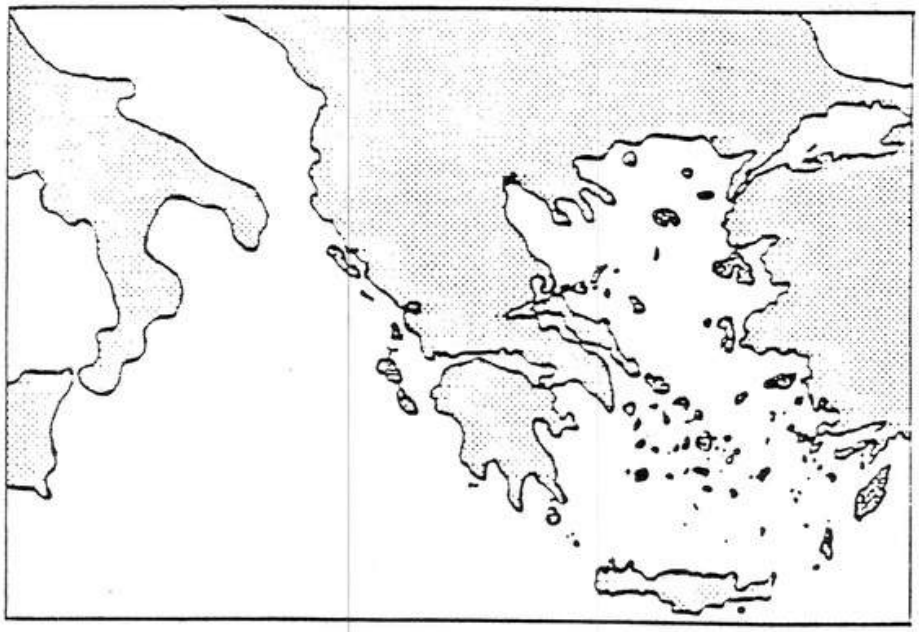
4eme CONGRES INTERNATIONAL DE ZOOGEOGRAPHIE ET ECOLOGIE DE LA GRECE ET DES REGIONS AVOISINANTES

4th INTERNATIONAL CONGRESS ON ZOOGEOGRAPHY AND ECOLOGY OF GREECE AND ADJACENT REGIONS

4ο ΔΙΕΘΝΕΣ ΣΥΝΕΔΡΙΟ ΖΩΟΓΕΩΓΡΑΦΙΑΣ ΚΑΙ ΟΙΚΟΛΟΓΙΑΣ ΤΗΣ ΕΛΛΑΔΑΣ ΚΑΙ ΤΩΝ ΓΕΙΤΟΝΙΚΩΝ ΠΕΡΙΟΧΩΝ

Kammena Vouria 20-25. IV. 1987



ΕΛΛΗΝΙΚΗ ΖΩΟΛΟΓΙΚΗ ΕΤΑΙΡΕΙΑ
SOCIETE ZOOLOGIQUE HELLENIQUE - HELLENIC ZOOLOGICAL SOCIETY

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S O M M A I R E

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P R O G R A M M E

(10 avril 1987)

20.04.1987 Lundi

16h-19h Accueil. Enregistrement dès participants

21.04.1987 Mardi

9h-10.30 Accueil. Enregistrement des participants

SESSION D OUVERTURE DU CONGRES

10.30-11h Allocutions d'ouverture:
- Le Préfet de Phthiotis, M.Panoutsos J.
- Le Maire de Kammena Vourla, M.Kephalas D.
- Le Représentant du Ministère de la Culture et des Sciences
- Le Président de la Société Zoologique Hellénique, Prof.Krimbas C.

11h-11.30 Ouverture solennelle des Travaux par le Secrétaire de la Direction de l'Environnement du Ministère de l'Environnement, l'Aménagement et les Travaux Publics, M.Bourkas
Compte-rendu du Président du Comité d'Organisation, Prof. Matsakis J.

11.30-12h Apéritif

I. PALEOGEOGRAPHIE-PALEOECOLOGIE

SESSION SPECIALE No 1

12h-12.45 Conférence par le Prof. DEMARCQ G.- Considérations paléogéographiques et paléoécologiques sur la province égéenne et observations à partir des faunes des mollusques actuels et fossiles.

12.45-14h TABLE RONDE, DISCUSSION: DEMARCQ G.,ASPOCK H. MITROVIC-PETROVIC J.,RIEDEL A.

16h-16.45 Président de séance: DEMARCQ G.

MITROVIC-PETROVIC J.-Le genre *Eupatangus* (Echinoidea) dans les sédiments éogènes en Yougoslavie et caractéristiques paléobiogéographiques et paléoécologiques.
ANASTASSOPOULOU O.,MARCOPOULOU-DIACANTONI A, MIRKOU M.R.,PAPAGEORGIOU Ch.-Reconstitution d'un paysage ancien au N.E. du Peloponnèse,interprétations paléoécologiques.
MARCOPOULOU-DIACANTONI A.- *Porites sp.* Un des derniers représentants des madréporaires hermatypiques dans le domaine hellénique.

II. ZOOGEOGRAPHIE ET ECOLOGIE MARINE

16.45-18h - Président de séance: TURKAY M.

PAPACONSTANTINOU C.-Distribution of the lessepsian fish migrants in the Aegean sea.
ZENETOS A, BEI F.-Preliminary studies on the community structure of Macrozoobenthos in the Gulf of Atalanti, Greece.
STERGIOU I.K.-Cephalopod abundance in Greek waters in relation to environmental variations.
OKTEM N.,ENGIN D.-L'effet de la pollution sur certains Dinoflagellés dans les eaux de la Baie d' Izmir.
PANAGOPOULOS D.-Notes on some Bryozoa from Keratsini Bay(N.Saronicos Gulf).Correlation between the colony's form and the organic material in the sediment.

18h-18.30 Pause, café

SESSION SPECIALE No 2

18.30-19.30 TABLE RONDE. DISCUSSION: ELEFTHERIOU A.,TURKAY M., DEMARCQ G.

19.30-20.30 Conférence par MM.TURKAY M. et ELEFTHERIOU A.

22.04.1987 Mercredi

III. EAUX INTERIEURES

9h-10.15 Président de séance: DEMARCQ G.

BIANCO P.G.-The paleohistory of Mediterranean basin and some hypotheses on the early dispersion of fresnwater fishes in southern Europe.
MALICKY H.-The miraculous island of Serifos: One possible key for understanding the evolution of mediterranean streams.

Président de séance: BIANCO P.G.

SIVEC I.-The Stonefly fauna of Yugoslavia within the Balcan peninsula.
ZARFDJIAN M.H.,ECONOMIDIS P.S.-Les Rotifères, Cladocères et Copépodes des eaux continentales grecques.
TURKAY M.-First freshwater crab record from the N. Sporades.

IV.ECOSYSTEMES DELTAIQUES

10.15-11.30 Président de séance: MALICKY H.

LOSING J.,WAGNER H.-J.-The natural factors conditioning Greek Delta ecosystems.
SZIJJ J.-The grasshopper fauna(Orthoptera)of Greek Deltas from ecological and biogeographical perspective.
KESSLER H.,PLATZEK K.-Contribution to the ecology and distribution of Coleoptera in Greek estuaries
BORSCZ G.-Contribution to the ecology and distribution of butterflies in Greek estuaries.
HEMMER G.,KORDGES T.-Distribution of Amphibians in Greek estuaries in respect to their ecological niches.

11.30-12h Pause, café

SESSION SPECIALE No 3 (Ecosystemes mediterraneens)

12h-13h Conférence par le Prof.LAMOTTE M.

13h-14h TABLE RONDE, DISCUSSION: LAMOTTE M.,BLONDEL J., MALICKY H.,SZIJJ J.

IV.ECOSYSTEMES DELTAIQUES (suite)

16h-16.30 Président de séance: SZIJJ J.

KORDGES T.,HEMMER G.-Studies on reptiles in Greek Delta areas.

GOUTNER V.,JERRENTRUP H.-The avifauna of eleven Ramsar wetlands and application of protective management

V. ZOOGEOGRAPHIE, a.Grandes regions

16.30-18h Président de séance: BLONDEL J.

ASPOCK H.-The Rhaphidioptera of the Eastern Mediterranean - A zoogeographical analysis.

VASIC V.-Some characteristics of the zoogeographical boundaries in Balkan peninsula on the example of avifauna.

SIMIC S.,GLUMAC S.-Zoogeographical consideration of Syrphid fauna (Insecta: Diptera)on the Balkan peninsula.

CURCIC B.P.M.-The origin and evolution of cave Pseudoscorpions of the Dinaric and Carpatho-Balkanic karst.

MARCUZZI G.-Biogeographical considerations on Tenebrionid fauna of Greece and near islands.

18h-18.30 Pause, café

SESSION SPECIALE No 4 Protection

18.30-20.30 TABLE RONDE, DISCUSSION

23.04.1987 Jeudi

V.ZOOGEOGRAPHIE, b.Sous-regions et secteurs

9h-11.30 Président de séance: ASPOCK H.

LIENHARD C.-Inventaire préliminaire des Psoques de la Grèce (Insecta: Psocoptera).

BURCKHARDT D.-The jumping plant lice or Psyllids (Homoptera, Psylloidea) from Greece.

PETRAKIS P.,DROSOPOULOS S.-Objective methods of analysis and dissection of plant-insect relationships: Greek Pentatomidae and their host plants.

RIEDEL A.-Zonitidae (Gastropoda terrestria) de la Macédoine orientale et de la Thrace.

TRIHAS A.,LEGAKIS A.-General considerations on the distribution of Coleoptera in the Aegean islands.

Président de séance: RIEDEL A.

LEGAKIS A.-Preliminary zoogeographical analysis of Crete.

KEYMAR P.F.-Spreading ratterns of Amphibians and Reptiles in the Ionian region.

TSUNIS C., FRUGIS S.-Zoogeographical notes on the birds of Greece.

HALLMANN B.-Status and distribution of the genus *Aquila* in Greece.

TODOROVIC M.,DUNDJERSKI Z.,SOLDATOVIC B.-Distribution of the mole species *(Talpa)* in the south-west region of the Balkans.

MATSAKIS J.-A propos de l'endémisme insulaire égéen: convergences et divergences.

11.30-12h Pause, café

SESSION SPECIALE No 5(Inventaires faunistiques)

12h-14h TABLE RONDE, DISCUSSION

V. ZOOGEOGRAPHIE, c.Variation geographique. Speciation

16h-17h Président de séance: OZETI N.

AYOUTANTI A., KRIMBAS C.,TSAKAS S.,MYLONAS M.-Genetic differenciation and speciation in the Greek Archipelago: the genus *Albinaria*.

MYLONAS M.,AYOUTANTI A.,TSAKAS S.,KRIMBAS C.-The genus *Albinaria*, is there any true species?

PARAGAMIAN K.,GALANOPOULOS V.K.,LEGAKIS A.,SPANAKIS E.-Ecological, electrophoretic and electron microscope investigations on *Schizidium perplexum* (Isopoda) of Crete.

OZETI N.,CEVIK E.,ARIKAN H.-On the variation of the morphological and serological characteristics of some turkish *Ophisops elegans macrodactylus* (Lacertidae, Reptilia) populations.

VI. ECOLOGIE, a.Ecosystemes, biocenoses, peuplements

17h-18h Président de séance: LAMOTTE M.

TSIOURLIS G.-Production de litière des principales espèces végétales d'un maquis à *Juniperus phoenicea* (Naxos, Cyclades).

MARMARI A.,RADEA K.-Comparative study of seasonal variation of the soil Arthropods in two insular pine forests(Skopelos, N.Euboea).

MATSAKIS J.,TSIOURLIS G.,KARAMAOUNA M.,MARMARI A.-Production de litière et évolution de la faune du sol dans quelques écosystèmes insulaires(Egée).

CURCIC B.P.M.-Edaphism and cave living Pseudoscorpions.

18h-18.30 Pause, café

SESSION SPECIALE No 6 (Colonisation des îles)

18.30-19.30 Conférence par M.BLONDEL J.-Aspects historiques, biogéographiques, écologiques et génétiques de la colonisation des îles de la Méditerranée par les Vertebrés.

19.30-20.30 TABLE RONDE, DISCUSSION: BLONDEL J.,MALICKY H., RIEDEL A.

20.30-21.30 Présentation commentée de diapositives, par SCHMALFUSS H.- Santorini : Life on an Aegean volcano.

24.04.1987 Vendredi

V. ZOOGEOGRAPHIE, d.Composition de faunes locales

9h-10h Président de séance: CURCIC B.P.M.

GITTENBERGER E.

SACCHI C.F.-Les taxicénoses des Gastéropodes dunicoles de Sardaigne: Isolement dans l'isolement.

BOTSARIS I.-Preliminary report on the zoogeography of the molluscs of islands of Saronic Gulf.

VARDINOYANNIS K.,MYLONAS M.-Contribution to the malacofauna of Rodopos peninsula (Crete).

BOZICIC B.-Mountain fauna and zoogeographical analysis of mosquitoes inhabiting the area from Paninian depression to the Adriatic sea.

DUPONT F.-Biogéographie des Monogènes du genre *Dactylogyrus*, parasites des poissons Cyprinidae de Macédoine centrale et occidentale(Grèce).

V. ECOLOGIE (suite)

9h-10.45 (Salle B) Président de séance: LAMOTTE M.

RADEA K.,MARMARI A.-Comparative study of seasonal variations of the litter production in two insular pine forests (Skopelos, N.Euboea).

MAGGIORIS S.-The Arthropod fauna of the soil on Ikaria island (Aegean sea, Greece).

KATSADORAKIS G.,PETRAKIS P.-A multivariate approach to the analysis of biotops structure with special reference to their avifauna in Prespa region, N.W. Greece.

V. ECOLOGIE, b. Espèces et populations, divers

KARAMAOUNA M.-Aspects of ecology of *Polyxenus lagurus* (Diplopoda) in mediterranean conifer formations in Greece.

DZUKIC G.-Remarks on distribution and protection problems of the Mosor like lizard *Lacerta morosensis*.

VALAKOS E.,VLAHOPANOS A.-Note on the ecology of *Cyrtodactylus kotschyi*(Reptilia, Gekkonidae) in an insular ecosystem of Aegean.

MERTZANIS G.-Quelques données sur l'état des populations et l'écologie de l'ours brun dans le N.W de la Grèce.

VII. SUJETS DIVERS ET SPECIAUX(Biologie,ecologie, faunistique,etc)

10h-11.30 Président de séance: GITTENBERGER E.

ASPOCK U.-What we know and what we don't know about *Isoscelipteron fulvum* , a peculiar insect of the european fauna.

EMMANOUEL N.,PAPADOULIS G.-Acari recorded as new for the first time in Greece.

