# The subspecies: a personal view.

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The number of subspecies-rank species-group names has now reached almost 'self destructing' proportions in the popular, colourful and more variable groups of Lepidoptera, such as the Rhopalocera and Zygaenidae, to name just two. Reiss & Tremewan (1967) listed over 120 subspecies-rank names of *Zygaena carniolica* Scopoli 1763 and *Parnassius apollo* Linnaeus 1758 suffered in a similar way: subspecies of *P. apollo* have been described from places where this species never occurred in recent time. A list of similar examples could be continued almost indefinitely. The explosion of subspecies-names started some time at the beginning of this century and will be always connected with authors like C. Oberthür, H. Fruhstofer and "record holder" R. Verity; nothing seems to suggest that the present day collectors will – in their majority – voluntarily stop this inflation of unjustified and unnecessary available species-group names. The chances that a well meant voluntary code or a committee (Larsen 1978) could courtail this "infection" are negligible (Kudrna 1978).

The aim of this brief preliminary paper is to outline point by point some of the more important objections which alone make the subspecies an almost useless category in the systematics of Lepidoptera, a category which outlived its usefulness some time at the end of last century. Although this paper is intended strictly for the butterflies and moths it is likely to find some application also outside the order Lepidoptera, among the other "subspecies prone" groups of Insecta.

A taxonomic category lower than the species is useful only if it can be precisely defined and the points of its definition readily and objectively applied to the specimens classified. A precisely defined category is more difficult to relate as it requires additional data on the classified material, a vague category becomes useless. A compromise (Mayr 1971) allows subjective classification: the unit of classification differs from author to author and each time causes undesirable changes in the nomenclature which in turn lead to instability and incomparability.

The category subspecies evolved from the so called 'variety' – a geographical race. Geographical variation is one of many types of infraspecific variation: genetical, physiological, ecological, pathological and other forms are known to exist. Strangely, the International Code of Zoological Nomenclature recognized beside the species also the

subspecies — a geographical form — and excluded all other infraspecific forms. This misguidned decision created the so called 'infrasubspecific form' as its byproduct, one of the causes of the instability of species-group names. It is most doubtful that the geographical variation is of greater evolutionary significance than the other types of variations and it is very naive to expect that the pure geographical form — subspecies — exists in nature.

The subspecies is judged purely on morphological grounds and gauged according to other geographical forms of the species; the sibling species show that morphological diversity is not the most significant development in the process of speciation. The subspecies is also supposed to have a definite distribution, which differs from that of the other subspecies; there are no means of an objective definition of a range of any taxon and ranges are known to change. Geographical isolates present no real difficulties as they can be treated 'correctly' or 'incorrectly' as either species or subspecies, there being no decisive swing either way, except that the binomen is more accurate and and serves as a useful simplification.

The species is the only natural unit of classification — there are also units which have not reached the full degree of speciation, but they are in minority and a simple trinomen is not the true expression of their status and relationship. Together with the arbitrary genus the species forms a binomen that is adequate to denote any one taxon. The relationship among closely related taxa cannot be expressed by the incorporation of additional names in the combination or by the fabrication of the so called 'modern taxonomic categories'. Such relationships must be first studied and then explained, if they became known.

Geographical forms alone are hardly definite units of evolution; if they have to be mentioned, they can be described without being named and referred to according to the locality of origin (Wilson & Brown 1953); this applies also to other types of infraspecific variation where there are other 'indicators' to replace the locality. Taxonomy is more or less an auxiliary science and the results — the classification — must be stable and objective enough, that specialists of other disiplines can use it.

**References**

Kudrna, O., 1978. Subspecies. [In: Correspondence.] Antenna 2:69.
Larsen, T. B., 1978. Superfluous subspecies. [In: Correspondence.] Antenna 2:2.
Mayr, E., 1971. Populations, species and evolution. Harvard University Press, Cambridge, Mass.
Reiss, H. & Tremewan, W. G., 1967. A systematic catalogue of the genus Zygaena Fabricius. Series ent. 2:I—XVI, 1—329.
Wilson, E. O. & Brown, W. L., 1953. The subspecies concept and its taxonomic application. Syst. Zool. 2:97—110.