DOWNLOAD PDF GUIDE TO NABOKOVS BUTTERFLIES AND MOTHS

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*A guide to Nabokov's butterflies and moths [Dieter E Zimmer] on racedaydvl.com *FREE* shipping on qualifying offers.*

Howe , who generously allowed them to be reproduced here. In Lep13, Nabokov added a fifth species, Cyclargus ermbis see under Cyclargus ammon erembis. Though not formally demoting Cyclargus, Norman D. However, a close morphological study by Johnson and Matusik has explicitly reinstated Cyclargus. They added two more species, both from Hispaniola, Cyclargus sorprsus K. The revalidation of Cyclargus confirmed this restriction. Nabokov had received a specimen from Oxford for examination. Nabokov in Lep13 recognized that it belonged in his new genus Cyclargus, calling it Cyclargus erembis. Nabokov predicted that it would also be found on Cuba. The holotype is at the Natural History Museum in London. According to Nabokov, it was a genus neglected by entomologists since W. Edwards first described its Nearctic members. Nabokov described it thus: In Int1, Nabokov is hunting for it again. The range of all three satyrs C. The reluctance came from the fact that he had not come across any of its females. Shortly afterward, however, he found the missing females at the United States National Museum and reported his find in Lep6. The holotype is at the Harvard Museum of Comparative Zoology. The type-species is Echinargus formerly: According to Lep9, there is only one other species, a new one from Trinidad which Nabokov did not name because he had learnt that W. It belongs to the Polymmatus section of the tribe Polyommatni and included five species:

Chapter 2 : Page 18 - Guide to Nabokov's Butterflies and Moths

The purpose of the Guide is to list and identify all butterflies and moths mentioned or alluded to, directly or obliquely, in Nabokov's writings and to supply various additional information. The main catalogue section lists all specific Lepidoptera by their current Neolatin name.

He was a pious man and believed he was merely uncovering the divine plan, neatly arranging into a system what a supreme artificer had wisely and orderly created. All species, he and his coevals believed, had been created within a week and had stayed the same ever since. Species were something fixed, immutable, never-changing. They were all of the same age, and new species did not arise. There were no blurred borders between them. Each was the embodiment of a different divine idea, so to speak. True, there were variations within many of them. They did not disturb early naturalists too much who dismissed them as alterations of the type that had been brought about by some action of the environment. They were similar because they were related to each other and descended from one another. The manifold forms of nature are the result of that slow and steady branching process known as evolution. For systematics, this brought a change. Overall similarity was not enough to place any two species in the same genus, or any two genera in the same family. Similarities, in fact, may be quite misleading. Ideally, for taxonomy to reflect phylogeny, all members of each unit of classification called a taxon should be descended from one ancestor. Every species of a genus should be descended from one early ancestor, as every family of genera should be descended from only one still earlier form. The problem is that it is not easy to determine whether any one group is monophyletic. If different features are examined say, wing venation, the shape of the antennae or the knobs on the caterpillar , conflicting hypothetical lineages may ensue. When what is visible to the naked eye did not seem conclusive enough any more, entomology turned to anatomical dissection under the microscope. As a result it became evident that many species which had been placed in the same genus because of their over-all similarity could not be descended from the same ancestral form. In these cases it was time for a nomenclatorial change. The whole genus and the related genera had to be reexamined and reevaluated. Sometimes with a lot of reshuffling, the whole bunch then was rearranged. There has been a bewildering amount of renaming in lepidoptery. Still, the typological concept of the species held on far into the twentieth century. In his younger years, Nabokov had witnessed it crumbling. The conventional "philatelistic" approach to lepidoptery had been toppled. Early in the century, Nabokov wrote in his memoir, there was a change "which coincided with my ardent adolescent interest in butterflies and moths. The Victorian and Staudingerian kind of species, hermetic and homogeneous, with sundry alpine, polar, insular, etc. The evolutional aspects of the case were thus brought out more clearly, by means of more flexible methods of classification, and further links between butterflies and the central problems of nature were provided by biological investigations. Anyway, as soon as he convinced himself how successfully American lepidopterists like William P. Comstock at the American Museum of Natural History were practicing genitalic dissection, he learned the methods and became an ardent partisan and an expert in this kind of structural analysis himself. Nabokov emphatically sided with the innovators. It so happened that in the forties another paradigm shift was in the works, one that was to revolutionize all of biology. It was the Neo-Darwinian turn merging Mendelian genetics and the Darwinian explanation of evolution through mutation and natural selection. This time Nabokov did not side with the new. He never finished let alone published it, but the feeling seems to have remained with him. The biological species concept that evolved along with the Neo-Darwinian synthesis was not a necessary corollary but emerged from the same quarters. The common-sense view that had prevailed through the centuries was that a species simply is any group of organisms that look very much alike. One species was told from the other solely on morphological grounds. Obvious morphological characteristics in Lepidoptera are overall pattern, coloring and size. He did not consider superficial morphological characteristics very helpful in making finer distinctions and soon came to emphasize the importance of microscopic features, especially the genitalic structures. Yet he seems to have been worried that too much biology would dethrone morphology. In his paper on the morphology of the genus Lycaeides Lep8, , Nabokov also introduced the scale line count. Like the tiles on a roof, the scales are placed in lines. These lines, Nabokov found, form "concentric rings or ripples , radiating from a center more or less coincident with the base of the wing" Lep14 , He used the number