

A review of the paper of academician Zdravko Lorkovic “The
Rhopalocera fauna of Croatia with particular reference to the fauna of
Plitvice lakes”

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Encounters with academician and university professor Zdravko Lorkovic started for me with my being hired in the then Croatian National Zoological Museum in Zagreb, in December, 1985. The new job of trainee curator was created indirectly thanks to Professor Lorkovic, owing, that is to his collection of butterflies, which he had created for more than 70 years, and which were in his flat in the house in Cvjetno naselje in Zagreb. The academician donated his collection to the museum, now the Zoological Department of the Croatian Natural History Museum in Zagreb.

At the beginning of the 1990s, Academician Lorkovic was vigorously working on the last newly described species of the butterfly *Leptidea reali* Reissinger, 1989 (syn. *lorkovici* Real) in Europe, which has a broad European range, and its relation to the well known and broadly distributed species *Leptidea sinapis* (Linnaeus, 1758).

Academician Lorkovic was in a sense bound to the genus *Leptidea*, particularly to the species *Leptidea morsei* ssp. *major* Grund, 1905. This subspecies of Fenton’s wood white was described in 1905 by the Zagreb actor and well known butterfly specialist Arnold Grund, who was a big model to our teacher in his younger days.

During one of my meetings with the professor during the 1990s, he gave me a text of some 60 or so typed pages entitled *Fauna Rhopalocera Hrvatske s osobitim obzirom na faunu Plitvičkih jezera*, translation as in the title of this summary, written by Zdravko Lorkovic in 1954. The paper on which it was written with a typewriter and partially corrected was yellowed from the past fifty years. When I asked why he had not already published the article, the academician replied that it was too big, or at least too big for publication. Member of the Academy as he was, and what is more editor of *Entomologia Croatica*, he could have certainly published his paper in this journal, or some other journal published by the Academy. Probably his modesty, or the wish to work on the text some more, led

to its not having been published for more than the 40 years in the middle of the nineties.

After that period and association with the professor, and work in his collection, which he was very fond of, more than ten years has passed. The professor died, in his extreme old age, very active, working almost to his very last day, and published his last paper in his 99th year. But this text about butterflies in Croatia, no. Thanks to the kindness of the current editor of *Entomologia Croatica*, Professor Paula Durbesic, it has been made possible to publish this extremely interesting and, for our area, extremely important paper of Professor Zdravko Lorkovic.

With respect to his collection, I can hardly fail to mention how it came into the museum. The professor was extremely attached to it, but in the early 90s, of course, war broke out. Since he lived closed to the government building close to the Sava River, he was afraid that the building might be shelled, and, heavy of heart, he asked us to move the collection to the museum, protected in metal cases. This we did, and the day after that was the well-known rocketing of the Upper Town, in which the museum itself was damaged. One of the first calls was from the professor, asking if everything was well with his collection. Luckily, everything was, as with all the other collections in the museum. I have to say that because of the specific features of the collection, the crosses of the various species that the professor carried out, it was an object of desire for many museums in Europe, who would have liked to have it and give it space.

But to go back to the actual paper. When reading this paper, one has to bear in mind the fact that it was written in 1954, and that it is now published in almost unchanged form, apart from the addenda and changes that the author himself made, not however essentially modifying the paper. That is why there are questions in the text, relating to the feeding plants, numbers of chromosomes and more recent similar insights related to all aspects of the biology of butterflies that we know today, questions that are all relevant to the time when the text was written, in the 1950s. None of these new understandings, and all the data that relate to the numerous new findings, the distribution of butterflies in Croatia, were incorporated into the text. If the professor had been here, he certainly would have included them, but in this situation it was decided to print the text in its original form. Accordingly the authenticity of the text has been completely preserved, including Professor Lorkovic's specific and individual manner of writing.

