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A case of erroneous cotype designations in an historic insect collection in Taiwan (Insecta)

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Abstract

Most of the supposed cotypes in the SHIRAKI collection, deposited in the Department of Plant Pathology and Entomology of the National Taiwan University in Taipei prove to be not true type specimens but only homeotypes, which means specimens that were compared with the types. Because of misinterpretation of the term "cotype", SHIRAKI made incorrect designations in the collection, but with the possible exception of some true SHIRAKI types. This fact is pointed out for the Tabanidae (Diptera) as an example.

Zusammenfassung

Die Arbeit beschäftigt sich mit offensichtlich fälschlich als Cotypen etikettierten Insekten in der historischen SHIRAKI-Sammlung in der Abteilung für Pflanzenpathologie und Entomologie der Nationalen Taiwan Universität in Taipei. Die meisten dieser Cotypen erweisen sich als Homeotypen, d. h. mit den Originaltypen verglichene Stücke. Durch falsche Interpretation des Ausdruckes "Cotype" hat SHIRAKI unkorrekte Cotypendesignationen in der Sammlung vorgenommen, ausser einigen eventuellen echten SHIRAKI-Typen. Der Sachverhalt wird am Beispiel der Tabaniden (Diptera) dieser Sammlung veranschaulicht.

Introduction

The first author and his colleagues, Prof. Klaus SCHÖNITZER and Ulf BUCHSBAUM - while staying in Taiwan in May 2001 for a collecting and research collaboration project

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organized by the second author - were kindly invited to examine the historical SHIRAKI collection deposited in the Department of Plant Pathology and Entomology of the National Taiwan University in Taipei. One of the most important parts of the collection, SHIRAKI's type collection, separated in a couple of drawers, contains about 1300 specimens labeled as "co-types", distributed among insect orders as follows: about 450 in Diptera, 40 in Phasmida, 500 in Lepidoptera, 100 in Coleoptera, 180 in Orthoptera, 30 in Blattodea, 20 in Dermaptera.

The SHIRAKI collection is part of the "Insect collection of Formosa" from the former Entomological Museum, Research Institute of the Government, Taihoku (= Taipei), Formosa, which was established during the time of Japanese occupation (1895-1945). When the Japanese returned government authority to Taiwan, the collection became divided into two parts: one part, which includes SHIRAKI's type collection, as Department of Plant Pathology and Entomology of National Taiwan University (ENTU), and the other part as Taiwan Agricultural Research Institute (TARI) (CHU & HSIAO 1981; YANG 1998). Since then the collections have been kept nearly unchanged and in good condition. Their material is highly valuable for the insect fauna of Taiwan and even for the Oriental region.

Dr. Tokuichi SHIRAKI (1882-1970) was born in Hokkaido, Japan. For 40 years (1907-1947), he was director of the "Insect collection of Formosa". He was especially interested in applied entomology, and he produced good results in the collection and in the taxonomy of Orthoptera, Diptera, Dermaptera and some other orders, with many important publications. There are notes and fotos about SHIRAKI in: Kontyu Vol. 25/1957 pl. 12 and p. 217; Mitt. Dtsch. Ent. Ges. 21/1962 (1) p.3, 23/1964 (4) front page, 26/1967 (1): 3, 30/1971 (1): 3. During the visit of the collection in ENTU the first author has received a copy of a printed but unpublished paper of Y.-I. CHU with 13 pages, which deals with the life history of SHIRAKI in Taihoku, his publications, and his collection.

Studying the locality labels of the "cotypes" in Coleoptera deposited in this collection, some Japanese entomologists concluded that SHIRAKI must have stolen some specimens from European museums, especially from The Natural History Museum in London during 1913-1916. Later this opinion was followed by CHU & HSIAO (1981), again studying the locality labels. Their paper presents some general results about the identity of the sampling localities.

The present paper is a result of reviewing the labels of the SHIRAKI "co-types". In our opinion, if only the "co-type" labels are considered to be in error, then locality and determination labels appear to be correct and reliable.