of lines to describe the exact position of various wing markings and macules, probably hoping to thus gain another set of facts which would help him in the taxonomic delineation of the species and subspecies of the genus. However, in his definite paper on the North American members of Lycaeides Lep14, , while citing scale line counts, he did not use them for taxonomic purposes but stuck to genitalic structures. There was just too much overlap in the variability of wing characters between the two species concerned, idas and melissa. It is the species concept with which Linnaeus started the science of systematics in his Systema naturae The characters which the taxonomist enumerates in his species diagnosis, such as structure, proportions, color patterns, and the like, are the conventional criteria used in the old systematics to define a species. Species are not fixed and rigid; they consist of peer variant forms none of which can be said to be the ideal type. They may have blurry borders, one shading into the other so it is impossible to decide where one ends and the next begins. Often there is more variation within a species than between two species. The blue butterflies that comprise the idas group within the genus Plebejus are a case in point idas, argyrognomon, melissa, subsolanus, etc. Very superficially, they all are very much alike. If you saw them fluttering about a puddle, you would be hard pressed to say exactly what species they are. Yet there would be differences, only that they may not run along species borders. How are taxonomists to know which is which? They have to resort to a microscopic examination of the sclerotized genitalia to tell the difference, and they will be glad to have found a characteristic that is both telling and invariant enough. Yet even the microscopic examination may not settle the question, and morphology will have exhausted its resources and be at an end. Could the question then never be decided, not even in theory? That is why abandoning the typological concept based on morphology alone promised several advantages. According to Mayr, 1 the biological species concept allows for a non-arbitrary, objective definition of the species; 2 it will ultimately allow to define a species not only on account of its visible features but on account of its genetic relationship to other species; 3 most importantly, it does demonstrate not only that there are similarities and dissimilarities, but "why there should be any. It provides an explanation of why taxonomy reflects phylogeny. After centuries of descriptive inventorying, this indeed is the story biology has begun to unfold. Still it is here to stay. The biological view defines a population as a group of organisms capable of interbreeding and coexisting in the same place and at the same time. As long as the members of a population keep interbreeding, they swap their genes, and a gene-flow is maintained. If there is an advantageous mutation, it may spread to other members of the population; a deleterious mutation will not spread but delete its bearer. When a population is split and separated, the gene-flow ceases. For a time the two populations could still interbreed if they were joined again. Sooner or later so many mutations will accumulate in either that they could no longer interbreed successfully. At this point the link snaps, and they become distinct species. Members of different species cannot interbreed, no matter how much they may resemble one another. In reality, of course, things are seldom that clear-cut. There is a border zone between closely related species where it may be impossible to tell whether they can interbreed or not. Hybridization seems to be a widespread phenomenon among closely related species. Again normally, the hybrids will be at a disadvantage. Often they will be infertile, like mules. Others may not be able to exploit the niches where their parent species thrived with the same success and consequently will be doomed to disappear. But if conditions change, the old niches shrinking and new ones opening, hybrids may suddenly see themselves at an advantage. They may be better able to cope with the new conditions. In critical situations it pays if there is a good deal of variability in a population. It increases the chance that at least some of its members will have the right variant of body or behavior to come to terms with the hardship. So in microevolution, there are forces that tend to keep related species separate and others that tend to fuse them, and they may oscillate over a long span of time. This does not invalidate the biological species concept. While they last, the reproductive barrier will not be an iron curtain. There will be little successful interbreeding between quasi-separate populations, yet ties will not be definitely severed. That is why the biological species concept is not of much help to the immediate concerns of practical-minded taxonomists. They want to know whether two populations are the same species or not, or if they are different subspecies of one species. If they have problems determining their exact relationship, it may be because nature itself has not decided yet. So what Nabokov particularly objected to was the way the new biological view seemed to de-emphasize morphology: What I term species, in my department, can be defined as a phase of evolutional structure, male and female, traversed more or less simultaneously by a number of, consequently, more or less similar organisms shading into each other in various individual or racial ways, interbreeding in a given area and separated there from sympatric representatives [that is those sharing the same area] of any other such phase by a structural hiatus with absence of interbreeding between the two sets" Lep9 3, Put more briefly, "A species is a relative category, at its tangible best represented by a number of interbreeding organisms which constantly differ in structure from and do not interbreed with any other organism inhabiting the same area. In this, however, he was not far apart from Mayr who wrote, "When some of the more distant populations are geographically isolated from all other populations within a species, the question arises: Are these isolated populations still members of the parental species? What criteria can one use to decide which of these populations to recognize as full species and which others to combine into a polytypic species? The species status of geographically isolated populations can be determined only by inference, particularly by degree of morphological difference. As far as the species concept was concerned, there was practically no disagreement. What Nabokov did not accept, however, was the Neo-Darwinian explanation of how speciation and hence evolution come about.

