

A plea for the employment of scientific names and methods in lepidopterology, with special reference to butterfly conservation (Insecta: Lepidoptera)

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Abstract

The present paper critically reviews and rejects the growing use of vernacular names in lepidopterological literature and strongly recommends the use of scientific names for which there is no alternative. The necessity for changes of scientific names is outlined. Torturing of live butterflies by examination of their genitalia is categorically rejected on ethical and scientific grounds. The need for voucher specimens providing scientific reproducibility is stressed.

Zusammenfassung

Die vorliegende Arbeit kritisiert den wachsenden Gebrauch der landessprachlichen Schmetterlingsnamen in der Lepidopterologie und verlangt die Verwendung von wissenschaftlichen Namen, weil es keine Alternative gibt. Die Notwendigkeit gelegentlicher Namensänderungen wird erläutert. Die Folterung von lebenden Schmetterlingen zwecks Untersuchung des Genitalapparates wird abgelehnt und dies ethisch und wissenschaftlich begründet. Die unverzichtbare Notwendigkeit der Belegexemplare wird verdeutlicht.

Key words: Lepidoptera, butterflies, zoological nomenclature, scientific vs. vernacular names, reproducible scientific methods, voucher specimens.

Introduction

In his short paper on the butterflies of Armenia [BRERETON] (2013) makes reference to the following species: Azerbaijan Brown Argus, Gavarnie Blue, Kurdish Copper, Mountain Alcon Blue (is there also Lowland Alcon Blue, are they two subspecies of the same species called Alcon Blue?), Persian Fritillary, Persian Skipper and Southern Swallowtail. I do not know and have never read or heard these names before. I have no idea whatsoever what they mean although I probably know most of these species by their scientific names. I wonder how many British readers understand all the above fantasy names or at least what they imagine when

reading these names. I venture to suspect that for many readers they are something like exotic day active pretty unidentifiable flying objects (recommended acronym PUFO). Communicating information the addressees cannot understand makes no sense. Or am I mistaken in assuming that the purpose of the article mentioned above is to communicate information to readers? I assume that I know and can identify more butterfly species than an average reader of the journal *Butterfly* or an average member of the British Butterfly Conservation Society (BBCS). Yet I am lost reading the Society's journal with English vernacular names. What can be the purpose of these fancy names? I suspect that the names serve as a cryptic advertising aid to commercial travel agencies selling all inclusive butterfly watching trips for "butterfly watchers" and laymen. The fancy nicknames cannot be related to any known butterfly species but can dazzle uninformed potential customers! The participating customer does not know what he/she is buying and paying for. Does this business strategy constitute an offence under the trade description act? Does this activity comply with the scientist's social responsibility? Perhaps we had better used the commercial term "vendor"! Do the raids of snapshots greedy butterfly watchers pose a threat to valuable but vulnerable habitats?

Having read [BRERETON's] (2013) paper, I have written a critical letter to the unnamed editor of the Journal and sent it to the executives of the BBCS, usually referred to as "Butterfly Conservation", the publisher of the journal. I have never received a reply from the editor. However, the BBCS Chief Executive Dr. M. Warren informed me later (pers. comm.), that there is no space for letters to the editor in their attractively illustrated journal. Nevertheless, my open letter has appeared in the Newsletter issued for the members of the European Interest Group (EIG) of the above Society (KUDRNA 2014). I do appreciate this very much.

Curiously, in one of the following issues of the same journal, an article praising the English vernacular names and their more than 200 years long stable use has appeared (MARREN 2014). The author stated that "Today the Latin [sic] names of butterflies are rarely used except in scientific publications". The *Butterfly* is surely not a scientific journal. Nonetheless, MARREN (2014) is totally wrong referring to Latin [sic] names and pointing out, that more names are in fact Greek. Scientific names in zoology are not Latin names, zoological nomenclature is Latinised.

