

MACROLEPIDOPTERA OF ZEMEN GORGE IN SW.-BULGARIA

(Julius GANEV)

Zemen gorge is situated in the south-west part of Bulgaria. River Struma runs through the gorge, dividing it in the Konjavo and Zemen mountains. The total length of the gorge is 15 km and it is 520 m wide. The vegetation is varied. Among the trees Quercus sp. predominate, and Junqlaneta regiae, Syringeta vulgaris, Juniperus sp., Cornus mas are present as well. The upper parts are denuded and eroded, only single Juniperus bushes are growing. The lower parts are overgrown with oak and other broad-leaved trees. There are groups of man-planted pines as well. The spaces along the river are occupied by mixed formations of willow and poplar. Some places along the river are occupied with meadow vegetation. There are neither marsh-lands nor marsh vegetation. The single moist place is the one situated around the Zemen waterfall and only there Lycaena dispar rutila Werneburg and Araschnia levana L. are found.

The Lepidoptera fauna of Zemen gorge has not been studied before. My investigation started in 1975, but the gorge was visited more regularly (at least monthly) in 1978-1982. 689 species of Macrolepidoptera were established in the period of the investigation, that is 48 % of the macrolepidopterous fauna of Bulgaria. The species new for the country and some of the rares ones have been reported in preliminary reports (GANEV 1980, 1981, 1982, 1983). The representatives of the families of Zygaenidae, Ctenuchidae and the group Rhopalocera were collected during the day, all over the gorge and the other families in the vicinity of the Skakavitza railway-station, situated in the middle part of the gorge, by means of a light source. Seven new species for the fauna of Bulgaria were established (GANEV 1980, 1981, 1982). These are : Abrostola agnorista Dufay, Nycteola siculana Fuchs, Eupithecia dodoneata Guenée, Dryobotodes carbonis Wagner, Lithophane leautieri Boisduval, Perizoma luqduanaria Herrich-Schäffer and Poecilocampa canensis Millière. A new species for the European fauna was established as well : Trichiura verenae Witt.

The division of the species into groups and families is as follows :

Rhopalocera	98
Sphinges and Bombyces	106
Zygaenidae	5
Sesiidae	1
Geometridae	205
Noctuidae	274
Total	689

The species can be classified into the following zoogeographical groups :

Eurosibirian and European	348	50,5 %
Mediterranean	250	36,3 %
Palaeartic	49	7,2 %
Holarctic	27	3,8 %
Subtropical and Cosmopolitan	13	1,9 %
Balkan endemics	2	0,3 %
Total	689	100,0 %

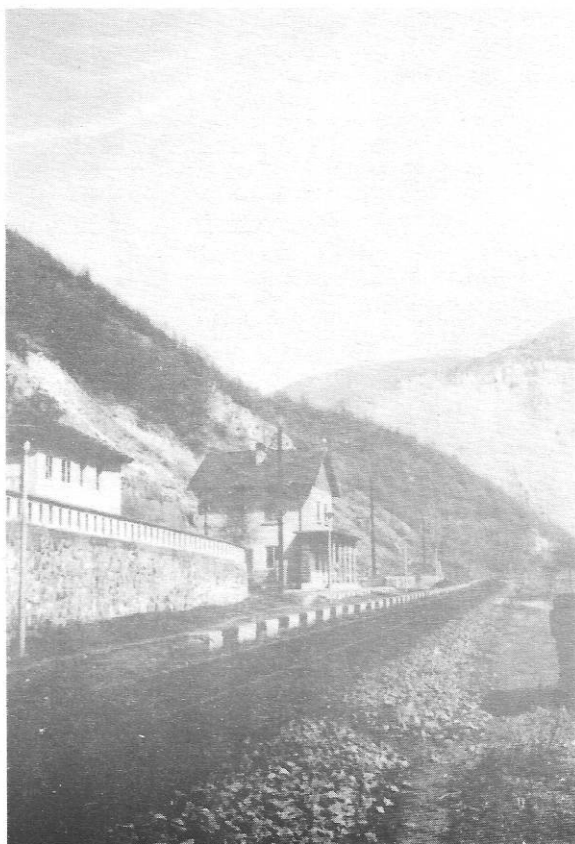


Fig. 1 : Skakavitza railway-station in Zemen gorge. (Foto B. ANEV, Sofia).

