

## Revision of the *Anastrepha benjamini* species group and the *A. pallidipennis* complex (Diptera: Tephritidae)

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**Abstract:** The shape of the facial carina in *Anastrepha* is discussed. Although taxonomically useful, the protrudent form probably occurs by convergence in different species groups. Two species groups in which the carina is usually produced are revised. The *benjamini* species group includes: *benjamini* Lima (from southeastern Brazil), *gigantea* Stone (from Panama), *magna*, n. sp. (from Colombia and Venezuela), and *superflua* Stone (from Panama). Host data for this group are limited to only one record of *benjamini* from a species of *Pouteria* (Sapotaceae). The *pallidipennis* complex, which is included in the *pseudoparallela* species group, is recognized to include: *amnis* Stone (from southern Brazil and possibly Trinidad), *curitis* Stone (from Colombia, Peru, and northern Brazil), *pallida*, n. sp. (from Panama), *pallidipennis* Greene (from Colombia and Venezuela), and *velezi*, n. sp. (from Colombia). These species breed in fruit of *Passiflora* (Passifloraceae) (*P. ambigua* Hemsl., *ligularis* Juss., *nitida* H.B.K., *quadrangularis* L., and *seemannii* Griseb.). The relationships of these *Anastrepha* species are discussed, and diagnoses and illustrations are provided to permit their identification. A neotype is designated for *A. consobrina* (Loew), and the identity of this species is clarified.

**Resumen:** Se discute la forma de la carina de la cara en *Anastrepha*. Aunque esta característica es útil taxonómicamente, probablemente la forma producida ocurre por convergencia en varios grupos de especies. Se revisan dos grupos de especies que normalmente tiene una carina producida. El grupo *benjamini* incluye: *benjamini* Lima (del sureste de Brasil), *gigantea* Stone (de Panamá), *magna*, sp. n. (de Colombia y Venezuela), y *superflua* Stone (de Panamá). Datos de huéspedes del grupo *benjamini* incluyen solo un registro de *benjamini* en una especie de *Pouteria* (Sapotaceae). El complejo *pallidipennis*, que es una parte del grupo *pseudoparallela* incluye: *amnis* Stone (del sur de Brasil y tal vez de Trinidad), *curitis* Stone (de Colombia, Perú, y el norte de Brasil), *pallida*, sp. n. (de Panamá), *pallidipennis* Greene (de Colombia y Venezuela), y *velezi*, sp. n. (de Colombia). Estas cinco especies se alimentan de frutos de *Passiflora* (Passifloraceae) (*P. ambigua* Hemsl., *ligularis* Juss., *nitida* H.B.K., *quadrangularis* L., y *seemannii* Griseb.). Se discuten las relaciones de estas *Anastrepha* especies y se proveen diagnoses e ilustraciones para su identificación. Se designa un neotipo de *A. consobrina* (Loew), y se establece la identidad de esta especie.

### Introduction

*Anastrepha* is the largest and economically most important genus of Tephritidae in the Neotropical Region, including almost 200 described and numerous undescribed species, some of which are major pests of mango, citrus, and other crops. Relationships within *Anastrepha* are poorly understood, but a number of species groups have been recognized (Norrbom and Kim 1988b).

The *benjamini* species group was proposed by Steyskal (1977) to include species in which the facial carina is produced medially and is convex in profile (Fig. 1-2). Although the medially produced carina clearly is an apomorphic character state, the monophyly of the *benjamini* group as currently composed is doubtful, based on the variation in this character and because of other character state distributions (see "Relationships"). Although probably a homoplastic character, the shape of the carina is useful taxonomically, and the species in which it is known to be produced medially are revised in this paper.

As explained below in the "Relationships" section, I am here including only the following four species in the *benjamini* group: *benjamini* Lima, *gigantea* Stone, *magna*, new species, and *superflua* Stone. The only known host data for these species is one record of a *Pouteria* sp. (Sapotaceae) for *benjamini*. Five other species, *A. amnis* Stone, *curitis* Stone, *pallida*, new species, *pallidipennis* Greene, and *velezi*, new species, are here recognized as the *pallidipennis* complex, and are included in the *pseudoparallela* species group. All five species of the complex breed in fruit of *Passiflora* spp. (Passifloraceae), as do most other species of the *pseudoparallela* group.

### Materials and methods

I use the morphological terminology of McAlpine (1981), except as noted by Norrbom and Kim (1988a). Wing band terminology follows Stone (1942a) and Steyskal (1977). Acronyms for the institutions where specimens are deposited are as follows: AMNH - American Museum of Natural History, New York; BMNH - Natural History Museum,