



**FIRST SYMPOSIUM
"FAUNA AND FLORA OF THE ATLANTIC ISLANDS"**

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ABSTRACTS / RESUMOS

MICROCLIMATE AND RELATIVE HABITAT CONSTANCY ON THE ATLANTIC ISLANDS AND THE MOUNTAINS OF NORTHWEST AFRICA AMONG *EUPHORBIA* SPECIES AND LICHENS

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In the light of habitat ecology, there are coincidences among the flora and vegetation of the Atlantic Island groups and the mountains of northwest Africa. With increasing aridity from north to south and east to west, the floras are impoverished in number generally, but common or vicariant species occur in comparable habitats or even microhabitats under a more stressful macroclimate. The microclimate of the hemispherical shaped *Euphorbia* species is regarded as an example providing suitable growth conditions for e. g. seedlings and cryptogams. The lichen colonization of the Atlantic Islands even in suitable microhabitats and some evolutionary questions are discussed.

JUVENILE COASTAL WATERS FISH ASSEMBLAGES IN THE CANARY ISLANDS

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Juvenile stage fish assemblages in coastal waters was analysed for the purpose of obtaining an ecological relationship between fish species and the habitat where they are maturing.

The biological samples were obtained from the local fishing fleet. Most of the species (principally sparids) are of commercial value.

The relationships have been established so as to understand the spatial dimension (fishing area, sea-bed quality, fishing gear used) and temporal dimension (diurnal and seasonal variations).

POSTER

SHALLOW-WATER BENTHIC CNIDARIANS OF ILHA DO SAL (CAPE VERDE ISLANDS): ECOLOGY AND ZONATION OF MAJOR SPECIES

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Cnidarians were collected by SCUBA diving along line-transects perpendicular to the shore, from 33 m depth up to the sea surface. Despite some taxonomical uncertainties (due to the poor faunal knowledge of the region: in some cases species were tentatively identified with their west-Atlantic relatives), a total of 19 'major' species (i.e. those which can form physiognomical 'facies' due to their abundance or conspicuousness) were recorded in 5 cnidarian zones, recognised through multivariate analysis techniques. *Actinia equina* was the only species collected in the lower midlittoral. A *Millepora* zone was defined on exposed infralittoral rocks, 0 to 5 m depth: besides *Millepora* sp. (a complanata-like growth-form), *Halocordyle disticha* was the only important cnidarian species. Mixed coral assemblages (*Millepora* cfr. *alcicornis*, *Palythoa* cfr. *caribaeorum*, *Siderastrea radians*, *Porites astreoides*, *P. porites*, *Favia fragum* and *Balanophyllia "italica"*) were found on infralittoral bottoms, down to about 15-20 m depth. A greater depths, *L. gaini*, *Eunicella granulata*, *E. papillifera*, *Antipathes* cfr. *pennacea*, *Antipathes* sp. and *Stichopathes* aff. *lutkeni* were found overhangs and lava-tunnels 1 to 24 m depth were inhabited by *Tubastraea* cfr. *aurea* and *Cnidoscypus marginatus*.

THE MARINE ALGAL FLORA OF THE AZORES AND ITS BIOGEOGRAPHICAL AFFINITIES

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Studies on the marine algae of the Azores go back only just over a century, although in comparison to mainland European Atlantic coasts the Azores flora has been less well-known, its isolated geographical position has encouraged a recent resurgence of algal interest resulting in many new records. Currently 288 species are listed, comprising 48 Chlorophyta, 57 Phaeophyta and 183 Rhodophyta. Ten species appear to be endemic (5 Chlorophyta, 5 Rhodophyta) but most are of taxonomically difficult groups (*Cladophora*,

Corallinaceae, *Polysiphonia*) and their status is questionable. several hypotheses have been proposed as to the floristic relationships of the Azores marine flora; some point to affinities with west Africa and Macronesia, others to the Mediterranean or America. The situation is complex with different algal classes showing different affinities. A mix of southern and northern elements is present in the flora together with those that shows transatlantic (Mediterranean - Caribbean) links. A few species are known only through drift specimens. results of a new analysis using numerical methods and more complete data set generally support these conclusions. Ordination of individual island floras suggests a separation of algal floras following geographic grouping.

THE RAVEN *CORVUS CORAX* AS SEED DISPERSER OF VASCULAR PLANTS IN ISLAND ECOSYSTEMS (CANARY ISLANDS)

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This paper presents the role of the Raven *Corvus corax* as seed disperser in the Canary Islands, by analyzing 2.502 pellets collected on all the islands and islets in the archipelago. Seeds belonging to 16 vascular plant species have been found, of which 4 (25%) were endemic to the Canary Islands, 3 (18.8%) were endemic to the Macronesian islands, 6 (37.4%) were not endemic, and 3 of them (18.8%) were introduced by man.