KOLLAROS D.,PARAGAMIAN K.,LEGAKIS A.-Notes on the systematics of cavernicolous Orthoptera of Crete.

PARASCHI L.-Contribution to the study of biology and ecology of *Maimuna vestita* (Araneae: Agelenidae).

ZARFDJIAN M.H.,ECONOMIDIS P.S.-Les invertebrés planctoniques du lac Volvi (Macédoine, Grèce)

STERGIOU I.K.-

10.45-11.30 (Salle B) Président de séance: BLONDEL J.

GREGORI J.-Population of birds on isle Golem Grad (Prespansko Jezero Lake: Yugoslavia) in 1976.

TSUNIS G.-Bird community of the Fraxos forest.

GAETLICH M.,PAPAIOANNOU Ch.-Première observation de la sarcelle Soucrourou (*Anas discors*)en Grèce.

SIGANOU F.,TSUNIS G.-The city-pigeon(*Columba livia forma domestica*)as an ecological-medical problem.

KRYSTUFEK B.-Some aspects of sympatric occurrence of two petricolic voles(*Dinaromys bogdanovi* and *Chionomys nivalis* - Rodentia, Mammalia)in Yugoslavia.

11.30-12h Pause, café

SESSION SPECIALE No 7(Endemisme)

12h-13h TABLE RONDE a.Variation géographique des espèces.

13h-14h TABLE RONDE b.Endémisme insulaire: BLONDEL J.,MALICKY H.,RIEDEL A.

VII. SUJETS DIVERS ET SPECIAUX (suite)

16h-17h (Salle B) Président de séance: RIEDEL A.

STAIKOU A.S.,LAZARIDOU-DIMITRIADOU M.,KATTOULAS M. -Behavioural patterns of the edible snail *Helix lucorum* L. in different seasons of the year.

PANA E.,LAZARIDOU-DIMITRIADOU M.,KATTOULAS M.-Differences in the behaviour and tolerance of adult and juveniles of the edible snail *Helix aspersa* (Muller) in relation to its age and geographic origin under high temperatures combined with high and low humidities.

LAZARIDOU-DIMITRIADOU M.,KATTOULAS M.-Consumption and assimilation efficiencies of different kinds of food in the edible snail *Eobania vermiculata* L.

PAPAZACHARIADOU R.,LAZARIDOU-DIMITRIADOU M.,HARALAMBIDIS S.-The Trematode parasite *Brachylaimus migrans* Duj (Digenea, Brachylaimidae).I.New intermediate hosts and its biological cycle.

LAZARIDOU-DIMITRIADOU M.,PAPAZACHARIADOU R.,HARALAMBIDIS S.KOLIVA-MAHERA F.-The prevalence of *Brachylaimus migrans*(Trematoda) in *Helix aspersa* Muller (Gastropoda, Pulmonata)in two different regions of Greece.

16h-17h Président de séance: VASIC V.

MARINKOVIC S.-The status of birds of prey in Hercegovina, S.W.Yugoslavia.

PERGANTIS P.-Compiling small scale ornitho-geographical data to delineate the most important bird habitats in the Amvrakikos area(according to the EC/79/409 Directive for the protection of wild birds and their habitats in the E.C.)

HANDRINOS G.-The I.W.R.B."Midwinter waterfowl counts" in Greece, 1967-1987: A preliminary analysis of the populations of anatidae.

TSUNIS G.,MALAKOU M.,SFIKAS G.-The Valia-Kalda(Pindos) National Park, Greece: Flora, Fauna and conservation problems

SESSION SPECIALE No 7(Endemisme, suite)

17h-18h TABLE RONDE c.Endémisme continental: ASPOCK H.,BLONDEL J.,WILLEMSE F.

18h-18.30 Pause, café

18.30-20h *BILAN DES TRAVAUX*

20h. *CLOTURE DU CONGRES*

Samedi 25 et Dimanche 26 Avril 1987

EXCURSION: Sporades du N.

PALEOGEOGRAPHIE - PALEOECOLOGIE

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CONSIDERATIONS PALEOGEOGRAPHIQUES ET PALEOECOLOGIQUES SUR LA PROVINCE EGEENNE ET OBSERVATIONS A PARTIR DES FAUNES DE MOLLUSQUES ACTUELS ET FOSSILES

Par G.DEMARCQ

R é s u m é

La faune actuelle de Mollusques de la mer Egée est riche et variée. Sa mise en place procède d'un ensemble d'évènements paléogéographiques et d'une évolution des paléomilieux qui remontent au Néogène.

La tectonique de distension et d'écartement de l'arc héllénico-anatolien date dans sa phase principale du Miocène inférieur (-24 à -17 Millions d'an.) ouvrant plus largement l'espace égéen morcelé aux eaux de la grande Téthys et à ses faunes. Mais, peu après, vers -14 Ma, le soulèvement de l'axe Dinarides/Sud-Carpathes/Nord-Anatolides a fermé les communications vers le Nord d'avec le domaine de la Paratéthys, qui va désormais évoluer séparément en milieu euxinique clos. C'est donc seulement par son ouverture méridionale que la mer Egée naissante va accueillir, au Tortonien (-11 à -7 Ma) les premières associations de macrofaunes marines littorales, déjà riches et variées.

Après l'épisode évaporitique messinien de la "crise de salinité" (-6,8 à -5,4 Ma) le repeuplement en faune euhaline se fera à partir de l' Atlantique et de son golfe bético-rifain (mer d' Alboran) au début du Pliocène. C'est ce qui explique le caractère fortement atlantique des faunes du Pliocène (-5 à -2 Ma), dont les espèces actuelles sont les descendantes. Il n'y avait pas d ouvertures marines vers le Proche-Orient. A cette époque le climat était déjà moins chaud et devenu à peine sub-tropical.

La fragmentation de l'archipel égéen est dûe à l'héritage tectonique, aux paléo-rias messiniennes et, plus récemment, au creusement de chenaux quaternaires (eustatisme glaciaire) et à la néotectonique. D'où la multiplication des niches écologiques (" ilôts de conservation "), facteur fondamental de la richesse des macrofaunes benthiques égéennes.

Mais les refroidissements du Quaternaire récent (Riss et Würm dans les derniers 300.000 ans) ont éliminé les espèces "chaudes" et banalisé les faunes méditerranéenne et égéenne. Toutefois, actuellement, l'orientation N → S des courants marins et des thermoclines diversifient encore la variété des paléomilieux : d'où la qualité de la " nursery " égéenne, qui diffuse généreusement les espèces benthiques en méditerranée : largement vers le SW, un peu moins bien (endémisme) vers le SE.

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LE GENRE EUPATAGUS (ECHINOIDEA) DANS LES SEDIMENTS EOCENES EN YOUGOSLAVIE ET LEURS CARACTERISTIQUES PALEOBIOGEOGRAPHIQUES ET PALEOECOLOGIQUES

par

Jovanka Mitrović-Petrović

Résumé

Eupatagus est un genre rélativement récent.Sa première apparition est liée à l'Eocène inférieur;au cours dê Eocène,il atteint sa pleine floraisonet son dévélopement maximal.Aujourd'hui on reconnaît 51 espèces de ce genre en Eocène. Au cours d'Eocène le genre Eupatagus a atteint non seulement le plus grand nombre d'éspèces mais aussi le plus grand répartition géographique; 51 éspèces connues,vivaient présque dans toutes parties du monde.Après la floraison impétieuse dans l'Eocène au commencement d'Oligocène le nombre des éspèces diminuent rapidement de fait que l'on ne connait que quatre éspèces de ce genre dans les sédiments d'Oligocène et quatre éspèces dans le miocène.Par rapport à un grand nombre d'Eupatagus fossiles / surtout ceux d'Eocène / le nombre d'éspèces récents est très restreint - cinq seulement.De son très grand répartition géographique d'ailleurs il est borné aujourd'hui à l'ouest de l'océan Indo-Pacifique.

Sur la base de l'écologie des éspèces recents d'Eupatagus,de la morphologie du squelettes,des types des sédiments dans lesquels on a trouvés les formes fossiles et des organismes qui les accompagnent,on peut conclure que le genre vivait dans l'eau chaude,sur le fond meuble,dans la région néritique légerement plus profond / probablement 200-400 mètres /.La présence de la fasciole péripetale et subanale indique à la vie dans les eaux calmes.

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RECONSTITUTION D' UN PAYSAGE ANCIEN AU NE DU PELOPONNESE (REGION DE KIATO) INTERPRETATIONS PALEOECOLOGIQUES (NOTE PRELIMINAIRE)

par

ANASTASSOPOULOU,O.,MARCOPOULOU-DIACANTONI,A.,MIRKOU,M.-R.,PAPAGEORGIOU,CH.

RESUME

D'après l'analyse des faciès des sédiments,la distribution des organismes fossiles dans les couches sédimentaires de la région étudiée nous pouvons aboutir aux résultats suivants:

1.L'étude des fossiles a permis de déterminer les conditions du paléoenvironnement durant la sédimentation(marin,lagunaire,etc.)ainsi que la profondeur et le climat dominant.

Nous avons déterminé plus de 32 espèces et genres de Métazoaires(Bivalves, Spongiaires,Gastéropodes,Echinides,Bryozoaires,Arthropodes,Annelides etc.),ainsi que 21 espèces et genres des Ostracodes,75 espèces et genres des Foraminifères (benthiques et planctoniques),des restes des plantes etc.

Cette riche micro- et macrofaune donne aux sédiments un âge Pliocène supérieur-Pléistocène.

2.L'analyse des faciès des sédiments et des biofaciès nous permet de déterminer les conditions du dépôt dans le bassin de la sédimentation,lesquelles régnaient dans le milieu de la sédimentation.

Nous avons constaté les suivants dépôts de l'environnement ancien dans la région étudiée:

1.Lagune,2.Bancs supramarins et sousmarins,3.Mer ouverte avec prédominance des orages.

Selon les constatations sus-dessus,les interprétations basées sur le biofaciès et l'analyse du sédiment en combinaison aux données bibliographiques et géomorphologiques nous proposons un modèle probable de l'environnement ancien pour la région dite.

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PORITES SP. :UN DESDERNIERS REPPESENTANTS DES MADREPORAIRES HERMATYPIQUES DANS LE DOMAINE HELLENIQUE(PALEOBIOGEOGRAPHIE-PALEOECOLOGIE)

par

Anastasie MARCOPOULOU-DIACANTONI*

RESUME

Porites constituant actuellement un des principaux bâtisseurs des récifs indo-pacifiques avait joué un rôle important dant le domaine hellénique durant Oligocène-Miocène.

Des espèces du genre Porites florissantde l'Oligocène supérieur jusqu'au Miocène inférieur dans le domaine hellénique présentent un appauvrissement des espéces au Miocène supérieur qui est dû probablement à cause des modifications climatiques.Ce phénomène conduit à l'extinction de ce genre à la fin du Miocène de toute la Méditerranée.

L' histoire biogéographique universelle du genre Porites complétée pour le domaine hellénique est esquissée.

L'étude de différentes espèces du Porites donne de renseignemets paléoécologiques(nature du sédiment,salinité,oxygénation,température,agitation des eaux,rofondeur etc.)

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DISTRIBUTION OF THE LESSEPSIAN FISH MIGRANTS IN THE AEGEAN SEA

by

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ABSTRACT

With the opening of the Suez Canal in 1869, two markedly different zoogeographical areas were joined: the subtropical Mediterranean Sea and the tropical Red Sea. The term " Lessepsian migration" characterize a new phenomenon of unidirectional and successful biotic advance from the Red Sea to the Eastern Mediterranean, whilst "Lessepsian migrants" are Red Sea species that have passed through the Suez Canal and settled in the Eastern Mediterranean. The number of the fish Lessepsian migrants colonizing the Eastern Mediterranean increases continously. At least 11 species have reached the Aegean islands (Dodecaneses, Cyclades) by following the asiatic coasts. The Lessepsian migrants fished in territorial Greek waters are: Hollocentrus ruber, Siganus rivulatus, Siganus luridus, Sphaeroides spadiceus, Stephanolepis diaspros, Upeneus moluccensis, Leiognathus klunzingeri, Saurida undosquamis, Pempheris vanicolensis, Hemirampohus far, and Parexocoetus mento. Almost all of them came from the Dodecaneses sea area. Only five were found in the south Aegean Sea and only one in the Patraikos Gulf. The spreading of the Lessepsian migrants in the Aegean Sea and the presence of some fish species of Black Sea origin contributes to the division of the Aegean in two zoogeographical zones, south and north of the line connecting the islands of Eubia and Psara. The area to the south of the line, with Cyclades and Crete, holds mainly warm-water fauna, while the area to the north includes some colder water fish species.

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PRELIMINARY STUDIES ON THE COMMUNITY STRUCTURE OF THE MACROZOOBENTHOS, IN THE GULF OF ATALANTI, GREECE

BY

A. ZENETOS & F. BEI

Summary

Benthic samples were taken at 5 stations in the innermost parts of Atalanti Bay, on a bimonthy basis. A list of the 119 species found is given. The polychaetes were the dominant group (44% of the species encountered), Molluscs came next (28%) and Crustacea followed (23%).

The total number of species was higher in the deeper stations (st. 12 and st. 14), towards the open sea. A trend for increase in both number of species and number of specimens was evidenced for stations 3, 9 and 18 in the spring. For the deeper stations 12 and 14, where number of species and specimens is concerned, the peak seemed to be in the winter. However, due to missing samples in March this result must be treated with some reserve.

The Polychaeta were the prevailing group at all stations except st.18, biotope of the biocoenosis SVMC (Sandy Mud in Sheltered Areas). In the last station the dominant group were the Crustacea, found mainly on the leaves of *Cymodocea nodosa*, phase of the SVMC. The bionomic physiognomy of the communities in the other stations appears to be a complex one. This phenomenon does not seem related to human intervention.

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CEPHALOPOD ABUNDANCE IN GREEK WATERS IN RELATION TO ENVIROMENTAL VARIATIONS.

By

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National Centre for Marine Research, Athens 16604, Greece

ABSTRACT

The abundance of squids, octopods and cuttlefish in Greek waters for 1928-1939, a period of minimal exploitation pressure, is reviewed in the light of meteorological variations occured in the same period. Total cephalopod, squid, octopod and cuttlefish catch per boat were significantly positively correlated with the air temperature (at the city of Thessaloniki, northern Greece) during the migration, prespawning and spawning period (December, February and March). This implies that temperature may hold a key in the abundance of cephalopods when anthropogenic pressure is minimal. Possible hypotheses governing such changes are discussed in the text.

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L'EFFET DE LA POLLUTION SUR CERTAINES DINOFLAGELLES DANS LES EAUX DE LA BAIE D'IZMIR.

