

REVIVED PROPOSALS FOR STABILIZING NAMES IN THE *TIPULA*
OLERACEA SPECIES-GROUP (DIPTERA: TIPULIDAE) Z.N. (S.) 896

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At the request of the Secretary of the International Commission, we here review the history of this case since it was first presented to the Commission twenty years ago. We also review usage of names for the three species involved and present precise proposals in the hope that this important case can at last be brought to a conclusion. It was first brought forward by Dr. A.M. Hemmingsen (*Strödam Biological Laboratory*) and Dr. Henning Lemche (*Universitetets Zoologiske Museum, Copenhagen*) from Denmark in 1955, and their paper was finally ready for the printer by the end of 1956. For reasons which cannot now be unravelled, but which must include the elaborate preparations for the London (1958) International Congress of Zoology, it was not sent to the printer until October 1959 and was published on 8 April 1960 in *Bull. zool. Nomencl.* vol.17: 209-213.

2. In their paper Dr. Hemmingsen and Dr. Lemche clearly expounded the nomenclatural problems associated with the three species concerned, which were referred to in their paper, in subsequent comments on it, and are here referred to, by the letters A, B and C. The heart of the problem is to decide which, if any, of these species is to bear the name *Tipula oleracea* Linnaeus, 1758 - the nominal type-species, by subsequent designation by Latreille, 1810, *Consid. gén. Anim. Crust.*, of *Tipula* Linnaeus, 1758. The three species differ in their morphology (see Hemmingsen & Lemche, *op. cit.*), in their geographical distribution and in their ecology and behaviour. All, but especially sp. B, are pests through the activity of the larvae ("leather-jackets") which eat the subterranean and lower aerial parts of a wide variety of plants; in fact, out of over 13,000 described species of TIPULIDAE, these are virtually the only species that have any significant impact on man.

3. Sp. A is mainly a middle and southern European and North African species, uncommon in more northerly latitudes, and not known in Sweden north of the province of Skåne. In particular, it is not known as far north as Uppsala which, according to Tjeder (1961, *Bull. zool. Nomencl.*, vol.19: 132) must be considered as the type-locality of *T. oleracea* and from where (*ibid.*) he proposed a neotype. Both Tjeder and Borg (*ibid.*: 129-131), however, give strong circumstantial evidence for the view that the species known to Linnaeus must have been sp. B. Sp. A is recorded as a pest from France, Britain, Turkey, Russia, Austria and Germany.

4. Sp. B occurs throughout Europe from the Canary Islands and east to about 40° E and up to 65° N. It has been established in Newfoundland and Nova Scotia for some time and is rapidly spreading in British Columbia and Washington. It is in fact responsible for about 98 per cent of outbreaks of *Tipula* and is the only one known to occur as a pest in Sweden. It is recorded as a major pest in the lands around the North Sea, including S. Sweden and

E. Britain; a frequent, if sporadic pest in a belt around this area including western Britain and parts of central Europe including the Baltic States as well as in North America. It is a minor pest in the rest of its range.

5. Sp. C ranges eastwards from the Atlantic seaboard of Europe, but not into the Mediterranean peninsulas, and about as far north as sp. B. It becomes the commonest species of the group in eastern regions and, as *T. subcunctans* Alexander, continues across to the Pacific coast. It is hardly known as a pest except in Germany, where its effects are serious, but it may have been under-estimated in other areas because its flight period overlaps with the last part of that of sp. B.

6. The specific names available for these three species are as follows, in order of priority (all were proposed in combination with the generic name *Tipula*):

- (1) *oleracea* Linnaeus, 1758, *Syst. Nat.* (ed. 10), vol.1: 585.

The Linnean collection contains a single male which (contrary to the statement of Hemmingsen & Lemche quoting Mannheims, 1952, TIPULIDAE, in Lindner, *Fliegen palaearkt. Reg.* (15): 76) bears the reference number "4" and the name "*oleracea*". There is no intrinsic reason to doubt that this is the type-specimen of Linnaeus. Its genitalia have been dissected and it is unquestionably a specimen of species C.

- (2) *fimbriata* Meigen, 1818, *Syst. Besch. zweifl. Ins.*, vol.1: 190. As Mannheims (quoted by Hemmingsen & Lemche) showed in 1952: 78, this is unquestionably species B. The name has never, however, come into general use.

- (3) *paludosa* Meigen, 1830, *Syst. Besch. zweifl. Ins.*, vol.6: 289. This is another name for the species B, and Hemmingsen & Lemche proposed that it should be used as the valid name. It is, however, a junior primary homonym of *Tipula paludosa* Fabricius, 1794, *Ent. Syst.*, vol.4: 239, which is itself an unused junior synonym of *T. bimaculata* Linnaeus, 1766 and which lacks a type-specimen.