Chapter 3 : AMC-NH | Gallery & Guide to NH Buttlerfles & Moths

A review article on Dieter Zimmer's indispensable A Guide to Nabokov's Butterflies and Moths (now available in the latest version on Zimmer's website), with especial focus on Nabokov's views on evolution.

Nabokov and Mimicry [1] For Nabokov, mimicry in nature was a source of constant wonderment. The fascination with observable detail as well as with disguise and deception was also one of the tangible links between his fiction and his entomological work. The question of mimicry is one that has passionately interested him all his life and one of his pet projects has always been the compilation of a work that would comprise all known examples of mimicry in the animal kingdom. We are perhaps fortunate that he himself resisted the temptation. There is mimicry not just in butterflies and moths but in many other insects, in reptiles, in fish, even in birds; there is visual, auditory, chemical, tactile and behavioral mimicry. Considering how much he cared about mimicry, it is surprising how little he wrote about it and how few specific cases he commented upon. It is true that early in he composed an essay enticingly titled "Mimicry in Theory and Practice". Most of the cases Nabokov mentioned may go back to a book by Arnold Jacobi that focused on mimicry in butterflies and moths and at the time was surely available in Berlin libraries. Butterflies mimic some object or some other butterfly to avoid predators. In the Lolita screenplay, it is the predator Quilty who is the mimic, the model the train robber does not frighten people any more and is a popular source of merriment, and the prey Lolita is not deceived but colluding and wants to be eaten. It would be absurd to term this mimicry even in a loose metaphorical sense. So let me rather come to the heart of the matter right away, and that is mimicry as a link between nature and art. These are the two central passages. I discovered in nature the non-utilitarian delights that I sought in art. Both were a form of magic, both were a game of intricate enchantment and deception. To his mind, both are profoundly non-utilitarian. He loathed the strain of Soviet entomology whose only interest in butterflies seemed to spring from the fact that some were agricultural pests that had to be fought. He cherished the thrill of "accumulation of new knowledge, absolutely useless to the layman. Mimicry usually is said to serve the purpose of protecting an animal from predators. Nabokov did not quite say that mimicry is downright useless to the mimic, though he once spoke of "the illusory theory of protective mimicry. Hence it cannot have originated because of its usefulness. To say it plainly: According to the Darwinian theory evolution proceeds by the random invention of characteristics and the elimination of the useless or harmful ones. Nabokov did not reject the idea of evolution itself but the Darwinian explanation of it, and as proof of its misguidedness he used the phenomena of mimicry. This creator would on the one hand have created luxuriously mimetic animals and on the other hand the human mind for which "the unravelling of a riddle is the purest and most basic art. Among the numerous illustrations of these blatant excesses of nature let us select the following example: Its outline, its dorsal pattern, and the coloring of its fetlocks make it resemble precisely the downy, yellow, rusty-hued inflorescence of that shrub. Instead that Owlet thrives to this day, and its caterpillar has no particular enemies. Neither the moth nor the shrub seem to exist unless the names under which they appear here are so old that they have perished. There are just two things one can say about them: Demas is a real genus of holarctic noctuid moths, so "Pseudodemas" is a moth that may somehow resemble it. Secondly, this is a case not of mimicry proper but of camouflage or crypsis: However, as it is said to appear only when the flowers are gone, its protective coloration does not seem to serve any purpose. Of course, imaginary examples do not prove anything. If Nabokov resorted to an imaginary disproof of Darwinism, and such a weak one, does this imply that at the time of writing he had no forceful example for what he meant at hand? There is no evidence that Nabokov ever read Uspensky. If he did, he will not have liked what he read. Still there are some obvious concurrences. The term "protective resemblance", he says, "is entirely unscientific" because it pretends to explain what so far has never been explained satisfactorily. As there are changes in color or form that make an animal similar to something else but at the same time more conspicuous to its enemies, all utilitarian theories of mimicry, says Uspensky, have to be abandoned. For a leaf-like insect to evolve, "every green leg, the red neck, the green head with the feelers, all these, every minutest detail, every tiniest feature, must have been formed independently of all the others. In order to form an insect exactly like a leaf of the plant on which it lives, not one, but thousands, perhaps even tens of thousands, of repeated accidents would have been necessary. But this is as far as the concurrence goes. Nabokov did not need any coaching on the subject, and less still from a man whose thinking must on the whole have held little appeal for him. Before discussing the disagreement between Nabokov and modern science, two points have to be made. One is that at the time when Nabokov developed his refutation of natural selection, Darwinian theory was far more open to doubt and discussion than it is today. Witness Stephen Jay Gould: During his years as a research fellow at the MCZ, the biological concept of the species as an interbreeding population was only slowly gaining recognition. It ignored the fact that aposematic or warning coloring is a widespread strategy not only in butterflies but in many animals. It serves to announce that you are noxious before the predator proceeds to sample you. Striking superficial similarities between unrelated animals had been noted as early as the beginning of the nineteenth century, but it was Bates who systematically studied the phenomenon in longwing butterflies and put forth an explanation of how it had come about. He sent his paper to Darwin who was enchanted. You have most clearly stated and solved a wonderful problem. As the British geneticist R. Fisher put it in , the theory of mimicry, demonstrating "the adaptive significance of the characteristics of species," is "the greatest post-Darwinian application of Natural Selection. He was aiming right at the heart of Darwinism. Mimicry in the narrow sense, true mimicry, is the imitation of one species by another. Nabokov, just like Uspensky and many others, used the word in a wider sense, including what today is usually called crypsis or camouflage: Another kind of imitation which is not true mimicry is warning in character and serves to make the animal more conspicuous to its enemies: True Batesian mimicry is a subcase of aposematic warning patterning and coloring where one species imitates another. The model is a toxic species whose look, taste or sound the predator has learned to avoid. The mimic is an edible species that resembles the noxious one and thus enjoys the same protection. The toxic insect usually evolves a strong warning signal in order to be conspicuous and unmistakable and thus reduces the risk of dying by not being recognized. In butterflies, the warning coloration often is bright bands or spots of red, yellow, orange or black. For mimicry to evolve, the populations of the model and of the mimic must be sympatric, that is, they must inhabit the same range. Also, the Batesian mimics may not become too numerous in relation to the model, for if they did, predators would come across too many same-looking prey that are perfectly edible. In this case they would not learn to avoid them, and the protective value of the scheme would decrease. Batesian mimicry is a sort of parasitism. Only the mimic profits from it, the model has to pay for the fellow-traveler. They all must suffer some losses when a predator pecks at one of them for the first time, but they all profit from it, for after his first sampling he will spare them all. Muellerian mimicry is a sort of joint advertising venture by a group of animal species. Thus the core of the theory of mimicry is that mimicry exists because it affords protection. When Nabokov voiced his disbelief, this was still nothing but a contested speculation. Beginning with a series of experiments by Jane and Lincoln Brower in the late s, plenty of experimental evidence has accrued proving all assumptions of Darwinian mimicry theory right. For instance, the caterpillars of the Monarch Danaus plexippus L. Yes, if a bird has tasted a noxious butterfly once, it will remember the experience for a long time, probably considering its taste and its look equally disgusting. And, yes, tasty mimics are indeed protected just as well as their distasteful models. The reason was the aesthetic surplus that seems to be inherent in at least some cases of mimicry when resembling the model less perfectly would afford mimics just the same protection. I have not seen the subject of inferior predator discrimination discussed in the literature, but I have heard it mentioned as a potential challenge in a conference of biologists. If it were true, it would not topple evolutionary theory but it would clearly need explanation. Nabokov did not cite any example. Indeed, it is not an established fact but a mere assumption, one that would have to be proven empirically case by case. On the face of it, it seems most unlikely when the mimic is an insect and the predator a bird. Nabokov doubted that birds are "amateurs of butterflies," but they really are. Birds also have excellent color vision, often greatly superior to that of man. Their acuity of vision may make them sensitive to very fine detail in the mimic. Nabokov wondered why a butterfly should be endowed "with the exact appearance of a certain variety of leaf with the artistic bonus of a realistic flaw: Yet we simply do not know what birds or lizards or spiders see and what meaning they attach to what they see. What looks like an eye or a drop of liquid to us may look like something completely different to them. In pigeons it has been established that they do have roughly the same ideas as humans as to the mimetic perfection of hoverflies imitating wasps. The more the hoverfly looks and buzzes like a wasp to the human eye and ear , the more the pigeon tends to avoid it. However, there were two exceptions in the experiment. Two hoverflies that seemed quite imperfect mimics to the human fly watcher must have seemed the most perfect ones to the pigeons for they enjoyed the greatest protection. Thus, while many birds would probably be able to perceive the perfection of a mimic, perfection is not a prerequisite. Actually most butterfly mimicry is far from perfect. Yet it affords protection, for usually there is no time for the bird to settle down and study its prey closely. Predation happens in real life, and in real life there is so little time and circumstances are so muddled that decisions must be taken on the basis of a quick guess and not of a thorough appreciation of the situation. The predator must act rapidly and will fare better if it generally exercises caution. If the bird sees a butterfly fluttering by in the distance that could perhaps be a Monarch, it will be better off if it flies on to look for another food item or if at least it hesitates for a moment.