On the identity of cotype specimens in Coll. SHIRAKI

Quite a number of insects in this collection are labeled as "co-types", a term not recognized by the Code of zoological nomenclature, but formerly used for either syntypes or paratypes (ICZN 1999: glossary). If these specimens were true types, SHIRAKI would have to have taken them from various museums and collections, especially from The Natural History Museum in London, in which the type series of many of the involved species are reported to be deposited. And SHIRAKI would have to have falsified the locality labels, because the label data do not fit those given in the original species descriptions. However, after studying the Tabanidae (Diptera) labeled as cotypes in the SHIRAKI collection, we do

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not assume the above explanation. SHIRAKI as a serious scientist and taxonomist would never have falsified the locality label of any type specimen by entering a date later than that of the original species description. Such a foolish act is unbelievable. Moreover, in some cases we found a "co-type" in Coll. SHIRAKI, although the species description was based on a single type specimen and therefore the existence of a cotype (syn- or paratype) is ruled out. And why would SHIRAKI not have taken off the cotype labels to hide his fault? Also, the determination labels "det. T. Shiraki" would be misapplied on specimens if they were real cotypes. An additional fact is, that the labels of all these many co-types show the same general appearance, although they should originate from 100 or even more different authors. Lastly, SHIRAKI would hardly have become widely accepted as a great scientist in cooperation with several museums in the world had he been suspected of having stolen several hundred insect type specimens. For example, in his Tabanidae monograph (SHIRAKI 1918: II) he points out that Dr. C.J. GAHAN of the Entomological Department of the British Museum (Nat. Hist.) - now The Natural History Museum - gave him free access to the collections.

Instead, we suggest that SHIRAKI compared many specimens in his collection with the real types and then wrongly labeled this material as "co-types" due to a misinterpretation of this term. To compare one's own material with primary types and label the former accordingly is a frequent practice of taxonomic scientists. From this point of view all labels we found with the specimens are correct, except for most of the "co-type" labels. Specimens so labeled, except for those species SHIRAKI described himself, are not name-bearing types but rather no more than homeotypes (note, though, that this term is not used or regulated by the ICZN Code). Nevertheless, these specimens are highly valuable for determination.

Our interpretation is supported by the labels of 23 Tabanidae specimens carrying a SHIRAKI determination label - 21 which also carry a "co-type" label (fig. 1), and 2 with a type label - as follows:

♀: "Taicao 5.1911", "Co-type", "*Tabanus abbreviatus* Bigot" (described by BIGOT 1892 from Java based on 2 ♀♀) = **not a cotype:** Collecting date is later than description and the specimen is not from Java.

♀: "Takao 5.1910", "Co-type", "*Tabanus formosiensis* Ric." (described by RICARDO 1911 from Formosa without locality based on 2 type-♀♀) = **not a cotype:** Locality is labeled, types in Coll. KERTESZ in Budapest Museum and now destroied.

♀: "Tacao 20.6.1913", "Co-type", "*Tabanus indianus* Ric." (described by RICARDO 1911 from India and Formosa based on a type ♀ and a type ♂ and several ♀♀) = **not a cotype:** Collecting date is later than description, type material from Formosa including type ♂ in Coll. KERTESZ in Budapest Museum and now destroied.

♀: "Kosempo 6.1910 [or 1913]", "Co-type", "*Tabanus perakiensis* Ric." (described by RICARDO 1911 from Kuala Lumpur/1909 and Perak based on a type ♀ and another ♀) = **not a cotype:** Collecting date too near to or later than description and the specimen is not from Malaya.

♀: "2", "Co-type", "*Tabanus sexcinctus* Ric." (described by RICARDO 1911 from Burma based on a single type ♀) = **not a cotype:** Without locality, the existance of a cotype is impossible.

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♀: "Kosempo 5.1912", "Co-type", "*Tabanus fulvimedius* Wlk." (= Syn. of *T. orientis* WALK.) (described by WALKER 1848 without origin and material mentioned) = **not a cotype:** Collecting date is much later than description and origin is labeled.

♀: "Horisha 10.5.1913", "Co-type", "*Tabanus fulvimedius* Wlk." (= Syn. of *T. orientis* WALK.) (described by WALKER 1848 without origin and material mentioned) = **not a cotype:** Collecting date is much later than description and origin is labeled.