Par N. ÖKTEM - D. ENGİN

Pour la recherche de l'effet de la pollution de la Baie d'Izmir sur les Dinoflagellés, un total de 300 échantillons, dont 50 sont des Ceratium tripos Ceratium furca et Peridinium depressum prédominants prélevés de la zone pollué et 50 autres de la zone non pollué ont été etudiés. Les mesures morphologiques ont été effectuées en tenant compte de la longueur, de la largeur et du diamètre du nucleus.

Selon les resultats obtenus, dans les échantillons de Ceratium tripos du milieu pollué, la moyenne de la longueur totale est de 267 µm, dans ceux du milieu non pollué est de 290 µm. Chez le Ceratium furca, elle est de 162 µm dans le milieu non-pollué; et de 175 µm dans le milleu pollué. Tandis que chez le Peridinium depressum, dans le individus du milieu pollué la longueur totale est de 145 µm, et celle des individus du milieu non-pollué est de 112 µm.

Si l'on compare la largeur des Protistes des deux milieux, on constate que la largeur des individus de Ceratium tripos du milieu non pollué est relativement plus grande; chez ceux de Ceratium furca de deux milieux, la largeur ne présente pas de différence, par contre, elle est plus petite chez les individus du Peridinium depressum provenant du milieu non-pollué. Les diamètres du nucleus des individus de deux milieux de tous les trois protistes sont identiques.

Selon l'analyse de varience à un facteur: Il y a une différence importante de longueur et de largeur entre les individus de Ceratium tripos et Ceratium furca provenant des milieux pollués et non-polluées. Ces constatations nous donnent une intervalle de confiance de 99% pour tous les paramètres etudiés, par conséquant l'effet de la pollution sur ces espèces est négatif.

L'étude de Peridinium depressum du meme point de vue a démontré que ladite pollution a fait un effet positif sur ce protiste.

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NOTES ON SOME BRYOZOA FROM KERATSINI BAY (N. SARONICOS GULF). CORRELETION BETWEEN THE COLONY'S FORM AND THE ORGANIC MATERIAL IN THE SEDIMENT.

PANAGOPOULOS D.

This paper presents the results of a Survey Carries out in May 1986 in the offshore of Keratsini Bay. 10 stations of soft substratum were sampled at depths ranging between 10 and 30 meters. All the Bryozoa were found attached on gravel, empty molluscan shells and polychaete tubes. The species Bugula fulva RYLAND,1960 was found for the first time in the Grecian sea waters The sampling area presents special ecological conditions because of the continuous pollution by sewage. At the same time an analysis of organic matter in the rediment was realized. It was found that the increased percentage of deposited organic material hinders the growth of the encrusting forms although it does not seem to affect the errect forms.

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THE PALEOHISTORY OF MEDITERRANEAN BASIN AND SOME HYPOTHESES ON THE EARLY DISPERSION OF FRESHWATER FISHES IN SOUTHERN EUROPE

By Pier Giorgio BIANCO
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When seaways between oceans and Tethys residual basins, and between relict landlocked seas themselves, were reduced or interrupted in Early to Middle Miocene Age, the Mediterranean and the Paratethys went towards to more or less severe environmental changes that positively or negatively affected the survival of aquatic fauna. The Paratethys, due to persistent positive hydrologic balance (prevalence of meteoric and river inputs on evaporative losses), progressively reached lowsaline conditions and, in Late Miocene, it had the richest known fresh or brackish water fauna of the world. Undoubtedly at this time, it was the main dispersal centre of true fresh water Paleartic fauna. The situation was reversed in the Mediterranean basin were persistent negative hydrologic balance caused increase of salinity and faunistic depauperation. In Late Miocene it dryed up (the Messinian salinity crisis), but after this event, the Mediterranean was flooded (before the opening of the Straits of Gibraltar and the reinvasion of Atlantic oceanic waters) by fresh or brackish water penetrated from Paratethys and the lagoon conditions persisted for a very short geological time (about 100.000 years). This suggests that most endemic primary fish taxa, at present time living in continental perimediterranean areas, derived from ancestors directly penetrated into perimediterranean river drainages from Paratethys during lagoon phases of the Mediterranean and not by river connections occurred in early times, between central Europe and southern Europe drainage systems, as usually believed by scientists interested in fresh water fish zoogeography.

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THE STONEFLY FAUNA OF YUGOSLAVIA WITHIN THE BALCAN PENINSULA

I.SIVEC

Summary

The first record of Yugoslav stonefly fauna was presented already by Scopoly in Entomologia Carniolica (1763), however, our complete fauna was hardly known until recently. Intensive investigation on this order of insects have been made during the last ten years, contributing to the best knowledge on stonefly fauna of northern part of Yugoslavia. Contrary to most of other entomological groups, the southern parts of Yugoslavia are much more abundant in the variety and the number of species than its northern part, which does not apply to the stonefly fauna of northern Yugoslavia. The present catalogue of the Yugoslav stonefly favna contains about 160 species of all 7 European families of Plecoptera.

According to Illies Limnofauna, the teritory of Yugoslavia belongs mainly to the Dinaric west balcan region, bordering on east to East balcan region (Bulgaria) with a specific high endemic fauna, and on south to Helenic west balcan region (Greece).

The majority of the stoneflies from the Greek mainland are widespread on the Balcan Peninsula or even further. The Peloponnese supports a fauna that differs slightly from the rest. A minority of species show interesting distributions that can be correlated to paleogeographic conditions. In a few cases, species widely distributed in Europe are represented in Greece by subspecies that bear great resemblance to other subspecies endemic to the Iberian Peninsula. However, these resemblance are in primitive conditions and rather indicate that relict populations have survived in these southern refugia during glacial periods.

In Slovenia- northern part of Yugoslavia is a contact of 5 "limnogeographical" regions. Alpine influence on one side, contact with the Central European, Mediteranean, Dinaric and even Carpathian, on the other what has made Slovenian stonefly fauna one of the richest not only within Yugoslavia but also in Europe as a whole.

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LES ROTIFERES, CLADOCERES ET COPEPODES DES EAUX CONTINENTALES GRECQUES

Par M.H.ZARFDJIAN et P.S.ECONOMIDIS

R é s u m é

Les Rotifères, Cladocères et Copépodes qui ont été signalés en Grèce dans les eaux continentales, à partir de 1892, sont présentés en listes. Etant donné que ces taxa sont les plus importants pour la formation du zooplancton dans ces eaux, la nécessité de telles listes est évidente. Son établissement bien entendu exige des recherches faunistiques préalables. Malheureusement en Grèce la plupart de ces travaux sont plutôt occasionnels, ce qui rend les présentes listes provisoires.

Les listes comprennent 81 Rotifères, 60 Cladocères et 65 Copépodes. Dans celles-ci on donne aussi les régions où chaque espèce a été trouvée. On doit remarquer la présence de plusieurs Copépodes rares ou endémiques, due à la variété des biotopes grecs. Cette présence a été clairement relevée là, où la recherche fut minutieuse. Ainsi à Crête ont été trouvés les Copépodes *Speocyclops creticus* LINDB., *Maraenobiotus brucei* RICH., *Morariа stankovici* CHAP., *Elaphoidella denticulata* CHAP., *Elaphoidella minos* CHAP. et à Corfu *Diaptomus serbicus* GEORG., *Arctodiaptomus kerkyrensis* PESTA, *Halicyclops rotundipes* KIEF. En même temps la variété des biotopes fait soupçonner l'existence aussi d'autres espèces, communes ou non, dont la découverte doit être l'objet des recherches prochaines.

D'après cette révision le taxon le moins connu est celui de Rotifères et spécialement les Bdelloidés qui sont presque totalement ignorés. Certaines mentions concernant la présence de *Chydorus ovalis* KURZ et *Daphnia hyalina* LEYD. dans plusieurs lacs grecs sont jugées comme douteuses, car ces espèces ont une distribution écologique et géographique différentes. Nous signalons aussi que les espèces les plus communes sont: *Asplachna priodonta* GOSSE, *Brachionus calyciflorus* PALLAS, *Keratella cohlearis* GOSSE, *Keratella quadrata* (MULL.), *Polyarthra major* BURCKH (Rotifères), *Bosmina longirostris* (O.F.M.), *Diaphanosoma brachyurum* (LIEV.) (Cladocères), *Eucyclops serrulatus* FISCH., *Mesocyclops leuckarti* (CLAUS) (Copépodes).

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THE NATURAL FACTORS CONDITIONING GREEK DELTA ECOSYSTEMS

by J. LÖSING; H.-J. WAGNER

Summary

The analysis of abiotic and non-zoological biotic factors in a delta produces missing constituents for the explanation of zoo-ecological phenomenons and relationships that this scientific field alone cannot furnish, especially in this landscape type which has undergone grave alteration due to human influence. The delta as a landscape consists of different ecosystems which have a specific set of features in common and which may be characterized by different parameters. The river builds the delta up and by means of the flowing water a permanent dynamic is called forth which principally dominates all ecosystems. On the other side the ocean as an antagonist has a gradual influence by salinity and physical formation. Therefore, the environmental factors of a Greek delta differ from other terrestical systems: the temperatures are generally equable, the air-humidity is higher, thus the radiation climate is less severe. According to the amount of precipitation Greek deltas must be differentiated into a dry type in the southern and south-western regions (Acheloos) and a wet type in the north-western region (Louros/Arachtos) and north-eastern region (Nestos). High fluctuations of the ground water level in connection with floods enable a considerably higher water supply for the vegetation (producers) growing on deep reaching sediments with a high drainage capacity. By taking the factor soil - in the abiotic as well as biotic perspective - and the factor vegetation into account, with a close reference to the hydrological conditions, an intra- as well as an interspecific differentiation of the ecosystems is furnished. The combination of abiotic and biotic factors (producers, chain of consumers and food pyramid) enables a synthesis of the system of factors governing every single biogeocoenosis. Evidence for this theoretical model is produced by the example of a salt marsh on account of the factors soil, water, vegetation and Carabid beetle fauna.

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THE GRASSHOPPER FAUNA (ORTHOPTERA) OF GREEK DELTAS FROM THE ECOLOGICAL AND BIOGEOGRAPHICAL PERSPECTIVE

By J. SZIJJ

Summary

An investigation of the Saltatoria associations was carried out in four delta areas of Greek rivers. The investigation showed that in this typically highly structured landscape quite well adapted grasshopper coenoses developed inspite of the relatively ubiquitous ecological spectrum of this indicator group. These coenoses are chiefly determined by the abiotic factors prevailing in the specific formations. The evaluation of the secondary changes of the Saltatoria populations is of central importance for the primary goal of the investigation. Our aim was to find out in how far modifications of the grasshopper coenoses reflect an alteration of the total ecological situation in a delta area. It has always been obvious that agricultural utilization has evoked a vast destruction of the natural potential. Thus the central question in this respect is in how far can the natural regeneration potential counteract or even equalize this influence. The investigated group has this potential due to its mobility and its mainly ubiquitous capacities. Furthermore, the question remains to be clarified whether artificial yet relatively natural formations enable or even accelerate this regeneration. However, comparisons with natural conditions distinctly show that neither this capacity, nor newly established relatively natural biotopes suffice for a regeneration. Grasshopper populations are qualitatively and quantitatively retrograding in all utilized areas, even in the fairly natural ones. The question remains in how far this portrayal is representative for a whole ecosystem. A general representativity certainly does not exist. Alone the fact that certain ecological formations like woodlands and aquatic systems are nearly not at all inhabited by this group, contradicts a representativity. The establishment of direct causalities is furthermore obstructed by the fact that the Saltatoria often only secondarily react on environment modifying forces. A considerably complete analysis of applied ecology is only achievable by considering the total vegetation and by an analysis of respectively selected faunistic components of the ecosystem. In this combination, however, the Saltatoria have an eminent role in the analysis and evaluation of ecosystems.

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CONTRIBUTION TO THE ECOLOGY AND DISTRIBUTION OF COLEOPTERA IN GREEK ESTUARIES

By H. KESSLER; K. PLATZEK

Summary

From 1979 to 1984 a research project of the University of Essen (West-Germany), which dealt with the ecological evaluation of Mediterranean estuaries, was carried out in four delta areas of Greek rivers : Louros and Arachtos (1979/1980), Acheloos (1981-1983) and Nestos (1982/1984). Besides vegetation-, soil- and water-analysies, some animal groups, which have certain functions as indicators, were investigated. The Coleoptera and especially the Carabid beetles are well researched indicators are known to characterize the microclimatic conditions of ecosystems. The species composition, their abundance and diversity is suitable for showing the effects and the impact of human influence on the natural potential ecosystems.The Coleoptera were quantitatively investigated by the use of Barber-traps, which were set up in a transect in the different bioecological units. Beside this method the animals were collected qualitatively, especially in the areas investigated by traps.In the Nestos Delta the transects of traps were interrelated with the soil- and vegetation-analysis, thus - besides biogeographic data - some interesting aspects of the autecology and synecology of the Coleoptera were elucidated. The Louros/Arachtos Delta and the Acheloos Delta showed nearly similar conditions with regard to the species diversity (144:143), whereas in the Nestos Delta more than 300 species could be found. Even under consideration of changes in biogeography - e.g. the influence of the eastern fauna - and climatic conditions, the Nestos Delta seems to have the most untouched parts.Some characteristic species could be found, which are good indicators for the diversely structured biotopes of a Mediterranean delta. This indicates still relatively intact and for deltas typical faunas similar to the other investigated insect groups, for instance the Saltatoria. The destruction of natural biotope-structures by agriculture and industry, which can be observed in the entire Mediterranean region especially in delta areas, hasn't become so severe in the Nestos Delta.These ecosystems could be maintained by appropriate conservation measures which exceed nature conservation purposes and offer scientific research the possibility to analyze their ecological state.

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CONTRIBUTION TO THE ECOLOGY AND DISTRIBUTION OF BUTTERFLIES IN GREEK ESTUARIES

BY G. BORSCZ

SUMMARY

In a research project of the University of Essen guided by Prof. Dr. J. Szijj, amongst other factors the fauna of different Greek delta areas was analyzed from 1980 to 1984. This report is concerned with the butterfly fauna of the following deltas: Arachtos/Louros, Acheloos, Nestos. In all deltas qualitativ as well as quantitativ analyses by means of line transects were carried out. A total of 72 species were registered in the three deltas. The species indicate distinct differences in respect to their faunal relations. Those species occurring in the most northern situated Nestos Delta are primarily of Euro-Sibirian origin, whereas those species observed in the south-western deltas are mainly of a Mediterranean and Ponto-Mediterranean origin. A similar great difference is evident in respect to the biotope preferances of registered species. In the Nestos Delta more humiditiy preferring species occur than in the other south-western deltas, especially in relation to the Acheloos Delta. The more xerophilous species-spectrum of the southern deltas is on the one hand due to the macro-climate and on the other to the zonal vegetation on the hills. Yet, if one doesn't start out from the macro-climate, but from the specific biotopes of a delta area, then the hills with their zonal faunistic character are not typical, but the azonal vegetation units which are moist in the case of a delta. The correspondence of the butterfly-fauna, especially that of the Acheloos Delta, with the zonal fauna could be due to intensive measures for drainage which have been carried out here. The distruction of wetland-biotopes has led to an extinction or suppression of the mesophilous and hydrophilous species in favour of the more xerophilous ones which have either migrated from the hills or are synanthropic. In contrast to this the Nestos Delta where hills do not exist not only has a higher diversity but also has more humidity and dampness preferring species. This is certainly a consequence of the still remaining relatively extensive relicts of riparian forest and more natural wetland-biotopes. Finally, this specific geographical position of the deltas surely has an intensifying effect on those factors.

