					1							
COLEOPTERA Brenthidae	1				1							1
Chrysomelidae	10	12	8	9	27	6	6	6	35	5	4	22
Coccinellidae		1			2				1	1		
Curculionidae	9	7	4	7	26	11	5	10	15	3	2	5
Elateridae		1		2	4			2	3			2
Lagriidae	1	2	2	2	3	1			2	1		2
Scarabaeidae	1				9		1					
LEPIDOPTERA Hesperiidae	4	2		2	1			1	2		1	2
Lycaenidae		1	1	1	2	1		2		1	1	1
Nymphalidae	7	6	2	7	3	1		3	3	1		8
Papilionidae	4	3		2				1	1			
Pieridae	5	3	2	3	1				3			3
HYMENOPTERA Agaonidae					1				1	1		
ACARINA Eriophyidae									1			
Subtotal	77	58	28	50	137	30	29	45	102	35	22	71

Appendix Table 42 continued...

Trophic Guilds/ Selected Taxa	Number of Species											
	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Diptero- carp Forest	Mixed Lowland Diptero- carp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- Dominated Fallowed Areas
PREDACEOUS												
ODONATA												
Anisoptera												
Aeshnidae						1						
Corduliidae		1		1	1	1						
Gomphidae					1		1				1	
Libellulidae		2	2	2	5	3	2	2	1	1		2
Zygoptera					1							
Amphipterygidae					1							
Calopterygidae					1	1						
Chlorocyphidae					2		1	2				1
Coenagrionidae		1				1						
Euphaeidae						1						
Platycnemididae					3	2	2	1		1		
Protoneuridae					1							
MANTODEA			1		5	4	4	1		2	3	
Mantidae												
HEMIPTERA		1										
Notonectidae												
Reduviidae												
<i>Eugoras</i> sp. 1					5	1			15			1
<i>Ischnobaena macerrima</i>						1	1					1
<i>Gardena melinarthum</i>											2	
<i>Euagoras plagiates</i>			1						3	1		2
Reduviidae sp. 1				1	2		1	1				
Reduviidae sp. 2				1								
Reduviidae sp. 3						1						2

Appendix Table 42 continued...

Trophic Guilds/ Selected Taxa	Number of Species											
	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro-forestry	Grass-Dominated Fallowed Areas
<i>Sirthenea</i> sp				1						2		
<i>Neoscadra</i> sp.		1			3	1						
<i>Veleda brevispina</i>					1			1				
COLEOPTERA Carabidae	1				1	1		1	2	1	1	
Cicindelidae		1			3						2	
Coccinellidae	2				6	4	2	1	2	1		4
Lampyridae	2	1			5	2	3	3	3		1	3
Lycidae	4	1	1	2	5	1			1		2	
Staphylinidae	1	1		1		1			2			2
HYMENOPTERA Vespidae				1	2	2	1	2	2	1	2	2
Sphecidae					1	1	1	1	1	1	1	
ARANEIDA Spiders	12	6	8	11	30	14	13	15	17	13	20	13
PHALANGIDA Phalangids	1	1	1	1	1	1	1	1	1	1	1	1
Subtotal	112	79	36	71	215	68	62	85	174	69	53	189
POLLINATORS LEPIDOPTERA Hesperiidae	4	2		2	1			1	2		1	2
Lycaenidae		1	1	1	2	1		2		1	1	1
Nymphalidae	7	6	2	8	3	1		3	3	1		8
Papilionidae	4	3		2				1	1			
Pieridae	5	3	2	3	1				3			3
HYMENOPTERA Apidae	1	3			3	2	1	1	3	2	2	2
Anthophoridae					1					1		
Subtotal	21	18	5	16	11	4	1	8	12	5	4	16

Appendix Table 42 continued...

Trophic Guilds/ Selected Taxa	Number of Species											
	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Diptero- carp Forest	Mixed Lowland Diptero- carp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- Dominated Fallowed Areas
PARASITOIDS												
HYMENOPTERA												
Braconidae	3	2			6	1	1		8	7	1	8
Chalcididae				1	1				2	1		1
Chrysididae									1			
Cynipidae									1			1
Diapriidae									1			
Encyrtidae		1							1			1
Eucoilidae									1	1		
Eumenidae					1	1						
Eulophidae					1				1	1		1
Eupelmidae					1				1			
Evaniidae		1			1				1	1	1	1
Ichneumonidae	1		2		4	1	1		5	3	1	3
Pompilidae				1	1	1						
Proctotrupidae				1								
Scelionidae									1			1
Scoliidae												
Tiphiidae					1			1	1	1		
Subtotal	4	4	2	3	17	4	2	1	25	15	3	17
SCAVENGERS/ FUNGIVOROUS												
HOMOPTERA												
Aradidae	1											
COLEOPTERA												
Endomychidae	1	2		2	1	1			1			
Lucanidae	1								1			
Passalidae									1			

Appendix Table 42 continued...

