

Results from a butterfly survey around Bashu, Southern Okwangwo Division of Cross River National Park, Nigeria

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FORESTRY COMMISSION, Calabar

BOKI BIRDS, Bashu

ÅNGPANNEFÖRENINGENS
FORSKNINGSSTIFTELSE



Introduction

This butterfly survey was conducted the period during 1 – 25 November 2006 in the Cross River State, southeastern Nigeria in the surroundings of the village Bashu Okpambe (ca. 06°06'N, 09°08'E). Bashu is situated at the southern tip of the Okwangwo Division of the Cross River National Park, ca. 2.5 km W of the border to Cameroun (Fig. 1). Some records also originate from a preliminary visit to Bashu in 3 – 4 February 2006.



Fig. 1: Location of Bashu. The map shows the southeastern part of Nigeria. Image obtained from Google-Earth.

Methods

Butterflies were captured daily using hand nets and bait traps. Unfortunately bait traps had very low capture efficiency during this survey, possibly due to environmental conditions in the area being unsuitable at the time of this survey. No single species was caught in traps only. Some species were identified immediately in the field while others were kept for later identification. In some cases a proper identification even requires inspection of dissected male genitalia under microscope. Voucher specimens are presently placed in the private collection of Oskar Brattström in Sweden. Pictures of specific species are available upon request (oskar.brattstrom@zooekol.lu.se). Some material may later be transferred to other collections for research purposes but as far as possible their future location will be tracked.

Results

A total of 250 species (complete list is in Appendix 1) were encountered during the survey. However, since the weather was not suitable for collection during many days and the fact that traps were rather ineffective, sufficient material is still not available to make a confident estimate of the number of butterfly species present in the Bashu area. Based on his experience in the Okwangwo National Park and analysis of the list, Torben Larsen (Personal communication) feels certain that there must be at least 750 species and possibly many more. Butterfly abundance in rain forests show strong seasonal variation and the area would benefit from repeated visits in the future, preferably at different time of the year. Despite the somewhat low number of species found, several species were never previously reported from Okwangwo, and some species were recorded for the first time ever in Nigeria or for the eastern parts of the country.

There were initial plans to perform a study using line transects of traps to investigate the effect of farmlands close to the forest. Traps should be placed in a line perpendicular to the edge of the forest sampling changes in butterfly diversity both in the fragmented areas and progressively further into the forest. This study was however cancelled due to the low efficiency of traps. While working in the area it appeared as if butterflies typical of primary forests were found all the way to the edge of the forest and even small islands of forest in the farmlands could still maintain a high diversity as long as they were connected to the main forest via small patches of trees that provided complete canopy cover. During further studies in the region it should be a priority to investigate if this impression is genuine or if traps will show that diversity is affected by farms. Such knowledge is important for future conservation efforts. Compared to the results from a bird survey conducted at the same time (Naurin & Tobler 2007), butterflies certainly seem much less affected by human disturbance. This is not surprising considering that birds are hunted and disturbed in much more dramatic ways compared to insects. In general smaller amounts of the right kind of habitats can support a permanent butterfly population than it would sustain a bird population.

Butterfly records of particular interest

The following 32 species were recorded for the first time in the Okwangwo region: *Graphium antheus*, *Pinacopteryx eriphia tritogenia*, *Pentila m. maculata*, *Liptena o. orubrum*, *Hypophytala hyettoides*, *Stempfferia cercenoides*, *Stempfferia carcina*, *Hypolycaena h. hatita*, *Pilodeudorix violetta*, *Anthene lunulata*, *Neurypexina lyzianus*, *Neurellipes l. lusones*, *Bicyclus xeneoides*, *Bicyclus sylvicolus*, *Charaxes c. castor*, *Ariadne actisanes*, *Cymothoe e. excelsa*, *Cymothoe 'sangaris'*, *Pseudacraea d. dolomena*, *Neptis biafra*, *Euryphura plautilla*, *Euriphene pavo*, *Euphaedra preussiana protea*, *Euphaedra vicina longiqua*, *Acraea orina*, *Acraea c. consanguinea*, *Gorgyra bule*, *Xanthodisca astrape*, *Paronymus xanthioides*, *Pteroteinon capronnieri*, *Caenides xychus* and *Borbo micans*.

Older records were obtained from a Cross River State check list (Larsen 1997; Knoop & Warren 2005) and from the book 'Butterflies of West Africa' (Larsen 2005).

Specific comments regarding some species

***Pinacopteryx eriphia tritogenia* (Klug 1829)**

This species is normally found in the driest of habitats and in West Africa it is rarely encountered south of latitude 11° N. This is a known migratory species and its appearance in Bashu is probably a stray individual, far of course. Only one individual was encountered and it was caught in an open area (grass lawn) close to the village.