Chapter 4 : Page 19 - Guide to Nabokov's Butterflies and Moths

fb_iframe_widget span{widthpx!important;}.fb_iframe_widget iframe {margin: 0!important;}.fb_edge_comment_widget { display: none!important; }Whilst researching Arctiids that might be found in Alaska, we stumbled upon A Guide to Nabokov's Butterflies and Moths by Dieter E. Zimmer, our new favorite web site.

Review by Brian Boyd, University of Auckland. The Russian Years and Vladimir Nabokov: The American Years The Scientific Odyssey of a Literary Genius Unpublished and Uncollected Writings Even lepidopterists will leam much and find much they could not easily have checked. In Michel Satori, ed. Already that time when literary Nabokovians knew so little of their lepidopterological counterparts seems long ago. Everyone who knows Nabokov knows of his passion for butterflies, and after the work of Johnson and others no one now has an excuse for thinking he was merely a passionate dilettante. He was a first-rate, although never a major, scientific lepidopterist. At the same time he was also too good a writer, too astute a student of human psychology, and too staunch a defender of individual difference to ex- pect or want to impose his particular passion on readers of his fiction. For that reason, there are some otherwise gifted Nabokovians who have no interest in his lepidopterology. That is a mistake. The Guide contains: This, the invaluable core of the volume, a identifies butterflies whether Nabokov named them directly or only implied their identity; b provides an immense amount of vivid natural and scientific history about hundreds of species and genera: The Guide has a much more nuanced and fairer evaluation, although it could still be clearer. After leaving the laboratory, Nabokov unsurprisingly fell gradually behind in his knowledge of the newest techniques for taxonomic determination, but this Reviews occurred only after he had stopped writing scientific papers. Writing in , he showed Konstantin Godunov-Cherdynstev in as hostile to genitalic dissection, but by , after two years at the microscope, he was himself ex- tending the scope of genitalic and alar description, and there is no reason to think that had he returned to the laboratory in the s or later he would not again have welcomed and extended new taxonomic tools. Nabokov fully accepted evolution, and enjoyed the challenge of trying to work out phylogenetic relationships within the Blues through the evolution of both genitalia and wing-markings. On the one hand, one could argue that even here Nabokov, when seen in the context of his times, was not that out of step with the pace of evolution- ary theory. The New Synthesis of Darwinian natural selection and Mendelian particulate genetics was being worked out in the late s and the s, and was finally consolidated only in the s, after Nabokov left the laboratory. On the other hand, despite his antipathy to formal religion and his sense that "God" was a hopelessly anthropomorphic term, Nabokov was committed to what had seemed for millennia the natural explanation for the origins of life, a top-down, mind-first explanation. Although he accepted evolution as a principle and Darwin as a scientist of genius, he therefore strongly resisted the intellectual revolution of Darwinian natural selection and its bottom-up rather than top-down principles. One of his main props for still retaining, a century after Darwin, his deep conviction that there was some form of Mind or Design behind life was the case of mimicry. But research from the s to the present on many facets of the subject and in many species has presented conclusive evidence for the protective advantages of mimicry, the extraordinary perceptual discrimination of predators, and the power of natural selection to account completely for even the most complex instances of mimicry. I suspect he was too emotionally attached to a top-down explanation for existence to have accepted Darwinism, although he would probably have accepted many of the local advances in Darwinian theory and especially the clarifications of the power of natural selection in mimicry. Zimmer treats these complicated matters in depth, perhaps a little too much depth, even, for an introduction to his Guide. I too have treated them in too much depth. And that detail is where Zimmer also excels, in the catalogues that are the chief and lasting treasure of his Guide. Anyone who teaches Nabokov, and especially anyone who supervises or hopes to supervise graduate students working on him, should ensure that they have their own copy of A Guide to the Butterflies and Moths and that they order another copy for their university library. A Descriptive Bibliography for them- selves and their library and now find it quite unavailable should not make the same mistake again. And Nabokov the lifelong lover of Lepido- ptera would have had to blink back or wipe away tears of gratitude. The Magic of Artistic Discovery.

Chapter 5 : Nabokovâ€™s taxonomy | Ä•darÅ›ajÃ±Ä•na

Excerpts from A Guide to Nabokov's Butterflies and Moths by Dieter E. Zimmer Hamburg (Germany) Except as otherwise noted, all butterfly illustrations are by William H. Howe, who generously allowed them to be reproduced here.