♂: "Kosempo 10.7.1909", "♂", "Co-type", "*Tabanus exoticus* Ric." (described by RICARDO 1913 from Fuhosho, Koshun and Alikang based on a type ♂, a type ♀ and a series of ♂♂ and ♀♀) = **not a cotype:** Specimen is from different locality.

♀: "Tokyo 20.8.1904", "Co-type", "*Tabanus trigonus* Coq." (described by COQUILLETT 1898 from Japan based on 8 ♂♂ and 10 ♀♀) = **not a cotype:** Collecting date is later than description.

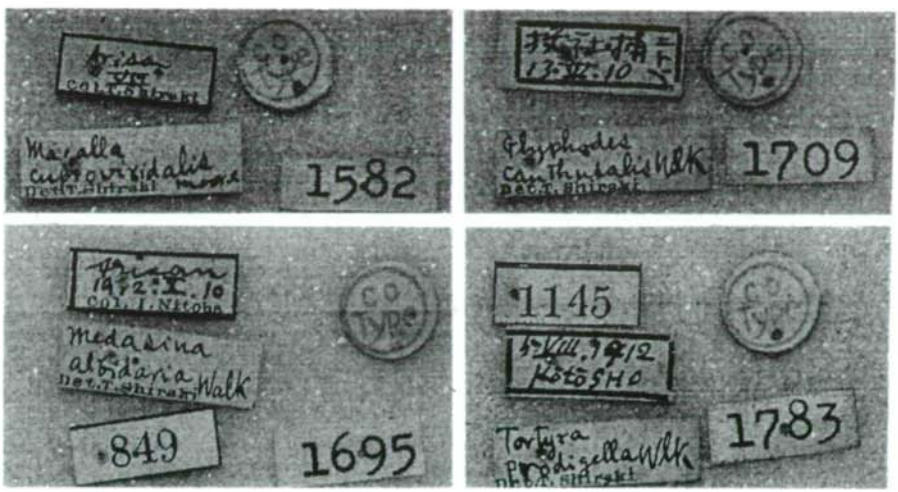

Fig. 1: An example for labels found in the SHIRAKI collection.

♀: "Kioto 7.1908", "Co-type", "*Tabanus miyajima* Ric." (described by RICARDO 1911 from Japan/1896 and Tokio/1909 based on a ♂ type and 4 ♀♀ co-types) = **not a cotype:** Locality is not mentioned in the description, collecting date is different.

♀: "Kioto 7.1908", "Co-type", "*Tabanus miyajima* Ric." (described by RICARDO 1911 from Japan/1896 and Tokio/1909 based on a ♂ type and 4 ♀♀ co-types) = **not a cotype:** Locality is not mentioned in the description, collecting date is different.

♂: "Takao 27.7.1908", "♂", "Co-type", "*Tabanus crassus* Wlk." (= Syn. of *rufiventris* FABR.) (♂ described by WALKER 1850 from India) = **not a cotype:** Collecting date is much later than description and specimen is not from India.

♀: "Takao 10.6.1907", "Co-type", "*Tabanus sanguinensis* [-neus, sic!] Wlk." (= Syn. of *T. rufiventris* FABR.) (♀ described by WALKER 1850 from Java) = **not a cotype:** Collecting date is much later than description and specimen is not from Java.

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♀: "Fuhosha 6.1906", "Co-type", "*Tabanus sauteri* Ric." (described by RICARDO 1913 from Fuhosho and Fanano-Tacko based on a type ♂, a type ♀ and other ♀♀) = **not a cotype:** Different spelling of the locality, type material in Coll. KERTESZ in Budapest Museum and now destroied.

♀: "Herisha 6.1912", "Co-type", "*Tabanus fulvicinctus* Riccard." (described by RICARDO 1914 from Sokutsu/IX.12 and Hoozan/1910) = **not a cotype:** Specimen from different locality and date.

♀: "Kosempo", "Co-type", "*Tabanus fulvicinctus* Ric." (described by RICARDO 1914 from Sokutsu/IX.12 and Hoozan/1910) = **not a cotype:** Specimen from different locality.

♀: "Odaigaharayama 11.8.1913", "Type", "*Isshikia japonica* Bigot" (described by BIGOT 1892 from Japan based on single ♀) = **not a cotype:** Collecting date is later than description, existance of a cotype is impossible.