***Euphaedra vicina longiqua* (Hecq 1984)**

This subspecies were considered to be endemic to Oban Hills (the nominate species is found in Cameroon) and therefore its appearance around Bashu (five separate individuals were observed) is somewhat surprising. Environmental conditions the in southern parts of Okwangwo are apparently close enough to Oban Hills to sustain species adapted to the wettest of rain forest habitats.

***Gorgyra bule* (Miller 1964)**

This is the first record of this species in eastern Nigeria. It is a scarce species compared to the more common *Gorgyra diversata* (Evans 1937) and identification requires inspection of the male genitalia under microscope. Older records of *G. diversata* need to be examined in order to get a better picture of the distribution of this species.

***Paronymus xanthioides* (Holland 1982)**

There are few records available in collections but this species is found in Cameroon, Congo and Gabon. The only previous records from Nigeria were two specimens labeled as being from 'somewhere close to Ikom' (Ikom is situated about 50 km WSW of Bashu). One individual was collected and despite repeated visits to the same spot no others were seen. This is a small and rare butterfly which presumably goes unnoticed in many surveys.

***Caenides xychus* (Mabille 1891)**

This species has not been recorded in Nigeria previously. Like many skippers it has somewhat unobtrusive habits, often resting under leaves and therefore passes unnoticed in many surveys. Since it occurs in the West African forest zone from Sierra Leone to Ghana and then reoccurs in Cameroon continuing all the way to Uganda, finding it in Nigeria was not unexpected.

Concluding remarks

The forest around Bashu is estimated to have at least 750 butterfly species (see above) and several species strictly adapted to wet lowland rain forest are found here. Being linked to the Cameroon forests this region is an important conservation area for butterflies. When the survey was conducted at Bashu there was evidence of suspect logging activities. The area close to a small road leading towards Cameroon (only accessible by foot) was cleared to a width of more than 20 meters inside the primary forest. It is important that we gain a better knowledge of the diversity in the area if we want to be able to monitor the impact of increased human activities in the region. Considering that around 10% of all the recorded species were new to Okwangwo as a whole, we still know far too little about the butterfly fauna and further surveys should be encouraged.

Acknowledgements

Ångpanneföreningen's Foundation for Research and Development provided most of the financial support for the project. Andrew Dunn at Wildlife Conservation Society (WCS) in Calabar provided material for the field work as well as transportation to Bashu. Dr. Chris Agbor at the Forestry Commission in Calabar, among other things, helped out planning of logistics for the project. Edu Efiom at the Forestry Commission in Calabar assisted in the first days of the field work. The rangers of Boki Birds in Bashu helped out during the field work. A.P. Leventis Ornithological Research Institute (APLORI) provided some financial support and transportation from Bashu. Torben Larsen gave his support both before the expedition and assisted with later identification of several species.

References

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Appendix 1: Summary of the 250 butterfly species recorded around Bashu, Cross River, Nigeria during a monitoring project performed 1 – 25 November 2006. Some species were also recorded during an earlier visit to the area in early February 2006

Species	Date¹	Voucher²	Comments
Fam. Papilionidae			
<i>Papilio zalmoxis</i>	20		Field observation
<i>Papilio d. dardanus</i>	5	x	
<i>Papilio phorcas congoanus</i>	24	x	
<i>Papilio h. hesperus</i>	7		
<i>Papilio s. sosia</i>	6		
<i>Papilio n. nireus</i>	1	x	
<i>Papilio m. menestheus</i>	1	x	
<i>Papilio d. demodocus</i>	10		
<i>Papilio cyproefila praecyola</i>	1		
<i>Graphium l. leonidas</i>	12	x	
<i>Graphium polices</i>	1		
<i>Graphium antheus</i>	18	x	New for Okwangwo
Fam. Pieridae			
<i>Pseudopontia p. paradoxa</i>	1	x	
<i>Catopsilia florella</i>	13		
<i>Eurema senegalensis</i>	13	x	
<i>Eurema hecabe solifera</i>	11	x	
<i>Eurema floricola leonis</i>	8	x	
<i>Eurema b. brigitta</i>	12		
<i>Pinopteryx eriphia tritogenia</i>	23	x	New for S. Nigeria
<i>Nepheronia a. argia</i>	9	x	
<i>Nepheronia t. thalassina</i>	7		
<i>Nepheronia p. pharis</i>	11		
<i>Colotis e. euipe</i>	14		
<i>Belenois c. calypso</i>	5		
<i>Belenois t. theora</i>	14	Photo	Field observation
<i>Appias s. sylvia</i>	Feb	x	
<i>Appias p. phaola</i>	11	x	
<i>Appias s. sabina</i>	11	x	
<i>Appias e. epaphia</i>	12	x	
<i>Leptosia h. hybrida</i>	2		
<i>Leptosia medusa</i>	6		
<i>Leptosia marginea</i>	6	x	
<i>Mylothris c. chloris</i>	5		
<i>Mylothris rhodope</i>	Feb	x	
<i>Mylothris jaopura</i>	14	x	
<i>Mylothris s. schumanni</i>	3		

