

The Rufford Small Grants Foundation

Final Report

Congratulations on the completion of your project that was supported by The Rufford Small Grants Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to jane@rufford.org.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Rayner Núñez Aguila
Project title	Butterflies and moths of Monte Iberia, Cuba. Filling gaps and capacity building toward its conservation.
RSG reference	12211-2
Reporting period	January 2013-January 2014
Amount of grant	£6000
Your email address	rayner@ecologia.cu, rayner_na@yahoo.com
Date of this report	February 2 2014

1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Inventory of Monte Iberia butterflies and moths			X	Additional sampling was carried out on galley forest, previously no included for study
Butterfly populations counts and gathering of data on butterfly's biology		X		On three of the five vegetation types were sampled due to forest paths lost or block up after hurricanes pass few years ago
Capacity building of national park personnel			X	

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

Forest pathways were lost or block up after hurricanes pass few years ago thus not allowing sampling two vegetation types: pine forest and rainforest. Only at rainforests a few observation points were conducted, and several species were recorded although without abundance data. However, these types occupied less than 30% of Monte Iberia plateau. The three remaining types (disturbed vegetation, evergreen forests, and shrub woods), occupying major areas were successfully sampled. Additional sampling, observation and light trapping, was carried out on galley forest, previously no included for study.

3. Briefly describe the three most important outcomes of your project.

Inventory of Monte Iberia butterflies and moths

A total of 314 butterflies and moths grouped in 29 families were recorded from Monte Iberia plateau at the Alejandro de Humboldt National Park (AHNP) (see list in Annexes and Table below). 72 species of butterflies belonging to the six families known from Cuba, all but two new records to area (see list below). 10 species and 19 subspecies are Cuban endemics, including six species restricted to the Nipe-Sagua- Baracoa (NSB) range.

242 species of moths belonging to 23 families were registered, including 35 endemic species of which seven inhabit exclusively the NSB mountains.

Table 1. Number of Lepidoptera families, species number, number of NSB endemic species, number of Cuban endemic species and subspecies at each of the five sampled vegetation types.

	Evergreen forests	Shrub woods	Rainforests	Galley forest	Disturbed veg.
Families	22	26	9	11	16
Species	131	251	48	80	84
NSB end.spp.	6	11	4	2	2
End. spp.	11	29	5	7	5
End. ssp.	15	7	15	12	9

Butterfly population counts and data on species biology

70 butterfly species belonging to the six families present in Cuba were recorded in transects along all three vegetation types of Monte Iberia: evergreen forests, shrub woods, and disturbed vegetation. Species richness was greater at disturbed vegetation, but percentage of endemism was higher in the better-preserved evergreen forests, shrub woods (see Table below).

Table 2. Number of butterflies' families, species number, number of NSB endemic species, number of Cuban endemic species and subspecies, and total endemism percentage, found in transects at three vegetation types at Monte Iberia.

	Evergreen forests	Shrub woods	Disturbed veg.
Families	6	6	5
Species	47	22	48
NSB end.spp.	5	5	0
End. spp.	3	3	2
End. ssp.	13	6	8

Vegetation type and number of individuals per 1 km along of vegetation paths were recorded for each butterfly species (see Annexes). 12 nectar sources were also recorded for 10 butterfly species. The host plants of three endemics were recorded for the first time during this project. These are: *Ipomoea carolina* for *Syntomeida wrighti* (a diurnal endemic moth), *Oplonia cubensis* for *Atlantea perezii*, and *Paspalum lindenianum* for *Calisto herophile*. Other host plant records were: *Uniola virgata* for *Euphyes s. singularis*, and *Ptmorphe peltata* for *Heraclides thoas oviedo*.

Capacity building of park personnel and community

Educative talks involving park authorities and personnel were performed. Those included an initial poll where knowledge on butterflies was evaluated between park authorities, park guides and conservation technicians. In this poll, 50% of asked park personnel ignored which kind of organisms are butterflies and all 16 ignored how many species inhabit the park, although some mentioned to know few Alejandro the Humboldt National Park endemic butterflies. About 60% identified importance of butterflies for man and in nature, and 40% knew what an endemism is. Park authorities knew better the subject than conservation technicians. After this poll, didactical pamphlets (see attachment) explaining what a butterfly is; why they are important; and how many butterfly species inhabits at Monte Iberia. In a subsequent visit, another similar poll was developed and some of the results were improved compared to initial poll, including recognising which kind of organisms are butterflies (70 % answered correctly). Knowledge about butterflies was increased among conservation technicians because 60 % of them answered correctly what an endemism is and why butterflies are important. Two guides with colour photographs of 71 butterflies and 32 endemic moth species inhabiting Monte Iberia were released during the last visit (see attached pdfs).

