AN ALTERNATIVE BIOGEOGRAPHICAL REGIONALIZATION OF SLOVENIA (AS A POSSIBLE CLUE FOR SURROUNDING COUNTRIES)

Boris SKET
Department of Biology, University of Ljubljana, Slovenia

Most attempts at the biogeographical regionalisation of the World (as well as of Slovenia) have been conceived as unified systems either for the animal world (Hadži, 1930; Bole, 1981), that of plants (Horvat, 1954; Meusel *et al.*, 1965; Wraber, 1969), or of both together (Matvejev, 1961, 1991). However, these organisms have at their disposal very different means of expansion and dispersion. This is only to a low degree bound to their gross taxonomic affiliation (even in the sense of plants *vs.* animals) and mainly depends on their active or passive means of locomotion, ethology, competition fitness, habitat type and other niche characters, niche specialisation degree, *etc.* Taxa of different dispersal abilities have therefore often been either excluded from certain distribution schemes, or alternatively they caused a great complexity of them if their so-called ecological and historical biogeographies had to be combined. This paper is an attempt to partition a region within a realm (*e.g.* the Palaearctic) differently for different types of biota. Three biogeographic patterns have been recognised.

- Pattern 1: **the pattern of the territorially fixed** fauna and flora is mainly historically founded. These are mainly the biota of "cryptic" habitats like soil, hypogean habitats, and springs; however, some inhabitants of very exposed habitats belong here, like some lizards or mainly lithophilous plants. Slovenia could be divided in this context into a (1a) **Dinaric,** (1b) **south alpine,** and (1c) **prealpine-subpannonian regions.**
- Pattern 2: the **pattern of the territorially unbound** fauna and flora is mainly ecologically founded. It concerns organisms with great dispersion and competition abilities and either low niche specialisation or even the ability to influence local climates (*e.g.* tree species). A large portion of terrestrial animals and plants as well as animals of stagnant waters, most of the running water fauna, and nearly all the aquatic flora belongs here. Slovenia could be divided into a (2a) **high alpine,** (2b) **alpine-dinaric,** (2c) **prealpine-predinaric,** (2d) **prepannonian** and (2e) **submediterranean regions;** 2b and 2c being hardly distinguishable.
- Pattern 3: the **pattern of the stream fauna (and flora?)** is mainly influenced by recent hydrographic connections. It mostly concerns fish faunas and, to a much lesser degree, invertebrates. Slovenia could be divided into the (3a) **Danubian** and the (3b) **Adriatic regions,** while the (3c) inner karstic region without the surface outflow is only characterised by the lack of some species.

In the overlapping parts of the submediterranean region (of territorially unbound biota) with the dinaric region (of territorially bound biota), a particularly rich combination of the thermophile fauna/flora and the endemic relicts occurs. This is particularly perceivable further southeast in Slovenia.

Key words: biogeography, biotic classification, Slovenia, Balkans

LATE QUATERNARY CLIMATE CHANGE IN THE EASTERN MEDITERRANEAN

Warren J. EASTWOOD
School of Geography and Environmental Sciences, University of Birmingham, UK

The Mediterranean is located in a sensitive climatic zone that straddles the subtropical high pressure belt and the Westerly circulation system. Recent studies have shown that during the late Pleistocene this area was highly susceptible to the global effects of changes in ocean and atmospheric circulation in the North Atlantic. The record of climate change obtained from isotopic studies from the Greenland ice cap highlight the marked swings in climate for regions bordering the North Atlantic during the late Pleistocene but suggest that the overall climate for the Holocene period has been uniquely stable, with the exception of a marked event at 8,200 cal. yr BP. However, individual records from a variety of sources (pollen, diatom, lake level, mollusc, ostracod, stable isotope) have the potential to provide regional patterns of climate variability. This paper reviews and synthesises our understanding of late Pleistocene and Holocene changes in climate and assesses the importance of these data to the prediction of future climate changes and issues surrounding natural resource management and biodiversity.

Key words: climate change, Pleistocene, eastern Mediterranean, palaeolimnology, pollen