Species	Date ¹	Voucher ²	Comments
Fam. Lycaenidae			
<i>Megalopalpus zymna</i>	4		
<i>Lachnocnema r. reutlingeri</i>	12	x	
<i>Pentila m. maculata</i>	10	x	New for Okwangwo
<i>Pentilia h. hewitsonii</i>	4	x	
<i>Telipna acrae bimaculata</i>	10	x	
<i>Teplina s. sanguinea</i>	14	x	
<i>Ornipholidotes cf. onitshae</i>	14	x	
<i>Liptena o. orubrum</i>	15	x	New for Okwangwo
<i>Kakumia otauga</i>	22	x	New for Okwangwo
<i>Falcuna l. libyssa</i>	3	x	
<i>Tetrarhanis simplex</i>	12		
<i>Larinopoda lircaea</i>	15		
<i>Hewitsonia boisduvalii</i>	18	x	
<i>Hypophytala hyettoides</i>	11	x	New for Okwangwo
<i>Stempfferia cercenoides</i>	20	x	New for Okwangwo
<i>Stempfferia carcina</i>	10	x	New for Okwangwo
<i>Epitolina melissa</i>	11		
<i>Oxylides f. faunas</i>	10		
<i>Iolaus b. bellina</i>	23	x	
<i>Hypolycena l. lebona</i>	17	x	
<i>Hypolycaena coerulea</i>	18	x	
<i>Hypolycena dubia</i>	Feb	x	
<i>Hypolycena kakumi</i>	11	x	
<i>Hypolycaena h. hatita</i>	Feb	x	New for Okwangwo
<i>Pilodeudorix violetta</i>	12	x	New for E. Nigeria
<i>Anthene ligures</i>	13	x	
<i>Anthene s. sylvanus</i>	10		
<i>Anthene p. princeps</i>	Feb	x	
<i>Anthene lunulata</i>	23	x	New for Okwangwo
<i>Anthene larydas</i>	9	x	
<i>Anthene l. lachares</i>	Feb	x	
<i>Anthene emkopoti</i>	13	x	
<i>Anthene lysicles</i>	13	x	
<i>Neurypexina lyzianus</i>	18		New for Okwangwo
<i>Neurellipes l. lusones</i>	9	x	New for Okwangwo
<i>Neurellipes chryseostictus</i>	12	x	
<i>Pseudonacaduba s. sichela</i>	6		
<i>Cacyreus lingeus</i>	6		
<i>Tuxentius carana</i>	13		ssp. undetermined
<i>Euchrysops malathana</i>	11		
<i>Thermoniphys togara</i>	7		
<i>Oboronia punctatus</i>	3		
<i>Oboronia pseudopunctatus</i>	11		
<i>Oboronia guessfeldti</i>	3		
<i>Oboronia o. ornata</i>	18		
<i>Azanus moriqua</i>	6		