Trophic Guilds/ Selected Taxa	Number of Species											
	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro-forestry	Grass-Dominated Fallowed Areas
Scarabaeidae	4	2		2	1	1	2		1			
Tenebrionidae	3				4		2	3	2	1		
Subtotal	10	4	0	4	6	2	4	3	6	1	0	40
XYLOBOROUS												
COLEOPTERA Cerambycidae	5	3	1	4	7	2	1	3	4	1	1	3
Subtotal	5	3	1	4	7	2	1	3	4	1	1	3
XYLOBOROUS												
HYMENOPTERA Formicidae		1	1		15	12	10	13	9	5	12	5
Subtotal	0	1	1	0	15	12	10	13	9	5	12	5
TOTAL	229	167	73	148	408	122	109	158	332	131	95	341

Appendix Table 43. Trophic guild of Odonata per vegetation type of Mt. Mlindang Range Natural Park (MMRNP).

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane- Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
Anisoptera Aeshnidae <i>Tetracanthagyna</i> sp. nr. <i>brunnea</i>					1							
Corduliidae <i>Heteronaias</i> <i>heterodoxa</i>		2		2	2	1						
Gomphidae <i>Heliogomphus</i> <i>bekeri</i>						1	1				1	
Libellulidae <i>Crocothemis</i> <i>servilia</i>												
<i>Diplacina braueri</i>					2	1						
<i>Diplacodes</i> <i>trivialis</i>				8		2	1					1
<i>Nannophya</i> <i>pygmea</i>						2	1					
<i>Neurothemis</i> <i>ramburii</i>			1									
<i>Neurothemis</i> <i>terminata</i>			1									
<i>Orthetrum</i> <i>pruinatum clelia</i>		1		100	1	1						
<i>Orthetrum sabina</i>								1				
<i>Pantala flavescens</i>					100			4				
<i>Rhyothemis</i> sp.						2						
<i>Trithemis aurora</i>		2							1			
<i>Trithemis festiva</i>										1		1

Appendix Table 43 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
Zygoptere Amphipterigydae <i>Debvadatta</i> <i>podolestoides</i> <i>basilanensi</i>						1						
Calopterygidae <i>Vestalis melania</i>					1	1						
Chlorocyphidae <i>Cyrano angustrior</i>						1	1					
<i>Rhinocypha</i> <i>dososanguinea</i>								1				
<i>Rhinocypha</i> <i>turconii</i>						2		2				1
Coenagrionidae <i>Pseudagrion</i> <i>amphicyana</i>					1							
<i>Pseudagrion</i> sp.		1										
Euphaeidae <i>Euphaea</i> <i>amphicyana</i>						1						
Platycnemididae <i>Coeliccia</i> <i>dinoceras</i>						4		2				
<i>Risiocnemis</i> <i>appendiculata</i>					3		1					
<i>Risiocnemis</i> (<i>Igneocnemis</i>) <i>flammea</i>					2	1	2			1		
<i>Risiocnemis</i> (<i>Igneocnemis</i>) sp.						1						
Protoneuridae <i>Prodasineura integra</i>						1						

Appendix Table 44. Trophic guild of selected Orthoptera per vegetation type of Mt. Malindang Range Natural Park (MMRNP).

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed areas
PHYTOPHAGOUS												
Acrididae												
Catantopinae												
<i>Stenocatantops splendens</i>						2	1	2	2			4
<i>Melicodes tenebrosa</i>										2		
Undet sp. 1						1			3			
Oedipodinae												
<i>Aiolopus thalassinus tamulus</i>					3			4	8		2	
<i>Heteropternis respondens</i>						1	1	4	4		1	
Oxyinae												
<i>Gesonula mundata zonocera</i>					2	1		2	7	4	1	
<i>Oxya hyla intricata</i>									3	6		
Catantopinae												
<i>Craenella sp.</i>		1							4			
<i>Gelastorhinus sp.?</i>									3			
Undet sp. 1		1							1			
Undet sp. 2									1			
Pyrgomorphidae												
<i>Atractomorpha psittacina</i>						2		1	8	4		6

Appendix Table 45. Trophic guild of Phasmatodea per vegetation type of Mt. Malindang Range Natural Park (MMRNP).

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almაცiga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
PHYTOPHAGOUS												
Aschiphasmatae												
Aschiphasmatinae												
Aschiphasmatini												
<i>Orthomeria</i> sp. 1				1	1	2	1					
Diapheromeridae												
Diapheromeridae sp. 1	1	1		7				1	1			
Lonchodinae	1											
Lonchodini sp. 1						2						
<i>Lonchodes</i> sp. 1		2								1		
<i>Lonchodes</i> sp. 2			1	1	1		1					
<i>Lonchodes</i> sp. 3	3		1	2		2		2				
Necrosiinae	4	3	1	1		6	1					
Necrosiinae sp. 1	5	3				1						
Necrosiinae sp. 2				1								
Necrosiinae sp. 3						2		2				
<i>Asceles</i> sp. 1			1			1						
<i>Asceles</i> sp. 2		1										
<i>Asceles</i> sp. 3				1		1						
Marmessoidea sp. 1						1						
Necrosia sp. 1						1				1		
Heteropterygidae												
Obriminae												
Obrimini sp. 1	2					1						
<i>Euobrimus</i> (near) <i>atherura</i>						1						
<i>Euobrimus</i> sp.	2	2										
Phasmatidae												
Pharnaciini												
<i>Phobaeticus</i> sp. 1			1							3		

Appendix Table 45 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed areas
<i>Pharnacia??</i> sp. 1							1					
Baculin <i>Baculum</i> sp. 1			1				1					
Platycraminae sp. 1						1						
Phylliidae <i>Phyllium</i> sp. 1	1											

Appendix Table 46. Trophic guild of Mantodea per vegetation type of Mt. Malindang Range Natural Park (MMRNP).