Balkan endemics are : Agrochola wolfschlagerei Boursin and Pseudoxestia apfelbecki Rebel. The most interesting of the species which have been found only in the valley of the river Struma are: Peridea korbi Rebel, Cryphia ochsi Boursin, Caradrina terrea Freyer and Praestilbia armenica Staudinger. The following species are usually distributed predominantly in the mountains between 700-1800 m : Perizoma hydrata Treitschke, Peribatodes secundaria Esper, Gnophos ambiguata Duponchel, Gnophos pullata Denis & Schiffermüller, Euxoa clavis Hufnagel, Chersotis multangula Hübner, Spaelotis senna Geyer, Hadena filigrama Esper and Mythimna comma L. A part of these species has been found on the Black Sea shore as well. Some of the species established in Zemen gorge are known in Bulgaria only from this single locality. The most interesting of these species are : Carcharodus orientalis Reverdin, Araschnia levana L., Thecla betulae L., Strymonidia w-album Knoch, Strymonidia pruni L., Cupido osiris Meigen, Iolana iolas Ochsenheimer, Poecilocampa populi L., Eriogaster rimicola Denis & Schiffermüller, Malacosoma castrensis L., Chlorissa cloraria Hübner, Idaea rubraria Staudinger and Cyclophora pendularia Clerck.

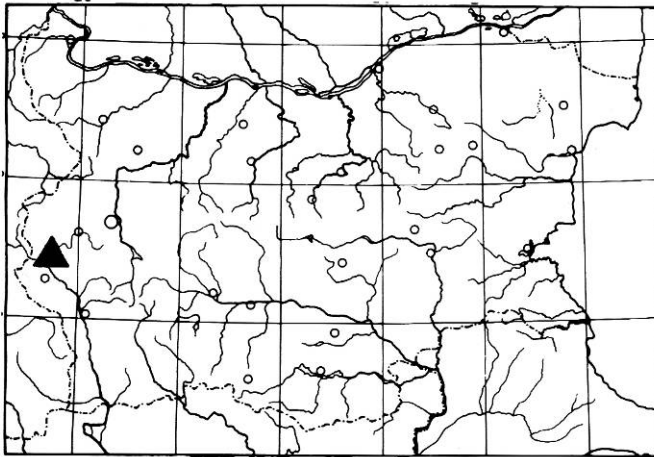


Fig. 2 : Map of Bulgaria showing the position of Zemen gorge.

In the following table all 689 species are recorded showing their flight period (3 = March, 4 = April (...)) 0 = October, 1 = November).

<u>HEPIALIDAE</u>			
Triodia sylvina L.		9 0	
<u>COSSIDAE</u>			
Zeuzera pyrina L.	6 7 8		
Cossus cossus L.	6 7		
Dyspessa ulula Barkhausen	5 6		
<u>ZYGAENIDAE</u>			
Jordanita chloros Hb.	7		
Zygaena ephialtes L.	7		
Zygaena filipendulae L.	7		
Zygaena loti D. & S.	6 7		
Zygaena purpuralis Pont.	6 7		
<u>LIMACODIDAE</u>			
Apoda limacodes Hufn.	5 6 7		
<u>SESIIDAE</u>			
Paranthrene tabaniformis Rott.	6		
<u>THYRIDIDAE</u>			
Thyris fenestrella Scop.	5 6 7		
<u>HESPERIIDAE</u>			
Thymelicus sylvestris Poda	6		
Thymelicus lineolus O.	6 7		
Thymelicus acteon Rott.	7		
Hesperia comma L.	6 7		
Ochloides venatus Br. & Grey	6		
Erynnis tages L.	4		
Carcharodus aiceae Esp.	6 7 8		
Carcharodus flocciferus Z.	6		8 9
Carcharodus orientalis Reverdin	6 8		
Spialia sertorius Hffmgg	5		
Pyrgus malvae L.	6		9
Pyrgus amoricanus Obth.	6		9
Pyrgus alveus Hb.	6		
Pyrgus serratulae Rbr	6		
Pyrgus sidae Esp.	6		
<u>PAPILIONIDAE</u>			
Parnassius mnemosyne L.	5 6		
Zerynthia polyxena D. & S.	5		
Zerynthia cerisyi ferdinandi Stich.	5 6 7		
Papilio machaon L.	6		
Iphiclides podalirius L.	4		7
<u>PIERIDAE</u>			
Leptidea sinapis L.	4		7 9
Leptidea duponcheli Stgr	7		
Colias hyale L.	6 7		
Colias alfaciariensis Berger.	6 7		
Colias crocea Geoffr.	6 7 8 9		
Gonepteryx rhamni L.	5 6		
Pieris brassicae L.	6 7		
Artogeia rapae L.	5 6 7 8		
Artogeia nepi L.	4 5 6		
Pontia daplidice L.	4 6		9
Anthocharis cardamines L.	4 5		
Euchloe crameri Btlr	6		
<u>NYMPHALIDAE</u>			
Nymphalis polychloros L.	3 4 6		
Nymphalis antiopa L.	4		7
Inachis io L.	4 5 6 7 8		