4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).

During educative talks and by reading project printed material (pamphlet, butterflies and endemic moths guides) they learned what kind of organisms are butterflies, its importance to nature and man, and about the Monte Iberia Lepidoptera fauna.

Most of park workers live inside the park so they constitute an additional way to expand knowledge on Lepidoptera and their importance to other community members. Update of knowledge on butterflies by park guides may improve the satisfaction of clients visiting the park and would serve to increase the economic incomes.

5. Are there any plans to continue this work?

Yes, a full report on project findings (species list by vegetation types, endemism, and charismatic species of interest for park visitors) will be released to park authorities. We expect to conduct further visits taking in to account importance of the area for the Cuban biodiversity

6. How do you plan to share the results of your work with others?

We plan to publish a research article with main project results. We plan to deliver a larger digital identification guide of Monte Iberia Lepidoptera with as many species as possible. Besides, all data involving the five endemics species of the genus *Calisto* will be used in a PhD thesis scheduled to be finished in 2014.

7. Timescale: Over what period was the RSG used? How does this compare to the anticipated or actual length of the project?

The RSG was used over 12 months from January 2013 to January 2014.

8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Transportation (Havana- AHNP, 3 persons)	400.00	380.00	-20.00	
Food supplies (120 days, 5 persons)	1200.00	1100.00	-100.00	
Fuel	800.00	860.00	+60.00	
Lodging (44 days,3 persons)	360.00	380.00	+20.00	
Batteries	100.00	120.00	+20.00	
Portable electric generator	900.00	900.00	-	
Mercury vapour light bulbs (4 units)	100.00	110.00	+10.00	
External computer storage disk	150.00	160.00	+10.00	
Printer toners	200.00	180.00	-	
Sheets	100.00	100.00	-	
Guides plasticize process	300.00	280.00	-	
Zoom lens with image stabilizer for digital SLR camera	790.00	750.00	-40.00	
Memory card for digital SLR camera (3 units)	100.00	90.00	-10.00	
Ring flash for digital SLR camera	500.00	475.00	-25.00	
Total	6000.00	5885.00		

9. Looking ahead, what do you feel are the important next steps?

To apply to new funds to develop a project focused on the butterflies of western and central Cuba trying to obtain a wider perspective of the Cuban butterfly fauna with the main goal of produce an updated field guide of all Cuban butterfly fauna.

10. Did you use the RSGF logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?

The RSG logo was used at all the capacity building activities and in the printed materials (didactical pamphlets and butterflies and endemic moth guides).

Annex 1.

Checklist of Lepidoptera species recorded at Monte Iberia by vegetation type. ***- Nipe-Sagua-Baracoa endemism, **- Cuban endemic species, *- Cuban endemic subspecies.

	Evergreen forests	Shrub woods	Rainforests	Galley forests	Disturbed veg.
BUTTERFLIES					
PAPILIONIDAE					
Papilioninae					
<i>Battus polydamas cubensis</i> (Dufrane, 1946) *	X	X	X		X
<i>Heraclides andraemon andraemon</i> Hübner, [1823]					X
<i>Heraclides androgeus epidaurus</i> (Godman & Salvin, 1890)	X	X	X		X
<i>Heraclides pelaus atkinsi</i> (Bates, 1935) *	X		X		
<i>Heraclides thoas oviedo</i> (Gundlach, 1866) *	X	X	X		X
<i>Papilio demoleus</i> Linnaeus, 1758					X
<i>Parides g. gundlachianus</i> (Felder & Felder, 1864) **	X	X	X	X	X
HESPERIIDAE					
Hesperiinae					
<i>Asbolis capucinus</i> (Lucas, 1857)	X	X	X		X
<i>Atalopedes m. mesogramma</i> (Latreille [1824])					X
<i>Choranthus radians</i> (Lucas, 1857)	X	X			X
<i>Cymaenes tripunctus</i> (Herrich-Schäffer, 1865)	X				X
<i>Euphyes c. cornelius</i> (Latreille, [1824])					X
<i>Euphyes s. singularis</i> (Herrich-Schäffer, 1865) *					X
<i>Parachoranthus magdalia</i> (Herrich-Schäffer, 1863)	X		X		
<i>Perichares p. philetus</i>	X	X	X		X
<i>Pyrrhocalles antiqua orientis</i> (Herrich-Schäffer, 1863) *	X		X		X