In the germination tests, digestive treatment by *C. corax* significantly enhanced the germination of those seeds with certain consistence in the external testa, as *Juniperus cedrus* (11.7% more germination than control ones collected directly from the plants), *Juniperus phoenicea* (10%), *Opuntia ficus-barbarica* (21%), *Opuntia dillenii* (12.9%), *Phoenix canariensis* (52%) and *Plocama pendula* (26%).

During this study, *C. corax* dispersed 100.208 seeds, of which 78.3% were ejected in habitats theoretically optimal and only 21.7% were regurgitated in unfavourable habitats. *Corvus corax* is important as a seed disperser of *Juniperus cedrus*, *Juniperus phoenicea*, *Phoenix canariensis*, *Asparagus pastorianus*, *Rubia fruticosa*, and *Opuntia ficus-barbarica*.

C. corax ingests fruit and seeds of all sizes. This ability is advantageous for the fitness of the plants because the biggest, more vigorous seed sizes are included in the dispersal.

Finally, although this corvid has been considered a sedentary species, it seems probable that it has played an important role as a local seed disperser in the Canary Islands colonization of many plant species from the African Continent.

BIOFAR-MARINE BENTHIC INVERTEBRATES OF FAROESE WATERS

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The BIOFAR-programme is financed by the Faroese Government and the Nordic Council of Ministers. More than 800 samples were taken by an assortment of dredges, sledges and grabs. The samples were sorted to more than 60 taxa and identified by about 65 international taxonomists. So far, decapod and isopod crustaceans, bryozoans and molluscs have been identified and entered into the database, which was specially designed for the programme.

The oceanographic regime is complicated. In rough outline, North-Atlantic-Water (>35.3‰) passes around the Faroes and mixed with East-Iceland-Water (2-3°C, <34.9‰) to the north and east of the islands. Below about 500 m Deep-Norwegian-Sea-Water (-0.5°C, 34.92‰) passes to the south and west of the islands emptying into the Atlantic basin. Thus, very varying bottom temperature regimes are present in the area. Dr. Håkan Westerberg, University of Göteborg, Sweden, provide maps of measured and interpolated bottom temperatures for faunistic and zoogeographical analyses. The banks west of the Faroes act as large, shallow seamounts with coarse and fine shell sand. The meiobenthos proved to be unique in diversity and zoogeographical relation. Also, the macrofauna includes postglacial relicts.

The programme will result in a complete overview of the marine benthic fauna from 100 m to the deepest portions of the area. Recently, an Icelandic programme has been started with an identical concept and with the same internordic scientific committee.

STRUCTURE AND ZONATION OF ALGAL TURF COMMUNITIES ON THE AZORES: A NUMERICAL APPROACH

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An appraisal of benthic marine algal communities of the Monte da Guia marine nature reserve (Faial) was undertaken as part of the international investigation "Expedição Açores 1989". The first detailed account of subtidal algal communities and zonation for the Azores archipelago is presented. In the field quadrats were sampled at depth intervals along five transects from the littoral fringe to deep sublittoral levels. Although some intertidal shores were barnacle-dominated much of the vegetation was characterised by a dense algal turf externally uniform in appearance and mainly articulated. Corallinaceae, together with filamentous and filiform Chlorophyta, Phaeophyta and Rhodophyta. It extended to at least 30m depth. The structure and significance of algal turf as an ecological formation is considered.

Numerical analytical methods (Decorana and Twinspan) provided the best means of comparing samples in order to assess similarities and differences. In general the results showed some differences between sites investigated, but no distinct zonation of algal assemblages down to 20m. Intertidal zonation varied according to wave-exposure; where a coralline turf was present there was little variation in species composition and abundance with shore level and continuity into the shallow sublittoral.

HABITAT RELATIONSHIPS OF COLEOPTERA FROM THE MADEIRAN ARCHIPELAGO

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Expeditions from Manchester (1981 to 1991) to the Madeiran Archipelago collected Coleoptera from a number of sites covering a wide range of habitats. The Maximum Likelihood Coefficient of Similarity was used to group sites on the basis of their coleopterous fauna. The similarities recorded between major collection areas (principally the different islands and the Madeiran Peninsula) was, in the main, consistent with island distribution. However, a complex pattern of site similarities resulted from the analysis of site specific data: The relationships between the groups of sites produced by the similarity analysis are discussed in relation to habitat characteristics and species distribution.

POSTER

ASPECTS OF THE ECOLOGY OF *CLEONUS CONICIROSTRIS* ON SELVAGEM GRANDE

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Cleonus conicirostris (Oliver 1807) is a widespread species in the Madeiran and Canary Islands. It appears to be spreading within the Atlantic Islands, especially in dry, sandy areas, having only recently been recorded from the Madeiran Peninsula. During an expedition to Selvagem Grande from Manchester, the species was found to be very common around bushes of *Suaeda vera*, clumps of which are clustered around the plateau of the island. The distribution of species and its mobility were investigated in one area of the plateau. The results are discussed with respect to its apparent association with the shrub.