Vanessa atalanta L. 5 6 7 8 9
Cynthia cardui L. 5 6 7 9
Aglais urticae L. 4 5 6 7 8
Polygonia c-album L. 4 5 6 7 8
Araschnia levana L. 7
Argynnis paphia L. 4 6 7
Iseoria lathonia L. 6
Brenthis daphne D. & S. 6
Clossiana euphrosyne L. 6 7 8
Clossiana dia L. 5 6
Melitaea cirxia L. 6
Melitaea phoebe D. & S. 7
Melitaea didyma Esp. 6
Melitaea trivialis D. & S. 6
Mellicta aethalia Rott. 6

SATYRIDAE

Melanargia galathea L. 6 7
Melanargia larissa Geyer 6 7
Hipparchia fagi Scop. 6 7 8
Hipparchia semele L. 6 7 8
Hipparchia statilinus Hufn. 8 9
Chezara briseis L. 8
Brintesia circe F. 6 7
Arethusana arethusa D. & S. 7 8 9
Maniola jurtina L. 6 7 8
Hyponephele lycaon Kthn 7 8
Aphantopus hyperantus L. 5 6 7 8 9
Coenonympha pamphilus L. 5 6 7 8 9
Coenonympha arcania L. 6 7
Pararge aegeria L. 4 6
Lasiommata megera L. 5
Lasiommata maera L. 6 7
Kirinia roxelana Cramer 6 7

RIODINIDAE

Hamearis lucina L. 5

LYCAENIDAE

Callophrys rubi L. 4 5
Thecla betulae L. 9
Quercusia quercus L. 5 6 7
Nordmannia acaciae F. 6 7
Nordmannia ilicis Esp. 6
Strymonidia w-album Knoch 6
Strymonidia pruni L. 6
Lycaena dispar rutilla Wern. 8 9
Cupido minimus Fuessly 6 7 8
Cupido osiris Meig. 6
Everes alcetas Hffmgg 5 6
Everes decoloratus Stgr 5 6 7
Celastrina argiolus L. 4 6 8
Pseudophilotes baton Bgstr. 6
Scolitantides orion Pall. 5 6
Glaucopteryx alexis Poda 4 5 6
Maculinea alcon D. & S. 6
Iolana iolas O. 6
Plebejus pylaon sephirus Friv. 6
Plebejus argus L. 6 7 9
Lycaeides argyrognomon Bgstr. 6 7
Aricia agestis D. & S. 6 7
Cyaniris semiargus Rott. 6
Agrodiaetus admetus Esp. 6 7 8
Agrodiaetus ripartii Frr 7 8
Plebicula dorylas D. & S. 6
Lysandra coridon Poda 8 9
Lysandra bellangus Rott. 6 7 8 9
Meleageria daphnis D. & S. 6 7 8 9
Polymmatius icarus Rott. 5 6 7 8 9

LASIOCAMPIDAE

Poecilocampa populi L.	0	1
Poecilocampa canensis Mill.	0	1
Trichiura crataegi L.	9	
Trichiura vereneae witti Ganev	0	1
Eriogaster lanestris L.	3	
Eriogaster rimicola D. & S.	0	1
Malacosoma neustria L.	6	7
Malacosoma castrensis L.	7	
Laslocampa trifolii D. & S.	8	9
Macrotrochylacia rubi L.	5	
Dendrolimus pini L.	6	7
Phylloidesma tremulifolia Hb.	4	5
Gastropacha quercifolia L.	6	7
Odonestis pruni L.	6	7

LEMONIIDAE

Lemonia balcanica H.-S.	9	0
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SATURNIIDAE

Saturnia pyri D. & S.	5	
Eudia pavonia L.	3	4
Perisomena caecigena Kupido	9	0

DREPANIDAE

Drepana binaria Hufn.	6	7
Drepana falcataria L.	5	6
Gilix glauca Scop.	5	6

THYATRIDAE

Thyatira batis L.	6	9
Habrosyne pyritoides Hufn.	5	6
Tethea ocularis L.	5	6

Cymatophora diluta D. & S.

3 4

9 0

3 4

Polyploca ruficollis D. & S.

GEOMETRIDAEDenochrominae

Aisophila aescularia D. & S.	3	
Aisophila aceraria . & S.	3	

Geometrinae

Pseudoterpna pruinata Hufn.	6	7
Geometra papilionaria L.	6	
Comibaena bajularia D. & S.	6	
Hemithea aestivaria Hb.	7	8
Chlorissa viridata L.	5	6
Chlorissa cloraria Hb.	6	
Chlorissa pulmentaria Gn.	6	
Thetidia smaragdaria F.	5	7
Thalera fimbrialis Scop.	6	7
Hemistola chrysoprasaria Esp.	6	7
Eucrostes indigenata Vill.	6	8

Sterrhinae

Idea rufaria Hb.	7	
Idea ochrata Scop.	6	7
Idea aureolaria D. & S.	6	
Idea vulpinaria H.-S.	7	
Idea rusticata D. & S.	7	8
Idea filicata Hb.	6	7
Idea moniliata D. & S.	6	7
Idea sylvestraria Hb.	6	8
Idea obsoletaria Abr.	6	7
Idea biselata Hufn.	6	7
Idea dilutaria Hb.	6	8
Idea fuscovenosa Gze	6	7