Saliana esperi soroaSmith & Hernández, 1992*	X		X		
Synapte m. malitiosa (Herrich-Schäffer, 1865)	X		X		X
Wallengrenia otho misera(Lucas, 1857)					X
Pyrginae					
Astraptus h. habana (Lucas, 1857) *	X		X		
Burca c. concolor (Herrich-Schäffer 1865) *		X			
Burca cubensis (Skinner, 1913) ***	X	X	X		
Eantis papinianus(Poey, 1832)					X
Ephyriades arcas philemon (Fabricius, 1775)	X		X		
Ephyriades b. brunnea (Herrich-Schäffer, 1865)	X	X	X		X
Erynnis zarucco (Lucas, 1857)					X
Polygonus l. leo (Gmelin, [1790])	X		X		
Phocides pigmalion batabano (Lucas, 1857)	X				X
Proteides maysi(Lucas, 1857)**	X	X	X		
Proteides mercurius sanantonio (Lucas, 1857) *	X				X
Pyrgus oileus (Linnaeus, 1767)					X
Urbanus dorantes santiago (Lucas, 1857)	X	X	X		X
Urbanus proteus domingo (Scudder, 1872)	X				X
RIODINIDAE					
Dianesia carteri ramsdeni (Skinner, 1912)*	X	X	X		
LYCAENIDAE					
Polyommatae					
Hemiargus hanno filenus (Poey, 1832)					X
Leptotes cassius theonus (Lucas, 1857)					X
PIERIDAE					
Coliadinae					
Anteos clorinde (Godart, [1824])	X		X		X
Aphrissa statira cubana d'Almeida, 1939					X

Kricogonia lyside (Godart, 1819)	X				X
Phoebis p. philea(Johansson, 1763)			X		X
Phoebis s. sennae (Linnaeus, 1758)	X		X		X
Pyrisitia d. dina (Poey, 1832) *	X		X		X
Pyrisitia lisa euterpe (Ménétriés, 1832)	X	X	X		X
Pyrisitia messalina(Fabricius, 1787)	X		X		
Dismorphiinae					
Dismorphia cubana (Herrich-Schäffer, 1862) **	X	X	X		
Pierinae					
Ascia monuste eubotea (Godart, 1819)		X			X
Glutophrissa drusilla poeyi (Butler, 1872)	X	X	X		X
Melete salacia cubana Fruhstorfer, 1908*	X	X	X		
NYMPHALIDAE					
Apaturinae					
Doxocopa laure druryi(Hübner, 1823)*	X		X		
Biblidinae					
Dynamine egaea calaisBates, 1934	X	X			X
Lucinia s. sida Hübner, [1823]*	X		X		X
Marpesia chiron (Fabricius, 1775)	X		X		X
Marpesia e. eleucea (Hübner, 1818)*	X		X		X
Charaxinae					
Archaeoprepona demophon crassina (Fruhstorfer, 1904) *	X		X		
Siderone galanthis nemesis(Illiger, 1802)	X		X		
Danainae					
Danaus gilippus berenice(Cramer, 1779)					X
Danaus p. plexippus(Linnaeus, 1758)					X
Lycorea halia demeter Felder & Felder, 1865*	X	X	X		
Heliconiinae					

Agraulis vanillae insularis Maynard, 1869	X	X			X
Dryas iulia nudeola (Bates, 1934)*		X	X		X
Heliconius charithonia ramsdeni Comstock & Brown, 1950	X		X		X
Nymphalinae					
Anartia jatrophae guantanamoMunroe, 1942					X
Atlantea perezi (Herrich-Schäffer, 1862) ***	X	X	X		X
Colobura dirce wolcotti (Comstock, 1942)	X		X		X
Historis o. odius(Fabricius, 1775)	X		X		X
Hypanartia paullus(Fabricius, 1793)	X	X	X		
Junonia evarete zonalisFelder & Felder, 1867					X
Satyrinae					
Calisto brochei Torre, 1973***	X				
Calisto bruneri Michener, 1949***		X			
Calisto herophile (Godart, 1819) **					X
Calisto israeli Torre, 1973***	X	X	X		
Calisto occulta Núñez, 2012***	X	X	X		
HEDYLIDAE					
Macrosoma rubedinaria Walker 1862					X
MOTHS					
TINEIDAE					
Acrolophinae					
Acrolophus fuscisignathus Davis, 1987**		X			
Acrolophus sp		X			
PSYCHIDAE					
Naryciinae					
Kearfottia sp.		X			
ATTEVIDAE					
Atteva gemmata (Grote, 1873)		X			