♀: "Jioyamkei 28.8.1906", "Co-type", "*Tabanus sapporoensis*" (described by SHIRAKI 1918 from Jozankei nr. Sapporo/Aug. 1906 based on 3 ♀♀) = **questionable cotype:** Only different spelling of the locality.

♀: "Jioyamkei 28.8.1906", "Co-type", "*Tabanus sapporoensis*" (described by SHIRAKI 1918 from Jozankei nr. Sapporo/Aug. 1906 based on 3 ♀♀) = **questionable cotype:** Only different spelling of the locality.

♀: "Type", "*Tabanus sapporoenus* n. sp." (described by SHIRAKI 1918 from Maruyama nr. Sapporo/10th Aug. 1902 based on 3 ♀♀) = **questionable type:** Specimen without locality.

♀: "Matsumura" (= collector), "Co-type", "*Tabanus iyoensis* n. sp." (described by SHIRAKI 1918 as common in Kiushu and Shikoku and with records from Sasayama, Futsukaichi and Kumamoto / July to Aug. 30th) = **questionable cotype:** Specimen without locality and date.

♀: "Kumamoto", "leg. Kawamura", "Co-type", "*Tabanus iyoensis* n. sp." (described by SHIRAKI 1918 as common in Kiushu and Shikoku and with records from Sasayama, Futsukaichi and Kumamoto / July to Aug. 30th) = **questionable cotype:** Specimen without collecting date.

♀: "Fukukaichi 4.8.1913", "Co-type", "*Tabanus iyoensis* n. sp." (described by SHIRAKI 1918 as common in Kiushu and Shikoku and with records from Sasayama, Futsukaichi and Kumamoto / July to Aug. 30th) = **questionable cotype:** Different spelling of the locality.

For the possibility that the SHIRAKI collection may also contain some types other than of Tabanidae, this paper may be of help to interested specialists in finding type material so far believed to be lost. Specialists are needed for studying the collection to find out the wrong cotypes and possibly some true type specimens, especially of the species SHIRAKI described himself (YANG 1998).

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sammlung München = ZSM) for providing photographs of the drawers of the "co-type" collection, and to Prof. Klaus SCHÖNITZER (ZSM), leader of the German part of the NSC-DAAD Joint Research Collaboration (PPP-Taiwan / DAAD-Pr. Nr. D/0039914). Many thanks also to Martin SPIES (ZSM) for English language editing.

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Literaturbesprechung

GALDIKAS, B.M.F. et al. 2001: All Apes Great and Small. Vol. 1: African Apes. - Kluwer Academic/Plenum Publishers, New York. 298 S.

In der Reihe "Developments in Primatology: Progress and Prospects" präsentieren fünf hochkarätige Wissenschaftler (Biruté GALDIKAS, Jane GOODALL, Nancy BRIGGS, Lori SHEERA, Gary SHAPIRO) als Herausgeber diesen Band über afrikanische Affen. Die Einteilung der 21 Beiträge in sechs Sektionen erscheint auf den ersten Blick etwas "zusammengewürfelt", bei der intensiveren Lektüre dieses Buches ergibt sich allerdings doch sehr schnell eine klare Zielsetzung (auch wenn die "kleinen" Affen ins Hintertreffen geraten): Wenn wir uns nicht äußerst intensiv mit unseren nächsten Verwandten befassen, ihre Evolution, ihr Verhalten und ihre Ökologie studieren, besteht die Gefahr, dass viele (v.a. größere) Primatenarten in spätestens 25 Jahren ausgestorben sind. Dementsprechend beginnt Sektion 1 mit der Evolution von Affen und Menschen, die Sektionen 2-4 sind den bekannten Arten (Bonobos, Schimpansen, Gorillas) gewidmet, Sektion 5 befasst sich mit der physiologischen Basis für Verhalten und Altern und Sektion 6 greift die hochaktuelle Diskussion zur "Bushmeat Crisis" auf, die den Kreis zu globalem Naturschutz und zur Bioethik schließt.

Ein hochbrisanter Beitrag zur Primatologie Afrikas, der Neugierde auf den zweiten Band (asiatische Affen) weckt.