Ideaa humiliata Hufn. 7
 Ideaa politata Hb. 7
 Ideaa consolidata Led. 6 7 9
 Ideaa seriata Schrank 6
 Ideaa camparia H.-S. 6 9
 Ideaa subsericeata Hw. 5 6 8 9
 Ideaa trigeminata Hw. 5 6
 Ideaa ostrinaria Hb. 5 6
 Ideaa aversata L. 6 8 9
 Ideaa rubraria Stgr 7 8
 Ideaa degeneraria Hb. 6 7 9 0
 Ideaa inornata Hw. 6 8 9 0
 Ideaa deversaria H.-S. 6 7 9 0
 Cyclophora pendularia Cl. 6 8
 Cyclophora albicellaria Hb. 5 8
 Cyclophora annulata Schultze 5 6
 Cyclophora pupillaria Hb. 4 6 8 9
 Cyclophora ruficiliaria H.-S. 4 6 8 9
 Cyclophora quercimontaria Best. 5 6 8 9
 Cyclophora porata L. 5 8 9
 Cyclophora punctaria L. 4 6 8 9
 Cyclophora subpunctaria Z. 3 4 5
 Cyclophora linearia Hb. 5 7 8 9
 Timandra griseata Pet. 5 8
 Scopula nigropunctata Hufn. 5 7 8 9
 Scopula ornata Scop. 5 6 7 8
 Scopula submutata Tr. 6 8 9
 Scopula decorata D. & S. 7 9 0
 Scopula rubiginata Hufn. 5 6 7 8 9 0
 Scopula ochraceata Stgr 5 6 8 9 0
 Scopula marginepunctata Gze 5 6 7 8 9
 Scopula incanata L. 5 6 8 9 0
 Glossotrophia confinaria H.-S. 5 6 7 8 9
 Rhodostrophia vibicaria Cl. 6 7 8
 Rhodostrophia tabidaria Z. 5 7 8

Larentiinae

Lythria purpuraria L. 8
 Lythria purpurata L. 5
 Larentia clavaria Hw. 8
 Scopteryx moenata Scop. 3 4 5 6 7 8 9
 Scopteryx roesleri Vojnits 6
 Scopteryx bipunctaria D. & S. 5 6 8 9 0
 Minoa murinata Scop. 5 6 9 0
 Schistostege decussata D. & S. 0 1
 Aplocera plagiata L. 0 1
 Operophtera fagata Scharf. 0 1
 Operophtera brumata L. 0 1
 Epirrita dilutata D. & S. 0 1
 Philereme vetulata D. & S. 7
 Philereme transversata Hufn. 7
 Eulithis pyraliata D. & S. 6 7
 Cidaria fulvata Forster 6 7
 Thera juniperata L. 0
 Chloroclysta siterata Hufn. 0 1
 Dysstroma citrata L. 7
 Xanthorhoe fluctuata L. 3 4 5 6 8 9 0
 Xanthorhoe ferrugata L. 5 6 7 8 0
 Orthonama obstipata F. 4 6
 Colostigia pectinataria Knoch 3
 Colostigia ablutaria Bsd. 5 6 7 8 9
 Lamproteryx ocellata L. 4
 Nebulia derivata D. & S. 4 8 9
 Euphyia frustata Tr. 7
 Euphyia putridaria H.-S. 6
 Euphyia permixtaria H.-S. 6
 Euphyia unicata Gn. 6 8 0
 Euphyia bilineata L. 5 6 7 8
 Melantheria procellata D. & S. 7
 Epirrhoe tristata L. 5 8 9
 Epirrhoe alternata Müll. 5 8 9

Epirhoe galiata D. & S.	6	7	8	9	
Perizoma alchemillata L.		7			
Perizoma hydrata Tr.			8		
Perizoma lugdunaria H.-S.	6		8	9	
Perizoma bifasciata Hw.			8	9	
Perizoma albulata D. & S.	5	6			
Hydriomena furcata Thnbg			7		
Anticlea badiata D. & S.	3	4			
Cataclisme rigueta Hb.	5	6			
Hydrelia flammeolaria Hufn.	6				
Asthena albulata Hufn.	5	6	7		
Eupithecia haworthiata Dbld.	5	7			
Eupithecia linariata F.	6				
Eupithecia pyreneata Mab.	4				
Eupithecia venosata F.	6				
Eupithecia schierereri Boh.	6				
Eupithecia centaureata D. & S.			8	9	
Eupithecia trisignaria H.-S.		7			
Eupithecia vulgata Hw.	6				
Eupithecia subfuscata Hw.	5	6	7		
Eupithecia semigraphata Bruand	6				
Eupithecia distinctaria H.-S.	6		8		
Eupithecia gemellata H.-S.		7			
Eupithecia pimpinellata Hb.			8	0	
Eupithecia nanata Hb.				0	
Eupithecia innotata Hufn.				8	9
Eupithecia ochridata Pinker	4				
Eupithecia dodonaea Gn.	4	5			
Eupithecia ericeata Rbr.				9	0
Eupithecia adscriptaria Stgr	4	5			
Gymnoscelis rufifasciata Hw.				0	1
Chloroclystis v-ata Hw.	5	7			
Calliclystis rectangularata L.	5	6	7	8	9
Honisme vitalbata D. & S.	4	5	6	7	8
Honisme corticata Tr.	5	6	8	9	
Honisme tensata D. & S.	5	6	7	8	9

