

Title: Aerospace-foraging bats eat seasonably across varying habitats: implications for ecosystem services.

Authors: Joxerra AIHARTZA¹, Nerea VALLEJO¹, Miren ALDASORO¹, Juan L GARCIA-MUDARRA², Urtzi GOITI¹, Jesus NOGUERAS², Carlos IBÁÑEZ²

Affiliations:

¹ Dpt. of Zoology and Animal cell Biology, University of the Basque Country UPV/EHU. Sarriena s/n, E48940, Leioa, The Basque Country.

² Estación Biológica de Doñana (CSIC), P.O. Box 1056, E41080, Sevilla, Spain.

Corresponding author: Joxerra Aihartza, joxerra.aihartza@ehu.eus;

Supplementary Material 6:

Full list of arthropod species consumed by *Miniopterus schreibersii*, in accordance to the DNA extracted and amplified from their feces, including their frequencies of occurrences, FOO (%), percentage of occurrences, POO (%), and weighted percentages of occurrences, wPOO (%).

Order	Family	Species	FOO	POO	wPOO
Araneae	Tetragnathidae	<i>Metellina merianae</i>	0.71	0.09	0.02
Blattodea	Ectobiidae	<i>Loboptera decipiens</i>	0.71	0.09	0.04
Coleoptera	Carabidae	<i>Bembidion varium</i>	0.71	0.09	0.03
Coleoptera	Cerambycidae	<i>Arhopalus ferus</i>	0.71	0.09	0.06
Coleoptera	Mycetophagidae	<i>Typhaea stercorea</i>	1.43	0.18	0.17
Diptera	Anthomyiidae	<i>Delia platura</i>	2.14	0.27	0.14
Diptera	Chironomidae	<i>Tanytarsus eminulus</i>	0.71	0.09	0.03
Diptera	Culicidae	<i>Culex pipiens</i>	15.71	2.01	1.25
Diptera	Culicidae	<i>Culex theileri</i>	2.86	0.37	0.29
Diptera	Culicidae	<i>Culiseta longiareolata</i>	1.43	0.18	0.08
Diptera	Culicidae	<i>Ochlerotatus caspius</i>	2.14	0.27	0.15
Diptera	Drosophilidae	<i>Drosophila suzukii</i>	12.14	1.56	0.87
Diptera	Drosophilidae	<i>Leucophenga maculata</i>	12.86	1.65	1.15
Diptera	Limoniidae	<i>Dicranomyia ventralis</i>	7.86	1.01	1.61
Diptera	Limoniidae	<i>Gonomyia tenella</i>	2.14	0.27	0.09
Diptera	Limoniidae	<i>Limonia nubeculosa</i>	24.29	3.11	1.81
Diptera	Limoniidae	<i>Symplecta hybrida</i>	0.71	0.09	0.08
Diptera	Limoniidae	<i>Symplecta pilipes</i>	20.00	2.56	3.63
Diptera	Limoniidae	<i>Symplecta stictica</i>	2.86	0.37	0.21
Diptera	Phoridae	<i>Megaselia rufipes</i>	6.43	0.82	0.35
Diptera	Psychodidae	<i>Mormia tenebrosa</i>	0.71	0.09	0.05
Diptera	Psychodidae	<i>Paramormia ustulata</i>	2.86	0.37	0.37
Diptera	Psychodidae	<i>Philosepedon humeralis</i>	0.71	0.09	0.02
Diptera	Psychodidae	<i>Psychoda albipennis</i>	13.57	1.74	1.11
Diptera	Psychodidae	<i>Psychoda alternata</i>	1.43	0.18	0.31
Diptera	Syrphidae	<i>Episyrphus balteatus</i>	0.71	0.09	0.04
Diptera	Tachinidae	<i>Chetogena acuminata</i>	0.71	0.09	0.04
Diptera	Tachinidae	<i>Ligeria angusticornis</i>	0.71	0.09	0.02