Species	Date¹	Voucher²	Comments
Fam. Nymphalidae			
<i>Libythea l. labdaca</i>	3		
<i>Danaus c. chrysippus</i>	17		
<i>Tirumala petiverana</i>	3		
<i>Amauris n. niavius</i>	13		
<i>Gnophodes chelys</i>	15		
<i>Melanitis libya</i>	4		
<i>Elymniopsis b. bammakoo</i>	4		
<i>Bicyclus xeneas occidentalis</i>	13	x	
<i>Bicyclus xeneoides</i>	18	x	New for Okwangwo
<i>Bicyclus procora</i>	14		
<i>Bicyclus ignobilis eurini</i>	7	x	
<i>Bicyclus technatis</i>	10	x	
<i>Bicyclus vulgaris</i>	10	x	
<i>Bicyclus d. dorothea</i>	5		
<i>Bicyclus sandace</i>	11		
<i>Bicyclus sylvicolus</i>	15	x	New for Okwangwo
<i>Bicyclus funebris</i>	15	x	
<i>Bicyclus cf martius</i> ♀	14		
<i>Ypthima doleta</i>	5		
<i>Charaxes p. protoclea</i>	4		
<i>Charaxes c. cynthia</i>	24	x	
<i>Charaxes l. lucretius</i>	1	x	
<i>Charaxes c. castor</i>	25	x	New for Okwangwo
<i>Charaxes b. brutus</i>	9		
<i>Charaxes s. smaragdalis</i>	4		
<i>Charaxes eupale</i>	2		ssp. undetermined
<i>Charaxes s. subornatus</i>	13	x	
<i>Charaxes v. virilis</i>	20	x	
<i>Palla sp</i>	24		Field observation
<i>Kallimoides rumia jadyae</i>	1	x	
<i>Vanessula milca buechneri</i>	13		
<i>Antanartia d. delius</i>	7	x	
<i>Precis o. octavia</i>	6		
<i>Precis ceryne ceruana</i>	18		
<i>Precis pelarga</i>	10		
<i>Precis sinuata</i>	14	x	
<i>Hypolimas a. anthedon</i>	1	x	
<i>Hypolimas s. salmacis</i>	12	x	
<i>Salamis c. cacta</i>	22	x	
<i>Protogoniomorpha t. temora</i>	2	x	
<i>Protogoniomorpha parhassus</i>	2	x	
<i>Junonia orithya madagascariensis</i>	24		
<i>Junonia o. oenone</i>	5		
<i>Junonia hierta cebrene</i>	24		
<i>Junonia c. cymodoce</i>	Feb	x	
<i>Junonia s. sophia</i>	1	x	
<i>Junonia stygia</i>	10		
<i>Junonia chorimene</i>	10		
<i>Junonia t. terea</i>	1		

Species	Date¹	Voucher²	Comments
Fam. Nymphalidae (cont.)			
<i>Cyrestis c. camillus</i>	14	x	
<i>Mesoxantha ethosea ethoseoides</i>	12	x	
<i>Ariadne e. enotrea</i>	-		Date missing
<i>Ariadne actisanes</i>	12		New for Okwangwo
<i>Neptidoptis o. ophione</i>	11		
<i>Eurytela h. hiarbas</i>	18	x	
<i>Sevenia a. amulia</i>	20	x	
<i>Harma t. theobene</i>	9		
<i>Cymothoe b. beckeri</i>	11	x	
<i>Cymothoe fumana balluca</i>	10		
<i>Cymothoe w. weymeri</i>	14	x	
<i>Cymothoe c. coccinata</i>	14		
<i>Cymothoe e. excelsa</i>	17	x	New for Okwangwo
<i>Cymothoe 'sangaris'</i>	12	x	New for Okwangwo
<i>Pseudoneptis bugandensis ianthe</i>	2	x	
<i>Pseudoacraea d. dolomena</i>	15	x	New for Okwangwo
<i>Pseudoacraea l. lucretia</i>	12	x	
<i>Pseudoacraea semire</i>	15		Field observation
<i>Neptis n. nemetes</i>	9		
<i>Neptis m. metella</i>	12		
<i>Neptis morosa</i>	23		
<i>Neptis alta</i>	Feb	x	
<i>Neptis puella</i>	-		Date missing
<i>Neptis nysiades</i>	17	x	
<i>Neptis biafra</i>	14	x	New for Okwangwo
<i>Neptis quintilla</i>	24		
<i>Neptis trigonophora melicertula</i>	21	x	
<i>Neptis a. agouale</i>	Feb	x	
<i>Neptis melicerta</i>	11		
<i>Neptis troundi</i>	7	x	
<i>Catuna crithea</i>	2		
<i>Catuna oberthueri</i>	4		
<i>Catuna angustata</i>	1		
<i>Euryphura plautilla</i>	10		New for Okwangwo
<i>Euryphura chalcis</i>	5		
<i>Aterica g. galene</i>	14		
<i>Cynandra o. opis</i>	11	x	
<i>Euriphene mundula</i>	17		
<i>Euriphene barombina</i>	4	x	
<i>Euriphene t. tadema</i>	15	x	
<i>Euriphene g. grosesmithi</i>	11	x	
<i>Euriphene pavo</i>	16	x	New for Okwangwo
<i>Euriphene milnei</i>	15	x	
<i>Euriphene gambiae gabonica</i>	18	x	