Boarmiinae

Lomaspilis marginata L.	5	6			
Ligdia adustata D. & S.	5				
Aleucis distinctata H.-S.	3	4	5		
Stegania dilectaria Hb.		5	6	8	
Cabera pusaria L.		5	6	7	8
Cabera exanthemata Scop.		6	8	9	
Plagiodis dolabraria L.	5				
Ellopia prasinaria Hb.		7			
Campaea margaritata L.	5	6	8	9	0
Ennomos quercinaria Hufn.			7	8	
Deuteronomos fuscartaria Stph.	6	7			0
Deuteronomos rosaria D. & S.	6	7	9	0	1
Deuteronomos quercaria Hb.				9	
Eumera regina Stgr				8	9
Selenia dentaria F.	5	7	8		
Selenia lunularia Hb.	3	4	5	6	7
Artiona evonymaria D. & S.	3	4	5		9
Dasyorsa modesta Stgr					
Colotois pennaria L.	3	4	5		
Crocallis tusciana Bkh.				9	0
Crocallis elinguararia L.				8	9
Ourapteryx sambucaria L.			7		
Opisthopteryx luteolata L.	5			9	
Epione repandaria Hufn.		6			
Lithina chlorosata Scop.	5	6			
Therapis flavicaria D. & S.	5	6	7	8	9
Pseudopanthea macularia L.	5				
Ellicrinia cordiaria Hb.	5	6			8
Ellicrinia trinotata Mentzer	5				8
Macaria notata L.	6				9
Macaria alternaria Hb.	5	6	7	8	9
Macaria liturata Cl.				7	
Chiasmia clathrata L.	4	5	6	7	
Chiasmia glarearia Brahm	5	6	7	8	
Proutictis artemisia D. & S.	6	7	8	9	

Phecia tremula Cl. 5 6 7 8 9
 Ptilophora plumigera D. & S. 1
 Pterostoma palpina Cl. 5 6 7 8 9
 Ptilodontella cucullina D. & S. 7
 Eligmodontia ziczac L. 5 6 7 8
 Clostera curtula L. 4 5 6 8
 Clostera anastomosis L. 5
 Clostera pigra Hufn. 8
 Clostera pigra Hufn. 5
 DILOBIDAE
 Diloba caeruleocephala L. 0 1

THAUMETOPOEIDAE

Thaumetopoea pityocampa D. & S. 7 8 9
 Thaumetopoea processionea L. 8 9

LYMANTRIIDAE

Elkneria pudibunda L. 5 6
 Euproctis chrysoorrhoea L. 6
 Leucoma salicis L. 6
 Arctornis l-nigrum MULL. 6
 Lymantria monacha L. 6 7 8 9
 Lymantria dispar L. 6 7 8 9

ARCTIIDAE

Miltchrista miniata Forster 6 7 8 9
 Atolmis rubricollis L. 6 7
 Eilema sororcula Hufn. 5 6 7
 Eilema caniola Hb. 9
 Eilema morosira H.-S. 8 9
 Eilema pygmaeola pallifrons Z. 7
 Eilema palliatella Scop. 7 8 9
 Eilema complana L. 6 7 8 9
 Eilema lurideola Zck. 6 7 8 9

Lithosia quadra L. 6 7 8
 Arctia villica L. 5 6 7
 Onogyna parasita Hb. 3 4
 Spiilosoma lubricipeda L. 5 6 8 9
 Spiilosoma luteum Hufn. 5 6 7 8
 Diaphora mendica Cl. 5
 Diaphora luctuosa Geyer 5
 Phragmatobia fuliginosa L. 5 6 7 8 9
 Phragmatobia placida Friv. 5
 Eucharia casta Esp. 5 6
 Callimorpha quadripunctaria Pada 8 9

CTENUCHIDAE

Syntomis phegea L. 6 7
 Syntomis marjana Stauder 5 6 7
 Dysauxes ancilla L. 6 7
 Dysauxes famula Fr. 8 9

NOLIDAE

Meganola togatalalis Hb. 6 7
 Nola cucullatella L. 7
 Nola confusalis H.-S. 6 7 8 9
 Nola cicatricalis Tr. 4
 Nola chlamytulalis Hb. 6