Diptera	Tachinidae	<i>Pales pavidus</i>	5.71	0.73	0.31
Diptera	Tachinidae	<i>Phryxe erythrostoma</i>	0.71	0.09	0.06
Diptera	Tachinidae	<i>Voria ruralis</i>	0.71	0.09	0.18
Diptera	Tephritidae	<i>Acanthiophilus helianthi</i>	0.71	0.09	0.24
Diptera	Tipulidae	<i>Tipula lateralis</i>	0.71	0.09	0.04
Ephemeroptera	Caenidae	<i>Caenis luctuosa</i>	30.00	3.84	3.54
Ephemeroptera	Leptophlebiidae	<i>Choroterpes picteti</i>	26.43	3.39	2.20
Ephemeroptera	Polymitarcidae	<i>Ephoron virgo</i>	29.29	3.75	2.48
Hemiptera	Aphrophoridae	<i>Neophilaenus campestris</i>	0.71	0.09	0.12
Hemiptera	Lygaeidae	<i>Nysius cymoides</i>	1.43	0.18	0.09
Hemiptera	Miridae	<i>Creontiades pallidus</i>	22.86	2.93	3.61
Hemiptera	Miridae	<i>Tayloriigyus apicalis</i>	0.71	0.09	0.05
Lepidoptera	Bedelliidae	<i>Bedellia somnulenta</i>	0.71	0.09	0.04
Lepidoptera	Blastobasidae	<i>Blastobasis phycidella</i>	2.14	0.27	0.16
Lepidoptera	Choreutidae	<i>Tebenna micalis</i>	0.71	0.09	0.04
Lepidoptera	Cosmopterigidae	<i>Pyroderces argyrogrammos</i>	4.29	0.55	0.43
Lepidoptera	Cossidae	<i>Phragmataecia castaneae</i>	0.71	0.09	0.10
Lepidoptera	Crambidae	<i>Antigastra catalaunensis</i>	0.71	0.09	0.04
Lepidoptera	Crambidae	<i>Catoptria fulgidella</i>	2.86	0.37	0.20
Lepidoptera	Crambidae	<i>Chrysocrambus linetella</i>	0.71	0.09	0.10
Lepidoptera	Crambidae	<i>Eudonia lineola</i>	0.71	0.09	0.10
Lepidoptera	Crambidae	<i>Herpetogramma licarsisalis</i>	0.71	0.09	0.02
Lepidoptera	Crambidae	<i>Mecyna asinais</i>	0.71	0.09	0.05
Lepidoptera	Crambidae	<i>Nomophila noctuella</i>	6.43	0.82	1.22
Lepidoptera	Crambidae	<i>Palpita vitrealis</i>	10.00	1.28	1.50
Lepidoptera	Crambidae	<i>Spoladea recurvalis</i>	1.43	0.18	0.09
Lepidoptera	Crambidae	<i>Thopeutis galleriellus</i>	20.00	2.56	7.03
Lepidoptera	Crambidae	<i>Udea ferrugalis</i>	3.57	0.46	0.55
Lepidoptera	Crambidae	<i>Uresiphita gilvata</i>	3.57	0.46	0.58
Lepidoptera	Erebidae	<i>Autophila dilucida</i>	0.71	0.09	0.12
Lepidoptera	Erebidae	<i>Coscinia cribraria</i>	1.43	0.18	0.36
Lepidoptera	Erebidae	<i>Cymbalophora pudica</i>	0.71	0.09	0.06
Lepidoptera	Erebidae	<i>Dysgonia algira</i>	0.71	0.09	0.14
Lepidoptera	Erebidae	<i>Eublemma parva</i>	0.71	0.09	0.03
Lepidoptera	Erebidae	<i>Nodaria nodosalis</i>	2.14	0.27	0.22
Lepidoptera	Erebidae	<i>Odice jucunda</i>	1.43	0.18	0.09
Lepidoptera	Erebidae	<i>Odice pergrata</i>	2.14	0.27	0.32
Lepidoptera	Erebidae	<i>Pechipogo plumigeralis</i>	0.71	0.09	0.07
Lepidoptera	Gelechiidae	<i>Anacampsis populella</i>	0.71	0.09	0.04
Lepidoptera	Gelechiidae	<i>Aproaerema anthyllidella</i>	1.43	0.18	0.18
Lepidoptera	Gelechiidae	<i>Eulamprotes nigromaculella</i>	0.71	0.09	0.18
Lepidoptera	Gelechiidae	<i>Gelechia turpella</i>	0.71	0.09	0.02
Lepidoptera	Gelechiidae	<i>Pectinophora gossypiella</i>	0.71	0.09	0.12
Lepidoptera	Gelechiidae	<i>Phthorimaea operculella</i>	0.71	0.09	0.14

