

## INSECT IDENTIFICATION

The brief item about identification in the last Newsletter (2(1): 3-4) prompted interesting comments from readers. Several confirmed from their own experiences particular difficulties mentioned there. Dr. Lloyd Knutson referred to an article prepared by members of the Insect Identification and Beneficial Insect Introduction Institute that considered ways to standardize the reporting of identifications, and he has kindly allowed its reproduction here (pp. 44-45).

Few formal protocols of this sort are used by other organizations which identify insects, although several standard reasons for incomplete identifications to species (e.g. identification depends on characters found only in the other sex) are listed on the reporting forms used by the Canadian National Identification Service, for example.

I would welcome further discussion of this topic in the pages of the Newsletter by the users of identifications as well as those who identify specimens. The following preliminary list of suggestions, together with the article reproduced on pages 44-45, may serve to commence such a discussion.

### Useful to systematists

(for identification and systematic work)

- material that has been sorted
- material that has been properly preserved or mounted
- ecological data (date, place, habitat or host plant, collector, are minimum data; other information is often useful in identification. Communicate it separately from the data label, if necessary)
- reason for identification request (e.g. nature of project, relevance of this material, any specific question being posed about the material)
- realistic deadline for identification (e.g. if publication depends on this)
- long series of field collected and high-quality laboratory reared specimens (in some cases)
- associated sexes (especially in copula)
- associated adults and early stages (especially reared material)
- if possible, permission to retain duplicates, etc., if desired

### Useful to users of identifications

(for ecological work and other applications)

- name of species (and higher taxa)
- infraspecific categories if any
- explanation of any uncertainty with the identification (e.g. difficult group, reasons for difficulty)
- explanation of any uncertainty with the name used (e.g. generic placement)
- explanation of reason for any incomplete identifications (e.g. specific characters not visible in material as prepared, group under revision, no expert available, identification to species depends on characters found only in another life stage)
- any suggestions that might improve the identifiability of subsequent submissions
- summary of the biology and distribution of the species or the group (or reference)
- reference to a general source for the group, if available
- frequent or previously used synonyms likely to be found in the non-taxonomic literature

## Format for Reporting Identifications<sup>1</sup>

By Lloyd Knutson<sup>2</sup>, Ronald W. Hodges<sup>3</sup>, and George C. Steyskal<sup>4</sup>

Identifications of insects and mites, other than positive species identifications, are reported by taxonomists in various ways. Some consistency in the manner in which this is done is important, especially to the non-taxonomist users of identification services. Also, a standardized format for reporting identifications will become increasingly important in the near future as data banks of identifications are developed.

The following "Categories of and Mode of Reporting Identifications" describes the system and format used by the Insect Identification and Beneficial Insect Introduction Institute, Agricultural Research, USDA. All the formats used by IIBIII and collaborators are included, except for minor variations peculiar to certain taxonomic groups and a few rarely used formats. Although we would not want and are not in a position to prescribe procedures to colleagues in other institutions, we would like to suggest that general use of a standardized format by the taxonomic community would be useful. We would appreciate receiving comments and suggestions in regard to our procedures and format.

It is the policy of this Institute not to provide manuscript names (unpublished taxonomic names). Release of such names could result in inadvertent publication of an invalid and confusing *nomen nudum*, or, even more serious, result in their publication with barely enough data to validate them, thereby "scooping" the worker intending to publish them and putting a poorly described species name into the literature.

Subspecific names (trinomina) are not included in this format because we suspect that in most cases they have no biological meaning. However, in some instances they are in common use for economically important species and there is no alternative presently available. The taxonomist's judgment must be carefully used to avoid citation of trinomina of

questionable significance. Some geographical races in fact may be valid species. Rather than recognizing uncertain distinctions with trinomina, we suggest using only the binomen.

A question mark should not be used as part of an identification. Its placement before or after a name is confusing because it is not always clear what is questioned, it is easily overlooked, it could well be considered a typographical error and deleted in press, and users of identifications may drop the question mark and thus publish as positive a record that may not be correct. The words "possibly," "probably," and "near" are much less likely to cause confusion, and they are more descriptive than a question mark. Thus, in the attached listing, the designations "possibly," "probably," and "near" (nos. 5, 9, 12, and 15) are essential parts of the identifications. Their use indicates that for several reasons, such as condition of specimens submitted, state of knowledge of the taxon, etc., a precise identification is not Possible and was not made. These designations must not be deleted when the identification is cited.

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### Footnotes

1. Received for publication Oct. 16, 1979.
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## Categories of and Mode of Reporting Identifications

### DEFINITE SPECIFIC IDENTIFICATION:

#### Positive

1. *Musca domestica* Linnaeus . . . . . Known species  
or *Musca (Musca) domestica*  
Linnaeus (when desirable to indicate  
subgenus)
2. "*Musca*" *cyanea* Mueller . . . . . Known species. Specific name correct. Combination incorrect, but  
reflects current literature. Correct combination and generic name not  
available
3. *Musca* "*domestica* Linnaeus" . . . . . Known species. Specific name incorrect, but reflects current literature.  
Correct specific name not available.
4. *Musca* n. sp. . . . . Undescribed species (in general, without specification)
5. *Musca* n. sp. near *domestica*  
Linnaeus. . . . . Undescribed species (when identifier has done considerable work on  
the group in question, is sure that the species is undescribed, but does  
not have definite plans to describe it).
6. *Musca* n. sp. Smith no. 1, a, etc. . . . . Undescribed species (when a nonce designation is given for a new  
species being treated in work in progress; the name of the person  
doing the work, usually the identifier, is cited for reference.)

#### Negative

7. *Musca* sp., not *domestica* Linnaeus . . . . . When identity with a suspected species is all that is requested or  
needed and specific identification, if not that species, is not needed.

### UNCERTAIN OR TENTATIVE SPECIFIC IDENTIFICATION:

#### Definite generic determination

8. *Musca* sp. 1, 2, 3, etc. . . . . Species distinguished from each other when more than one species is  
in the lot, but for one reason or another specific identification is not  
given.
9. *Musca* sp. poss. (or prob., or near)  
*domestica* Linnaeus . . . . . Species identity uncertain, but possibly (or probably or near) a known  
species.
10. *Musca domestica* complex (or  
group) . . . . . Species belongs to a complex or group of taxa not recognizable by  
ordinary means.
11. *Musca* sp. "red femur" Smith . . . . . Species sorted tentatively but not identified (usually used only when  
the taxonomist is working on the genus in question)

#### Family known, genus uncertain or unknown

12. Muscidae, poss. (or prob., or near)  
*Musca* . . . . . Genus uncertain, but near a known genus (author of genus not cited in  
order to prevent confusion).
13. *Musca* (*sensu lato*, *sensu* Linnaeus,  
etc.) . . . . . Genus uncertain, not assigned to any of the restricted and inclusive  
taxa; name used in broad sense or that of a particular worker.
14. Muscidae, genus unrecognized . . . . . Genus unrecognized.

#### Family or other suprageneric category not known

15. Diptera Cyclorrhapha; Muscoidea  
Brachycera; prob. Muscidae; family  
near Muscidae; etc. . . . . Lowest known or probable taxon stated.