Summing up it appears that the primary purposes of the journal *Butterfly* are entertaining the BBCS members and butterfly watchers in general and promoting specialised guided butterfly watching package tours. A declaration that no part of the contents is intended to serve the purposes of research, science and zoological nomenclature would constitute a useful disclaimer under the Article 8.2 of the Code. It would be helpful if the publishers and editors of all publications similar to the *Butterfly* and subscribing to the aforementioned aims would include a similar disclaimer in every issue.

Vernacular names – what for?

Under certain circumstances vernacular names may be useful to denote a few species general public is likely to be aware of and could recognize in the field; they are also useful in publications written specifically for general public and for communication among laymen. FORSTER & WOHLFAHRT (1952-1955) in their praised standard work on the butterflies and larger moths of Central Europe used vernacular names for 56 of the 229 butterfly species of Central Europe, i.e. for 24.4 % of species they recognised. These species are usually common and widespread or otherwise attractive to laymen. HIGGINS & RILEY (1970) have apparently given in to the pressures of their commercially oriented publishers and fabricated an artificial vernacular name for every European butterfly species dealt with in their Field Guide. The purpose of the English vernacular names and the needless inclusion of "British" in the title of

their book was increasing the sales and thus improving profits. So far as I can remember L.G. Higgins and N.D. Riley have always used scientific names in communication. In the latest better illustrated edition of the same field guide (TOLMAN & LEWINGTON 2008) numbers cross-referencing figures to scientific and vernacular names on the facing text page have disappeared and are replaced by English vernacular names. This can be well illustrated using page 191. Illustrations of Twin-Spotted-Fritillary, Marbled Fritillary and Lesser-Marbled-Fritillary are *Brenthis hecate* ([SCHIFFERMÜLLER], 1775) *B. daphne* (BERGSTRÄSSER, 1780) and *B. ino* (ROTTEMBURG, 1775). Curiously, the Spotted Fritillary and Lesser-Spotted-Fritillary (p. 207) have also two or more rows of spots and bear scientific names of *Melitaea didyma* (ESPER, [1779]) and *M. trivia* ([SCHIFFERMÜLLER], 1775) on the facing page. In German, the species are called Roter Scheckenfalter und Bräunlicher Scheckenfalter respectively; it shows that translating vernacular names makes no sense. A layman can hardly recognise one species from the other.

It is most regrettable and disturbing, that English vernacular names of butterflies are nowadays spreading rapidly and have long found their way in bona fide scientific publications. This bad habit is threatening to spill over and infest all languages. Vernacular nicknames of butterflies cannot substitute scientific names. It may be believed that these nicknames are better understandable to the general public than scientific names. Nonetheless, it is pertinent to ask how many butterfly species live for instance in Europe compared with Great Britain and how many of them are known to and can be recognised by an uninformed layman. Only about every eighth European species occurs in Great Britain. Leaving aside up to four exceptions, all British species are widespread over most of Europe. Are the BBCS members to be ranked as uninformed laymen because they cannot learn or are unwilling to learn scientific names of less than 60 species? If the members of the BBCS in their vast majority are laymen – what are their observations and monitoring results worth? Should their ignorance or laziness be imposed on the whole continent of Europe? Should we learn English vernacular names for that reason? The use of vernacular names for butterflies in scientific and applied publications including biological conservation is a very bad and dangerous habit which has become a fashion. What is the background of this fashion? Is it poor general education of younger generations of academically educated researchers? Should Europe or the World be colonised by English vernacular names? There may be as many vernacular names for the same species as there are languages. Why should an Italian lepidopterist or a Spanish layman learn irrational English vernacular names if scientific Latinised names are much nearer to his mother tongue? Be it as may the plague of vernacular names threatens communication among students of butterflies (not only) in Europe.