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
PREDACEOUS												
Mantidae												
<i>Heirodula</i> sp.			1		1					3	1	
Deroplastyinae					1							
Mantinae sp. 1					1	1	2				1	
Mantinae sp. 2					1							
Mantinae sp. 3						1						
Mantinae sp. 4											1	
Mantinae sp. 5										2		
Mantinae sp. 6						2	1					
Mantinae sp. 7							1					
Mantinae sp. 8							1					
Mantinae sp. 9						1						
Mantinae sp. 10						1						
Mantinae sp. 11								1				

Appendix Table 47. Trophic guild of selected Hemiptera per vegetation type of Mt. Malindang Range Natural Park (MMRNP).

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed areas
PHYTOPHAGOUS Heteroptera Acanthosomatidae <i>Sastragala</i> sp.	1											
Alydidae <i>Noliphus</i> <i>spinosus</i>									7			1
<i>Riptortus linearis</i>					3							
Coreidae <i>Anoplocnemis</i> <i>phasiana</i>						2		1				
<i>Colpura</i> <i>obscuricornis</i>		3					2		1	1	3	3
<i>Homoeocerus</i> <i>immaculatus</i>						1						
Cydnidae <i>Macroscytus</i> <i>subaeneus</i>	1								1			
Lygaeidae <i>Nysius</i> <i>caledoniae</i>									5	1		6
<i>Nysius vinitor</i>	1						1		1			3
Pentatomidae <i>Alcimocoris</i> <i>lineolatus</i>						1						
<i>Carbula trabifera</i>									19			7
<i>Dalsira maginata</i>						1						
<i>Hoplistodera</i> <i>convexa</i>		1										1
<i>Plautia</i> sp. 1		2				1		1				
<i>Sepontia</i> sp. 1											1	
<i>Tolumnia trinotata</i>								1				

Appendix Table 47 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass dominated Fallowed areas
<i>Vitellus</i> sp.						3						
Plataspidae <i>Brachyplatys deplanatus</i>									1		1	
<i>Coptosoma</i> sp. 1									1			
<i>Brachyplatys</i>						1						
Tessaratomidae <i>Pygoplatys</i> sp. 1						9						
Homoptera Achilidae <i>Achilidae</i> sp. 1	1											
<i>Achilidae</i> sp. 2		2							17			3
Achilidae <i>Achilidae</i> sp. 1	2								97			
<i>Achilidae</i> sp. 2									4			1
<i>Achilidae</i> sp. 3	2					5						48
Aphrophoridae <i>Perinoia</i> sp.												1
Cercopidae <i>Cercopidae</i> sp. 1	4									1		2
<i>Cercopidae</i> sp. 2	3					2						
<i>Cercopidae</i> sp. 3	2				1		3					
<i>Cercopidae</i> sp. 4											1	
<i>Cercopidae</i> sp. 5								1				
<i>Cercopidae</i> sp. 6						2						1
<i>Cercopidae</i> sp. 7						2						1
<i>Cercopidae</i> sp. 8											1	
Cicadellidae <i>Bothrogonia</i> sp.	8	25	2	2	5	13	1	1	11	5	4	15
<i>Cofana spectra</i>						3				2		
<i>Nephotettix nigropictus</i>										21		

Appendix Table 47 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed areas
<i>Nephotettix nigropictus</i>										33		
<i>Nirvana</i> sp.	6	3		1		2			63			63
Cicadellidae sp. 1	2	1			1	1		1	11	1		22
Cicadellidae sp. 2						2			52			241
Cicadellidae sp. 3	1					4			23			18
Cicadellidae sp. 4	7											
Cicadellidae sp. 5	1		1									
Cicadellidae sp. 6				1			1					
Cicadellidae sp. 7										3		
Cicadellidae sp. 8						1				37		
Cicadellidae sp. 9										1		
Cicadellidae sp. 10				1		1				1		
Cicadellidae sp. 11	3					4						
Cicadellidae sp. 12						2						
Cicadidae												
Cicadidae sp. 1	2											
Cicadidae sp. 2	1											
Cicadidae sp. 3						1						1
Cicadidae sp. 4					1							
Cicadidae sp. 5						1					1	
Cicadidae sp. 6												1
Cixiidae												
Cixiidae sp. 1	12											
Cixiidae sp. 2					4							
Cixiidae sp. 3	1											
Cixiidae sp. 4						1		2				
Cixiidae sp. 5							3					
Cixiidae sp. 6				6								
Cixiidae sp. 7				3								