Lepidoptera	Gelechiidae	<i>Platyedra subcinerea</i>	2.86	0.37	0.46
Lepidoptera	Gelechiidae	<i>Scrobipalpa salinella</i>	0.71	0.09	0.24
Lepidoptera	Gelechiidae	<i>Tuta absoluta</i>	1.43	0.18	0.14
Lepidoptera	Geometridae	<i>Chiasmia aestimaria</i>	0.71	0.09	0.04
Lepidoptera	Geometridae	<i>Costaconvexa polygrammata</i>	1.43	0.18	0.24
Lepidoptera	Geometridae	<i>Ekboarmia atlanticaria</i>	0.71	0.09	0.09
Lepidoptera	Geometridae	<i>Eupithecia centaureata</i>	0.71	0.09	0.05
Lepidoptera	Geometridae	<i>Gymnoscelis rufifasciata</i>	17.14	2.20	3.35
Lepidoptera	Geometridae	<i>Idaea mustelata</i>	0.71	0.09	0.05
Lepidoptera	Geometridae	<i>Isturgia pulinda</i>	1.43	0.18	0.11
Lepidoptera	Geometridae	<i>Orthonama obstipata</i>	4.29	0.55	1.10
Lepidoptera	Geometridae	<i>Peribatodes ilicaria</i>	3.57	0.46	0.22
Lepidoptera	Geometridae	<i>Phaioграмма faustinata</i>	0.71	0.09	0.04
Lepidoptera	Geometridae	<i>Rhodometra sacraria</i>	7.14	0.91	0.77
Lepidoptera	Geometridae	<i>Selidoseam taeniolaria</i>	4.29	0.55	0.20
Lepidoptera	Geometridae	<i>Xanthorhoe ferrugata</i>	1.43	0.18	0.11
Lepidoptera	Geometridae	<i>Zernyia granataria</i>	1.43	0.18	0.06
Lepidoptera	Hepialidae	<i>Triodia sylvina</i>	6.43	0.82	0.48
Lepidoptera	Lasiocampidae	<i>Dendrolimus pini</i>	0.71	0.09	0.06
Lepidoptera	Lasiocampidae	<i>Lasiocampa trifolii</i>	2.14	0.27	0.16
Lepidoptera	Lasiocampidae	<i>Streblote panda</i>	1.43	0.18	0.15
Lepidoptera	Lecithoceridae	<i>Eurodachtha canigella</i>	0.71	0.09	0.02
Lepidoptera	Lecithoceridae	<i>Homaloxestis briantiella</i>	0.71	0.09	0.04
Lepidoptera	Noctuidae	<i>Aedia leucomelas</i>	0.71	0.09	0.09
Lepidoptera	Noctuidae	<i>Agrotis bigramma</i>	0.71	0.09	0.04
Lepidoptera	Noctuidae	<i>Agrotis ipsilon</i>	25.00	3.20	4.84
Lepidoptera	Noctuidae	<i>Agrotis puta</i>	3.57	0.46	0.31
Lepidoptera	Noctuidae	<i>Agrotis segetum</i>	37.14	4.76	5.39
Lepidoptera	Noctuidae	<i>Agrotis spinifera</i>	3.57	0.46	0.45
Lepidoptera	Noctuidae	<i>Agrotis trux</i>	3.57	0.46	0.22
Lepidoptera	Noctuidae	<i>Amphipyra cinnamomea</i>	0.71	0.09	0.03
Lepidoptera	Noctuidae	<i>Anarta sodae</i>	1.43	0.18	0.42
Lepidoptera	Noctuidae	<i>Anarta trifolii</i>	0.71	0.09	0.14
Lepidoptera	Noctuidae	<i>Apamea epomidion</i>	2.14	0.27	0.12
Lepidoptera	Noctuidae	<i>Autographa gamma</i>	25.71	3.29	3.48
Lepidoptera	Noctuidae	<i>Calophasia platyptera</i>	0.71	0.09	0.03
Lepidoptera	Noctuidae	<i>Chrysodeixis chalcites</i>	2.86	0.37	0.55
Lepidoptera	Noctuidae	<i>Conistra ligula</i>	0.71	0.09	0.05
Lepidoptera	Noctuidae	<i>Cryphia pallida</i>	0.71	0.09	0.03
Lepidoptera	Noctuidae	<i>Ctenoplusia limbirena</i>	0.71	0.09	0.14
Lepidoptera	Noctuidae	<i>Cucullia calendulae</i>	1.43	0.18	0.23
Lepidoptera	Noctuidae	<i>Dichagyris forcipula</i>	0.71	0.09	0.05
Lepidoptera	Noctuidae	<i>Euxoa wagneri</i>	4.29	0.55	0.25
Lepidoptera	Noctuidae	<i>Helicoverpa armigera</i>	7.14	0.91	0.97