Vernacular names are arbitrary nicknames selected and applied at random without system as they have evolved over decades of laymen communication. Generally, they are used in any country in the language or languages of the country for communication among laymen of that country. Why should English vernacular names be superior to those used in any other language? Like nicknames, vernacular names are not binding and exist without system or rules. Vernacular names are not unequivocal and stable as their advocates claim. A few examples illustrate this fact. On the one hand there are several butterfly species called Large Blue and on the other butterflies called Fritillaries in England turn out to be Checkerspots on the other side of the Atlantic Ocean. The Cabbage White in Britain is *Pieris brassicae* (LINNAEUS, 1758), but some call this species Large White. In N. America the same vernacular name, Cabbage White, denotes *Pieris rapae* (LINNAEUS, 1758), called in Britain Small White. The Green Veined White is *Pieris napi* (LINNAEUS, 1758) in Britain, but not in N. America, where the same vernacular name is applied to a few closely related taxa of the *Pieris napi* species-group.

Zoologists call this homonymy; it is prevented by the Principle of Homonymy of the Code. Another amusing example of “stable” vernacular names offers *Nymphalis antiopa* (LINNAEUS, 1758). It is called Camberwell Beauty in Great Britain and Mourning Cloak in N. America, in German it is Trauermantel in Germany and Sörgmantel in Switzerland – two languages and four names. Czech is spoken by about 10 million people and offers two names for the species; one of the names is, translated, Black Cloak. Even more curious is the case of *Nymphalis xanthomelas* (ESPER, [1781]). Reporting on the recent westwards migration at least four English vernacular names have been used for this species: Eastern Tortoiseshell, Greater Tortoiseshell, Large Tortoiseshell and Scares Tortoiseshell.

German vernacular names are no less illogical than English and can also be very amusing. Here are a few examples of many. *Colias hyale* (LINNAEUS, 1758) is called Gemeiner Heufalter (Pieridae) whereas Kleiner Heufalter is *Coenonympha pamphilus* (LINNAEUS, 1758) (Nymphalidae: Satyrinae); to “simplify” the matter, *C. hyale* is also called Weißklee-Gelbling and only a specialist can tell it in more than 50 % of the cases from *C. alfariensis* RIBBE, 1905. *Aglais urticae* (LINNAEUS, 1758) is called Kleiner Fuchs (Nymphalinae) whereas Mauer-Fuchs is *Lasiommata megera* (LINNAEUS, 1758) whereas congeneric *Lasiommata maera* (LINNAEUS, 1758) is called Braunauge (both Satyrinae). Nonetheless the irrational nuisance of vernacular names have already infested Germany. NUTT & SCHULZE (2014) report an interesting record of *Nymphalis xanthomelas* (ESPER, [1781]) from Nordrhein-Westfalen as “Östlicher Großer Fuchs” with the well known scientific name placed in parentheses although only a lepidopterist acquainted with its scientific name can distinguish the species from a widespread *N. polychloros* (LINNAEUS, 1758). Should we rename the latter species “Westlicher Großer Fuchs” just to please laymen who doubtless cannot distinguish these two species from each other? It is interesting to observe that the English names are very different: Large Tortoiseshell and Yellow-legged or Greater Tortoiseshell. German vernacular names of *Pieris napi* (LINNAEUS, 1758) are Rapsweißling and Grünaderweißling. One of the best examples showing the “usefulness” of vernacular names are Senfweißling, Linnees Leguminosenweißling, Verkannter Leguminosenweißling and Reals Weißling for *Leptidea sinapis* (LINNAEUS, 1758) and *L. juvernica* WILLIAMS, 1946, two species that can only be identified by the examination of genitalia.

There is no objective definition of the identity of any vernacular name, a fact most users of vernacular names probably do not understand because taxonomy is for many of them a strange topic. Vernacular names do not convey exact information on the identity and systematic position of the taxon they supposedly denote. It is safe to conclude: Vernacular names are chaotic and irrational; therefore they are unsuitable for communication among entomologists, they are simply nuisance – and it is putting it mildly.