Appendix Table 47 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
Cixiidae sp. 8						1						
Cixiidae sp. 9	1											
Derbidae												
<i>Proutista moesta</i>						1	1					
<i>Derbidae</i> sp. 1	1											
<i>Derbidae</i> sp. 2	4	2										1
<i>Derbidae</i> sp. 3	1											
Delphacidae												
<i>Delphacidae</i> sp. 1						2			11	2		3
<i>Delphacidae</i> sp. 2						1			35	1		12
Flatidae												
<i>Flatidae</i> sp. 1	1	4										
<i>Flatidae</i> sp. 2		1										
<i>Flatidae</i> sp. 3						1						
<i>Flatidae</i> sp. 4									1			
<i>Flatidae</i> sp. 5						2						
Issidae												
<i>Hemisphaeriuns</i> sp.		2	1		3			2				
<i>Issidae</i> sp. 1		1				1				1		
<i>Issidae</i> sp. 2							1	3				
<i>Issidae</i> sp. 3							1	3				
<i>Issidae</i> sp. 4												3
<i>Issidae</i> sp. 5											1	
<i>Issidae</i> sp. 6												2
<i>Issidae</i> sp. 7							1					
<i>Issidae</i> sp. 8								3				
<i>Issidae</i> sp. 9									1			
<i>Issidae</i> sp. 10											1	
Lophophidae												
<i>Serida latens</i>											1	
Meenoplidae												
<i>Nisia</i> sp.	5								2			

Appendix Table 47 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
Meenoplidae sp. 1									18	4		29
Membracidae												
<i>Emphusis bakeri</i>						1						
<i>Gargara</i> sp. 1	1								1			
<i>Gargara</i> sp. 2						3						
<i>Gargara</i> sp. 3						2						
Tropiduchidae												
Tropiduchidae sp. 1												
Tropiduchidae sp. 2											1	
Tropiduchidae sp. 3						2						
PREDACEOUS												
Notonectidae												
<i>Enithares</i> sp. 1		1										
Reduviidae												
<i>Euagora</i> sp. 1					5	1			15			1
<i>Ischnobaena maccerima</i>						1	1					1
<i>Gardena melinarthum</i>											2	
<i>Euagoras plagiatus</i>			1						3	1		2
Reduviidae sp. 1				1	2		1	1				
Reduviidae sp. 2				1								
Reduviidae sp. 3						1						2
<i>Sirthenea</i> sp.				1						2		
<i>Neoscadra</i> sp.					3	1						
<i>Veleda brevispina</i>					1			1				
SCAVENGERS/ FUNGIVOROUS												
Aradidae												
Aradidae sp. 1	4											

Appendix Table 48. Trophic guild of Coleoptera per vegetation type of Mt. Malindang Range Natural Park (MMRNP).

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
PHYTOPHAGOUS												
Brentidae												
Apioninae sp. 1	1											
Apioninae sp. 2						2						1
Chrysomelidae												
Alticinae												
Alticinae sp. 1	1	11							6			2
Alticinae sp. 2				1	6		1		1	1		2
Alticinae sp. 3		3		1					21	2		2
Alticinae sp. 4	2		9						16			2
Alticinae sp. 5							2		9			5
Alticinae sp. 6	4					1						1
Alticinae sp. 7	2					4			1	12		
Alticinae sp. 8	2					3						
Alticinae sp. 9						4			6		1	
Alticinae sp. 10												1
Alticinae sp. 11						1					2	
Alticinae sp. 12										4		
Cassidinae												
<i>Aspidomorpha</i> <i>miliaris</i>									1			
<i>Cassida</i> sp. 1		3							5			
<i>Cassida</i> sp. 2		1							1			2
<i>Cassida</i> sp. 3									14			
<i>Lacoptera</i> <i>philippinensis</i>									6			1
Cryptocephalinae												
Cryptocephalinae sp. 1		3							4			2
Cryptocephalinae sp. 2	2								4			6

Appendix Table 48 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
Galerucinae												
<i>Aulacophora coffea</i>						6			2		1	3
<i>Aulacophora indica</i>						1			4			
<i>Aulacophora</i> sp. 1		6		1					2			
<i>Aulacophora</i> sp. 2		7		3					3			18
<i>Aulacophora</i> sp. 3		2				1			5			2
<i>Aulacophora</i> sp. 4	3								3			
<i>Atrachya</i> sp.					2	2	1		32		1	1
<i>Calomicrus</i> sp.						2			7			
<i>Liroetiella</i> sp. 1						3	1		21			
<i>Liroetiella</i> sp. 2												
<i>Medythia</i> sp.		3	1						4			
<i>Pseudocophora</i> sp. 1	5											
Galerucinae undet sp. 1		2	4	3	1		1		20			10
Galerucinae undet sp. 2	1		3			4			8	1		3
Galerucinae undet sp. 3	1					1			6			5
Galerucinae undet sp. 4					1	3		1	7			
Galerucinae undet sp. 5		1	3			1			1			
Galerucinae undet sp. 6								1				1
Galerucinae undet sp. 7			2						1			
Galerucinae undet sp. 8			1			1						1

Appendix Table 48 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
Galerucinae undet sp. 9			3			1			3			
Galerucinae undet sp. 10				1					2			1
Galerucinae sp. 11				1				1				
Galerucinae sp. 12					2							
Galerucinae sp. 13									3			
Galerucinae sp. 14						1						
Galerucinae sp. 15				1								
Galerucinae sp. 16				1								
Galerucinae sp. 17						1						
Galerucinae sp. 18						1						
Hispinae												
<i>Agonita</i> sp. 1					1	2		1				
<i>Agonita</i> sp. 2						1						
<i>Anisodera</i> sp.						1						
<i>Botryonopa</i> sp.								1				
<i>Callispa</i> sp.						2						
<i>Dactylispa</i> sp.												
<i>Gonophora</i> sp.						1	1	1				
<i>Promecotheca</i> sp. 1		2										
<i>Promecotheca</i> sp. 2						1						
<i>Uroplata</i> sp.									1			20
<i>Wallaceana</i> sp.						6			1			