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DISTRIBUTION OF AMPHIBIANS IN GREEK ESTUARIES IN RESPECT TO THEIR ECOLOGICAL NICHES

By G. HEMMER; T. KORDGES

Summary

The presented report deals with the herpetofauna (AMPHIBIA) of three estuaries in Greece (Louros/Arachtos-Delta; Epirus, Acheloos-Delta; Epirus and Nestos-Delta; Thrace/Macedonia). The study is based on observations made during several excursions from 1979 to 1984. The results were achieved in a scientific project concerning Mediterranean estuary-ecosystems, carried out by the members of a team of the University of Essen (Western-Germany) led by Prof. Dr. Szijj. In the delta-areas nine species were recorded: TRITURUS VULGARIS, TRITURUS CRISTATUS, HYLA ARBOREA, RANA GRAECA, RANA DALMATINA, RANA RIDIBUNDA, BUFO BUFO, BUFO VIRIDIS and PELOBATES SYRIACUS. One more species (RANA EPEIROTICA) presumably also occurs. All amphibians show clearly defined habitat preferences. These are discussed for the different species. Especially noteworthy is the occurrence of RANA DALMATINA. This species is strongly restricted to the riparian forests or similar formations. Thus it can be considered to be a characteristic indicator for these habitats within the delta-areas. In comparing the faunistic composition of the three estuaries RANA RIDIBUNDA is the most striking species among the amphibians; it is frequent and fairly well distributed in nearly all of the aquatic systems of the deltas. The other amphibians are less abundant and more or less restricted to a few biotopes. The total number of species in each delta is considered to be a good indicator for the ecological situation of this landscape because it reflects the diversity of its aquatic and terrestrial biotopes. Originally undisturbed delta-systems guaranteed a high diversity of those biotopes and were thus inhabited by many amphibian species. In this respect the decreasing number of species from the Nestos-Delta to the Louros/Arachtos- and especially to the Acheloos-Delta may indicate the amount of appropriate biotopes. Finally, the very important role of amphibians in the food chains of the deltas is emphasized.This applies especially for the large populations of RANA RIDIBUNDA which are a precondition for the occurrence of many species of higher trophical levels (e.g. herons, storks, terrapins, aquatic snakes e.t.c.).

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STUDIES ON REPTILES IN GREEK DELTA AREAS

T. KORDGES; G. HEMMER

Summary

This study is concerned with the reptile-fauna of three delta-areas in Greece (Louros/Arachtos-Delta; Epirus, Acheloos-Delta; Epirus and Nestos-Delta; Thrace/Macedonia). The study is based on observations made during several excursions from 1979 to 1984. The results are a part of a scientific project concerning Mediterranean estuary-ecosystems, worked out by the members of a team of the University of Essen (Western-Germany) led by Prof.Dr.Szijj. In the delta-areas a total number of 3o species were recorded: 1 turtle, 2 terrapins, 3 tortoises, 11 lizards and 13 snakes. Obviously the hihg number of species corresponded with the richness and diversity of the different biotopes within the deltas. Here, there are marine, aquatic, semiaqutic and terrestrial biotopes that are closely linked to each other. This situation is considered to be typical for estuary-ecosystems which are therefore usually characterised by high species diversities. This is especially true for both of the estuaries in Western Greece. Due to its typical geomorhpology several hills, covered with shrub-vegetation, are scattered about the marshlands and thus are inhabited by reptiles, prefering this vegetation type. Generally the reptile-fauna of the deltas can be subdivided into aquatic (5 species) and terrestrial ones (25 species). While the former are considered to represent the original fauna of the estuaries, the terrestrial species intruded into the deltas in a later phase of the deltas development, when appropriate biotopes already had established. Some of those species managed to adapt to these special conditions of estuaries in a striking manner, beeing highly attracted to the borders of moist areas. In these biotopes highest species numbers of more than 2o reptile-species were recorded. Biotope-structure, microclimatic factors and the extraordinary good food supply, both for herbivorous and carnivorous reptiles are supposed to be the main reasons for this diversity. A comparison of the reptile-fauna of the three deltas turned out to be problematical due to biogeographical reasons. Thus the species lists of the estuaries in Western Greece partly correspond in showing some typical elements of the Eastern Adriatic Coast, while the Nestos-Delta is inhabited by some species of the eastern regions of Greece.

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ZOOGEOGRAPHIE

a. Grandes regions
b. Sous-regions et secteurs
c. Variation geographique
d. Composition des faunes locales

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The Raphidioptera of the Eastern Mediterranean - A Zoogeographical Analysis

By H. Aspöck

Summary

The Raphidioptera represent a small insect order comprising two families, Raphidiidae and Inocelliidae, with altogether about 170 described species and with a distinct Holarctic distribution. The Eastern Mediterranean (E. M.), i. e. the Balkan peninsula, the Aegean Islands, Anatolia, Cyprus, and the countries bordering the eastern part of the Mediterranean Sea, harbours an extraordinarily rich Raphidiopterous fauna: Altogether about 80 species have been found in this part of the world, i. e. more than 45 % of all described species.

The Raphidiopterous fauna of the E. M. is very specific. By far most species recorded are monocentric having their distributional centres within the E. M.; in addition, most of them show almost no or only little expansivity and have not been found outside the E. M..

On a species level the Raphidioptera of the different parts of the E. M. are very different indicating several refugial subcentres. In particular, the Balkan peninsula on one hand and Anatolia on the other have almost exclusively different species. On a genus-level the unity of the fauna of the E. M.is, however, clearly seen. From the 13 genera represented in the E. M., 7 occur in the Balkan peninsula as well as in Anatolia, and 9 belong to a probably monophyletic group of 12 genera of Raphidiidae which is represented outside the E. M. in other parts of Europe and in the north of Asia by only a few species.

Due to the monocentricity and low expansivity of most species essential and general conclusions can be drawn concerning the situation of refugial areas of the arboreal fauna of the E. M. during the glacial periods.

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SOME CHARACTERISTICS OF THE ZOOGEOGRAPHICAL BOUNDARIES IN BALKAN PENINSULA ON THE EXAMPLE OF AVIFAUNA

by V.VASIĆ

S u m m a r y

In the zogeographical generalizations of any faunistic unit two principal problems about zoogeographical boundaries have to be solved: identification of the boundaries and then, its explanation or understanding. First question seems easier but in fact very often can not be answered without the second. Under the term zoogeographical boundary we understand the theoretical demarcation lines in distribution of faunal phenomena and the special guidelines of zoogeographical processes. Althouth we take in mind that actualy the zoogeographical boundaries are dynamical and only partly and exeptionally quite narrow, for the practical purposes, both in scientific analyses and wildlife mangement, we need its expression as a lines.

Yet in the first sight it is obvious that the pattern of zoogeographical boundaries in avifauna of Balkan peninsula is more complex than in any other part of Europe or maybe even of Western Palearctic. Studiing for many years the avian distribution at Balkan peninsula we can recognize three main types of zoogeographical boundaries wich birds are recognizing. First ones, wich could be named barriers, are the results of more or less steep gradient of more or less complex ecological effects. In simpliest case that is physical barriere.

Second type is much more interesting and more difficult to understand. We could call it historical, because these boundaries can not be explained without the knowledge on the origins and effects of time on the range development. Particular case of historical boundaries in birds can be noticed within the directions of expanding species.

Third type of boundary one can find within the intergradation zones between differentiated populations /subspecies/ of the same species. Those "hybrid" boundaries are the result of hybrid effects: ecological, historical and intrinistic and often correspond with one of the former types.

By mapping and discussing the nature of combinated boundaries of all three types, the zoogeography of birds in Balkan peninsula becomes more clear but not less complicated.

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ZOOGEOGRAPHICAL CONSIDERATION OF SYRPHID FAUNA (Insecta:Diptera) ON THE BALKAN PENINSULA

Smiljka ŠIMIĆ, S. GLUMAC

The Balkan Peninsula is characterized by a wide range of geomorphological, hydrographical and climatic conditions resulting in rich and diverse flora and fauna. The Montenegro region including coast, lowlands and high mountains (0-2523 m above sea level) was taken as a model to investigate biogeographical characteristics of such a complex and zonally differentiated area.

The phenological differences between the habitats under investigation and the ecological valence of the species of this insect group determined the area boundaries, outermost zones, as well as vertical and horisontal distribution of these insects. With the exception of the species characterized by a wide reaction rate, for most of species the habitat type, optimum living conditions and conditions which favour or eliminate them from other biocenosis types have been defined.

By investigating a wide spectrum of different habitat categories that included lowlands with arid climate and semidesert vegetation, different types of wet meadows in the Mediterranean region, deciduous forests and high mountain forests and meadows having characteristics of the Alpine climate, we identified the fauna of these regions, classified it according to the zones, selected the typical species, and finally, we framed a hypothesis on settling history and origine of the syrphid species at the Balkan Peninsula.

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THE ORIGIN AND EVOLUTION OF CAVE PSEUDOSCORPIONS OF THE DINARIC AND CARPATHO-BALKANIC KARST

B. P. M. ĆURČIĆ

The question of the direct provenance of the Dinaric and Carpatho-Balkanic pseudoscorpion fauna still remains open. Everything is in favour of the opinion that this fauna is the direct cotinuation of the ancient Tertiary Mediterranean fauna, its origin to be sought in the old Balkanic dry land. The fact which deserves special emphasis here is continuity of the subterranean formations through the geological ages in the Dinaric and Carpatho-Balkanic areas. The underground milieux succeeded each other in a continuous manner to our times. This phenomenon has certainly played an outstanding role in the preservation of old pseudoscorpion elements, a considerable number of which found shelter in Balkanic caves.

The history of the Balkanic cave pseudoscorpion fauna is as yet little known, and its interpretation must obviously be more or less hypothetical. It is evident that we must look for primary causes of the preservation of numerous relictary pseudoscorpions in the Dinaric and Carpatho--Balkanic regions, first in the continuity of the long existence of their continental phase, in the relative constancy of life in caves, as well as in the isolation of cave habitats. The preservation of the relictary genera is proof that the uninterrupted continuity of existence of subterranean milieux has been real. It also may be assumed that the Dinaric and Carpatho-Balkanic karst areas were not constituted all at once, and that process of karst colonisation must have gone on progressively throughout their life span.

The Dinaric and Carpatho-Balkanic areas are inhabited by the great number of endemic and relict cave pseudoscorpions pertaining to the Laurasian, Paleo-mediterranean, Paleo-aegean, or Aegean phyletic series. Among the principal causes which explain the extraordinary variety of the troglobitic pseudoscorpion fauna of these areas, one should mention: (i) the varied epigeous pseudoscorpion fauna peopling the old Balkanic dry land in remote past, (ii) the continuity of the continental phase in different areas of the Balkan Peninsula, (iii) the presence of limestone beds and the genesis of the underground karst relief, (iv) the succession of the climatic conditions which favourised the colonisation of the underground domain, and (v) the divergent differentiation of the pseudoscorpion taxa in numerous isolated subterranean milieux.

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BIOGEOGRAPHICAL CONSIDERATIONS ON TENEBRIONID FAUNA OF GREECE AND NEAR ISLANDS

by G.MARCUZZI

Summary

The number of Greek Tenebrionids(Coleoptera)is c.240.It varies according to the systematics of some genus and species, in which it is doubtful whether to consider a taxon as a species or a mere subspecies.On the ground of the existing bibliography and personal experience of the author it is possible to recognize among the Tenebrionid fauna the following zoogeographical categories:Palearctic species;Western Palearctic species;European species;Mediterranean elements (included some Western Mediterranean one);Eastern Mediterranean species;South.European-Mediterranean species;Southern Balcanic species;Transionic species(belonging to Southern European elements);Greek endemics(some extended to Albania); a)continental endemics;b)insular endemics;c)endemics limited to a single island or archipelago(Ionian species,Egean species,etc.); Imported species(sometimes cosmopolitan).
The relations between present distribution and morphology of old(Miocenic)land masses is stretched.Also the effects of fragmentation of old land masses on speciation(or subspeciation) is emphasized;the old land connections between Greece and Southern Italy are clearly shown by several examples.Not always the subspecies can be an exact index of the epoch of fragmentation of a land due to the different speed of evolution of each taxon(tachytelic vs.bradytelic taxa)in this,as in other animal groups.

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INVENTAIRE PRELIMINAIRE DES PSOQUES DE LA GRECE (INSECTA: PSOCOPTERA)

Par C. LIENHARD

R é s u m é

Il y a dix ans, seulement 9 espèces de Psocoptères étaient connues de Grèce. Entre-temps 11 espèces y ont été ajoutées, dont quatre, nouvelles pour la science (LIENHARD, 1981. Dt. ent.Z. 28: 147-163; LIENHARD, 1987. Revue suisse Zool. 94, sous presse). La collection du Muséum d'Histoire naturelle de Genève contient environ 50 espèces supplémentaires, dont 6 inédites, qui vont être décrites prochainement. Ces quelque 70 espèces représentent probablement à peu près 2/3 de la faune grecque de cet ordre d'insectes, dont on connaît actuellement environ 240 espèces ouest-paléarctiques et près de 3000 espèces à l'échelle mondiale. - La plupart des espèces grecques ont une répartition très vaste dans la région ouest-paléarctique ou dans la Méditerranée, la tendance à l'endémisme étant très peu développée chez les Psocoptères. Néanmoins, il y a quelques espèces qui ne sont actuellement connues que de Grèce: Prionoglaris 2 n.spp. (1 sp. Péloponnèse, 1 sp. Crète), Chelyopsocus n. sp. (Naxos), Liposcelis 2 n. spp. édaphiques, aux yeux très réduits (1 sp. Attique, 1 sp. largement répartie à travers la Grèce), Liposcelis tricolor Badonnel, 1973 (Eubée et Samos), Mesopsocus graecus Lienhard, 1981 (Péloponnèse et partie nord-ouest de la Grèce continentale). - D'autres espèces ne sont connues hors Grèce que de Chypre, du Proche Orient ou de l'Afrique du Nord : Nephax sofadanus Pearman, 1935 (Ile Iraklia près de Naxos et Israël), Liposcelis kyrosensis Badonnel, 1971 (Crète et Chypre), Liposcelis pictus Ball, 1940 (Ithaque, Chypre, Liban et Israël), Liposcelis rugosus Badonnel, 1945 (Ithaque, Attique, Eubée, Maroc), Cyrtopsocus gibbosus Lienhard, 1987 (Cyclades et Chypre), Lachesilla dimorpha Lienhard, 1981 (Attique, Péloponnèse et Tunisie). - Nephax sofadanus est une espèce à revêtement écailleux, vivant sous des pierres, qui appartient à la famille essentiellement tropicale des Amphientomidae, dont le seul autre représentant ouest-paléarctique (Nephax fortunatus) vit aux Iles Canaries. Les deux autres espèces connues du genre Nephax sont africaines. - Chelyopsocus n.sp., espèce vivant dans les éboulis à l'entrée de la grotte de Zeus (Spilia Aria) à Naxos, appartient à la famille des Troctopsocidae, strictement néotropicale à l'exception d'un genre inédit (deux espèces) de Thaïlande et l'espèce type de Chelyopsocus (Ch. garganicus Lienhard, 1980), décrit de l'Italie du Sud (Monte Gargano). - Les deux espèces inédites de Prionoglaris sont d'un grand intérêt systématique; on les trouve surtout dans la zone d'entrée de grottes ou sous des éboulis bien aérés. - Il faut aussi mentionner les trois espèces à reproduction normalement parthénogénétique, dont on connaît des populations bisexuées de Grèce: Caecilius flavidus (Stephens, 1836), Psoculus neglectus (Roesler, 1935) et Mesopsocus duboscqui Badonnel, 1938.