The most curious argument in favour of the English vernacular names I have ever heard: Latin [sic] names are difficult to pronounce and our Continental partners do not understand us. No wonder! Latin is a language of its own right, very easy to pronounce for anyone who masters a few basic rules. Latin becomes unintelligible and indeed “indigestible” if pronounced the English way, as if the words were English.

The employment of vernacular names turns the wheel of time more than 256 years back and brings the science of lepidopterology to the pre-Linnaean time. Most regrettably, over the last few years, the English vernacular names of butterflies have found their way in scientific literature including the so called high impact journals and including some of the long tradition and high past reputation. Scientific names are either completely left out or placed in parentheses

after the vernacular name, i.e. after the nickname, not exceptionally without the name of the name's author, which may be interpreted as disrespect both to the author of the name and to the professional usage. A few examples of many: *Ecography* (WAHLBERG et al. 2002), *Journal of Insect Conservation* (VEROVNIK et al. 2013, VEROVNIK et al. 2014), *Oikos* (HANSKI et al. 2002, STICKZELLE et al. 2002). Are the publishers, editors and authors aware of the fact, that the journals are read by scientists familiar with scientific names and not accustomed to nicknames? There is also a considerable real danger that the "pest" of vernacular names soon spills over infesting other popular insect groups such as Coleoptera families Buprestidae, Carabidae, Cerambycidae, Scarabaeidae or Odonata and Orthoptera.

Advantages of scientific names

Almost exactly 256 years ago, a Swedish genius **Carl Linne** (1707 – 1778), then the professor of botany at the University of Uppsala, published the tenth edition of *Caroli Linnaei Systema naturae*. The true publication date according to the ICZN: 1st January 1758. Carl Linne is the author of the universal system of scientific names applied now in zoology and botany world wide. It was his great invention that has enabled the study of plants and animals. His system of names, the Linnaean classification, governed by the International Commission on Zoological Nomenclature (ICZN) and anchored in the International Code of Zoological Nomenclature (Code), facilitates the study of zoology. Without Carl Linne there would have never been Charles Darwin because he would not have been able to make unmistakable reference to the objects of his studies. Not only Charles Darwin, but any other zoologist after Carl Linne! The study of zoology in all its facets would be impossible without a general system of names understandable throughout the world. Furthermore, Linnaean classification allows the names to form a hierarchic scientific system of species, genera and higher categories to indicate their mutual taxonomic relationships resulting in a natural system.

Scientific names of species, a binomen consisting of a combination of a genus and species names, or a trinomen indicating the subspecies of a polytypic species, convey information on the species they denote and the species' place in the universal system. Every scientific name can be traced back to the original nomenclatorial act of its erecting. For every name there is a provision enabling an objective definition by means of the species' name-bearing type. The name bearing type of a butterfly originally named *Lycaenaalcon rebeli* HIRSCHKE, 1905, has recently enabled KUDRNA & FRIC (2013) to demonstrate more than 100-year-old history of misidentification the taxon denoted by the above species-group name. Every generic name is objectively defined by the nominal type-species. Scientific names form a universal world wide system of reference, the same for all languages, in which every species has only one valid name. There are strict rules for use of scientific names. The whole system of names is governed by the International Commission on Zoological Nomenclature (ICZN). The rules are known as the International Code of Zoological Nomenclature adopted by the International Union of Biological Sciences. The ICZN resides at the British Natural History Museum (BMNH) in London and has a recently founded branch in Singapore. The objective of the Code and the Commission is the promotion of universal and stable names of animals.

The advocates of vernacular names claim that vernacular names are stable whereas the scientific names keep changing. They are comparing incomparable and their claim therefore cannot be taken seriously. Whereas scientific names express the taxonomic status and relationship of the species, vernacular names ignore this because they are selected at random without any system. Since a scientific name expresses the taxonomic status of the species concerned, the name can change as the result of subsequent research. Carl Linne placed all

butterflies in a single genus: *Papilio* LINNAEUS, 1758. At the beginning of the 19th century the situation has started to change. Now his genus *Papilio* used in the original sense covers five butterfly families, in other words all butterflies. It is to be remembered (Preamble of the Code):

“(1) The Code refrains from infringing upon taxonomic judgement, which must not be made subject to regulations or restraint.”