ELACHISTIDAE					
Depressariinae					
Gonionota bruneri Busck, 1934**		X			
Gonionota rosacea (Forbes, 1931)		X			
Ethmiinae					
Ethmia abraxasella clarissa Busck, 1914		X			
Ethmia confusella (Walker, 1863)		X			
Ethmia cubensisBusck, 1934		X			
Ethmia sp		X			
Ethmia submissa Busck, 1914		X			
Ethmia subsimilis Walsingham, 1897		X			
Ethmia termenalbata Capuse, 1981**		X			
Stenomatinae					
Mothonica cubanaDuckworth, 1969		X			
Stenoma commaBusck, 1911		X			
TORTRICIDAE					
Olethreutinae					
Episimus tyriusHeinrich, 1923		X			
Gymnandrosoma aurantianumLima, 1927?????		X			X
LIMACODIDAE					
Alarodia immaculata (Grote, 1865) **		X			
Leucophobetron argentiflua (Geyer, 1827) **		X			X
THYRIDIDAE					
Siculodinae					
Hexeris enhydris Grote, 1875		X			
Striglininae					
Banisia myrsusalis (Walker, 1859)		X		X	
CRAMBIDAE					

Acentropinae					
Chrysendeton anicitalis (Schaus, 1924) **		X			
Parapoynx diminutalis					X
Crambinae					
Argyria lacteella				X	
Crambus moeschleralis Schaus, 1940		X			
Microcrambus biguttellus (Forbes, 1920)		X			
Parapediasia detomatella (Möschler, 1890)		X		X	
Dichogaminae					
Dichogama redtenbacheri Lederer, 1863		X			
Evergestinae					
Evergestella evincalis (Möschler, 1890)		X			
Glaphyriinae					
<i>Dicymolomia julianalis</i> (Walker, 1859)		X			
Odontiinae					
Cliniodes paradisalis (Möschler, 1886)		X			
Cliniodes muralis Hayden, 2011		X			
Pyraustinae					
Agathodes designalis Guenée, 1854		X			X
Azochis rufidiscalis				X	
Blepharomastix schistisemalis (Hampson, 1912)		X			
Ceratocilia liberalis (Guenée, 1854)		X			X
Coenostolopsis apicalis				X	
Condylorrhiza vestigialis (Guenée 1854)		X			
Desmia ploralis		X			
Desmia recurvalis		x			x
Deuterophysa fernaldi Munroe, 1983		X			
Diacme mopsalis (Walker, 1859)		X			

Diaphania elegans (Möschler, 1890)		X			
Diaphania lualis		X			
Epicorsia oedipodalis (Guenée, 1854)		X			X
Erilusa leucoplalalis (Hampson 1898)		x			
Eulepte concordalis Hübner, [1825]		X			
Eulepte gastralis (Guenée, 1854)		X			
Glyphodes sibillalis Walker, 1859		X		X	X
Hileithia ductalis				X	
Hymenia perspectalis (Hübner, 1796)		X			X
Lygropia tripunctata (Fabricius, 1794)	X	X		X	
Maruca vitrata (Fabricius, 1787)		X			X
Microthyris anormalis (Guenée, 1854)		X		X	
Microthyris prolongalis (Guenée, 1854)		X			
Omiodes indicata (Fabricius, 1775)		X			X
Omiodes martyralis (Lederer, 1863)		X		X	
Palpita flegia (Cramer, 1777)		X		X	
Palpita kimballi Munroe, 1958		X			
Pantographa suffusalis Druce 1895		X			
Phaedropsis impeditalis (Herrich-Schäffer, 1871) **		X		X	
Polygrammodes elevata				X	
Prenesta quadrifenestralis (Herrich-Schäffer, 1871)		X		X	
Pyrausta cardinalis (Guenée, 1854)		X		X	
Salbia cassidalis Guenée, 1854		X		X	
Sparagmia gonoptera shoumatoffi Munroe, 1958		X			
Syllepis marialis Poey, 1832		X			
Synclera jarbusalis (Walker, 1859)		X			
PYRALIDAE					
Chrysauginae					