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THE JUMPING PLANT LICE OR PSYLLIDS (HOMOPTERA, PSYLLOIDEA) FROM GREECE

By D. Burckhardt

S u m m a r y

Psyllids are small phloem-feeding Homoptera which exhibit narrow host-plant specifity, particularly during the larval stages. About 250 species are known to occur in Europe though the Central and Northern European faunas are better studied than the Mediterranean one. Only some twenty species have been recorded from Greece, and another twenty species are distributed over the whole of Europe and are likely to occur in Greece. Old records in literature proved to be unreliable when revising an extensive material from Greece containing almost sixty species. Even though this is a fraction of the number of species expected to occur in Greece (about 130-150) a few generalizations can be made. More than half of the species are widely distributed throughout Europe or Eurasia, about a quarter are typically Mediterranean, slightly less than a quarter are Eastern Mediterranean or Eastern European, and only one species is endemic (to Crete). It is expected that the Eastern European/Mediterranean and endemic elements will become more important as additional species are recorded from Greece.

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ZONITIDAE (GASTROPODA TERRESTRIA) DE LA MACEDOINE ORIENTALE ET DE LA THRACE

Par A.RIEDEL

R é s u m é

Nous connaissons 20 espèces de Zonitidae de cette région, et l'on peut s'attendre à en découvrir encore 8 à 10 autres. La moitié de ces espèces n'apparaît pas dans les autres régions de la Grèce, entre autres le genre Balcanodiscus avec ses cinq espèces. Six formes de Zonitidae sont endémiques pour la région. Cette faune a un caractère nettement balkanique oriental, par contre on note l'absence d'éléments égéens. Le sillon tertiaire marin transégéen qui, dans le passé a séparé cette faune de la faune de l'Egéide du Sud, en est la cause.

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GENERAL CONSIDERATIONS ON THE DISTRIBUTION OF COLEOPTERA IN THE AEGEAN ISLANDS

A. Trihas and A. Legakis

Abstract

The Aegean islands belong to an archipelago of great biogeographic interest. This is because of their geographical position in the eastern Mediterranean basin and of their geological history.

Here, a preliminary clustering of the Aegean archipelago is attempted on the basis of its zoogeographical attributes, consisting of similarities between islands. To quantify these similarities, the order of Coleoptera was used as one of the more appropriate animal groups for this purpose. They possess many apterous (or with reduced ability of flying) as well as slow dispersible species, they are very variable as a group in general and there is a considerably large literature on their presence in the Aegean area.

Similarity coefficient matrices between islands were constructed using bibliographic and personal data on the presence or absence of more than 1000 coleopteran species. Then by cluster analysis, dendrograms were created showing the similarities of the Aegean islands and their grouping relatively to the fauna mentioned above.

The analysis groups together the Cyclades is., the Dodecanese is., the eastern Aegean is., the north-central Aegean is. and the northern Sporades is. Crete, Rhodes, Kastellorizo, Makronisos and some other islands are set individually.

Finally, other zoogeographical points of interest concerning the Coleopteran fauna of the Aegean archipelago are discussed.

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PRELIMINARY ZOOGEOGRAPHICAL ANALYSIS OF CRETE

A. Legakis

Abstract

The island of Crete is well known for its richness in endemic plant and animal species. It has a long history of isolation from the mainland and at times, it was also broken into smaller islands. At the same time, being a large island, it has a wide variety of biotopes and also a long history of human influence. Therefore it is expected that the present fauna must be differentiated within the island showing patches that either relate to its geological history or correspond to different biotopes or intensity of human activities.

The endemic species of Crete were chosen to study this differentiation because they show with greater clarity possible differences within a reduced area such as Crete. Crete was divided into 36 rectangles of 18 x 22 km size corresponding to the rectangles provided by the National Statistics Service on its maps. The similarity of these rectangles was measured using various indices and cluster analysis was used to group the areas.

The results correspond well with the hypothetical breakdown of the island during the pleistocene as well as with the present day ecological conditions.

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SPREADING PATTERNS OF AMPHIBIANS AND REPTILES IN THE IONIAN REGION

by Peter F. Keymar

The Ionian region is characterized by its geography, geomorphology and special climate conditions respectively. Accordingly different climatic enclosures represented by their zonation of vegetation have caused a remarkable ecological niche diversity. In order to analyze the spreading of continental-easteuropean, anatolian and the self-reliant Peloponnesian faunal elements, reptiles and amphibians of the bigger Ionian islands are compared with those of the corresponding mainland section.

On the basis of selected species of lizards different patterns of migration and immigration are discussed.

Cyrtodactylus kotschyi: Although the subspecies skopjensis is pushing towards the Ionian region, Zakynthos, Kephallonia, Ithaki and Acarnania were colonized by C. k. bibroni from the Peloponnese.

Anguis fragilis: The continental european subspecies colchicus reaches Corfu and Levkas, but even there a few specimen close to A. f. pelponnesiacus have been found. There is no doubt, that the latter, up to now quoted as an endemic subspecies of the Pelopnnese, regularely occurs on the southern ionian islands.

Algyroides nigropunctatus: Although Corfu is the type locality of this species, differing populations on the other islands lead to the description of A. n. kephallithacius by means of morphometry and coloration. The species could not be found on Zakynthos recently.

Algyroides moreoticus is rather frequent on the southern islands The population of Zakynthos differs most from Peloponnesian ones. The importance of habitat shift in both species is discussed.

Lacerta viridis is recorded up to now only for Corfu (a relict ?) and for the mountainous parts of the mainland.

Lacerta trilineata: The population from Corfu and Levkas are electrophoretically uniform with those from the mainland. Ithaki, Kephallonia and most probabely the Zakynthos population show the same enzyme pattern as Peloponnese animals.

CONCLUSIONS: Corfu and Levkas are herpetologically influenced by the corresponding mainland section. Immigration paths obviousely existed over land bridges, which are now under sea level.

The southern island populations have a closer tendency to the Peloponnese than to mainland . It is stated, that Kephallonia was the first step on the immigration path to Ithaki and Zakynthos as well for the Peloponnesian species as for the continental ones. As a result Kephallonia can be seen as a spreading center for reptiles and amphibians in the southern Ionian region.

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ZOOGEOGRAPHICAL NOTES ON THE BIRDS OF GREECE

G. TSUNIS - Dept. of Zoology - Parma University
S. FRUGIS - C.IS.O and Dept. of Zoology - Parma University

Summary

The Authors give an overview of the Greek avifauna as it is composed of different elements originated in several zoogeographical "zones" (sensu Voous).
Both the breeding and the migrant species are dealt with although in defining the importance of Greece within the Western Palaearctic the former are of particular interest as far as the present boundaries of the breeding range are concerned.
Of course even accidentals may give some hints of where the main interrelations with other "zones" come from.
A preliminary analysis of the species occurring in Greece (including the island of Crete) indicates a strong influence of european and mediterranean species,as expected and a relative lesser influx of "eastern forms",which,nontheless.deserve particular attention from the conservation point of view.
An attempt has also been done to update the distribution of some species some of which (eg. the Capercaille,Tetrao urogallus) are of relevant significance for the european ornithogeography.
Some suggestions are also given further research and recent projects under way are mentioned.

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Status and distribution of the genus Aquila in Greece

by B.C.G.HALLMANN

The genus Aquila is in the Western Palearctic represented with five species which have all been recorded from Greece as well. Two species, the Golden (Aquila chrysaetos) and the Imperial Eagle (A.heliaca) are largely resident breeding birds in Greece, the Lesser Spotted Eagle (A.pomarina) a migratory summer visitor and breeding bird, the Greater Spotted Eagle (Aquila clanga) is a passage migrant and regular winter visitor, and the Steppe Eagle (Aquila rapax) appears only as a vagrant.

The populations and distribution in Greece of the eagles and of the other birds of prey species is being studied since 1979 and preliminary results of these inventories have been presented at the World Conference on Birds of Prey in 1982 (Hallmann 1985). The present paper gives a more detailed account on the presence of the Aquila's in Greece, their distribution and population trends as well as the factors limiting these populations in relation with their specific habitat requirements.

Also, conservation problems are discussed.

The Golden Eagle is with 120-160 breeding pairs the most numerous Aquila in Greece. The Lesser Spotted Eagle has about 90 pairs while the Imperial Eagle has become at the verge of extinction with only 4-6 breeding pairs.

All species definitely show a population decline in the best known areas, a fact that is largely attributed to anthropogenic factors. The effects of indiscriminate bird shooting largely exceed causes such as loss of breeding habitat.

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DISTRIBUTION OF THE MOLE SPECIES (TALPA) IN THE-SOUTH-WEST REGION OF THE BALKANS

M.TODOROVIC, Z.DUNDJERSKI, B.SOLDATOVIC

Resume

According to geographical position and history Balkan Peninsula has attracted investigators to study the history of survival of old and settling down of new species. This area also represents a key region for elucidation of taxonomic status of several species, especially subspecies of the genus *Talpa*. In contrary to the rest of Europe, where the mole areas are clearly separated, on the Balkans they have parapatric and sympatric distributions. Another problem is the relationship of *T.r.stankovici* from Yugoslavia and Roman Mole (*T.romana*) from Apennines. Oposite to Stein's (Stein 1963) conclusion that Roman Mole and its subspecies belong to Common Mole, some other authors (Todorovic 1970, Petrov 1971, Capana 1985) considered them separate species. Capana has proved this with multivariate analysis (PCA and DFA) of the lawer jaw. We performed the same analyses with the seven samples collected from various parts of Yugoslavia including three species: *T.europea, T.caeca and T.romana*.This analysis showed morphological similarities and distinctions in size and shape among some populations,what was in correlations with geographical position and altitude.Roman Mole was nearer to the group of the Common Mole populations but at the significant distance.As Roman Mole and Common Mole in Italy have the same karyotipe,which differs from this of Roman Mole from Yugoslavia,in order to define their taxonomical status and relationship,a comparative analysis of the Roman Mole populations from both countries has to be done.It is also important to study the populations not only from Yugoslavia, but from Greece and Albania, as well. These taxa are already identified in Greece (Niethammer 1962, Felten and Storch 1965, Todorovic et al.1982). It is of importance to mention that karyotype of some specimens collected in Greece (Corfu and Epirus) differs from those from Italy (Monte Gargano) and Yugoslavia (Todorovic et al. 1982). The diploid number of these chromosomes is 2n=34, NF=68, NFa=64. In adition, the largest autosome (14th pair) is subacrocentric and differs from the same one in the karyotype of Common Mole,which is submetacentric. At the same time, 16th pair is not acrocentric as in Roman Mole and Mediterranean Mole. All these facts indicate that the pattern of karyotype does not follow the morphology of the recognized species and the subspecies in this region.

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A PROPOS DE L'ENDEMISME INSULAIRE EGEEN: CONVERGENCES ET DIVERGENCES

Par J.Th.Matsakis

I. Sur la base d'inventaires faunistiques de divers auteurs, on essaie d'analyser l'endémisme insulaire égéen sous les aspects suivants:

1.Degré de convergence de la répartition des espèces endémiques de différents groupes zoologiques: tracé des limites de secteurs et sous-secteurs biogéographiques.

2.Degré de convergence de la répartition des espèces endémiques avec celle des espèces non-endémiques.

3.La part des espèces endémiques dans la constitution des faunes insulaires: richesse, diversité etc.

4.Agencement des espèces endémiques dans la structure taxinomique du groupe zoologique correspondant (genres, sous-familles, familles,etc).

5."Comportement"des espèces endémiques vis-à-vis des espèces con-génériques non endémiques.

II.On apprécie les enseignements dégagés dans le cadre de l'hypothèse à trois volets, avancée par l'auteur: Tendance à la diversité maxima associée à une asymétrie taxinomique et à une asymétrie de répartition au sein de chaque taxon.

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GENETIC DIFFERENTIATION AND SPECIATION IN THE GREEK ARCHIPELAGO: THE GENUS ALBINARIA

A.AYOUTANTI, C.B.KRIMBAS, S.TSAKAS and M.MYLONAS

Abstract

The Aegean sea is full of islands forming an archipelago. This archipelago seems to be an ideal place for the study of genetic differentiation and speciation taking place because of geographical isolation imposed by the sea barriers between different islands. This holds true for those species that practically do not migrate. In this respect the anciety of the islands is also relevant: They have been formed by the sinking and subsequent submersion by sea of a land mass occupying the Aegean, a process that started at the Miocene. The geologic history is however much more complicated: islands have been separated at different times, they split apart and have been again reunited either because of tectonic movements or by changes of sea level during glaciations. A detailed study of the genetic differentiation of populations belonging to the same species or genus could eventually shed also some light to the history of these geological processes. We have selected for study a land mollusc, the genus Albinaria, which according to taxonomists, displays several species and subspecies in the Aegean and the lands surrounding it. A vast programme of investigation is planned. Here we report the results of some electrophoretic studies on 18 populations (Attica, Psara isl., nine islands of the Cyclades, Icaria isl., and Crete) including 8 described species (one with 4 another with 2 subspecies). Twenty seven genetic markers were used and genetic distances were estimated by the use of a new estimator (Sourdis & Krimbas in press). The electrophoretic data, with some exceptions, correspond well with the taxonomy. A dendrogram constructed by the modified version of Farris method shows a striking correspondence between genetic similarities and geographic locations, the population of Crete being one exception. This exception is easily explained by the geologic history of the Aegean. The within the Cyclades populations until now seem not to provide information for revealing the history of these islands. On the contrary new populations investigated from Crete show that the island is extremely heterogeneous in species and this corresponds to its history.