“(2) Nomenclature does not determine the inclusiveness or exclusiveness of any taxon, nor the rank to be accorded to any assemblage of animals, but, rather, provides the name that is to be used for a taxon whatever taxonomic limits and rank are given to it.”

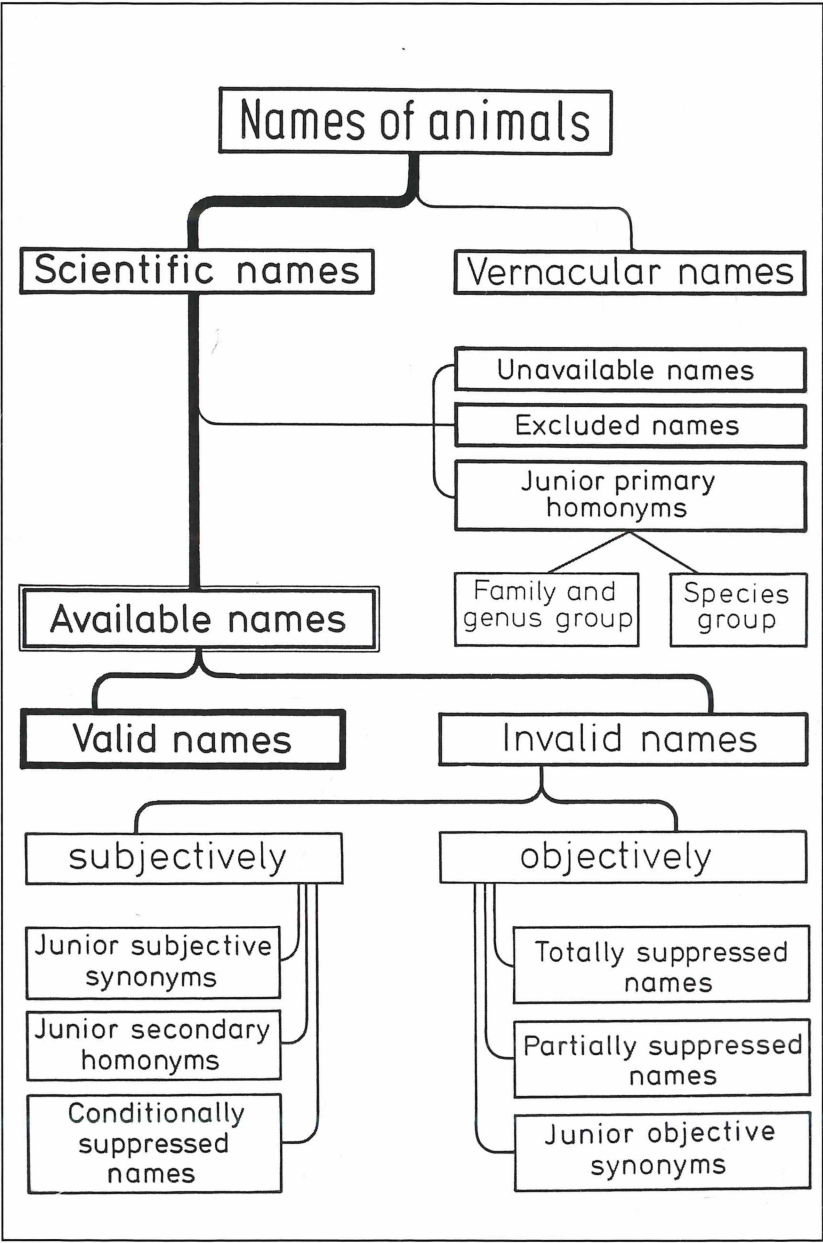


Fig. 1: Categories and status of names in zoological nomenclature (after KUDRNA 1986).