Epitamyra albomaculalis (Möschler, 1890)		X			
Murgisca subductellus (Möschler, 1890)		X			X
Salobrena vacuana(Walker, 1863)		X			
Epipaschiinae					
Carthara abrupta (Zeller, 1881)		X			
Deuterollyta majuscula (Herrich-Schäffer, 1871)		X			
Macalla thyrsialisWalker, [1859]		X			
Gallerinae					
Omphalocera cariosa Lederer, 1863		X			
Phycitinae					
Dioryctria horneana		X			
MIMALLONIDAE					
Cicinnus packardii (Grote, 1865)		X			
LASIOCAMPIDAE					
Macromphaliinae					
Artace cribrarius(Ljungh, 1825)		X			X
SEMATURIDAE					
Mania lunigeraria Hübner, [1823]		X			
URANIIDAE					
Epileminae					
<i>Philagraula slossoniae</i> Hulst, 1896		X			
Uraniinae					
Urania boisduvalii (Guérin, 1829) **	X	X	X		X
GEOMETRIDAE					
Oenochrominae					
Almodes terraria Guenée, [1858]		X			
Ergavia subrufa Warren, 1897		X			
Ennominae					

Covellia procrastinata Ferguson, 2009		X			
Cyclomia mopsaria (Guenée, [1858])		X			
Epimecis detexta (Walker, 1860)		X	X	X	
Epimecis scolopaiae (Drury, 1773)		X			
Iridopsis divisata Warren, 1905		X			
Iridopsis idonearia (Walker, 1860)		X			
Iridopsis rufisparsa Warren, 1906**		X			X
Leucula simplicaria (Guenée, [1858])	X	X	X		
Lomographa angelica (Schaus, 1923)		X			
Macaria centrosignata Herrich-Schaffer, 1870		x			
Melanchroia chephise (Stoll, 1782)					X
Nepheloleuca complicate (Guenée, [1858])		X			
Numia albisecta Warren, 1906***		X			
Oenoptila paluma (Schaus, 1938) **		X			
Oxydia vesulia transponens (Walker, 1860)		X		X	
Patalene sp		X			
Parilexia sp		X			
<i>Pero nerisaria</i> (Walker, 1860)		X			
Phrygonis auriferaria (Hulst, 1887)		X			
Prochoerodes exiliata (Herrich-Schäffer, 1870) **		X		X	
Sabulodes laticlavaria Rindge, 1978**		X			
Sericoptera virginaria (Hulst, 1886)		X			
Sphacelodes fusilineata (Walker, 1860)		X			
Sphacelodes vulneraria (Hübner, 1823)		X			X
Thysanopyga apicitruncaria Herrich-Schäffer, [1856]		X			X
Geometrinae					
Chlorochlamys chloroleucaria (Guenée, [1858])		X			
Nemoria lixaria (Guenée, [1858])		X			

Nemoria rectilinea(Warren, 1906)		X			
Phrudocentra centrifugaria(Herrich-Schäffer, 1870)		X			
Synchlora c. cupedinaria (Grote 1880)		X			
Synchlora h. herbaria				X	
Synchlora xysteraria (Hulst, 1886)		X			
Larentiinae					
Dislisioprocta stellata (Guenée, [1858])		X			
Hagnagora ephestris (Felder & Rogenhofer, 1875)		X			
Obila defensata(Walker, 1862)		X			
Psaliodes subochreofusa Herbulot, 1988		X			
Triphosa affirmata (Guenée, [1858])		X			
Sterrhinae					
Cyclophora urcearia Guenée, [1858]				X	
Idaea furciferata (Packard, 1873)		X			
Idaea insulensis Rindge, 1958		x			
Lophosis labeculata (Hulst 1887)		X		X	
Pleuroprucha asthenaria (Walker 1861)		x			
Scopula fernaria Schaus, 1940		x			
DOIDAE					
Doa cubana Schaus, 1906**		X			
SPHINGIDAE					
Macroglosiinae					
Cautethia fideli Haxarei & Melichar, 2012***		X			
Cautethia grotei grotei Edwards, 1882		X			X
<i>Enyo lugubris</i> (Linnaeus, 1771)		X			
Enyo ocypete (Linnaeus, 1758)		X			
Isognathus rimoso (Grote, 1865)		X			X
Pachylia ficus (Linnaeus, 1758)		X			