Can you recommend books on butterflies or moths? The butterflies and moths Lepidoptera of Kentucky: The Lepidoptera of New York and surrounding states. Golden Press, New York. Natural History Museum Publications. Oxford University Press, New York. Peterson first guide to caterpillars of North America. Butterflies of the Colorado Front Range: A Photographic Guide to 80 Species. The lives of butterflies. Mastervision, New York Opler, P. Butterflies east of the Great Plains. Johns Hopkins University Press, Baltimore. Peterson field guide to butterflies of eastern North America. Peterson field guide to western butterflies. The Audubon Society field guide to North American butterflies. The Audubon Society handbook for butterfly watchers. Butterflies of the World. Firefly Books, New York. The butterflies of North America. Stanford University Press, Stanford, Calif. The biology of butterflies. A field guide to the moths of eastern North America. The moths of America north of Mexico. Doubleday, Page and Co. Reprinted by Dover Co. Lepidoptera of the Pacific Northwest: Andrews Publication Number Macromoths of Northwest Forests and Woodlands. For additional copies of this publication, contact Richard Reardon in Morgantown, West Virginia phone: Moths of Western North America. University of California Press. The cutworm moths of Ontario and Quebec. Agriculture Canada, Research Branch Publication Time Books, New York. Houghton Mifflin Co Pap. John Muir Publications, P. Garden Butterflies of North America: Creating a Butterfly Garden: Creating Summer Magic in Your Garden. Legislation to conserve insects in Europe. Pamphlet 13, 80 pp. Theatened swallowtail butterflies of the world: The conservation of insects and their habitats. Biology and conservation of the Monarch butterfly. Junk Publishers, Dordrecht, The Netherlands. Conservation biology of Lycaenidae Butterflies. The parade of passing species: Science Teacher 43 9: Monitoring the abundance of butterflies: Monitoring butterflies for ecology and conservation. Lepidoptera inventories in the continental United States. Pages in E. National Biological Service, Washington, D. Ecology and conservation of butterflies. Annual Review of Entomology The tall-grass butterfly community.

Chapter 6 : Page 12 - Guide to Nabokov's Butterflies and Moths

James A. Tilden and Arthur Clayton Smith in their Field Guide to Western Butterflies () called Cyllopsis pyracmon nabokovi 'Nabokov's Brown'; thus Nabokov's Brown is a subspecies of Nabokov's Satyr. The holotype is at the Allyn Museum of Entomology.

The Code Taxonomy is a science of its own, sometimes closer to law or history than to the biological sciences. Its main objective is to safeguard that every taxon has one and just one name, that it has its name all to itself, and that this name is formed in accordance with certain rules. If one and the same animal has been given several different names, they are called synonyms. If several different animals have been given the same name, they are homonyms. Synonyms and homonyms render any nomenclature ambiguous. Taxonomy thus must endeavor to rigorously avoid synonymity and homonymity. This sounds simple enough, but with hundred of thousands of animals being named for centuries all over the world, it is not simple at all. Since there have been international regulations on nomenclature. In , it has issued the International Code of Zoological Nomenclature, a set of rules which explicitly and in great detail govern what the scientific name of an animal must be like, down to the spelling of its Latin and Greek words. The purpose is "to promote stability and universality in the scientific names of animals". Counting almost pages and 88 articles, the Code is guided by four main rules. The most important one is the Law of Priority Article If the same taxon is inadvertently named more than once, the newer names are mere "junior synonyms" and have to be abandoned. So sometimes taxonomists have to dig deep into the literature to find out who published the very first Original Description OD of an animal, whether it was the same or different from one described by later authors and whether the description and the type it was based on really correspond. The other important rule is the Law of Homonymy Article A homonym is one and the same name used more than once. The Code stipulates that no specific name may be used more than once within the same genus, and no generic name within the same kingdom. This means that no two genera of animals are allowed to have the same name but that a specific or subspecific name may be used over and over again as long as it does not happen within the same genus. For this reason many different species and subspecies in different genera have the same name. This sorry fact must persuade everyone to proceed with caution when trying to identify an insect mentioned in the literature under less than its full name. It is never sufficient to find a matching specific name. One has to make sure that it belongs to the right genus, and when the generic name has changed a few times or is not quite certain for other reasons, this often means a lot of searching. In this case, the only further hint to go on is that snowi occurs in Wyoming and at a very high altitude. The locality seems to point toward the copper, the skipper usually occurring farther to the south. The altitude makes it a near certainty and quite definitely excludes the skipper. Another rule of the Code Article 19 says that a given name may not be altered even if it contains a spelling error. Any alteration is considered just a misspelling. So names, once published, may not be improved upon. Holland derived a name from Russian Vice Admiral V. Golovnin and spelled it golovinus though the correct spelling would have been golovninus, it will have to stay that way. It rules that the name is assigned not to the description but to the specimen the description was based on. This is called the holotype. The holotype should be carefully preserved in some collection and must be available for inspection if the need arises. The specimen of the opposite sex deposited along with the holotype is called the allotype. If the original holotype for some reason is lost or destroyed, a new specimen has to be selected to serve in its place; it is called a neotype. The specimens deposited along with the holotype are called paratypes. Higher taxa also have their types. For each genus a type-species is selected that seems best to represent its characteristic features. If in the course of a revision the type-species is removed from a genus and placed in another one, the whole genus collapses and is no more. Chosing the holotype or the type-species is an arbitrary act, for nobody is perfect, and the ideally typical organisms early systematicists believed in just do not exist. As in the course of time more gets known about a certain species or genus, the types selected may even turn out to be grossly atypical. This is just too bad, for in order not to add to the confusion, types are changed only most reluctantly. The problem, of course, is that no plant or animal ever comes with a tag saying "I am a such and such". In fact, nature does not present itself to its human members as neatly compartmentalized into taxa in any obvious and self-evident way. It is a jumble of subtly interrelated and intergrading forms, and it is forever changing; every system is only a snapshot made at a certain point in time. Any two specimens of no matter what species will hardly ever by completely alike. Several kinds of differences have to be expected and subtracted. First there are the individual differences acquired during a lifetime. One specimen may be young and fresh, the other old and faded or battered and torn. As a matter of fact, the nearly perfect specimens one sees in butterfly exhibits usually are fresh ones, mounted by skilled hands, and not typical of the average member of their species one would encounter on the wing. After a few weeks of adult life, most butterflies show the marks of narrow escapes and the general wear and tear of life. Secondly, there are the individual differences based on genetic variation which tend to increase the higher up in the tree of evolution an organism is placed. Even if butterflies and moths are no virtuosos of genetic variation, there are some like the Great Tiger Moth Arctia caja where virtually every specimen has different wing markings. Thirdly, there may be gender differences. In fact, sexual dimorphism is pronounced in many butterflies and moths. In several species males and females look so different that at first they were believed to belong to different species. Examples of extreme sexual dimorphism may for example be found in the genus Lycia, a group of geometer moths whose females lack wings and cannot fly, giving them a most un-mothlike appearance. Fourthly, in butterflies and moths that produce several broods during a season there may be seasonal variants. Thus the spring generation of the Map Butterfly Araschnia levana called f. Finally, there is a great deal of geographic variability due to differences in the biotope. Whole colonies or populations of a certain species may differ from another slightly, one being a little larger or more brightly colored or having its bands or eyespots displaced. Sometimes populations change in a certain geographical direction. This continuous variation of a species from colony to colony is called a cline. Clines occur when populations are not isolated completely and a certain gene flow is maintained between neighboring ones. Along a cline, a species or subspecies may intergrade into what is classified as another species or subspecies. What the taxonomist needs is some feature, or bundle of features, that is very stable across the whole species but distinguishes it clearly from neighboring ones. In butterflies and moths, this usually is not the size and overall color pattern which the layman might suggest. Usually it displays considerable individual variation, and there are different species that on the surface look quite alike; for instance, the very point of the mimic is to look like its model. A more reliable feature often is the venation of the wings. The most telling feature in all insects, however, is the structure of the genitalia. Insects have no bones. Among their hardest body parts are the extremely well-defined little sclerotinal structures of their genitalia which serve to hook onto the opposite sex. They have to clasp so tight they can mate even in flight. Moreover, this coupling apparatus has to fit across the whole species and thus is likely to be less variable than other body parts, while there is no penalty for not fitting beyond the limits of the species, in terms of reproductive success. He introduced new names for the genitalic structures he examined under the microscope, practically all of them in his paper on South American blues Lep9. For one thing, he has to note the minutest differences until no specimen seems like the other any more. At the same time, he has to be on the lookout for similarities, to deduct all the observed or potential variability, weighing differences and similarities until he arrives in his mind at a sort of scheme on which to found a taxon. Descriptions of one sole specimen tend to be shaky. Wherever he can, the taxonomist has to study series of them. If a lepidopterist has some very unusual specimen at hand he will of course be tempted to publish its description and name it, lest somebody else beat him to it. However, it may turn out that he had only been dealing with a freakish individual of some well-known species or with a sterile hybrid. In such cases disastrous consequences are bound to occur. Nabokov was working right in the middle of this muddle. At least for the well explored butterfly faunas of Europe and North America, it was thought that the constant renaming due to expansion and reordering of the system would come more or less to a rest by the end of the twentieth century and that recent names would be ever more likely to be the definite ones. Instead, the end of the twentieth century has seen an acceleration of the renaming process. Between the English and the French edition of the Collins Field Guide to European butterflies and , respectively , there have been scores of generic name changes. Many names have not even lasted two years. In the European butterfly fauna, more than 70 percent of the generic names have undergone some change within the last fifty years. Five of these nine terms have found their way into the Dictionary of Insect Morphology eds. He used the word to denote a structure in the male genitalic armature close to the rostellum Lep9 9, 13, 21, 23, 26, 34, In this sense, it has not made it into the dictionary.