Appendix Table 48 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
Coccinellidae												
<i>Henosepalachna</i> sp.						1						
<i>Henosepalachna</i> <i>boisduvali</i>		2				2						
<i>Henosepalachna</i> <i>kaszabi</i>									3	3		
Curculionidae												
Gymnetrinae												
<i>Alcidodes leucospilus</i> <i>conflexus</i>				1		1						
<i>Alcidodes leucospilus</i> <i>erichsoni</i>						6			3			
<i>Alcidodes</i> <i>mirdanauensis</i>						5						
<i>Alcidodes turpis</i>						3						
<i>Alcidodes</i> sp. 1					1	2			2			
<i>Alcidodes</i> sp. 2	1											
Rhynchophorinae												
<i>Rhynchophorinae</i> sp. 1		1	3			1			1			
<i>Rhynchophorinae</i> sp. 2								3		2		
Anthonominae												
<i>Parimera</i> sp. nr. <i>negrito</i>								1				
<i>Megarrhinus</i> <i>curyipes</i>											1	
Pachyrrhynchinae												
<i>Metapocyrtus</i> sp. 1	3											
<i>Metapocyrtus</i> sp. 2						4		1				
<i>Metapocyrtus</i> sp. 3									1			

Appendix Table 48 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
<i>Metapocyrtus</i> sp. 4					1							
<i>Metapocyrtus</i> sp. 5					3							
<i>Metapocyrtus</i> sp. 6	2											
<i>Metapocyrtus</i> sp. 7				1		1		1				
<i>Metapocyrtus</i> sp. 8						4						
<i>Metapocyrtus</i> sp. 9					1	3	1		3			
<i>Metapocyrtus</i> sp. 10					1							
<i>Metapocyrtus</i> sp. 11					1							
<i>Metapocyrtus</i> sp. 12	6	6	2	1	1	13	1	1	21			18
<i>Metapocyrtus</i> sp. 13		7						1	6	2		
<i>Metapocyrtus</i> sp. 14						1						
<i>Pachyrrhynchus</i> sp. 1	3	31	5	1					5			
<i>Pachyrrhynchus</i> sp. 2		4		2		3		1				1
<i>Pachyrrhynchus</i> sp. 3						1						
<i>Pachyrrhynchus</i> sp. 4						1						
<i>Pachyrrhynchus</i> sp. 5			1			3						
<i>Pachyrrhynchus</i> sp. 6												
Cryptorrhynchinae												
<i>Odysyllis</i> sp. 1	1											
<i>Odysyllis</i> sp. 2					2							
<i>Tragopus</i> sp.	6	12			1							
<i>Tragonopterus paucisquamosus</i>	1					1	1	5	4			1
<i>Calidiopsis</i> sp. 1					1	2						
Otiorrhynchinae sp. 1					1	1						
Otiorrhynchinae sp. 2		2		6			1		23			12
Otiorrhynchinae sp. 3	4								6			3
Otiorrhynchinae sp. 4									2			
Otiorrhynchinae sp. 5						1			1			
Otiorrhynchinae sp. 6						2			1			

Appendix Table 48 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
Hylobiinae <i>Paepalcsomus</i> sp.						1						
Zygopinae <i>Nauphaeus</i> sp.				1								
Entiminae Sitorini <i>Eugnathus</i> sp.						1						
Curculionidae undet sp. 1						4			2			
Curculionidae undet sp. 2						1				1		
Curculionidae undet sp. 3				2								
Curculionidae undet sp. 4						1	2	1			1	
Elateridae Elateridae sp. 1		1						2	1			
Elateridae sp. 2				1					1			2
Elateridae sp. 3									2			
Elateridae sp. 4				1								
Elateridae sp. 5						2						
Elateridae sp. 6								1				1
Elateridae sp. 7						1						
Elateridae sp. 8						1						
Elateridae sp. 9						1						
Lagriidae Lagriidae sp. 1	7	6										2
Lagriidae sp. 2		1										
Lagriidae sp. 3				2	1				2			
Lagriidae sp. 4				2		1			4			2
Lagriidae sp. 5						3				1		
Lagriidae sp. 6			2									

Appendix Table 48 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
Scarabaeidae												
Melolonthinae												
<i>Leucospholis irrorata</i>						1						
<i>Leucospholis</i> sp.						2						
Melolonthinae sp. 1						1	1					2
Melolonthinae sp. 2						1						
Melolonthinae sp. 3						1						
Melolonthinae sp. 4						2						
Melolonthinae sp. 5						2						1
Rutelinae												
<i>Anomala</i> sp.						3						
Rutelinae sp. 1	1											
Rutelinae sp. 2						3						
PREDACEOUS												
Carabidae												
Carabidae sp. 1	1								4			
Carabidae sp. 2									1	1		
Carabidae sp. 3					1	1						
Carabidae sp. 4											1	
Carabidae sp. 5								1				
Cicindelidae												
Cicindelinae												
<i>Heptodonta lumawigi</i>						2						
<i>Therates coracinus</i>						4						
<i>Therates fasciatus pseudolatrielle</i>											3	
<i>Tricondyla cyanipes elongta</i>		3				3						