Pachyliodes resumens (Walker, 1856)		X			
Perigonia l. lusca(Fabricius, 1777)		X			
Pseudosphinx tetrio (Linnaeus, 1771)		X			X
Xylophanes chiron cubanusRothschild & Jordan, 1906		X			
Xylophanes irrorate (Grote, 1865)		X			
Sphinginae					
Cocytius duponchel (Poey, 1832)		X			
Cocytius vitrinus Rothschild & Jordan, 1910***		X			
Protambulyx strigilis (Linnaeus 1771)		X			X
NOTODONTIDAE					
Dudusinae					
Antillisa lucedia Schaus, 1937**		X			
Antillisa toddi Torre & Alayo, 1959***		X			
Hapigia directa**				X	
Heterocampinae					
Heterocampa baracoana Schaus, 1904**		X			
Misogada pallida Schaus, 1904**		X			
Nystaleinae					
Lepasta bractea (Felder, 1874)		X			
Nystalea aequipars(Walker, 1858)		X			
Nystalea indiana		X			
EREBIDAE					
Anobinae					
Baniana relapsa(Walker, 1858)		X		X	
Arctiinae					
Apistosia humeralis Grote, 1867**	X		X		
Boenasa tricolor(Herrich-Schäffer, 1866)**		X			
Calidota strigosa(Walker, 1855)		X			

Carathis alayorum Becker, 2011**		X			
Correbidia terminalis (Walker, 1866)		X		X	
Cosmosoma auge (Linnaeus, 1767)		X			
Empyreuma pugione (Linnaeus, 1767)	X	X	X		
Episcepsis leneus				X	
Eucereon guacolda (Poey, 1832)		X			
Eunomia insularis Grote, 1866**		X		X	
Halysidota cinctipes Grote, 1865		X			
Lophocampa atomosa (Walker, 1855)		X			
Lymire albipennis (Herrich-Schäffer, 1866)		X		X	
Mulona barnesi Field, 1952***		X		X	
Nelphe carolina (H. Edwards, 1887)		X			
Phoenicoprocta capistrata (Fabricius, 1775)		X			
Robinsonia formula Grote, 1865		X			
Syntomeida sp.***		X			
Tricypha proxima (Grote, 1867)		X			
Utetheisa ornatrix (Linnaeus, 1758)					X
Virbia heros (Grote, 1865) **		X			
Calpinae					
Gonodonta bidens Geyer, 1832		X			
Gonodonta incurva (Sepp, [1840])		X			
Gonodonta sicheas (Cramer, 1777)		X		X	X
Ipnista marina (Druce, 1891)		X			
Parachabora abydas (Herrich-Schäffer [1869])		x			
Plusiodonta clavifera (Walker, 1869)		X			
Erebinae					
Euclystis angularis (Möschler, 1886)		X			
Gonodontodes dispar Hampson, 1913		X			

Hemeroblemma numeria (Drury, [1773])		X			
Hemeroblemma opigena(Drury, 1773)		X			
Melipotis fasciolaris (Hübner [1831])		X			
Melipotis sp		X			
Ophisma tropicalisGuenée, 1852		X		X	
Panula inconstans Guenée 1852		X			
Pararcte immanis (Walker, 1858)		X		X	
Perasia lineolaris (Hübner 1809)		X			
Selenisa sueroides				X	
Thysania zenobia (Cramer, 1777)		X		X	
Zale peruncta incipiens (Walker, 1858)		X			
<i>Zale setipes (Guenée, 1852)</i>		X			
Eublemininae					
Eublemma cinnamomea (Herrich-Schäffer, 1868)		X			
Eulepidotinae					
<i>Antiblemma sterope(Stoll, 1780)</i>		X			
<i>Athyrma sp</i>		x			
Chamyna homichlodes Hübner [1821]		X			
Coenobela paucula (Walker, 1858)				X	
Dyomyx inferior (Herrich-Schäffer, 1869)		X			
Dyomyx junio Möschler, 1890		X			
Ephyrodes cacata Guenée 1852		X			
Epitausa coppryi (Guenée, 1852)				X	
Eulepidotis hebe (Möschler, 1890)		X			
Eulepidotis modestula (Herrich-Schäffer, 1869)		X			
Eulepidotis striaepuncta (Herrich-Schäffer, 1868)		X			
Macrodes cynara (Cramer 1775)		x			
Renodes aequalis (Walker [1866])		X			

<i>Syllectra congemmalis</i> Hübner, 1823		X			
Herminiinae					
<i>Compsenia gracillima</i> (Herrich-Schäffer, 1870) **		X			
<i>Compsenia insulalis</i> Schaus, 1916**		X		X	
<i>Drepanoplafia lunifera</i> (Butler, 1878)		X			
<i>Hypenula miriam</i> Schaus, 1916**		X			
<i>Physula albipunctilla</i> Schaus, 1916		X			
<i>Physula limonalis</i> (Schaus 1913)		X			
Lymantriinae					
<i>Eloria cubana</i> Schaus, 1906***	X			X	X
Phytometrinae					
<i>Aglonice otignatha</i>				X	
<i>Mursa phtisialis</i> (Guenée, 1854)		X			
<i>Glympis holothermes</i> Hampson 1926		x			
<i>Hemeroplanis zayasi</i> Todd, 1960		X			
Scoliopteryginae					
<i>Anomis erosa</i> Hübner, 1821		X			
EUTELIIDAE					
Stictopterinae					
<i>Nagara vitrea</i> (Guenée, 1852)		X			
NOLIDAE					
Afridinae					
<i>Afrida</i> sp		X			
Chloephorinae					
<i>Iscadia furcifera</i> (Walker, 1865)		X			
<i>Garella nilotica</i> (Rogenhofer 1881)		x			
Collomeninae					
<i>Collomena filifera</i> (Walker, 1857)		X			