R. GERSTMEIER

KLAUSNITZER, B. (Hrsg.) 2001: Entomofauna Germanica, Band 5. Verzeichnis der Archaeognatha, Zygentoma, Odonata, Plecoptera, Dermaptera, Mantoptera, Ensifera, Caelifera, Thysanoptera und Trichoptera Deutschlands. - Entomologische Nachrichten und Berichte, Beiheft 6, Dresden. 162 S.

Während für viele europäische Länder zusammenfassende Übersichten über Fauna und Flora schon seit Jahren existieren, fehlen diese in Deutschland für viele Tiergruppen. Die Entomofauna Germanica will nun diese Lücke füllen und so sind bereits Verzeichnisse über Coleoptera, Diptera, Lepidoptera und Hymenoptera erschienen. In diesem 5. Band werden 10 Ordnungen dargestellt, für die sich kein zusammenfassender Name finden ließ; sie sind nach den üblichen Systemvorstellungen gereiht. Der noch zu erscheinende, abschließende Band 6 wird dann die noch fehlenden Ordnungen beinhalten. Aufgrund der Autorenfülle fallen die einzelnen Artikel naturgemäß unterschiedlich aus, z.T. ganz augenscheinlich an den Tabellen zu erkennen - was aber keineswegs störend wirkt, sondern eher den individuellen Charakter dieses Bandes unterstreicht. Die bewährte Struktur und damit der Informationsgehalt über die Fauna Deutschlands bleibt erhalten.

R. GERSTMEIER

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ZIEGLER, T. 2002: Die Amphibien und Reptilien eines Tieflandfeuchtwald-Schutzgebietes in Vietnam. - Natur und Tier Verlag, Münster. 342 S.

Diese ausgezeichnete Dokumentation der Herpetofauna eines vietnamesischen Schutzgebietes basiert auf der Dissertation des Autors. Untersuchungsgebiet ist das Ende 1996 zum Schutzgebiet ausgewiesene "Ky Anh - Ke Go" Tiefland-Feuchtwaldgebiet im Süden Nordvietnams, welches Thomas ZIEGLER im Rahmen zweier insgesamt ca. 6 Monate währender Forschungsaufenthalte besucht hatte. Vietnam gehört zu den sog. "hotspots" der Biodiversität, was bedeutet, dass diese Region mit einer interessanten und artenreichen Flora und Fauna aufzuwarten hat, die allerdings in den meisten Fällen noch recht unerforscht sind. Dies gilt besonders für die Invertebratenfauna, aber auch innerhalb der Wirbeltiere weist unsere Kenntnis gerade über die Amphibien und Reptilien doch große Wissenslücken auf.

Die Einleitung gibt einen Überblick zu Geographie, Klima, Vegetationstypen, Biogeographie und Biodiversität von Vietnam sowie die Erforschungsgeschichte der vietnamesischen Herpetofauna. Sehr dezidiert das eigentliche Untersuchungsgebiet (mit informativen, farbigen Karten und Landschaftsfotos) und die speziellen Exkursionsziele vorgestellt. Sehr ausführlich werden Material und Methoden abgehandelt, so dass dieser Teil auch zur Anregung, Vorbereitung bzw. Durchführung ähnlicher Freilandstudien verwendet werden kann. Die Artenübersicht - das Kernstück des Buches - beinhaltet umfassende Beschreibungen der Arten, Angaben zu Verbreitung, Fundumstände und Ökologie, Rufbeschreibung (bei Amphibien, inkl. Spekto- und Oszillogramme) und zur Taxonomie. Alle Arten, inkl. ihrer Jugendstadien sind farbig abgebildet, in vielen Fällen durch farbige Grafiken (Größenwachstum, Mageninhaltsanalysen) ergänzt; hier findet der wissenschaftlich interessierte Leser alle wichtigen Details. Im Abschluss erfolgt eine Analyse der Artenvielfalt, der Einnischung der Arten (Verteilungsmuster, Nahrungsspektrum, Fortpflanzung) sowie Bemerkungen über Zoogeographie und Tierhandel.

Eine ebenso empfehlenswerte wie fantastische Monographie, die nicht nur Herpetologen begeistern wird, sondern auch für alle am Regenwaldschutz Interessierte eine aufschlussreiche Lektüre bietet. R. GERSTMEIER

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