

**Identification and location of the holotype and paratypes
of *Anopheles (Nyssorhynchus) nuneztovari* Gabaldon
(Diptera: Culicidae).**

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ABSTRACT. The type-series of *An. (Nys.) nuneztovari* Gabaldon has largely been destroyed or misplaced. The holotype is represented by a male genitalia slide, number 349-6, in collections of the Division de Malariologia, Maracay, and not slide 347-6 as reported in the original description. Three male genitalia slides in collections of the Division de Malariologia, and three male genitalia slides currently in collections of the U.S. National Museum of Natural History, Washington, DC, appear to be paratypes; although, their status cannot be substantiated at this time. The structures of the holotypic genitalia are consistent with recent redescriptions and the generally accepted concept of this species. The ventral lobes of the claspette are characterized by a refringent structure with lateral arms, and the aedeagus is characterized by well developed leaflets.

INTRODUCTION

Gabaldon (1940) described *An. (Nys.) nuneztovari* based upon male adults from VENEZUELA: Estado de Cojedes, Municipio San Carlos, primarily due to distinctive characteristics of the phallosome (= aedeagus of Harbach and Knight 1980) and ventral lobes of the claspette. The remaining life history stages of *nuneztovari* were described by Floch and Abonnenc (1946) and Cova Garcia (1946), with recent comprehensive redescriptions provided by Sutil Oramas (1976) and Faran (1980).

According to the original description (Gabaldon 1940), the holotype and an unstipulated number of paratypes were deposited in the museum of the Division de Malariologia in Maracay, with an additional unstipulated number of paratypes deposited at the U.S. National Museum of Natural History, Washington, DC.

IDENTIFICATION AND LOCATION OF TYPE-MATERIAL

During recent investigations on the Albimanus Section of *An. (Nyssorhynchus)* occurring along the eastern slopes of the Andes, the author examined specimens of *An. (Nys.) nuneztovari* Gabaldon, 1940, held in the following collections: Division de Malariologia, Maracay, Venezuela; Culicidae collections, Johns Hopkins University (JH), Baltimore, MD; and the National Museum of Natural History (USNM), Smithsonian Institution, Washington, DC.

Among specimens of *nuneztovari* at the Division de Malariologia examined by the author are four genitalia slides from the type-locality that appear to predate the 1940 description. Unfortunately, no collection dates appear on

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these slides, and only one slide has a preparation number that allows tracing via museum records. The single slide of *nuneztovari* with a preparation number bears a white label with blue trim and the number 349-6. In the original description, Gabaldon (1940) reported that the holotype was numbered 347-6. Location of both slides, 349-6 and 347-6, and their respective museum records verifies that the male genitalia slide labeled 349-6 is the holotype of *nuneztovari* Gabaldon, and not slide 347-6 as reported in the original description. Museum records indicate that slide number 349-6 is the male genitalia of a specimen collected in September, 1938, from Estado de Cojedes, Municipio San Carlos. In addition, the record bears the following determination for slide 349-6: A. nuneztovari (Tipo de la especie). The holotype slide still bears the original 349-6 label; however, I have added a red holotype label with a secondary white label reading: VENEZUELA: Estado de Cojedes, San Carlos, Sept. 1938, An. (Nys.) nuneztovari Gabaldon. Museum records for slide 347-6 indicate a larval preparation of *An. argyritarsis* Robineau-Desvoidy collected at Estado de Cojedes, Municipio Manrique in November, 1948. Inspection of slide 347-6 reveals two larvae of what appear to be *An. argyritarsis*, therefore, the reference to slide 347-6 in the original description (Gabaldon 1940) was the result of a typographical error (Gabaldon, pers. comm., 1985).