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ECOLOGICAL, ELECTROPHORETIC AND ELECTRON MICROSCOPE INVESTIGATIONS ON SCHIZIDIUM PERPLEXUM (ISOPODA) OF CRETE

K. Paragamian, V.K. Galanopoulos, A. Legakis and E. Spanakis

Abstract

The troglobitic isopod Schizidium perplexum, Vandel 1957, has only been found in four caves of central-east Crete (Kronio, Milatos, Peristera and Agia Paraskevi). These caves are located considerably far from each other and at different altitudes. Isopod populations are therefore geographically well separated.

The electrophoretic, morphological and ecological characteristics of S. perplexum populations from all the above caves were studied. The four populations showed electrophoretic differences in at least two isozymes (esterases and peptidases). These may be a result of genetical isolation. Intrapopulational variation was also observed.

Individuals from diferent caves showed differences in body size. Scanning electron microscopy was used for studying their systematic characters.

There are differences in the ecological conditions among the caves. Temperature, substrate size and morphology, food supply, number of coexisting species and human influence are the most important factors that control the size of the S. perplexum populations.

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ON THE VARIATION OF THE MORPHOLOGICAL AND SEROLOGICAL CHARACTERISTICS OF SOME TURKISH OPHISOPS ELEGANS MACRODACTYLUS (LACERTIDAE, REPTILIA) POPULATIONS

By N. ÖZETİ, E. ÇEVİK, H. ARIKAN

The basic aim in this study is to review the taxonomical position of the Thrace populations of the species O. elegans. For this, a total of 112 adult specimens (52 ♂♂, 60 ♀♀) from Gazıköy-Şarköy (Thrace) and Bornova-İzmir (West Anatolia) have been investigated morphologically, and 39 adult specimens (20 ♂♂, 19 ♀♀) from both regions, have been studied serologically. Varience analysis of Campbell (1975) was used in determining the significance of differences in numerical values obtained by both methods. In both of these populations, sexual dimorphism has been observed in many of their characteristics (such as total length, pileus length, number of ventralia, tail length/head+trunk length, tail length/total length, pileus length/head+trunk length), so comparisons of the two populations have been carried out separately in males and females.No any significant difference in these characteristics has been observed. Some of the characteristics (number of supraciliar granules, median gularia, number of plates+scales in mid-trunk) did not show sexual dimorphism, thus the comparisons were done without separating the sexes. In these characteristics, there is a statistically significant difference between the two populations. Although there is no difference generally from the viewpoint of pattern and coloration, it should be necessary to note that some of the specimens (19%) from Thrace showed unusual pattern (without stripes and maculations on dorsum) which has not been mentioned before in literature for any population of this species.

Blood serum proteins of the two different populations are investigated qualitatively and quantitatively by means of polyacrylamid disc electrophoresis and densitometry. There is no qualitative difference between two populations. The proteins could be divided into 9 fractions or band groups in each population: 8 globulins plus one albumin, which are all at the same electrophoretic mobility. But a quantitative difference between serum proteins of both populations has been established. This difference comprises the albumin concentration and albumin/globulin ratio.

The significance of these morphological and serological differences determined in these two populations should be further studied in detail, comparing other populations within its distributional area.

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LES TAXICÉNOSES DES GASTÉROPODES DUNICOLE DE SARDAIGNE : ISOLEMENT DANS L'ISOLEMENT

par Cesare F. SACCHI

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L'environnement dunicole dessine en Sardaigne un chapelet de plages plus ou moins étendues et profondes, isolées par des sols interdits aux espèces des sables et habitables seulement par une malacofaune appauvrie et banale. Une partie des plages se trouve encore, ou s'est trouvée jusqu'à une époque récente, en conditions de continuité. Cette situation est donc comparable à un archipel d'origine "continentale". D'autres plages sont de formation récente, ou depuis longtemps très écartées des systèmes principaux de dunes, et présentent des peuplements aux caractères insolites : ce sont des îles écologiquement "océaniques", où se rencontrent des phénomènes fortuits et des invasions d'espèces non caractéristiques.

Il est donc possible de vérifier, même dans des taxicénoses ouvertes et formées d'espèces largement adaptables, des modèles de structure inspirés par une biogéographie insulaire. Il s'agit toutefois d'isolements secondaires au sein d'une île -la Sardaigne- trop vaste pour que son isolement géographique primaire puisse jouer un rôle déterminant vis-à-vis d'animaux potentiellement eurytopes et pourvus d'une remarquable capacité de dispersion.

On peut appliquer ces mêmes constatations aux rares cas où, sur une base morphologique, il est possible de déceler dans les espèces dunicoles des physionomies locales : tels le nanisme relatif de *Cochlicella acuta* (Müll.) sur les plages siliceuses d'Oristano, ou les cas de mélanisme partiel chez *Eobania vermiculata* (Müll.) sur les dunes près de Capo Pallosu. Il existe des morphes roses chez *Euparypha pisana* (Müll.) à Porto Pino (Sacchi, 1984), mais ce caractère est capricieusement distribué dans l'énorme aire géographique de l'espèce (Sacchi et Violani, 1977). On est en tout cas bien loin des localisations de phénotypes particuliers, albinos ou *testudinea*, qui ne se rencontrent que là où l'espèce, très polymorphe, habite des régions climatiquement non méditerranéennes (Sacchi, 1983). Les *E. pisana* des peuplements intérieurs sont souvent "blanches", c'est-à-dire sans dessin ou à dessin limité et très effacé, mais ce phénomène est connu un peu partout quand l'espèce se trouve vivre loin de la mer, dans des stations très arides et ensoleillées. On ne saurait d'ailleurs rechercher sur de vastes plages ouvertes des phénomènes de dispersion du polymorphisme évidemment dus à des effets "col de bouteille" du type mis en évidence à l'intérieur de ports-abris récemment construits sur la Moyenne Adriatique (Sacchi, 1952) ou sur d'étroites bandes sablonneuses, créées par l'homme, à l'intérieur des rias granitiques de la Galice (Sacchi et Viciani, 1977).

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Preliminary report on the Zoogeography of the terrestrial mollusks of the islands of Saronic Gulf.

I.Botsaris

A group of about 80 islands and islets is ditributed on Saronic Gulf (G.L. 23°-24°E and G.L. 37°25 -38°05 N) having an area ranging from 200m² (islets) to 94.996 km² (Salamis Isl.) and distance from mainland ranging from 50m to 20km (St. Georgio Isl.).

Since September 1985 I started a systematic study of the distribution of terrestrial mollusks on the islands and on the surrounding area. The main purpose is to analyze the distribution of the terrestrial mollusks and to work on biogeographic theories.

My first observations have led me in to the following conclusions.

a. In opposition to what anyone could expect the bibliographic reports concerning the terrestrial mollusks of Saronic Gulf are quite few.
b. There is a positive relation between the area and the number of species especially for the bigger and the medium islands.
c. There is no testable correlation between area and number of species for the islets (0.002km²).
d. The communities of land snails are very peculiar on the islets.

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Contribution to the malacofauna of Rodopos' peninsula

K.Vardinoyannis and M.Mylonas

According to the latest palaeogeographic data (Dermitzakis,1986) the peninsula of Rodopos was the last part of Greece which was connected to the mainland of Greece (upper Tortonian).

The fact that the malacofauna of the peninsula has been very little studied (there are only 7 species) together with the palaeogeographic suggestion forced us to study the malacofauna of the area

From ten stations dispersed all over the peninsula we collected speciments during the period of 30/1/87-5/2/87.

Four main conclusions can be drawn after the determination of the samples.

1. We found 34 species in the area,some of them presenting special systematic interest.
2. The peninsula appears to have almost the same combination of species. In the southern part though the presence of anthropophilous species increases.
3. Some of the species show divergence in the form or in reproductive system compared to the speciments we have from other parts of Crete or elsewhere.
4. There is no indication of special relation between the peninsula and S.Peloponnese or the islands of Kythira And Antikythira.

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MOUNTAIN FAUNA AND ZOOGEOGRAPHICAL ANALYSIS OF MOSQUITOES (CULICIDAE, DIPTERA) INHABITING THE AREA FROM PANINIAN DEPRESSION TO THE ADRIATIC SEA (YUGOSLVIA)

Branka BOŽIČIĆ

Over the part of the Balkans peninsula, spreding from Panonian depression to the Adriatic sea, the fauna of mosquitoes has been thoroughly investigated in the mountain regions of Fruška gora(539m), Vršačke planine(641m), Kopaonik(2017m) and Durmitor(2523m).

In the region of Fruška gora 17 species of mosquitoes have been recorded, 21 species of Vršačke planine, 15 species of Kopaonik and 12 species on Durmitor.

By means of zoogeographical analysis of recorded species it has been found out taht lower mountain regions (Fruška gora and Vršačke planine) are predominately occupied by species of wied distribution, mainly of Paleartic, Holartic and cosmoplitian distribution. The fauna of this region is similar to already investigated fauna of Panonian depression, specialy the fauna of Fruška gora.

In higher mountain massifs (Kopaonik and Durmitor) characteristic species are those related to northern areas and higher altitudes in southern parts.

Besides the above mentioned species the presence of Mediterranean species of wide distribution is also very interesting.

The difference in the structure of mosquitoe fauna in mountain regions of Balkan peninsula is conditioned by paleobiogeographical distinctions and characteristics of the region.

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Biogéographie des Monogènes du genre *Dactylogyrus*, parasites des Poissons Cyprinidae de Macédoine centrale et occidentale (Grèce).

par Francis DUPONT

Un inventaire exhaustif des *Dactylogyrus*, parasites branchiaux de Poissons Cyprinidae a été réalisé dans 8 lacs macédoniens : Prespa, Kastoria, Zazari, Petron, Veggoritis, Doirani, Kerkini, Volvi. Peut-on identifier des unités biogéographiques à partir de ce parasitisme ? Quelle est la place des événements paléogéographiques du Pliocène et du Quaternaire dans la répartition des espèces ? Comment se manifeste le syndrome d'insularité (endémisme, réduction de richesse spécifique) ? Une étude débutée au printemps 1986 aborde ces questions.

a - De façon générale, il existe une excellente corrélation linéaire entre richesse spécifique des *Dactylogyrus* et richesse spécifique des Cyprinidae.

b - Du point de vue biogéographique, les lacs macédoniens se groupent en 3 ensembles : les lacs de la façade Adriatique, les lacs de la montagne Pélagonienne, les lacs de plaine de Macédoine Centrale.

c - La réduction considérable de la richesse spécifique dans les lacs Pélagoniens et dans le bassin Mygdonia (Volvi-Koronia) est le trait le plus caractéristique d'un syndrome d'insularité qui trouve son origine dans les événements paléogéographiques du Pliocène et du Pleistocène.

d - Les lacs de la façade Adriatique montrent un puissant endemisme lié à la fois aux processus d'évolution parallèle hôte-parasite et à l'origine circum méditerranéenne des Cyprinidae.

ECOLOGIE

a. Ecosystemes, biocenoses, peuplements
b. Especes et populations, divers

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EDAPHISM AND CAVE LIVING PSEUDOSCORPIONS

B. P. M. ĆURČIĆ

The terrestrial cave-dwellers are in the majority of cases the descendants of a tropical or subtropical epigeous fauna, peopling Europe and North America at the beginning of the Tertiary. However, the tropical fauna has subsequently dissapeared from these regions. The remains have undergone the total or partial destruction, or they emigrated towards the recent tropical areas. Only some representatives of this ancient world of life have preserved themselves in caves, where they survived until today. In this respect, mention should be made of the evolution of karstification, which resulted in the origin of numerous isolated habitats in the subterranenan milieu, thus offering a wide variety of environmental niches in the huge refugia of the Balkanic Karst.

Edaphic forms are characteristic biological components of regions with a Meidetrranean climate. These forms have maintained the constancy of their ecological requirements by means of increased penetration into the soil. Penetration has been attained either by colonisation of caves, of the fissures of the soil, or of the soil itself. The adaptive strategy in each case is different, as illustrated by the small body size (e.g.: some species of the genus Chthonius), elongated appendages and strong development of setation in cave species (representatives of the genera Chthonius, Neobisium, Roncus, Insulocreagris, etc.), and all the many adaptive features which characterise the soil pseudoscorpions.

Euedaphism, or strict adaptation to the life in deep soil, is the adaptive response of epigeous or humicolous forms of different groups to survival in Mediterranean climate. These forms originated from regions or ages with a constant climate, especially from an hydric viewpoint. Within pseudoscorpions, members of the genus Chthonius (e.g.: C. raridentatus Hadži and C. ellingseni Beier) shifted their habitat to deeper soil levels as the climate had become more arid. To the north, in Slovenia and NW Croatia, they live in humus, in litter and under stones. But very often these species inhabit caves which, in the majority of cases, have a relatively constant temperature and humidity. This mis indicative of the importance of the hydric aspect of the environment in the phenomenon of edaphism and its consequent evolution into a more cryptic way of life (in caves and potholes).

Similar observations have been made for several arachnid groups, as well as for some coleopterans. In general, they support the fact that the more arid the Mediterranean climate, the greater the degree of edaphism adopted by the hypogeous forms. The strict adaptation to the life in deep soil is therefore the result of many historical and contemporary factors.

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THE ARTHROPOD FAUNA OF THE SOIL ON THE ISLAND OF IKARIA-AEGEAN SEA-GREECE.

By Stavros N. Magioris

SUMMARY

During three different seasons (Summer 1985,Winter and Spring 1986) we carried out samplings of the arthropod fauna of the soil in four different biotopes with Quercus coccifera,Arbutus unedo and Pistacia lentiscus mesic and high macchia on the island of Ikaria,Aegean sea,Greece.

The study of quantitative and qualitative composition of soil arthropods that flow from the island samples,with no emphasis to the Acarina and Collembola groups,gave us the following results: Twenty taxonomic groups were recorded with dominance of beatles during most of the seasons and mainly in the biotopes with Q.coccifera.The presence of the pseudoscorpions,millipedes,centipedes, spiders,bugs and true flies was significant also.Grasshopers were not taken into account in this study.