Lepidoptera	Noctuidae	<i>Heliothis peltigera</i>	2.86	0.37	0.71
Lepidoptera	Noctuidae	<i>Hoplodrina hesperica</i>	0.71	0.09	0.03
Lepidoptera	Noctuidae	<i>Leucania loreyi</i>	25.71	3.29	3.64
Lepidoptera	Noctuidae	<i>Mythimna languida</i>	1.43	0.18	0.19
Lepidoptera	Noctuidae	<i>Mythimna vitellina</i>	22.86	2.93	2.91
Lepidoptera	Noctuidae	<i>Noctua comes</i>	3.57	0.46	0.45
Lepidoptera	Noctuidae	<i>Noctua pronuba</i>	22.86	2.93	2.99
Lepidoptera	Noctuidae	<i>Peridroma saucia</i>	22.14	2.84	3.04
Lepidoptera	Noctuidae	<i>Phlogophora meticulosa</i>	0.71	0.09	0.05
Lepidoptera	Noctuidae	<i>Plusia festucae</i>	1.43	0.18	0.24
Lepidoptera	Noctuidae	<i>Sesamia nonagrioides</i>	0.71	0.09	0.18
Lepidoptera	Noctuidae	<i>Spodoptera ciliun</i>	3.57	0.46	0.33
Lepidoptera	Noctuidae	<i>Spodoptera exigua</i>	4.29	0.55	0.63
Lepidoptera	Noctuidae	<i>Spodoptera littoralis</i>	7.14	0.91	0.56
Lepidoptera	Noctuidae	<i>Thalpophila vitalba</i>	1.43	0.18	0.15
Lepidoptera	Noctuidae	<i>Thysanoplusia orichalcea</i>	0.71	0.09	0.05
Lepidoptera	Noctuidae	<i>Trichoplusia ni</i>	3.57	0.46	0.61
Lepidoptera	Noctuidae	<i>Xestia xanthographa</i>	1.43	0.18	0.08
Lepidoptera	Nolidae	<i>Earias insulana</i>	1.43	0.18	0.09
Lepidoptera	Nolidae	<i>Nola squalida</i>	5.71	0.73	2.13
Lepidoptera	Notodontidae	<i>Thaumetopoea pityocampa</i>	15.71	2.01	1.54
Lepidoptera	Oecophoridae	<i>Batia lambdella</i>	0.71	0.09	0.04
Lepidoptera	Oecophoridae	<i>Harpella forficella</i>	0.71	0.09	0.03
Lepidoptera	Plutellidae	<i>Plutella xylostella</i>	1.43	0.18	0.19
Lepidoptera	Praydidae	<i>Prays citri</i>	9.29	1.19	1.68
Lepidoptera	Praydidae	<i>Prays oleae</i>	9.29	1.19	0.76
Lepidoptera	Pterophoridae	<i>Amblyptilia acanthadactyla</i>	0.71	0.09	0.12
Lepidoptera	Pterophoridae	<i>Merrifieldia baliodactylus</i>	1.43	0.18	0.06
Lepidoptera	Pyralidae	<i>Apomyelois ceratoniae</i>	1.43	0.18	0.39
Lepidoptera	Pyralidae	<i>Bostra obsoletalis</i>	0.71	0.09	0.14
Lepidoptera	Pyralidae	<i>Cadra abstersella</i>	10.00	1.28	1.31
Lepidoptera	Pyralidae	<i>Cadra figulilella</i>	12.14	1.56	1.39
Lepidoptera	Pyralidae	<i>Cryptoblabes gnidiella</i>	7.86	1.01	1.21
Lepidoptera	Pyralidae	<i>Dioryctria mendacella</i>	1.43	0.18	0.14
Lepidoptera	Pyralidae	<i>Ematheudes punctella</i>	0.71	0.09	0.09
Lepidoptera	Pyralidae	<i>Epischnia illotella</i>	0.71	0.09	0.04
Lepidoptera	Pyralidae	<i>Euzophera pinguis</i>	0.71	0.09	0.09
Lepidoptera	Pyralidae	<i>Galleria mellonella</i>	2.86	0.37	0.27
Lepidoptera	Pyralidae	<i>Lamoria anella</i>	7.86	1.01	0.93
Lepidoptera	Pyralidae	<i>Oxybia transversella</i>	0.71	0.09	0.03
Lepidoptera	Pyralidae	<i>Phycitodes saxicola</i>	1.43	0.18	0.40
Lepidoptera	Tortricidae	<i>Crociosema plebejana</i>	2.86	0.37	0.19
Lepidoptera	Tortricidae	<i>Cydia fagiglandana</i>	15.71	2.01	1.02
Lepidoptera	Tortricidae	<i>Cydia splendana</i>	0.71	0.09	0.04

Lepidoptera	Tortricidae	<i>Epinotia thapsiana</i>	1.43	0.18	0.06
Lepidoptera	Tortricidae	<i>Eucosma conterminana</i>	3.57	0.46	0.20
Lepidoptera	Tortricidae	<i>Gypsonoma aceriana</i>	1.43	0.18	0.08
Lepidoptera	Tortricidae	<i>Pammene fasciana</i>	0.71	0.09	0.04
Lepidoptera	Tortricidae	<i>Pseudargyrotoza conwagana</i>	1.43	0.18	0.17
Lepidoptera	Yponomeutidae	<i>Zelleria oleastrella</i>	1.43	0.18	0.18
Neuroptera	Myrmeleontidae	<i>Distoleon tetragrammicus</i>	0.71	0.09	0.04
Orthoptera	Gryllidae	<i>Eumodicogryllus bordigalensis</i>	0.71	0.09	0.18
Trichoptera	Lepidostomidae	<i>Lepidostoma hirtum</i>	0.71	0.09	0.03