Nolinae					
Nola bistriga (Möschler, 1890)		X			
Nola cereella (Bosc, [1800])		X			
Nola cubensis Schaus, 1921**		X			
NOCTUIDAE					
Agaristinae					
Caularis lunata Hampson, 1904		X			
Amphypirinae					
Paratrachaea berylloides (Hampson, 1908)		X			
Condicinae					
Condica sutor (Guenée, 1852)		X			
Eriopinae					
Callopietria floridensis (Guenée, 1852)	X	X		X	
Callopietria jamaicensis (Möschler, 1886)		X		X	
Noctuinae					
Dypterygia ordinarius (Butler 1879)		x			
Elaphria deltoides (Möschler 1880)		x			
Glaucicodia leuconephra Hampson, 1910**		X			
Gonodes trapezoides (Herrich-Schäffer, 1868)		X			
Lacinipolia sp		x			
Leucania senescens Moschler, 1890		x			
Magusa orbifera (Walker, 1857)		X			
Mamestra soligena Möschler, 1886		X			
Orthodes majuscula				X	
Prasinopyra metacausta (Hampson, 1910)**		X		X	
Speocropia sp		x			
Spodoptera dolichos (Fabricius 1794)		X			



Annex 2.

Vegetation type and number of individuals per 1 km along of vegetation paths were recorded for each butterfly species recorded at Monte Iberia. ***- Nipe-Sagua-Baracoa endemism, **- Cuban endemic species, *- Cuban endemic subspecies.

	Evergreen forests	Shrub woods	Disturbed veg.
FAMILY PAPILIONIDAE			
subfamily Papilioninae			
<i>Battus polydamas cubensis</i> (Dufrane, 1946) *	3	2	4
<i>Heraclides andraemon andraemon</i> Hübner, [1823]	0	0	4
<i>Heraclides androgeus epidauros</i> (Godman & Salvin, 1890)	2	2	1
<i>Heraclides pelaus atkinsi</i> (Bates, 1935) *	3	0	0
<i>Heraclides thoas oviedo</i> (Gundlach, 1866) *	4	0	2
<i>Papilio demoleus</i> Linnaeus, 1758	0	0	6
<i>Parides g. gundlachianus</i> (Felder & Felder, 1864) **	4	3	3
FAMILY HESPERIIDAE			
subfamily Hesperinae			
<i>Asbolis capucinus</i> (Lucas, 1857)	2	1	1
<i>Atalopedes m. mesogramma</i> (Latreille, [1824])	0	0	1
<i>Choranthus radians</i> (Lucas, 1857)	1	2	1
<i>Cymaenes tripunctus</i> (Herrich-Schäffer, 1865)	2	0	2
<i>Euphyes c. cornelius</i> (Latreille, [1824])	0	0	2
<i>Euphyes s. singularis</i> (Herrich-Schäffer, 1865) *	0	0	2
<i>Parachoranthus magdalia</i> (Herrich-Schäffer, 1863)	3	0	
<i>Perichares p. philetes</i> (Gmelin, 1790)	3	0	2
<i>Pyrhocalles antiqua orientis</i> (Herrich-Schäffer, 1863) *	2	3	2
<i>Saliana esperi soroa</i> Smith & Hernández, 1992 *	3	0	0
<i>Synapte m. malitiosa</i> (Herrich-Schäffer, 1865)	4	0	4
<i>Wallengrenia otho misera</i> (Lucas, 1857)	0	0	4
subfamily Pyrginae			
<i>Astraptus h. habana</i> (Lucas, 1857) *	5	0	0
<i>Burca c. concolor</i> (Herrich-Schäffer, 1865) *	0	3	0
<i>Burca cubensis</i> (Skinner, 1913) ***	3	2	0
<i>Eantis papinianus</i> (Poey, 1832)	0	0	3
<i>Ephyriades arcas philemon</i> (Fabricius, 1775)	2	0	0
<i>Ephyriades b. brunnea</i> (Herrich-Schäffer, 1865)	4	4	4
<i>Erynnis zarucco</i> (Lucas, 1857)	0	0	2
<i>Polygonus l. leo</i> (Gmelin, [1790])	2	0	0
<i>Phocides pigmalion batabano</i> (Lucas, 1857)	0	0	2
<i>Proteides mayisi</i> (Lucas, 1857) **	1	1	0
<i>Proteides mercurius sanantonio</i> (Lucas, 1857) *	2	0	1
<i>Pyrgus oileus</i> (Linnaeus, 1767)	0	0	3
<i>Urbanus dorantes santiago</i> (Lucas, 1857)	4	5	6
<i>Urbanus proteus domingo</i> (Scudder, 1872)	3	0	2
FAMILY RIODINIDAE			