During winter in the leaf litter and humus samples of Q.coccifera high macchia,near sea level,the highest density with 22565 ind/m^2 was observed.During the same season,in uncovered ground under the stones in another biotope of Q.coccifera,900 m hypsometer,the highest density with 19 ind/m^2 was also observed. The presence of earwigs in uncovered ground under the stones in the latter biotope was notable with 9,8 ind/m^2 and making up 61,25% of the total.Concerning the phenology of taxonomic groups remarkable differences between two biotopes with Q.coccifera high macchia were not occured.

A non parametric analysis of variance using the Kruskal - Wallis test shows that there were significant differences about the abudance of meso- and macroarthropods in all four biotopes (P 0,02) as well as between seasons (P 0,01) only during winter. A multiple comparison test which followed did not distinguish which of the four biotopes had these differences because of overlapping sets of similarities.Between dominant taxonomic groups there were significant differences too in all three seasons but there were also ambiguous results for some groups.

Comparing the quantitative results of two biotopes with Q.coccifera macchia with those of L.Bigot and P.Bodot (1972-'73), in an ecosystem with the same plant in France,with those of S.Sgardelis,G.Stamou and N.S.Margaris (1981),in a Phryganic ecosystem near the town of Volos,Greece,as well as with those of mine on the island of Naxos (1985),there were some remarkable differences.

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ASPECTS OF ECOLOGY OF POLYXENUS LAGURUS (DIPLOPODA) IN MEDITERRANEAN CONIFER FORMATIONS OF GREECE.

KARAMAOUNA M.

Polyxenus lagurus is a widespread species of Europe. It is characterized mainly as a "bark animal" but it can also be found in the soil, particularly in litter. In Greece, until now, it has been reported only in mediterranean-type formations "phrygana". In the present work, ecology of P.lagurus was studied in three biotopes-Naxos, Epidauros, Sophiko-which correspond to representative mediterranean conifer formations of Greece (two Juniperetum and a pineforest respectively).
In more detail : After an investigative qualitative sampling which showed that the species is confined in litter, regular quantitative sampling was set in the litter of the above-mentioned biotopes. 518 unitary samples were taken for the assesment of density. A Berlese-Tullgren funnel apparatus was used for the extraction of animals. According to the sampling data, species relations with crusial climatic factors were studied; its relations with the most important physical and chemical factors of litter were also investigated. For the study of the above relations, the non-parametric Spearman correlation coefficient was used. Briefly, the following results are obtained: The average annual density per m^2 of litter is, 10.4 individuals at Naxos, 98.4 ind. at Epidauros and 15.0 ind. at Sophiko. Peaks of density appear at the limits of wet season, an "automn" peak between August and December and a "spring" peak between March and June. The pattern of seasonal variation of density is not affected by climatic factors at the two Juniperetum, whereas it is negatively correlated with rainfall at the pineforest. After a discussion, it is suggested that the main ecological factors which influence species density are litter dry weight and thickness.

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REMARKS ON DISTRIBUTION AND PROTECTION PROBLEMS OF THE MOSOR ROCK LIZARD Lacerta mosorensis KOLOMBATOVIĆ 1886 (Reptilia, Lacertideae)

G.Džukić

S u m m a r y

Wealth in endems and relicts represents one of the most conspicuous characteristics of the fauna of Balkan Peninsula. The number of these forms is especially pronounced in regard to amphibians and reptiles. Having in mind limited distribution, antiquity and great evolutional and zoogeographic significance, it could be expected that both endems and relicts are the best known animals. Unfortunately, except for their great reputation, knowledge on most of them remained insufficient. Very frequently, synthesized data on their distribution, which represent a basis for the tracking of possible changes in their boundary range as a trustworthy indicator of biological strength of the species what is usually of vital significance for the survival, are not available. Disproportion between their reputation and knowledge, makes the status of most endemic and relict forms even more difficult. Their eminence is well known not only in Balkan Peninsula, but also for beyond its boundaries and they represent an object of very distinct interests from scientific to pure collectors ones. The latter interest seems to especially harmful.

Mosor rock lizard (Lacerta mosorensis), a Yugoslav endem, represents a good example for the illustration of the problems mentioned above. The first, somewhat more ambitious synthesis of individual data on its distribution appeared a century after the discovery of this species, but even then, with the negligence of the available literature, geographical determination of the locality, misinterpretation of certain data and complete absence of critical review on ethically suspicious circumstances recently enabling some authors to collect the material.

On the basis of the new data from the collections of both Museum of Natural History in Vienna and Museum of Natural Science of Slovenia in Ljubljana, as well as from our own collecteion and observations in the field, a closer definition of the range of the Mosor Rock lizard has been obtained, taking into account all necessary corrections. We find the expansion of its range not only in relation to geographical coordinates, but also in regard to altitude, very significant. Border points of its range are shifted at present to both the North and the East, while the upper boundary of its distribution moved up to 1 900 m above the sea level.

At the same time, our work represents a protest against false morality related to protection of natural heritage of the area beyond national territories of economically and scientifically developed European countries.

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Note on the ecology of Cyrtodactylus kotschyi (Reptilia-Gekkonidae) in an insular ecosystem of Aegean.

Valakos Efstratios and Vlachopanos Athanassios

Although Cyrtodactylus kotschyi is one of the commonest species in the Aegean ecosystems very few data are known on its ecology.

The first data on its thermal ecology, activity, food, reproduction, density of population and predation during summer, autumn and spring in an insular ecosystem are given in this report.

The mean body temperature (MBT) during the summer was 30,59°C, 2°C higher than ambient temperature. In this season activity was occured during the morning and early evening times. MBT during the autumn is 23,32°C, two degrees higher than substrate and 4°C than air temperature. In this season, activity was occured when the body temperature was up to 25°C.

C. kotschyi feed mainly with arthropoda (spiders, coleoptera larvae). The mean number of eggs per clutch was 2,25.

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-, QUELQUES DONNEES SUR L'ETAT DES POPULATIONS ET L'ECOLOGIE DE L' OURS BRUN (Ursus Arctos L.) DANS LE N.W. DE LA GRECE.-

par Georges MERTZANIS

R é s u m é

_ Dans un premier temps, des données paléontologiques et historiques nous permettront de faire le point sur l'évolution de la distribution ainsi que sur l'état actuel des populations d' ours brun en Grèce.

Par la suite, à base de témoignages récoltés à l'aide d'un questionnaire approprié, nous nous occuperons plus pariculièrement du noyau de distribution occidental (celui de la chaine du Pinde) qui couvre principalement et avec une continuité quasi-ininterrompue les grands massifs forestiers du Pinde central et septentrional.

La région de Zagori qui fait partie de ce noyau occidental, constitue depuis quelques années le siège d'un suivi plus systématique du plantigrade. D'une grande variabilité au niveau des facteurs du milieu, elle nous servira de région témoin nous permettant ainsi de fournir quelques éléments plus précis sur certains aspects de l'écologie de l'ours (notamment sur ses habitudes alimentaires et ses déplacements saisonniers) et cela à partir de la méthode indirecte de relevés d'indices de présence ursine.

Seront également mentionnés les facteurs anthropiques limitants qui sont de nature à menacer aussi bien l'animal lui même que l'integrité de ses biotopes.

Enfin une série de propositions visera à renforcer les points faibles d'un régime de protection légale très peu appliqué dans la pratique jusqu'à présent, ainsi qu'à souligner la nécessité d'une nouvelle orientation dans l'exploitation de nos ressources forestières, sans oublier le besoin immédiat d'une éducation réelle des populations locales.-

SUJETS DIVERS ET SPECIAUX

(Biologie, ecologie, faunistique, etc)

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WHAT WE KNOW AND WHAT WE DON'T KNOW ABOUT ISOSCELIPTERON FULVUM (NEUROPTEROIDEA: PLANIPENNIA), A PECULIAR INSECT OF THE EUROPEAN FAUNA

By ULRIKE ASPÖCK

Abstract

Isoscelipteron fulvum (COSTA) is one of the two European representatives of the family Berothidae which otherwise mainly inhabits tropical and subtropical regions. The distribution of this species is rather well known, it ranges from Italy, throughout the Balkan Peninsula and Anatolia as far as Iran exhibiting a geographically correlated variation.

Nothing is, however, known about the biology, neither of I. fulvum nor of any other Palaearctic species of the family. Only the biology of one Nearctic species has been studied in detail, and it has been found that this is a true termitophile. Thus it may be concluded that also Palearctic Berothidae might be associated with termites. The distribution of termites in Europe coincides remarkably with that of the two European Berothidae. I. fulvum which is the distinctly more frequent and more widely distributed species and which has also been found in several localities in Greece offers a particular opportunity for a solution of the question.

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ACARI RECORDED AS NEW FOR THE FIRST TIME IN GREECE

By N.G.EMMANOUEL and G.Th.PAPADOULIS

Summary

Acarine taxa belonging to the orders:Prostigmata,Mesostigmata, Cryptostigmata and Astigmata, are recorded as new for the first time in Greece.

Those taxa collected from various habitats and places, are as follows :

Prostigmata : *Tarsonemus heterologus* Sh.& M., *T.lucifer* Schaar. , *T.aequalis* L.&M., *Xenotarsonemus belemnitoides* (W-F), *Steneotarsonemus spinosus* Schaar , Rhynchotarsonemus, Neotarsonemoides, Triophtydeus, Dolichotetranychus,Eupodidae, Eupalopsellidae.

Mesostigmata: Kleemania, Ameroseius, Lasioseius, Alliphis, Proprioseopsis, Rhodacaridae, Eviphididae.

Cryptostigmata : Zygoribatula, Brachycthoniidae

Astigmata : Anoetidae

Two of those are phytophagus (*Dolichotetranychus* sp.,*S.spinosus*), while others are predatory (i.e. *Proprioseopsis* sp., *Alliphis* sp., Eupalopsellidae) , fungivorous (e.i.Eupodidae, *T.lucifer*, *X.belemnitoides*), saprophagous (*Zygoribatula* spp.) or of unknown feeding habits.

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NOTES ON THE SYSTEMATICS OF CAVERNICOLOUS ORTHOPTERA OF CRETE

D. Kollaros, K. Paragamian and A. Legakis

Abstract

The systematics and distribution of the cavernicolous orthopteran species in Crete present many problems (concerning mainly the genus Troglophilus) because on one hand very few specimens have been examined, while on the other, very few caves have been explored.

In order to elucidate these problems, many caves from all over Crete were visited and more than 150 specimens were collected. From the study of their systematic characters, their taxonomy and distribution were revised.

The dominant cavernicolous Gryllidae species on Crete (Discoptila lindbergi) is distributed over all the island.

The genus Dolichopoda is restricted to central-west Crete only. The possible presence of new species of Dolichopoda is discussed.

The genus Troglophilus is distributed over all the island. From the study of more than 100 specimens, the three known species of Troglophilus are revised and their distribution is extended.

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Contribution to the study of biology and ecology of *Maimuna vestita* (Aranea: Agelenidae)

Lydia Paraschi

The life history and the ecology of the spider Maimuna vestita were studied in a maquis ecosystem in the island of Naxos. Sampling took place from January 1983 to April 1984 in monthly intervals.

The histograms show that the spiders live 2-2.5 years. Egg laying and hatching take place from February to May. The females lay 3-4 cocoons with a total number of 80-100 eggs. Individuals mature sexually a year and a half later. The females die a few weeks after the laying of the eggs.

The density of M. vestita fluctuates between 2 ind./m^2 to 20ind./m^2. Max density appears on June and min density appears on December. Spiders build their webs under the stones under the trees and they only appear in the openings in winter.

The diet of M. vestita consists mainly of Coleoptera, Hemiptera, Hymenoptera and other spiders.

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LES INVERTEBRES PLANCTONIQUES DU LAC VOLVI (MACEDOINE, GRECE)

Par M.H.ZARFDJIAN et P.S.ECONOMIDIS

R é s u m é

Les invertebrés planctoniques du lac Volvi trouvés durant nos recherches sont présentés. Dans ce lac nous avons signalé 26 Rotifères, 1 Mollusque Bivalve (larve de *Dreissena polymorpha*), 13 Cladocères, 6 Copépodes (5 libres, 1 parasitique) et 1 Insecte Diptère (larve de *Chaoborus sp.*). Parmi ceux-ci quelques uns sont nouveaux pour la faune grecque: Rotifères: *Colotheca libera* (ZACH.), *Collotheca mutabilis* (HUDS.), *Notholca squamula* (MULL.), *Platyas quadricornis* (EHREN.); Cladocères: *Daphnia galeata* SARS , *Illyocryptus sordidus* (LIEV.); Copépodes: *Nitocra hibernica* (BRADY), *Argulus foliaceus* (L.). La plupart de ces espèces sont communes en Europe mais le manque de recherches précédentes detaillées fut la cause d'ignorer leur présence en Grèce. La mention aussi des *Collurella adriatica* EHR., *Conochiloides dossuarius* (HUDS.), *Lecane luna* (MULL.), *Polyarthra dolichoptera* ID., *Pompolyx sulcata* HUDS. (Rotifères), *Diaphanosoma birgei lacustris* KORINEK, *Chydorus sphaericus* (O.F.M.), *Leydigia leydigi* SCHODLER, *Macrothrix laticornis* (FISCH.) (Cladocères) contribue à l'élargissement de leur repartition géographique en Grèce.

Nous contestons la présence de *Chydorus ovalis* KURZ et de *Daphnia hyalina* LEYD. -espèces mentionnées ailleurs à Volvi-car elles ont une distribution écologique et géographique differentes. A propos de la distribution de *Diaphanosoma birgei lacustris* KORINEK nous croyons qu'elle doit être plus vaste parce que cette forme a été confondue jusqu'à présent avec *Diaphanosoma brachyurum* (LIEV.), espèce bien commune partout en Grèce.

L'apparition pendant l'été de *Daphnia cucullata* SARS f. *Kahlbergiensis* SCHOED. peut s'expliquer par la stratification thermique et/ou par la prédation accentuée en cette époque. La prédation exercée par les poissons est probablement aussi la cause du manque de formes de grandes tailles. Les taxa suivants: *Keratella cohlearis* (GOSSE), *Polyarthra spp.*, *Trichocerca spp.* (Rotifères), *Bosmina longinostris* (O.F.M.), *Diaphanosoma spp.*, *Daphnia cucullata* SARS,(Cladocères), *Mesocyclops leuckarti* (CLAUS), *Thermocyclops crassus* (FISCH.) (Copépodes), sont dominants au lac.

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ASSESSMENT AND MANAGEMENT OF THE CEPHALOPOD TRAWL FISHERY RESOURCES IN GREEK WATERS.