Species	Date¹	Voucher²	Comments
Fam. Nymphalidae (cont.)			
<i>Bebearia lucayensis</i>	4	x	
<i>Bebearia tentyris</i>	10	x	
<i>Bebearia carshena</i>	12		
<i>Beberaia zonara</i>	12	x	
<i>Bebearia barce maculata</i>	15	x	
<i>Bebearia cocalia continentalis</i>	3	x	
<i>Bebearia s. sophus</i>	15		
<i>Bebearia p. phantasia</i>	13		
<i>Bebearia c. cutteri</i>	12		
<i>Euphaedra fucora</i>	12	x	
<i>Euphaedra m. medon</i>	4	x	
<i>Euphaedra hewitsoni sumptosa</i>	1		
<i>Euphaedra diffusa albocoerulea</i>	9	x	
<i>Euphaedra aureola</i>	23	x	
<i>Euphaedra j. janetta</i>	14	x	
<i>Euphaedra s. splendens</i>	1	x	
<i>Euphaedra ravola</i>	14	Photo	
<i>Euphaedra preussiana protea</i>	14	x	New for Okwangwo
<i>Euphaedra p. proserpina</i>	14	x	
<i>Euphaedra vicina longiqua</i>	18	x	New for Okwangwo
<i>Euphaedra ruspina</i>	2		
<i>Euphaedra harpalyce harpalyce</i>	6		
<i>Euphaedra losinga wardi</i>	10		
<i>Acraea circeis</i>	1	Photo	Field observation
<i>Acraea p. peneleos</i>	13	x	
<i>Acraea orina</i>	9	x	New for Okwangwo
<i>Acraea e. encedon</i>	7	x	
<i>Acraea alciope/a. aurivillii</i>	10	x	
<i>Acraea l. lycoa</i>	6	x	
<i>Acraea serena</i>	5		
<i>Acraea oberthueri</i>	14	x	
<i>Acraea b. bonasia</i>	5		
<i>Acraea o. orestia</i>	6	Photo	Field observation
<i>Acraea polis</i>	3		
<i>Acraea z. zetes</i>	6	x	
<i>Acraea v. vestalis</i>	24	x	
<i>Acraea a. alcione</i>	15	x	
<i>Acraea c. consanguinea</i>	17	x	New for Okwangwo
<i>Acraea e. epaea</i>	17	x	
<i>Acraea epiprotea</i>	17	x	
<i>Lachnoptera anticlia</i>	4		
<i>Phalanta e. eurytis</i>	6		

Species	Date¹	Voucher²	Comments
Fam. HesperIIDae			
<i>Coeliades libeon</i>	Feb	x	
<i>Coeliades f. forestan</i>	5	x	
<i>Celaenorrhinus b. boadicea</i>	13	x	
<i>Celaenorrhinus g. galenus</i>	12		
<i>Celaenorrhinus meditrina</i>	11	x	
<i>Celaenorrhinus proxima maesseni</i>	24	x	
<i>Celaenorrhinus plagiatus</i>	10	x	
<i>Tagiades flesus</i>	7		
<i>Eretis plistonius</i>	11	x	
<i>Sarangesa tertullianus</i>	2	Photo	Field observation
<i>Sarangesa t. thecla</i>	9	x	
<i>Gorgyra bule</i>	13	X³	New for Nigeria
<i>Ceratrachia c. clara</i>	24	x	
<i>Pardaleodes edipus</i>	9	x	
<i>Pardaleodes s. sator</i>	9		
<i>Xanthodisca rega</i>	12		
<i>Xanthodisca astrape</i>	15	x	New for Okwangwo
<i>Osmodes laronia</i>	13		
<i>Osmodes thora</i>	18		
<i>Paracleros biguttulus</i>	11	x	(4)
<i>Acleros ploetzi</i>	13		
<i>Acleros mackenii olaus</i>	17		
<i>Acleros nigrapex</i>	11		
<i>Hypoleucis o. ophiusa</i>	18		
<i>Paronymus xanthioides</i>	14	x	(5)
<i>Gamia buchholzi</i>	11	x	
<i>Gretna waga</i>	Feb	x	
<i>Pteroteinon capronnieri</i>	10	x	New for Okwangwo
<i>Pteroteinon caenira</i>	12		
<i>Caenides xychus</i>	Feb	x	New for Nigeria
<i>Borbo fanta</i>	6		
<i>Borbo perobscura</i>	18		
<i>Borbo micans</i>	Feb	x	New for E. Nigeria

Comments

- 1) Number indicates day in November 2006 and 'Feb' that the species was only recorded from a previous visit in February 2006.
- 2) '**X**' indicates that voucher specimen are available while 'Photo' indicates that a photograph sufficient for successful identification is available.
- 3) Voucher specimen is presently kept by Dr. Torben B. Larsen for use in his revision of this genus.
- 4) Verified by genitalia preparation.
- 5) First well documented record for Nigeria, see comments in main text.