Voucher specimens and reproducible recording

Over decades, generations of butterflies and moths collectors learned to use scientific names, at least in a basic way. Their observations can be traced to voucher specimens now usually deposited in museums. The activities of countless entomologists, professional and amateur, have brought lepidopterology to its present high level. Their published results were reproducible in their time and in their majority they remain reproducible by our present standards, thus fulfilling the basic premise for scientific work. The present generation of butterfly watchers does nothing like that. Under the false notion of “saving” butterflies, i.e. not killing voucher specimens, they ignore the reproducibility of their observations.

The significance of voucher specimens may be a strange topic to the present generation of butterfly watchers and therefore requires explanation. Only thanks to extensive examination of voucher specimens and types in several major European museums, going more than 100 years back in time, KUDRNA & FRIC (2013) could recently establish the identity and status of a rare individual form originally named *Lycaena alcon rebeli* HIRSCHKE, 1905, misidentified and for decades mistakenly treated as a distinct species; the authors have demonstrated that ignorance of taxonomy and voucher specimens can easily fabricate a “ghost” species. There are many such examples. For instance, a large number of old records of *Colias hyale* (LINNAEUS, 1758) are now referable to *Colias alfacariensis* RIBBE, 1905; or that records of *Leptidea sinapis* (LINNAEUS, 1758) are in fact *Leptidea juvernica* WILLIAMS, 1946. Sadly the significance of properly preserved, identified and thoroughly examined voucher specimens subsequently deposited in a major museum appears to be underestimated also by bona fide scientists such as some molecular biologists. Discovering molecular species is a valuable contribution to the advancement of lepidopterology provided that the molecular species have valid names tied to name-bearings types.

It may seem curious, but the most comprehensive work on the Lepidoptera of Albania is now over 80 years old (REBEL & ZERNY 1931). I have laboriously converted their work for Mapping European Butterflies (MEB-3 Atlas in preparation). The classification has changed since 1931 and only thanks to the examination of the collection, i.e. the voucher specimens, deposited in the Naturhistorisches Museum in Wien I could re-identify several critical species. The best photographs or reports on the “examination” of genitalia of living specimens in the field would be of no use.

Lepidopterists are today generally seen as ‘black sheep’ or even potential criminals by fundamental conservationists and ideologically brain washed general public. It is well known for many years (e.g. KUDRNA 1986), that butterflies are threatened by the loss of habitat and that no European butterfly species has been exterminated due to collecting. It is also established that no European butterfly species has ever been saved by a ban on collecting. A ban on collecting, including a ban on close observation that may “disturb” butterflies, as imposed for instance by German and Spanish legislation, serves no useful purpose, except providing alibi for those, who destroy butterfly habitats, and indirectly blaming lepidopterists (s.l.), who are too few, to have a sufficient political lobby able to influence elections. A self imposed ban on catching (rather than on collecting) of butterflies, as postulated by the BBCS, is definitely counterproductive. It admits indirectly, that butterfly collectors are co-responsible for the decline of butterflies in Europe. The Butterfly Conservation Europe (BCE) should make the public, the legislators and decision makers aware of the indispensability of butterfly collecting and the necessity of voucher specimens for research and documentation purposes.

The latest ideological outrage typical of our time and indirectly chronologically coinciding with the spreading use of vernacular names is the examination in the field of male genitalia for identification purposes by squashing the abdomen of a living individual and subsequently letting the tormented individual die slowly of crushed abdominal entrails. Leaving aside the “human” aspect of this kind of “nature conservation ideology”, the results are not reproducible and the procedure has therefore nothing in common with science. The “identification” is the expression of the opinion of the butterfly watcher concerned, made at that particular moment under conditions unsuitable for making any statement alone for the lack of adequate optical instruments necessary for the purpose. Owing to the lack of voucher specimens, identification errors cannot be traced and shown later on and be put right. Ideology offers the butterfly watcher a false “protection” and makes of his/her observations impressions of little or no scientific value. The resulting lack of voucher specimens is detrimental to science. The false notion of doing good by rejecting direct killing of individuals by “do-gooders” turns to be slow indirect killing by tormenting. I have examined a few thousands of butterfly genitalia, under a microscope, after these have been properly dissected and mounted on a microscope slide. Despite my extensive experience I would never dream of “examining” the genitalia in the field; I reject this procedure as irresponsible maltreatment.