Appendix Table 48 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
<i>Collyris</i> (<i>Neocollyris</i>) <i>affinis</i>											1	
Coccinellidae												
<i>Cheilomenes</i> <i>sexmaculatus</i>						1						2
<i>Coccinella</i> <i>transversalis</i>												3
<i>Coccinella</i> sp. 1					1							
<i>Coccinella</i> sp. 2	1											
<i>Coccinella</i> sp. 3					1	2		2				
<i>Coccinella</i> sp. 4					1	1						
<i>Cryptogonus</i> <i>orbiculus</i>						1			3			2
<i>Micraspis</i> sp.							1			25		
<i>Scymnus</i> sp.	1					1			8			3
Coccinellidae undet sp. 1					2	5						
Coccinellidae undet sp. 2							5					
Lampyridae												
Lampyridae sp. 1									2			
Lampyridae sp. 2	2	6							2			
Lampyridae sp. 3					1							
Lampyridae sp. 4									10			
Lampyridae sp. 5	4				1							2
Lampyridae sp. 6												3
Lampyridae sp. 7											1	
Lampyridae sp. 8						1	2					
Lampyridae sp. 9						1						
Lampyridae sp. 10							1					
Lampyridae sp. 11							2					

Appendix Table 48 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
Lampyridae sp. 12												1
Lampyridae sp. 13						1						
Lampyridae sp. 14						2						
Lampyridae sp. 15						3						
Lycidae												
Lycidae sp. 1	2	4				1						
Lycidae sp. 2	3			1								
Lycidae sp. 3									1			
Lycidae sp. 4	1					1						
Lycidae sp. 5	4					1					1	
Lycidae sp. 6				1		2						
Lycidae sp. 7			1		2	7					1	
Staphylinidae												
Staphylinidae sp. 1	1	2										
Staphylinidae sp. 2									7			
Staphylinidae sp. 3									13			4
Staphylinidae sp. 4												2
Staphylinidae sp. 5				2	2							
SCAVANGERS/ FUNGIVOROUS												
Endomychidae												
Endomychidae sp. 1	1	1							2			
Endomychidae sp. 2		1		3								
Endomychidae sp. 3				2								
Endomychidae sp. 4					3	1						
Lucanidae												
Dorcus sp.									1			
<i>Prosopocoilus romeoi</i>	2											
Passalidae												
Passalidae sp. 1									1			

Appendix Table 48 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
Scarabaeidae												
Cetoniinae												
<i>Euglypta</i> sp.												
<i>Taeniodera</i> sp.	1	1			1	2	1					
Cetoniinae sp. 1		4					1					
Cetoniinae sp. 2				1					2			
Cetoniinae sp. 3												
Cetoniinae sp. 4	1											
Cetoniinae sp. 5	1											
Cetoniinae sp. 6	1											
Cetoniinae sp. 7				1								
Tenebrionidae												
Tenebrionidae sp. 1	1								2			
Tenebrionidae sp. 2									1			
Tenebrionidae sp. 3	1											
Tenebrionidae sp. 4	1											
Tenebrionidae sp. 5								2		2		
Tenebrionidae sp. 6												
Tenebrionidae sp. 7						1						
Tenebrionidae sp. 8						1						
Tenebrionidae sp. 9								2				
Tenebrionidae sp.10						1						
XYLOBOROUS												
Cerambycinae												
<i>Demonax sulfurisignatus</i>		1		1								
<i>Nupserha</i> sp. 1									2			
Lamiinae												
<i>Agapanthini</i> sp. 1	1	8	1									
<i>Asthatas</i> sp. 1				1					9			5

Appendix Table 48 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
<i>Pelargoderus</i> near <i>alcanor</i>					2					1		
<i>Epepeotes</i> sp. 1						1		1				
<i>Epepeotes</i> sp. 2						4		11				
<i>Epepeotes</i> sp. 3						1						
<i>Mimoplasia</i> sp.							1					
<i>Cereopsius</i> sp.						1						
<i>Cleptomtopus</i> sp.	9				1				1			
<i>Glenea baetrix</i>	1			2		1						
<i>Mimoplacia diversenotata</i>	1											
<i>Phelipara</i> sp. 1	3											
<i>Megopsis lumawigi</i>		1						2	1		1	
<i>Cerambycidae</i> undet sp. 1				2								1
<i>Cerambycidae</i> undet sp. 2												1
<i>Cerambycidae</i> undet sp. 3						1						
<i>Cerambycidae</i> undet sp. 4						3						

Appendix Table 49. Trophic guild of Lepidoptera per vegetation type of Mt. Malindang Range Natural Park (MMRNP).