<i>Dianesia carteri ramsdeni</i> (Skinner, 1912) *	7	4	0
FAMILY LYCAENIDAE			
subfamily Polyommatae	0	0	0
<i>Hemiargus hanno filenus</i> (Poey, 1832)	0	0	9
<i>Leptotes cassius theonus</i> (Lucas, 1857)	0	0	9
FAMILY PIERIDAE			
subfamily Coliadinae			
<i>Anteos clorinde</i> (Godart, [1824])	2	0	2
<i>Aphrissa statira cubana</i> d'Almeida, 1939	0	0	2
<i>Kricogonia lyside</i> (Godart, 1819)	2	0	3
<i>Phoebis p. philea</i> (Johansson, 1763)	0	0	2
<i>Phoebis s. sennae</i> (Linnaeus, 1758)	2	0	4
<i>Pyrisitia d. dina</i> (Poey, 1832) *	0	0	0
<i>Pyrisitia lisa euterpe</i> (Ménétriés, 1832)	1	0	10
<i>Pyrisitia messalina</i> (Fabricius, 1787)	3	0	0
subfamily Dismorphiinae			
<i>Dismorphia cubana</i> (Herrich-Schäffer, 1862) **	5	3	0
subfamily Pierinae			
<i>Ascia monuste eubotea</i> (Godart, 1819)	0	0	6
<i>Glutophrissa drusilla poeyi</i> (Butler, 1872)	5	4	2
<i>Melete salacia cubana</i> Fruhstorfer, 1908*	2	4	0
FAMILY NYMPHALIDAE			
subfamily Apaturinae			
<i>Doxocopa laure druryi</i> (Hübner, 1823)*	2	0	0
subfamily Biblidinae			
<i>Dynamine egea calais</i> Bates, 1934	2	2	3
<i>Lucinia s. sida</i> Hübner, [1823]*	0	0	1
<i>Marpesia chiron</i> (Fabricius, 1775)	1	0	1
<i>Marpesia e. eleuchea</i> (Hübner, 1818) *	3	0	3
subfamily Charaxinae			
<i>Archaeoprepona demophon crassina</i> (Fruhstorfer, 1904) *	2	0	0
<i>Siderone galanthis nemesis</i> (Illiger, 1802)	1	0	0
subfamily Danainae			
<i>Danaus gilippus berenice</i> (Cramer, 1779)	0	0	2
<i>Danaus p. plexippus</i> (Linnaeus, 1758)	0	0	1
<i>Lycorea halia demeter</i> Felder & Felder, 1865*	2	1	0
subfamily Heliconiinae			
<i>Agraulis vanillae insularis</i> Maynard, 1869	2	0	6
<i>Dryas iulia nudeola</i> (Bates, 1934) *	0	0	5
<i>Heliconius charithonia ramsdeni</i> Comstock & Brown, 1950	2	0	8
subfamily Nymphalinae			
<i>Anartia jatrophae guantanamo</i> Munroe, 1942			
<i>Atlantea perezii</i> (Herrich-Schäffer, 1862) ***	4	7	12
<i>Colobura dirce wolcottii</i> (Comstock, 1942)	0	0	1
<i>Historis o. odius</i> (Fabricius, 1775)	2	0	1

Hypanartia paullus(Fabricius, 1793)	2	4	0
Junonia evarete zonalisFelder & Felder, 1867	0	0	5
subfamily Satyrinae			
Calisto brochei Torre, 1973***	11	0	0
Calisto bruneri Michener, 1949***	0	15	0
Calisto herophile (Godart, 1819) **	0	0	17
Calisto israeli Torre, 1973***	6	12	0
Calisto occulta Núñez, 2012***	15	30	0