It is now argued by many conservationists (e.g. SPENCER 2013) that there is no more need for collecting butterflies in Europe. Butterfly fauna of Britain is extremely impoverished. It makes the identification of species compared to Europe very simple. Yet we do not know what *Leptidea* spp. live in Britain: *L. sinapis* or *L. juvernica* or both? And yet there appears to be a recently discovered molecular species provisionally called *L. reali* REISSINGER, 1990. Only collecting can enable the identification of the British species of the genus *Leptidea*. Only voucher specimens make sure that we know what we are talking about. I repeat: One of the preconditions of scientific recording and research is the reproducibility of results. It was not a photograph or an observation but a now over 256-year-old voucher specimen, the name bearing type, which has enabled to establish the identity of *Leptidea sinapis* (LINNAEUS, 1758) by means of the examination of genitalia (KUDRNA 2001).

Summing up, collecting is the only reliable method for research on and recording of butterflies. Voucher specimens stored in depositories (such as major museums) facilitate the subsequent revision of the identification and the proof of the record. Voucher specimens are available to science and absolutely essential for instance for subsequent revisions of the classification of taxa concerned, they enable checking and updating of records. Voucher specimens and collections are more important for the advancement of lepidopterological research, than the majority of butterfly watchers realize. Butterfly photos can be beautiful, but they are mere illustrations, they are no butterflies, no matter with what modern DSLR they have been taken. Self imposed ban on collecting advocated by the BBCS is like indirect accusation of “wicked collectors” refusing to confess and plead guilty for crimes they have not committed. Combined with irresponsible statements of “do-gooders” claiming that collecting and voucher specimens are no longer needed, it constitutes a real threat to lepidopterological research. Vernacular names are as useless as irreproducible records.

Closing remark – butterfly conservation

The British Butterfly Conservation Society (BBCS) is surely the initiator and leading promoter of English vernacular names for butterflies and their spreading all over Europe as names in their own right, not as bynames accompanying scientific names. This contradicts the activity of the BBCS President Sir David Attenborough, OM, who accompanied by Richard

Fortey, helps to raise funds for the International Trust for Zoological Nomenclature co-financing the International Commission on Zoological Nomenclature. It is sad that the BBCS takes no account of the fundraising activities of its president and no advantage of the resulting possible close cooperation with the ICZN. The institutions supported by the BBCS President can be proud of their over 100-year-old history.

Butterfly conservation (s.l.) appears to have reached crossroads. There are two ways to proceed. The first is based on the employment of scientific methods including the use of zoological nomenclature and utilising reproducible recording based upon preservation of voucher specimens. Adopting these principles butterfly conservation would become a branch of scientific biological conservation. The other way leads to butterfly watching as mere site seeing accompanied by making snapshots, similar to visiting castles and the like, as a way of pleasant and cultivated passing time. It is to be remembered that site seeing has little or nothing to do with archaeology. Quo vadis butterfly conservation?

Acknowledgements

I have a great pleasure in thanking Dr. Z. Balint, Prof. Dr. E. Balletto, M. Barkley, Dr. Z.F. Fric, Dr. S. Gaal-Haszler, Dr. M. Lödl, Dr. C. Luckens, G. Martin, H. Peks, Dr. S. Spencer, Prof. Dr. P. Stys and Dr. M.S. Warren for valuable information, discussion and comments.

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Autor(en)/Author(s): Kudrna Otakar

Artikel/Article: [A plea for the employment of scientific names and methods in lepidopterology, with special reference to butterfly conservation \(Insecta: Lepidoptera\) 27-36](#)