Chapter 7 : Page 1 - Guide to Nabokov's Butterflies

Nabokov found it listed in Higgins' and Riley's Field Guide to the Butterflies in Great Britain and Europe which he reviewed right after its publication in The entry carried the note, " A. ainsae is distinguished specifically from A. dolus by its lower chromosome number.".

September 5, Author: David Cooke Filed under: This Web Book is particularly valuable as the original publication is already out-of-print and rare. As well as being an illustrated taxonomic reference work, it includes a concordance of the many references to Lepidoptera in his novels, poems and stories. It also lists the species named by Nabokov, and those named after himself, his family and characters in his fiction. Vladimir Nabokov had abilities that are often associated with autism. His synaesthesia was well documented and was evident in his literary style. So was his eidetic ability to recall and cross-reference large numbers of mental images. If there were such a thing as an aspie approach to taxonomy, the works of Nabokov might contain some clues to its nature. While most zoologists were following the Neodarwinist fashion of downplaying morphological evidence and defining biological species based on observed or supposed limits to gene flow, Nabokov defined species on morphology and regarded biological data as secondary. But he remained sceptical of natural selection as the sole cause of the evolution of morphology of organisms and in particular the very widespread phenomenon of homoplasy the evolution of similar characters in different clades and species. Convergence was the old term for one kind of homoplasy: Nabokov understood that this phenomenon must be rare due to the number of genes involved and the statistical improbability of enough mutations with phenotypic effects in the right direction becoming fixed in a taxon. He introduced the new word homopsis for a more usual form of homoplasy: This concept can be compared with homologous variation as conceived by the botanist Nicolai Vavilov â€" a Russian contemporary of Nabokov. Ever the synaesthete, Nabokov described a pattern of variation among species that contained gaps as a syncopated or jerky variational rhythm. For example, if two closely related moths had melanic variants and a third did not, this was an anomaly that called for an explanation. But in our time the genus has become an even more slippery concept than the species in biological nomenclature. A genus of several species is defined by a particular combination of morphological characters that are common to them all. But a single-species genus has no reality beyond the implication that a common character combination would be revealed if some hypothetical, related species were to be found. Genus, species, and all taxonomic categories are noumena rather than phenomena. They exist only as mental constructs by which humans try to impose order on the kaleidoscopic variety of the world. I suggest this is a key aspie characteristic: Taxonomy is also concerned with postulating discrete entities among the continuous variation of organisms and drawing boundaries that identify them. Journal of Genetics

Chapter 8 : Page 9 - Guide to Nabokov's Butterflies and Moths

THIS WEB-BOOK is a comprehensive annotated catalogue of all the real and imaginary butterflies and moths found in Nabokov's published writings, including the scientific papers, the letters and the interviews.