Because of all this, anyone who reads this paper will have to pay attention to the fact that it was mostly created half a century ago. Because of the complexity and the vast amount of facts that we have today concerning butterflies in the area

of Europe, any changing of text and putting in the numerous new understandings that have accrued about almost everything that Professor Lorkovic mentions would lead to enormous changes in the text, which would no longer be his. I think that he would never agree to someone else making changes, with his name still being given as that of the author. Hence neither the systematics been changed (families, genera, species), or the today questionable finding of some species in the area of Croatia, or their taxonomic status, for example with the species *Pyrgus trebevicensis* Warr.

In the wish to give the best possible illustrations to the work of Professor Lorkovic, pictures from his papers have been given.

Publication of the text was also prompted by consideration of its cultural dimension, that is the value and interest of the Croatian language of the period of the 1950s, the manner in which he writes, and the knowledge that is put forward. These were all additional segments in the decision making to publish the original form of the text, written though it was more than 5 decades ago. This is the only correct thing to do, because it makes the text his own recognisable piece of work. I have to point out that understanding of the fauna and flora of a country is just as much a cultural segment of the people that live there as the knowledge of that people's language, history, archaeology and the like. And the fact gives additional value to the work of Professor Lorkovic and its publication.

In this text, for the first time, a comprehensive review is given of on the one hand the butterfly fauna of Plitvice Lakes National Park and on the other a thoroughgoing depiction of the butterfly fauna of Croatia. These two facts give added value to the publication of the manuscript.

Apart from the introductory part, in which the professor gives a detailed account of some of his original viewpoints on butterfly taxonomy and problems related to it, and a historical review of research into butterflies in Croatia and Plitvice, in the second part of the text a systematic review of the butterflies of Croatia with particular reference to Plitvice Lakes fauna is provided. For each species, the professor gives some given biological features, the number of generations, the ovipositioning plants, the stage in which the species overwinters, the distribution and the haploid number of chromosomes. More than 180 species have been dealt with in detail, and the professor subsequently counted another ten or so species that were established in Croatia after the writing of the text.

At the end I should express my gratitude to the editor of *Entomologia Croatica*, Professor Paula Durbesic, for having summoned up the strength and courage to have this what I find to be an exceptionally important and valuable text printed and thus accessible to a wider circle of scientists. Here I must also point out the

important and positive role of the agricultural scientist Bogomir Milosevic, a long-time acquaintance of Professor Lorkovic, who had one of the versions of the text and with great kindness let me have a look at it. Also, I am very grateful to mr Ivo Durbesic for his tehnnical help in preparation of text of Profesor Lorkovic.

Writing these words, I recall two moments that I recall very well, in connection with Professor Lorkovic, the words "I think that I have never made great mistakes in my scientific work" and "there are no great things in science; on little big understandings and scientific solutions are built". I very often think of these ideas of his. He was a great scientist, perhaps the best in this country in the 20th century, modest, yet nevertheless aware of his worth. He was proud of a text that he published in his 86th year concerning the features of the chromosomes of butterflies, which world experts in the field declared the best yet written. And at that time, as I already remarked he was 86. An now, when I read works of a more recent date dealing with the status of species, the problems of hybrids, various concerts in biology or the evolution of species with the employment of molecular methods, I cannot fail to recall the professor having written of many of these themes long, long ago. And offering original and distinctive scientific solutions. I personally think that some of his research, the breeding and crossing of butterflies to the 14th generation, the analysis of chromosomes, fieldwork from France to Macedonia, laboratory research, drawing and data processing belong among the most complex biological research carried out in zoology or evolution in the 20th century at all. The motivation was always in the understanding of the concept and important of the species, and the processes that lead to speciation. Species, concept, appearance and changeability, was the basic segment in his rich scientific oeuvre and his highly distinctive scientific research.

This text about butterflies in Croatia is just a small contribution to the further discovery and a possible overview of the greatness of the work of Professor Zdravko Lorkovic. He was a forerunner, and like all great men, much in front of his time. For this reason I hope that some of our younger fellow scientists will in the future be able to make a comprehensive, exhaustive, objective and high quality evaluation of the works, labours and results of Academician Lorkovic. Once more, thanks to our much-appreciated editor, Paula Durbesic, for having consented to the publication of the work and for giving me the honour of having space to write down some of my recollections of Professor Lorkovic and of his paper, which we are now publishing.