The three unnumbered slides in the collection at Maracay bear labels reading, A. nuneztovari, San Carlos, and are believed to date from the type-series (Museum Technical Staff, pers. comm., 1985). The three slide mounted genitalia are similar to that of the holotype except that the aedeagus on one slide is longer than typical for *nuneztovari*. However, this difference could result from preparation technique and angle of observation. All pinned material dating from the type-series at the Division de Malariologia has been destroyed or misplaced (Gabaldon, pers. comm., 1985). Therefore, the type-series of *nuneztovari* is represented in Maracay by the holotypic genitalia slide, 349-6, and the three purported paratypic genitalia slides.

In his revision of the Albimanus Section, Faran (1980:122) reported examining three undated male genitalia slides of *nuneztovari* at JH that were collected from the type-locality. A search of JH collections by the author and an independent search by Dr. L.E. Rozeboom (Rozeboom, in litt., 1985) failed to locate any topotypic material. However, one male genitalia slide from a specimen collected by Gabaldon that predates the original description was discovered with the following label information: VENEZUELA, 12/27/39, Gabaldon. The label information was handwritten by Dr. Rozeboom (Rozeboom, in litt., 1985), and it appears likely that this slide represents non-type material sent by Gabaldon to Rozeboom for their joint taxonomic studies (Rozeboom and Gabaldon 1941). However, the possibility that this slide represents type-material cannot be ruled out. The three topotypic slides examined by Faran (1980) were subsequently located in USNM collections. The three slides all bear white labels with red trim and the following data: Anopheles (N.) nuneztovari, San Carlos, Cojedes, Venezuela; and Faran's determination label. The white label with red trim could date from the type-series, and these three slides appear to be the paratypes of *nuneztovari* deposited at the USNM by Gabaldon. These slides may have been transferred to JH collections during Rozeboom's active research on *Nyssorhynchus* during the 1940's. Search of correspondence in the Smithsonian archives and Smithsonian specimen loan records failed to provide any documentation that could clarify the status of these specimens.

DISCUSSION

The genitalia from the holotype slide of *An. (Nys.) nuneztovari*, 349-6, are figured herein (Fig. 1C) as they appear on the slide without modification or correction for slide preparation technique. Recent redescrptions of *nuneztovari* (Sutil Oramas 1976, Faran 1980) accord well with the holotypic genitalia. Differences in the fused ventral lobes of the claspette and proctiger between the holotype (Fig. 1A,C) and other recent figures stem largely from differences in preparation technique, angle of observation, and expertise of the scientific illustrators. One noteworthy difference between the present (Fig. 1A) and recently published illustrations is the presence of a portion of the refringent structure with lateral arms on the ventral lobes of the claspette in the holotype as discussed by Gabaldon (1940) and Rozeboom and Gabaldon (1941), and the absence of this structure in the figures of Sutil Oramas (1976) and Faran (1980). The only significant point of contention between the present author and recent redescrptions of the male genitalia concerns the presence of leaflets on the aedeagus (Fig. 1B). Faran (1980) states that leaflets may be present or absent in *nuneztovari*, while I believe that leaflets are always present and are diagnostic for *nuneztovari*.

In summary, the type-series of *An. (Nys.) nuneztovari* Gabaldon has largely been destroyed or misplaced. The holotype is represented by a male genitalia slide, number 349-6, in collections of the Division de Malariologia, Maracay. Three male genitalia slides in collections of the Division de Malariologia, and three male genitalia slides currently in USNM collections appear to be paratypes, although their status cannot be substantiated at this time. An additional male genitalia slide of *nuneztovari* in JH collections dates from the time of the original description. However, this slide does not appear to represent type-material and cannot be linked to the type-locality. The structures of the holotypic genitalia (Fig. 1A-C) are consistent with recent redescrptions and the generally accepted concept of this species. The ventral lobes of the claspette are characterized by a refringent structure with lateral arms, and the aedeagus is characterized by well developed leaflets.

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Fig.1

Anopheles (Nyssorhynchus) nuneztovari

HOLOTYPE 349-6

VENEZUELA: Estado de Cojedes
San Carlos, Sept. 1938