NOCTUIDAE

Noctuinae
 Euxoa obelisca D. & S. 9
 Euxoa tritici L. 8 9
 Euxoa distinguenda Led. 9
 Euxoa aquilina D. & S. 9
 Euxoa cos Hb. 8 9
 Agrotis cinerea D. & S. 5 6
 Agrotis segetum D. & S. 6 7 8 9

Mythimna pallens L.	5 6 7	9	Antitype chi L.	9
Mythimna l-album L.	6 7 8 9 0	0 1	Ammoconia caecimacula D. & S.	0 1
Mythimna sicula scirpi Dup.	7 8 9	0 1	Ammoconia senex Geyer	0 1
Mythimna gamma L.	7	0 1	Eupsilia transversa Hufn.	3 4
		0 1	Jodia croceago D. & S.	3 4 5
<u>Cucullinae</u>		0 1	Conistra vaccinii L.	3 4
Cucullia chamomillae D. & S.	5	0 1	Conistra ligula Esp.	0 1
Cucullia umbratica L.	6 7	0 1	Conistra rubiginosa Scop.	0 1
Cucullia scopariae Dorfmeister	9	0 1	Conistra veronicae Hb.	0 1
Cucullia celsiae H.-S.	5	9 0 1	Conistra rubiginea D. & S.	3 4 5
Cucullia thesiphaga Tr.	6	0 1	Conistra erythrocephala D. & S.	3 4
Cucullia verbasci L.	7	0 1	Agrochola circumcellaris Hufn.	0 1
Calophassia lunula Hufn.	7	0 1	Agrochola lota Cl.	0 1
Copiphana olivina H.-S.	5 6	0 1	Agrochola macilentata Hb.	0 1
Episema terea D. & S.	0	0 1	Agrochola nitida D. & S.	9 0
Episema korsakovi Christoph	0	0 1	Agrochola helvola L.	0 1
Episema scoriacea Esp.	9	0 1	Agrochola humilis D. & S.	0 1
Brachionycha sphinx Hufn.	0 1	9 0	Agrochola litura L.	9 0
Brachionycha nubeculosa Esp.	3 4	0 1	Agrochola wolfschlagerei Boursin	0 1
Aporophya luteolata D. & S.	0	0 1	Agrochola lychmidis D. & S.	0 1
Scotochrosta pulla D. & S.	9 0	9 0 1	Agrochola laevis Hb.	9 0 1
Lithophane ornitopus Hufn.	3 4	0	Parastichtis suspecta Hb.	6 7
Lithophane leautieri Bsd.	0	0	Atethmia centrago Hw.	0
Meganephria bimaculosa L.	0	0	Atethmia ambusta D. & S.	9
Allophyes oxyacanthae L.	0 1	9 0 1	Xanthia aurago D. & S.	9 0 1
Thecophora fovea Tr.	0	0	Xanthia fulvago Cl.	9 0
Valeria oleagina D. & S.	3 4	0 1	Xanthia togata Esp.	0
Dichonia aprilina L.	9 0 1	0 1	Xanthia gilvago D. & S.	0
Dichonia convergens D. & S.	0 1	0 1	Xanthia ocellaris Bkh.	9 0
Dichonia aeruginea Hb.	0	0	Xanthia citrago L.	9
Dryobotodes eremita F.	0 1	0 1	<u>Acronictinae</u>	
Dryobotodes carbonis Wagner	9 0 1	0 1	Colocasia coryli L.	3 4 5 6 7 8
Dryobotodes monochroma Esp.	8 9	9	Moma alpinum Osbeck	5 6
Polymixis polymita L.	0	0	Acronicta megacephala D. & S.	5 6 7 8 9
Polymixis flavocincta D. & S.	0	0 1	Acronicta aceris L.	5 6 7
Polymixis rufocincta Geyer	0 1	0 1		