The only species known to him was Lycaena titicaca Weymer, , from Bolivia. Parachilades has not gained recognition as a valid genus. It contained only one species, the very rare one that had formerly been known as Itylos inconspicua Draudt, , from Peru. On account of its male genitalic structure, Nabokov believed it to be the most ancestral form of the genus Lycaeides now Plebejus to have survived anywhere. They added three further species: Males and females are brown. Plebejus idas longinus Nabokov, [Lycaenidae, Polyommatinae, Polyommatini, Polyommatus Section], described by Nabokov under the name Lycaeides argyrognomon longinus: The type locality is Jackson Hole, Wyoming. Nabokov examined three specimens, two of them from the Paine collection captured in at Jackson Hole, Wyoming, the third one, taken in in the same area, from the collections of the AMNH. In the summer of , right after the publication of the OD, he went to the Tetons in search of this butterfly and captured several specimens. Unrecognized as a distinct subspecies, the male had been known since from Telluride, Colorado. In Nabokov went to Telluride to capture the female. In , Franklin Chermock declared it to be the same as his own new Lycaeides melissa paradoxa, a subspecies from the Tehachapi Mountains in California. This subspecies had been confused with Lycaena lotis Lintner until I separated it in On the Internet, the name paradoxa is much more frequent than inyoensis. This is because the International Code of Zoological Nomenclature stipulates that all infrasubspecific names should be ignored, just like colloquial names Article This is what Nabokov did". The question remains unsettled. The holotype was from Pitkin County, Colorado, "between Mt. Albert and La Plata". It is at the Harvard Museum of Comparative Zoology Edwards, whose range he restricted to the very same area, La Plata Peak in Colorado Transactions of the American Entomological Society, 96, , p. So this was not a valid subspecies. Dirig who researched it and fought for its conservation. It is endangered and survives in isolated colonies on sand barrens in the Northeast and northern Midwest of the United States. One of them is the Pine Bush Preserve ten miles northwest of Albany, New York, near a place once called Center and then Karner, where Nabokov, on June 2, took a few specimens of this butterfly which he had described from museum specimens in Nabokov himself treated it as a subspecies in his scientific papers until ; only later he came to think of it as a full species. The foremost method to prove this has only recently become available: In , Matthew L Forister of the University of Nevada in Reno and co-workers sequenced the genomes of samuelis, melissa and idas from selected populations all over the US and found that gene flow between them is low. More specifically, gene flow between samuelis and melissa it is not higher than between melissa and idas. Instead, we suggest that sufficiently powerful genetic data can be used in a comparative sense to address localized taxonomic problems. Rates of gene flow between the KBB and L. Pyle says of the Karner Blue: It is a protected insect in New York State [since]. Limited to such places as the Albany Pine Bush and other sand barrens, the Karner Blue survives in isolated colonies across the northern Midwest and Northeast. The first one had been captured by W. As holotype Nabokov designated a specimen reared on lupine by Samuel Hubbard Scudder from eggs laid by females at a place called Center today Karner between Albany and Schenectady in upstate New York. He went about this capture very purposefully, knowing what to find, where to find it and when to find it. In a letter to Edmund Wilson May 15, , he mentioned he would be passing through Albany, "near which, at a place called Karner, in some pine-barrens, on lupines, a little blue butterfly I have described and named ought to be out". In one of his next letters June 3, , he reported success: The holotype is at the MCZ , Lep The Karner Blue is a small butterfly with an average wingspan of 25 mm. The males are an iridescent violet blue, the females are gray brown often glossed with blue, with a submarginal band of bright orange chevrons to which melissa owes its common name, Orange-margined Blue. The adults live only four or five days. They come in two broods, with adult flights in late May to early June and late July to early August at Karner and throughout the range, settling on moist sandy ground, drinking at puddles and sipping the nectar of Pine Bush flowers. When the Karner Blue was still abundant, it flew in large flocks of hundreds or thousands. The only foodplant its caterpillars feed on is wild blue lupine Lupinus perennis L. This makes it a highly specialized insect, vulnerable to changes in the ecosystem that affect the wild lupine. Without fire, the lupines are shaded out. As lupine abundance and location change within the Pine Bush in response to fires, the Karner blue must be able to follow. While well adapted for these local movements, this butterfly is unable to colonize lupine stations that may be tens or hundreds of miles away. Thus when habitats disappear, local populations are lost forever" Robert Dirig, ibid. The name Karner survives only as that of a road, or two roads, the Old Karner Road and a new one built parallel to it to accommodate the traffic. They are in the township of Colonie on the northern outskirts of Albany, in a zone of truck yards, storehouses, shopping centers, roadside diners and sundry small business. Right there, between the old New York Central railroad track still in use and a six-lane thruway, is an enclosed area of about eight hundred hectares, the remains of what once was a square-kilometer pine barren: In his summary of this work, he says, "it is fortunate that this butterfly was described by Vladimir Nabokov , a literary genius of this century, whose celebrity has enhanced preservation attempts" D. A Symbol of a Vanishing Landscape. It might well be the only case of a butterfly having profited from literature. When Robert Dirig wrote Nabokov in about his ongoing work concerning the Karner Blue and the Pine Barrens, Nabokov answered that he was delighted and that he remembered the Pine Barrens "as a sandy and flowery little paradise" April 23, There is a passage in Pnin which refers to the Karner Blue: He did not realize that his author Nabokov had done genuine scientific work, like naming the very butterfly before him. Ulf Eitschberger Marktleuthen , 40, Nov He thought it monotypic, with just one "rare and remarkable" species, bornoi W. To Nabokov, it seemed to belong in pattern to the "catochrysopoid" group in the Plebejinae which explains the name, while genitalically it did not. However, it is not monotypic as Nabokov thought but contains a number of sister-taxa each of which is restricted to a different Caribbean island. As its type-species he assigned Pseudolucia chilensis Blanchard, , from Chile. There was only one more species, Pseudolucia collina Philippi, , also from Chile. Both had been originally described in the genus Lycaena. Pseudolucia is still a valid genus, and a very lively one. Between and , they added more than twenty new species, ten of which bear Nabokovian names. In , they added eight more. This brought the genus to over thirty species, divided into five groups centered around these five:

Chapter 9 : Concise Butterfly and Moth Guide

To know what Nabokov wrote about butterflies, and when and where, they had to wait for Nabokov's Butterflies: Unpublished and Uncollected Writings ().3 And to understand Nabokov's butterflies, and where they fit into his work, they have had to wait for Dieter E. Zimmer's stupendous labor of love, thirteen years in the making, A Guide to.

In consequence, they are often confused. The basic unit of the whole system is that of the species. It is the only one that has an objective definition. This definition is a biological and not a morphological one: What separates species and keeps them apart is a reproductive barrier. In a way, all taxa are constructs, figments of the human mind. Delineating them always involves some degree of arbitrariness and hence is eternally open to discussion. But the biological concept makes the species less of a construct than all the other taxa. At least in theory, the biological definition provides an objective test that allows to tell conspecifics from members of other species: The problem is that in many cases it is hard or downright impossible to apply the interbreeding test. Though in practice the test may fail, the biological definition of the species as an interbreeding population has an enormous advantage: The taxon just above the species is the genus. A genus unites a number of species that resemble one another due to their having a common ancestor. A number of related genera form a family. Related families are united into an order. Related orders form a class, related classes a phylum, related phyla a kingdom. A subspecies is an important variant form of a species that occurs locally, but consistently, due to isolation from other members of the species. A small local variation does not yet make a subspecies. Subspecies usually are thought of as new species in the making. The process will take a long time, many thousands of years. To start it, some population of an existing species has to become isolated geographically. Gradually this colony will develop characteristics of its own. Some of them will be due to adaptation to a different habitat, others to what is called genetic drift: For a long while, this population could still interbreed with the species out of which it is evolving if brought into contact with it. But as time passes, all kinds of changes may accumulate, and one day the reproductive ties will snap and it will be a species in its own right. This point is not easy to determine. With the advent of molecular biology, a powerful tool has been provided that will eventually help to settle taxanomic problems like the distinction between subspecies and species. It consists in DNA mapping of the taxa involved and in looking for similarities and dissimilarities not in their morphology but in their genetic make-up. If this has not become general practice yet, it is for two reasons: Given this state of affairs, it is obvious that the concept of the subspecies is a problematic one. Lumpers tend to place as many variant forms as possible into one taxon. Splitters tend to assign every variant form a name of its own. Moreover, though the concept of the subspecies seems to imply that there is a model species on the theme of which different daughter subspecies are variations, there mostly is nothing of the sort. All there is are different peer subspecies intergrading into one another. In this case simply the first one discovered is arbitrarily promoted to the status of nominate species, specific and subspecific name repeating each other, as in Hyles lineata lineata, the American White-lined Sphinx. It is small wonder that there is a good deal of uncertainty whether some new insect is to be granted specific or subspecific rank. The matter may never be settled definitely. If subspecies are problematic, all infrasubspecific taxa are still more so. In the late nineteenth and early twentieth century, many lepidopterists have reveled in describing and naming all kinds of infrasubspecific would-be taxa: Nabokov, though by temperament more of a splitter than a lumper himself, has often made fun of this craze which was fuelled by the commercial interests of insect dealers who liked to have as many different items for sale as possible. In a number of cases, this has happened. Mostly it has not happened. All those former infrasubspecific names today have no standing whatsoever in taxonomy. If they are cited at all, it is without author and year; Nabokov also insisted on quotation marks. As the purpose of this Guide is historical rather than taxonomic, quote-marks are omitted and authors and years are supplied wherever they could be dug up in the literature of former times. There are higher taxa, that is, taxa above the generic level, and as they have changed greatly during the last decades, they are bound to confuse the non-scientist. A family may be a very large taxon, one that counts many genera of varying similarity. This may be done by grouping them into a subfamily with an ending in -inae , a supertribe ending in -idi , a tribe ending in -ini or a supergenus. All these groupings remain constructs and open to discussion. Nabokov was sceptical about them. However, he intended to systematically apply supergenera and subgenera throughout. The supergenus is special in that it imposes a new super- generic name, followed by the old and conventional generic name in parentheses which now becomes that of a subgenus. For instance, on account of their structural relatedness he planned to unite the blues genera Cupido and Everes into one genus, Cupido the older name that had priority , and to split this into the subgenera of Cupido and Everes. The higher classification of butterflies, skippers and moths had always been handled in a more or less intuitive or even haphazard way. To Nabokov, it was of little concern. The seminal study was conducted in by Paul R. Ehrlich who was an entomologist before he became a human ecologist. Papilionidae, Pieridae, Nymphalidae, Libytheidae and Lycaenidae. Subsequently, the Libytheidae were also incorporated in Nymphalidae and the number of "natural" butterfly families thus reduced to four. There have been further proposals, notably by Ackery, de Jong and Vane-Wright [6] , based on recent morphological and molecular data. If implemented, a rearrangement and a further graduation of several nymphalid and lycaenid subfamilies would ensue, pushing some subfamilies and everything below down one level. The search for a few morphological or molecular characters that are so typical of a higher taxon that a lineage could be based on them involves huge amounts of data that have to be analyzed statistically, and the results are not always conclusive. The last word has not been spoken, and further rearrangements are to be expected. Ackery, "The higher classification of butterflies Lepidoptera: Hedyloidea, Hesperioidea and Papilionoidea", in Niels P. IV, part 35, Berlin de Gruyter