BY

K.I. STERGIOU

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The cephalopod trawl fishery in Greek waters is reviewed in relation to fishing effort for 1964-1981. The mean annual (1964-81) cephalopod catch amounted 1348 tonnes. Octopods accounted for 702 tonnes (52.4%), whereas cuttlefish, flying squids and squids amounted 280 tonnes (20.7%), 205 tonnes (15.3%) and 160 tonnes (11.5%) respectively. Total cephalopod landings are very well described by the exponential (FOX, 1970) and linear (SCHAEFER, 1954) surplus yield models, according to which optimum fishing effort, maximum sustained yield and optimum catch per unit of fishing effort range between 120000-150000 HP, 1566-1630 tonnes and 10-13 Kgr/HP respectively. In addition, the analysis revealed that cephalopod resources were overfished during 1975-1981 which clearly indicates that the authorities must take immediate measures for the protection and rational management of cephalopod resources in Greek waters. Possible alternative measures are discussed in the text.

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BEHAVIOURAL PATTERNS OF THE EDIBLE SNAIL *HELIX LUCORUM* L. IN THE DIFFERENT SEASONS OF THE YEAR

A. E. STAIKOU, M. LAZARIDOU- DIMITRIADOU and M. E. KATTOULAS

SUMMARY

Behavioural patterns (activity patterns, homing) of *H. lucorum* in the field are described, in different seasons of the year. Snails are active not only during the night; activity depends mostly on humidity and is influenced by photoperiod. In the particular biotope where *H. lucorum* was studied, homing experiments showed that it does not possess a real homing ability.

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DIFFERENCES OF BEHAVIOUR AND TOLERANCE OF ADULT AND JUVENILES OF THE EDIBLE SNAIL *HELIX ASPERSA (MULLER)* IN RELATION TO ITS AGE AND GEOGRAPHIC ORIGIN UNDER HIGH TEMPERATURES COMBINED WITH HIGH AND LOW HUMIDITIES

E. PANA, M. LAZARIDOU-DIMITRIADOU and M. E. KATTOULAS

SUMMARY

This work examines the influence of high temperatures (30oC, 35oC) in combination with high and low relative humidities (30%, 95%) on the behaviour and tolerance of adult (D=32.52±2.04 and D=38.92±2.23) and juvenile (D=24.46±4.31) snails of *H. aspersa* originating from the island of Crete and the mainland of Greece (Athens), and showing a statistical difference in size and weight as well as in the thickness of their shells.

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Consumption and assimilation efficiencies of different kinds of food in the edible snail *Eobania vermiculata* L.

by

Karla Lazaridou-Dimitriadou and K.E. Kattoulas

SUMMARY

This paper deals with the determination of consumption and assimilation rates of Eobania vermiculata in the laboratory. Two kinds of food were used : lettuce (*Lactuca sativa*) and *Urtica dioica*. The experimental data were extrapolated to the field data (number of snails/m^2/month) and the consumption rate of *E. vermiculata* was calculated for one year.

Juveniles show higher assimilation rates than adults, regardless the kind of food they are fed on. During spring time there is a raise in consumption and assimilation rates and a slight decrease during summer time.

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The trematode parasite *Brachylaimus migrans* Duj. 1845 (Digenea,Brachylaimidae). I. New intermediate hosts and its biological cycle.

by

Rita Papazachariadou, Maria Lazaridou-Dimitriadou and S. Haralambidis

Abstract

Sporocysts, cercariae and metacercariae of the digenetic trematode *Brachylaimus migrans* were found for the first time in the hepatopancreas and the kidney of the following terrestrial snails : *Helicella conspurcata, Eobania vermiculata, Xeropicta arenosa, Euparypha pisana* living in the NE outskirts of Thessaloniki and *Cepaea vindobonensis, Xeropicta arenosa* and *Monacha cartusiana* living near the falls of Edessa (N. Greece). Experimental infection of swiss-albino mice showed that the metacercariae coming from the above snails belong to the species *Brachylaimus migrans*. By monthly sampling of the above snails and the examination of their parasitic charge the biological cycle of *B. migrans* is studied.

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The prevalence of *Brachylaimus migrans* (Trematoda) in *Helix aspersa* Muller (Gastropoda, Pulmonata) in two different regions of Greece.

Maria Lazaridou-Dimitriadou, Papazachariadou M., Haralambidis S. and Koliva-Mahera F.

Abstract

The prevalence of infection of *Helix aspersa* living in Crete and Peloponnesos is related to the snails' state of activity which is mainly influenced by the prevailing conditions of their microbiotope, and it is not connected with the difference of size that the adult snails of the above districts show or with their spatial distribution. It is shown that the metacercariae of *B. migrans* in the snails coming from these two regions follow a negative binomial frequency distribution.

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POPULATION OF BIRDS ON ISLE GOLEM GRAD (PRESPANSKO JEZERO LAKE: YUGOSLAVIA) IN 1976

J. GREGORI

A b s t r a c t

Isle of Golem Grad (901 m of altitude) makes part of the National Park Galičica and as such falls under protection as a whole. Measuring about 0.5 square km it is situated in the southwestern part of Prespansko jezero Lake (its absolute altitude amounts to 853 m) lying on the triple frontier of Yugoslavia, Greece and Albania and mesuring 285,4 squre km. The Isle is surrounded by limestone walls from 10 to 40 m high while most of its surface is covered by a forest of Juniperus excelsa.

Registered on the Isle in the period from May 29 to June 2, 1976, were 35 species of birds, among them 24 species of nesting birds or probable nesting birds. We also attend to quatitative analyses of bird populations. In the forest of Juniperus excelsa a colony of the great cormorant include about 600 nests, 400 whereof were engaged.

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BIRD COMMUNITY OF THE FRAXOS FOREST (W. GREECE)

G.TSUNIS Dept. of Zoology - Parma University.

Summary

The Fraxos forest, 57,5 ha, placed between the Ionian sea and the Acheloos river, in the region Etolia-Akarnania, on the Western side of central Greece.

The vegetation is characterized by a forest with Fraxinus angustifogliae, dominant tree and other spontaneous species as Ulmus minor, Populus alba, Salix alba and Ficus carica. The undergrowth (2-3 m high) is dominated by Vitex agnus-castus , Crataegus monogyna, Rubus sp., Rosa sempervirens, Pyrus amygdaliformis and Tamus communis.

An investigation of the breeding bird population density was carried out during the breeding season I985 and during the winter months I985. The birds breeding in Fraxos forest are 28 with a total density of I07 pairs/57,5 hectares. Eight species are dominant (D>0.05): Parus caeruleus, Parus major, Sitta europaea, Remiz pendulinus, Passer hispaniolensis, Fringilla coelebs, Carduelis carduelis, and Carduelis chloris. The migrant species (summer visitors) are 9 (32.I% of total number of species).

The percentage of non-Passeriformes is 25% of the total number of breeding species. The mean body weight of the breeding community is 80.65 g.

The birds present during the winter period are 27. Eight species are dominant (D > 0.05) : Troglodytes troglodytes Erithacus rubecula, Sylvia atricapilla, Parus major, Fringilla coelebs, Serinus serinus, Carduelis carduelis and Aegithalos caudatus. The migrants (wintering visitors) are I2 (44.4% of total number of species).

The mean body weight of wintering community is 74.I9 g.

Bird species diversity, Evenness index or Equitability and index of dominance are being represented separately for the breeding season and for the winter period.

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PREMIERE OBSERVATION DE LA SARCELLE SOUCROUROU (ANAS DISCORS) EN GRECE.

PAR M.GATHLICH ET CH.PAPAIOANNOU.

RESUME

UN COUPLE DE SARCELLES SOUCROUROUS (ANAS DISCORS) A ETE OBSERVE A MESSOLOGI PENDANT LE 25 ET 26 AVRIL 1986. CES DEUX INDIVIDUS ONT ETE OBSERVES DE PRES ET PHOTOGRAPHIE D'UN AFFUT.

LA SARCELLE SOUCROUROU EST UNE ESPECE AMERICAINE ET EST CONSIDERE COMME VISITEUR OCCASIONNEL EN EUROPE.-

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FIRST RECORD OF BLUE-WINGED TEAL (ANAS DISCORS) IN GREECE.

BY M.GATHLICH AND H.PAPAIOANNOU.

SUMMARY

A PAIR OF BLUE-WINGED TEALS (ANAS DISCORS) WAS SEEN IN THE LAGOON OF KLISSOVA (IN THE AREA OF MESSOLONGI), ON APRIL 25TH AND 26TH 1986.

THE TWO BIRDS WERE OBSERVED AT CLOSE RANGE AND PHOTOGRAPHED FROM A HIDE.

THE BLUE-WINGED TEAL IS AN AMERICAN SPECIES AND OCCURS AS A RARE STRAGGLER TO EUROPEAN COUNTRIES.

THIS IS THE FIRST RECORD OF THIS DUCK IN GREECE.-

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THE CITY - PIGEONS (Columba livia forma domestica) : AS AN ECOLOGICAL-MEDICAL PROBLEM.

F. SIGANOU and G. TSUNIS

SUMMARY

We discuss ecological and medical problems such as:Risk for the public health and damage for the monuments (Acropolis,etc), caused from the overpopulation of the city-pigeons.
We propose various methods of control:
a)- Necessity of census.
b)- Control of feeding.
c)- Control of the nests.
d)- Use of fisical "repellents".
e)- Farmacological control of their fertility.
f)- Capture with nets and
g)- Biological control with Jackdaws (Corvus monedula).

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SOME ASPECTS OF SYMPATRIC OCCURENCE OF TWO PETRICOLIC VOLES (DINAROMYS BOGDANOVI AND CHIONOMYS NIVALIS - RODENTIA, MAMMALIA) IN YUGOSLAVIA

B. KRYSTUFEK

A b s t r a c t

Dinaromys bogdanovi and Chionomys nivalis are petricolic voles with partly overlapping areas in the territory of Yugoslavia. As both species have similar if not identical habitat requirements, a marked scramble competition as well as niche displacement can be expected between them in the areas of sympatric occuurence. 16 regions of the mountainous areas of Yugoslavia in which lives at least one of these two species are analysed. Where occuring sympatrically, Ch. nivalis appears only on the border of the distribution area of D. bogdanovi and does not reach as far as the sea coast. Ch. nivalis usually occupies higher altitudes whereas lower sites are populated by D. bogdanovi. Thus, on one and the same mountain both species are to be found in the same trap line (i.e. sintopically) or else their populations live in separate areas. In the latter case they reveal either a mosaic distribution or populate different zones.

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THE STATUS OF BIRDS OF PREY IN HERCEGOVINA, SOUTHWESTERN YUGOSLAVIA

SAŠA MARINKOVIĆ

R é s u m é .

This paper is the result of three years long preliminary research. Its purpose is to enlighten the present day knewledge of the distribution and numbers of diurnal birds of prey in Hercegovina.
Hercegovina is situated in the South-West of Yugoslavia and covers an area of 9835 km^2. It offers a variety of climate ranging from Mediterranean, alpine in the north where the chain rises up over 2000 m in altitude, to the continental type only in the mountain plains.
From 26 recorded species of raptures on this area 13 species were found on breeding. Two new species were recorded on breeding.
The main factors contributing to the decline of raptors and their protection were also discussed.
The rapid extinction of species saloted to feeding with carkas and the use of poison cyanide were also recorded.

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THE I.W.R.B."MIDWINTER WATERFOWL COUNTS" IN GREECE, 1967-1987 : A PRELIMINARY ANALYSIS OF THE POPULATIONS OF ANATIDAE.

by G. I. HANDRINOS

SUMMARY

Many thousands of waterfowl (ducks, geese, swans, coots and other waterbirds) and waders are wintering every year in the countries of the Mediterranean basin. The wetlands of this region have thus a very important function in a critical stage of the biological cycle of these birds.

Since wintering waterfowl have their peak population usually in January, the "International Waterfowl Research Bureau" (I.W.R.B.) has started, in late 60's, to organize a series of midwinter counts mainly of Anatidae, but today of all waterbirds too (herons, pelicans, cormorants etc).

The counts are being done on fixed dates,but always in January and in as many countries as possible, so that the results will be comparable.

This simple way of assessing waterfowl populations has proved to be a valuable means of wetland evaluation, by providing a set of criteria for selecting sites of international importance.

The "Midwinter Waterfowl Counts" have started in Greece in 1968 and went on irregularly until 1978. After a pause of four years started again in 1982 up to now and since 1986 are organized and coordinated by the "Hellenic Ornithological Society".

This paper is just attempting a brief presentation of the counts and a preliminary analysis of their results focused only on the data of Anatidae and the Coot, which are the most complete.

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THE VALIA-KALDA (PINDOS) NATIONAL PARK,GREECE: FLORA,FAUNA AND CONSERVATION PROBLEMS.

G. TSUNIS Dept. of Zoology - Parma University.
M. MALAKOU and G. SFIKAS.

SUMMARY

Nowadays 10 National Parks exist in Greece covering a total surface of 160.000 hectares,that is 0.5% of the nation's surface.The National Park of Valia-Kalda is one of them it is placed in the Mount Pindos range,one of the remotest parts of northern Greece.

FLORA:The Park area is covered by large forests of Black pine Pinus nigra and by Balcan pine Pinus heldreichii.

On the northern slopes these two species give place to the Beech-wood Fagus sylvatica.Among the Black pine forests and the Beech-wood a few scattered Macedonian firs Abies borisii regis.In the locality Kokkina Pefka,close to Arcoudorema can be found 40 speciemens of Scotch pine Pinus sylvestris.

Many endemic plants of central and northern Greece grow here.

The most important areas where many rare species are concentrated,are the slopes of the Aftià,Flegga,Kapetan Klidi,Kakopleuri peaks and in particular the Koufala area.

FAUNA:For what concerns avifauna,special attention shoud be given to some species whose presence shows a relative environmental integrity.

The presence of the Imperial Eagle,Griffon,Egyptian vulture and the rare Lanner falcon,explains this area's great ornithological importance.Another important feature is the presence of 8 Wood-pecker species out of the 10 recorded for the Western Palearctic.

The presence and nearly sure nesting of two species of high zoogeographical value as the Shore Lark and the Great grey.

Very interesting is the presence in the park of the Brown bear,Wolf,Otter,Wild Cat,Balcan Chamois and the Roedeer.

The Valia-Kalda area and Flegga lakes have a very interesting amphibian fauna also the herpetofauna includes some typical Balkan reptile species.

Conservation problems and proposal are discused.

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SANTORINI - LIFE ON AN AEGAEAN VOLCANO

A color-slide presentation

By. H. SCHMALFUSS

Summary

This color-slide presentation gives a summarizing survey of the present-day fauna and flora of the Santorini-archipelago. The strong ecological impact of the human inhabitants is taken into account, and first cautious answers are suggested to a number of interesting biological questions connected with the extraordinary volcanic history of this group of islands. It can be definitely stated that at least some organisms have survived the tremendous eruption 3500 years ago, and comparisons with non-volcanic islands show Santorini to have corresponding species-numbers and thus the same degree of ecological differenciation. This means that the losses caused by the volcanic catastrophe have been completely compensated by re-colonization during the past 3500 years.