Acronicta tridens D. & S.	5 6 7 8		Apamea lithoxyloea D. & S.	6 7
Acronicta psi L.	5 6 7 8 9		Apamea sordens Hufn.	5 6
Acronicta auricoma D. & S.	8		Apamea scolopacina Esp.	7
Acronicta euphorbiae D. & S.	5 8 9		Apamea ophiogramma Esp.	7
Craniophora ligustri D. & S.	5 6 7 8		Oligia strigilis L.	6 7
Cryphia algaeae F.	7 8		Oligia latruncula D. & S.	6 7
Cryphia ochsi Boursin	8		Mesoligia furuncula D. & S.	8 9
Cryphia ereptricula Tr.	6 7 8		Mesapamea secalis L.	6 7 8 9
Cryphia rectilinea Warren	8		Luperina rubella Dup.	8 9 0
Cryphia raptricula D. & S.	8 9		Gortyna flavago D. & S.	9 0
Cryphia muralis Forster	8 9		Archanara sparganii Esp.	8
<u>Amphipyriinae</u>			Arenostola phragmitidis Hb.	7
Amphipyra pyramidea L.	7 8 9 0		Charanyca trigammica Hufn.	5 6
Amphipyra berbera Rungs	7 8 9		Pseudoxestia apfelbecki Rebel	5 6 7
Amphipyra tragopoginis Cl.	0		Hoplodrina alsines Brahm	6 7 8 9
Amphipyra micans Led.	8		Hoplodrina blanda D. & S.	8
Dypterygia scabriuscula L.	5 6		Hoplodrina respersa D. & S.	6 7
Rusina ferruginea Esp.	7		Hoplodrina ambigua D. & S.	5 6 7 8 9 0
Polyphaenis subsericata H., -S.	8 9		Spodoptera exigua Hb.	8
Thalopophila matura Hufn.	8 9		Caradrina terrea Frr	8 9
Phlogophora metuclosa L.	4 5 7 8 9		Caradrina aspersa Rbr	5 7 8 9
Callopietria latrelillei Dup.	9 0		Caradrina kadenii Frr	0
Ipimorpha retusa L.	6 7 8 9		Caradrina selini Bsd.	6 7
Ipimorpha subtusa D. & S.	6 7 8		Caradrina flavirena Gn.	5 8 9 0
Energia ypsillon D. & S.	6 7 8 9		Caradrina clavipalpis Scop.	8 9
Dicycla oo L.	6 7 8		Præstilbia armeniaca Stgr	9
Cosmia affinis L.	7 9		Panemeria tenebrata Scop.	7
Cosmia diffinis L.	6 7 8		<u>Heliothinae</u>	
Cosmia confinis H., -S.	7 8		Heliothis viriplaca Hufn.	5 6
Cosmia trapezina L.	6 7 8 9 0		Heliothis maritima Grasl.	6
Cosmia pyralina D. & S.	8		Heliothis peltigera D. & S.	6 7
Actinotia polyodon Cl.	8		Heliothis armigera Hb.	7 9
Actinotia radiosa Esp.	6		Protoschinia scutosa D. & S.	7
Actinotia hyperici D. & S.	4 5 8 9		Rhodocleptiria incarnata Frr	5 6
Apamea monoglypha Hufn.	7		Pyrrhia umbra Hb.	5 6 7 8 9

Periphenes victorina Sodoff	6		
Axylia putris L.	5		7
<u>Acontiinae</u>			
Melipotis suava Hb.	7		0
Eublemma parva Hb.	7		8 9 0
Eublemma purpurina D. & S.	9		9
Eublemma polygramma Dup.	9		9
Calymma communimacula D. & S.	8 9		9
Emmelia trabealis Scop.	5 6		8 9
Acontia lucida Hufn.	8		7 8 9
<u>Euteliinae</u>			
Eutelia adulatrix Hb.	6		4 5 6
<u>Sarothripinae</u>			
Nycteola revayana Scop.	6		6 7 8 9
Nycteola sicilana Fuchs	6		5
Nycteola asiatica Krul.	3 6		5 6
<u>Chloephorinae</u>			
Earias chlorana L.	5 6		5 6 7 8 9 0
Earias vernana F.	8		6 7 8 9 0
Bena prasinana L.	6 7 8 9		5 6 8
Pseudoips fagana F.	5		5 7 7 8
<u>Plusiinae</u>			
Abrostola triplasia L.	5 6 7 8 9		7 7 8
Abrostola asclepiadis D. & S.	5 6 7		6 7 8 9 0
Abrostola trigemina Wern.	5 6		6 7 8
Abrostola agnorista Dufay	7 8 9		6 8
Diachrysis chrysis L.	6 7 8		7 8
Macdunnoughia confusa Stph.	5 6 7		6 7 8 9 0
Autographa gamma L.	5 6 7 8 9 0 1		6 7 8
Chrysoideixis chaicites Esp.	9		6 7 9
<u>Catocalinae</u>			
Catocala sponosa L.			7
Catocala fraxini L.			8 9 0
Catocala nupta L.			9 0
Catocala elocata Esp.			7 9
Catocala promissa D. & S.			9
Catocala electa Esp.			9
Catocala lupina H.-S.			8 9
Catocala puerpera Giorna			7 8
Catocala nymphagoga Esp.			7 8 9
Catocala hymenaea D. & S.			4 5 6
Minucia lunaris D. & S.			6 7 8 9
Dysgonia algira L.			5
Callistege mi Cl.			5 6
Euclidia glyphica L.			5 6 7 8 9
Euclidia triquetra D. & S.			5 6 7 8 9
<u>Ophiderinae</u>			
Aleucanitis callino Lefebvre			6 7
Aedia funesta Esp.			5 6 7 8
Tyta luctuosa D. & S.			5 6 7 8 9 0
Lygephila cracca D. & S.			6 7 8 9 0
Lygephila limosa Tr.			5 6 8
Scoliopteryx libatrix L.			5 7
Calyptra thalictri Bkh.			7 8
Laspeyria flexula D. & S.			7 8
Parascotia fuliginaria L.			7
Epizeuxis calvaria D. & S.			6 7 8 9 0
Phytometra viridaria Cl.			6 7 8
Rivula sericealis Scop.			6 8
<u>Hypeninae</u>			
Simplicia rectalis Ev.			7
Orectis proboscidata H.-S.			5
Herminia barbalis Cl.			6 7 9