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
PHYTOPHAGOUS / POLLINATORS												
Hesperiidae												
<i>Bibasis gomata</i>	1											
<i>Choaspes plateni adhara</i>	2	2		1								4
<i>Pothantus mingo mingo</i>	2	1		2					4		1	2
<i>Taractrocera luzonensis luzonensis</i>	1											
<i>Xantheneura telesinus</i>						2		1	2			
Lycaenidae												
<i>Jamides alecto manilana</i>		7	14	5	1	2		1		36	2	2
<i>Tajura sp.</i>						1		1				
Nymphalidae												
<i>Athyma maenas semperi</i>				2		2		1				1
<i>Danaus melanippus edmondii</i>	4	3										
<i>Faunis phaon leucis</i>				1								2
<i>Hypolimnas anomala anomala</i>				1								
<i>Ideopsis gaura glaphyra</i>	3	2		2					1			
<i>Lexias panopus miscus</i>	1							1				5

Appendix Table 49 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
<i>Mycalesis ita imeldae</i>	1	6	1	1					1			4
<i>Parantica dannatti miscus</i>	2	10										
<i>Parantica luzonensis luzonensis</i>	7											
<i>Polyura athamas acuta</i>						1			1			
<i>Ragadia melindina melindina</i>		1		1								1
<i>Ypthima lisondra lisondra</i>	1			1						2		4
<i>Ypthima conjuncta conjuncta</i>		1		1				1				3
Undetermined nymphalalidae			1		1	1						1
Papilionidae												
<i>Menelaides hystspes</i>	3	3										
<i>Menelaides rumanzovia rumanzovia</i>		1						1				
<i>Graphium sarpedon sarpedon</i>	1	1							9			
<i>Troides rhadamantus</i>	1			2								
<i>Troides megallanus</i>	1			1								

Appendix Table 49 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
Pieridae												
<i>Catopsilia scylla asema</i>	1	1							2			3
<i>Delias henningia ochreopicta</i>	4		3	2		1			2			
<i>Delias baracasa baracasa</i>	1											
<i>Delias diaphana basilisae</i>				4								
<i>Eurema alitha alitha</i>		1										
<i>Eurema hiurai hiurai</i>	21	1										8
<i>Eurema hecabe tamiathis</i>	2		2						1			
<i>Eurema sarilata sarilata</i>				1		1						1

Appendix Table 50. Trophic guild of Hymenoptera per vegetation type of Mt. Malindang Range Natural Park (MMRNP).

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
PHYTOPHAGOUS Againidae						2			10	2		
PREDACEOUS Vespidae												
<i>Ropalidia</i> sp. 1				1	3	5	1	1	19	10	1	6
<i>Vespidae</i> sp. 1					2			1	24		2	4
<i>Stenogaster</i> sp.						21						
Sphecidae <i>Sphecidae</i> sp.					3	22	1	1	13	4	2	
PARASITOIDS Braconidae												
Agathisidinae <i>Mesocoelus</i> sp.						2			30	3		11
Alysiinae <i>Alysia</i> sp.		3				3			7			2
Blacinae Blacinae sp. 1						2			20	4		13
Braconinae Braconinae sp. 1	3	2			6	7	2		125	13	1	27
Braconinae sp. 2	8					3			27	1		9
Braconinae sp. 3	3								19	6		6
Cheloninae <i>Chelonus</i> sp.									18			3
Microgasterinae Microgasterinae sp. 1						2			5	2		13
Chalcididae Brachymerinae Brachymeria sp.				1								
Epitraninae Epitraninae sp. 1						1			8	1		

Appendix Table 50 continued...

TROPICS GUILD/ SELECTED TAXA	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
Hatichelinae Hatichelinae sp. 1									2			3
Chrysididae Chrysididae sp. 1									42			
Cynipidae Cynipidae sp. 1									6			2
Diapriidae Diapriidae sp. 1									1			
Encyrtidae Encyrtidae sp. 1		1							3			4
Eucoilidae Eucoilidae sp. 1									6	5		
Eumenidae Eumenidae sp. 1					1	1						3
Eulophidae Eulophidae sp. 1						2			7	1		
Eupelmidae Eupelmidae sp. 1						2			1			
Evaniidae Evaniidae sp. 1		4				3			13	1	2	2
Ichneumonidae Cryptinae Cryptinae sp. 1					2	1			13		1	3
Ichneumoninae Ichneumoninae sp. 1	1		1				1		13	28		16
Ichneumoninae sp. 2			1						15	3		2
Mesochorinae <i>Mesochorus</i> sp.						3			5	1		
Ophioninae Ophioninae sp.						1						
Pimplinae <i>Pimpla</i> sp.						1			8			

Appendix Table 50 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
Pompilidae Pompilidae sp.				1	1	1						
Proctotrupidae Proctotrupidae sp.				3								
Scelionidae Scelionidae sp. 1									4			4
Tiphiidae Tiphiidae sp. 1								2				
Undet sp. 1						4						
<i>Ropalidia</i> sp.									1	2		
Scoliidae <i>Scolia</i> sp.?												
POLLINATOR Apidae												
<i>Apis cerena</i>		1			4	6		2	2	4	3	8
<i>Apis dorsata</i>	1								5			
<i>Apis</i> sp. 1		3			2	7	1				5	12
<i>Bombus</i> sp.		5				2			4	2		
Anthophoridae <i>Xylocopa</i> sp.						5				1		

Appendix Table 51. Trophic guild of ants per vegetation type of Mt. Malindang Range Natural Park (MMRNP).

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
ANTS												
Formicidae												
<i>Anoplolepis gracilipes</i>					15	6	1	3	21	8	2	
<i>Camponatus</i> sp.?							1					
<i>Camponatus</i> sp.					8	3	15	4			3	
<i>Camponatus</i> sp. 2		2				1		1	1	4	1	
<i>Diacamma</i> sp. 1												24
<i>Diacamma</i> sp. 2					1	9						20
<i>Dolichoderus</i> ?								3			3	
<i>Dolichoderus</i> sp.			2		15	3	3	3	32		5	22
<i>Iridomyrmex</i> sp.					16	3	3		58	4	7	2
<i>Iridomyrmex</i> sp. 1					1	6		1			1	34
<i>Iridomyrmex</i> sp. 2						3			11	2		
<i>Odontomachus</i> sp.					11		2	2			8	
<i>Oecophylla smaragdina</i>					17	3			31	1	1	
<i>Polyrachis</i> sp. 1					7	11	1	2				
<i>Polyrachis</i> sp. 2					1	20	2	6	4		5	
<i>Polyrachis</i> sp. 3					3	4	2	3			3	
<i>Polyrachis</i> sp. 4					4	3		3			2	
Myrmeciinae						3	1	3	18			
Undet formicid						2		3	11			

Appendix Table 52. Trophic guild of Araneida (spiders) per vegetation type of Mt. Malindang Range Natural Park (MMRNP).

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
PREDACEOUS												
<i>Nephila</i> sp.				1		2						
<i>Gasteracantha</i> sp.					2				3	1		
<i>Gasteracantha</i> sp. 2	9				3	1			12		1	38
<i>Gasteracantha</i> sp. 3						4			5			4
<i>Gasteracantha</i> sp. 4				2								
Aranaeidae												
Aranaeidae					2							
<i>Hippasa</i> sp.?						4			17	2	2	8
<i>Neoscona</i> sp.?			1	1	2	4	3	3		1	1	7
<i>Neoscona</i> sp. 2			4	1		3			8			2
nr. <i>Neoscona</i>			1									
Undet genus		1	1									
Oxyopidae												
Oxyopidae				6		2			7	1		
<i>Oxyopes</i> sp. 1					19	1	6	6	99	18	1	83
<i>Oxyopes</i> sp. 2			9									
<i>Oxyopes</i> sp. 3				2					10		2	2
Salticidae												
Salticidae	1		3		2	2			4		1	2
Salticidae undet sp. 1						1						
Salticidae undet sp. 2	1											
<i>Phidippus</i>						1						
<i>Phidippus</i> ?	1			3	2	3		4			1	
Sparrasidae												
Sparrasidae					2							
Thomisidae												
Thomisidae					1		2	3				
<i>Thomisus</i> sp.				1		1		1	1		2	

Appendix Table 52 continued...

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
Undetermined												
Undet sp. 1	1	2				1	1		1		1	2
Undet sp. 2	5		3	1	1	1	1	1	6	5	1	
Undet sp. 3	3	1			2		2		2		2	6
Undet sp. 4	5		3			1	1	3				23
Undet sp. 5	6	1			1	3	1	2	5		1	
Undet sp. 6	3							1			2	
Undet sp. 7	8	1									4	
Undet sp. 8	1	2				1		1				
Undet sp. 9					7	2	2	2		1	4	
Undet sp. 10						3			4	6	1	
Undet sp. 11						1			6			13
Undet sp. 12								1				
Undet sp. 13											2	
Undet sp. 14						1	2			1		
Undet sp. 15						2				1		
Undet sp. 16					2				2			
Undet sp. 17						1						
Undet sp. 18										9		
Undet sp. 19				1				1				
Undet sp. 20				1						58		
Undet sp. 21								1			1	
Undet sp. 22						1	1					
Undet sp. 23						1						
Undet sp. 24						1						
Undet sp. 25							1					
Undet sp. 26						1				35	2	
Undet sp. 27						3						
Undet sp. 28						2	3	1				4

Appendix Table 53. Trophic guild of other arthropods per vegetation type of Mt. Malindang Range Natural Park (MMRNP).

Trophic Guild/ Selected Taxa	Mossy Forest	Montane Forest	Almaciga Forest	Submontane Dipterocarp Forest	Mixed Dipterocarp Forest	Lowland Dipterocarp Forest	Mixed Lowland Dipterocarp Forest	Plantation and Degraded Forest	Vegetable	Cereals	Agro- forestry	Grass- dominated Fallowed Areas
PHYTOPHAGOUS Acarina Eriophyidae <i>Eriophyes</i> sp.												
PREDACEOUS Phalangida Phalangids	22	17	17	10	4	18	1	7	62	3	4	71

Project Leader: **Edgardo C. Aranico, Jose B. Arances** (*Ex-officio*)
Study Leader: **Myrna G. Ballentes**
Researcher: **Alma B. Mohagan**
Resource Person: **Victor P. Gapud**
Research Assistant: **Maria Catherine P. Espallardo**
Research Aide: **Myrna O. Zarcilla**

Editing/Layout: **Ma. Lorica C. Jarmin**
Overall Coordinator: **Mariliza V. Ticsay**
Production Coordinator: **Carina S. Fule**
Production Assistant: **Gerlie D. Rivera**



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