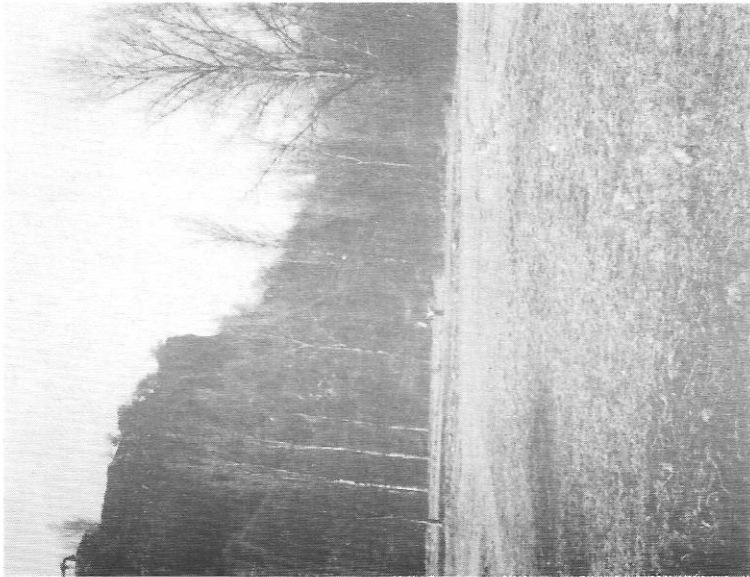


Fig. 3 : Damp meadows around Zemen waterfall. In this locality Lycaena dispar rutila, Glossiana dia and Araschnia levana are found.

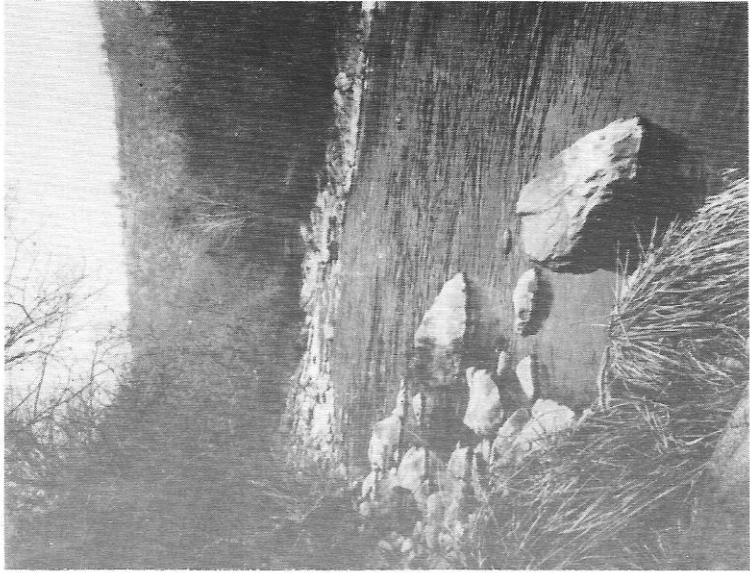


Fig. 4 : Zemen gorge, river Struma.

Herminia tarsipennalis Tr.	6	0
Herminia lunaris Scop.	6	7 8
Paracolax derivalis Hb.	6	7 8 9
Hypena rostralis L.	4	7 9 0
Hypena proboscidalis L.	5	6 9
Rhynchodontodes antiqualis Hb.	6	7 8 9

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Samenvatting : De auteur heeft in de periode van 1978-1982 de Macrolepidoptera-fauna van de Zemen kloof in Zuidwest-Bulgarije bestudeerd. In totaal werden 689 soorten vastgesteld waarvan er 7 nieuw waren voor de Bulgaarse fauna en zelfs 1 nieuw voor Europa (Trichiura verenae Witt). Twee soorten zijn endemisch in de Balkan : Agrochola wolfschlagerei Boursin en Pseudoxestia apfelbecki Rebel. De auteur geeft aan welke soorten hoofdzakelijk in het dal bij de rivier Struma vliegen, welke het meest worden aangetroffen in de bergen tussen 700 en 1800 m en ten slotte vermeldt hij dat enkele soorten (vooral Rhopalocera) enkel in dit gebied en niet elders in Bulgarije worden aangetroffen.

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