- (4) *fusca* Staeger, 1840, *Naturhist. Tidsskr.* vol.3 (1): 14. As Mannheims (quoted by Hemmingsen & Lemche) showed in 1952: 81, this is species C. The name was thought to be preoccupied by "*Tipula fusca*" de Geer, 1773, *Nova Acta Uppsal.*: 66, but that is a non-binominal name. It is, however, unquestionably a junior homonym of *Tipula fusca* Bloch, 1776, *Beschaft. berlin. Ges. naturf. Fr.*, vol.2: 175. This name applies to a fossil insect in amber, certainly a Dipteran, and probably a Sciariid. It seems unlikely that this insect will ever be identified at specific level or that a specific name will ever be needed for it, but in that event it would not be placed in the genus *Tipula*.

- (5) *subcunctans* Alexander, 1921, *Ann. ent. Soc. Am.*, vol.14: 127. This is species C. Doubt exists as to whether it denotes a separate subspecies from the following.

- (6) *czizeki* de Jong, 1925, *Een Studie over Emelten en haare bestrijding, Verh. Mededeel. Plantenz. Dienst Wageningen*: 42. This is species C and is the name generally used in both taxonomic and applied

literature in Europe.

- (7) *submendosa* Tjeder, 1941, *Opusc. Entom.*, vol.6:62. This was proposed for species A (*oleracea* auctorum) on the grounds that it was extremely unlikely to be the species that was before Linnaeus, and that *oleracea* had never been used for that species in Sweden.

7. Until the work of de Jong in 1925, the species A and B were widely confused in the literature. Unfortunately, in providing a sound basis for all subsequent taxonomic interpretations, he renamed the wrong species; for he applied *oleracea* to species A and proposed the new name *czizeki* for species C. His usage of the names, which has been generally followed in all countries (including the other Scandinavian countries) except Sweden, was:

Species A	<i>oleracea</i> Linnaeus, 1758
Species B	<i>paludosa</i> Meigen, 1803 (<i>non</i> Fabricius, 1794)
Species C	<i>czizeki</i> de Jong, 1925 (except where <i>subcunctans</i> Alexander is used)

In Sweden, however, the usage is:

Species A	<i>submendosa</i> Tjeder, 1941
Species B	<i>oleracea</i> Linnaeus, 1758
Species C	<i>fusca</i> Staeger, 1840 or <i>czizeki</i> de Jong, 1925

8. Since the publication of Hemmingsen & Lemche's application in 1961 (*Bull.* vol.17:209-213), published comments (*Bull.* vol.18:129-135, 145; vol.20:304; vol.31:5-8) have centred mainly on whether the name *oleracea* is to be applied to species A or to species B. The first is contrary to the circumstantial evidence but is supported by a very large majority of the numerous works on these insects - mainly of a non-taxonomic nature. The second is supported by the circumstantial evidence but is upheld by usage in Sweden alone. Neither position is in conformity with the evidence of the specimen which must be accepted, in the absence of evidence to the contrary, as Linnaeus's type.

9. In view of the different uses of the specific name *oleracea*, Professor Per Brinck suggested (*Bull.* vol.18:135) that the name be dropped altogether and that the following usage be adopted:

Species A	<i>submendosa</i> Tjeder, 1941
Species B	<i>paludosa</i> Meigen, 1830
Species C	<i>fusca</i> Staeger or <i>czizeki</i> de Jong.

This suggestion was, however, rejected by Dr. Lemche (*Bull.* vol.31:6). Other comments published with Dr. Lemche's include one from Dr. Alexander protesting at the proposal by Hemmingsen & Lemche to suppress *Tipula subcunctans* and a protest by Dr. Bo Tjeder against the proposal to regard *T. paludosa* Fabricius, 1794, as a nomen dubium. We also commented at that time in support of Hemmingsen & Lemche.

10. We think it is worth repeating two points before proceeding further. First, we see no point in using the plenary powers to resurrect the junior primary homonym *T. fusca* Staeger, 1840 for sp. C. This can either be called *oleracea* if the re-identification of a 250-year old type-specimen is adopted;

or it can continue to be called *czizeki* de Jong, which has been the name used for it ever since de Jong worked out the taxonomy in 1925, either as an independent species or as a subspecies of *subcunctans* Alexander, 1921. At present most authors regard them as separate species - if only for convenience. Certainly stability would not be served by suppressing *subcunctans* in favour of *czizeki*. Here it would be helpful if the Commission were to rule that the Law of Priority is to apply to those two names whenever they are used at the same level in the species-group. Secondly, no purpose would be served by allowing the senior subjective synonym *Tipula fimbriata* Meigen, 1818 to claim its right of validity over *T. paludosa* Meigen, 1830. That would lead to a gross disturbance of usage in the countries other than Sweden, while in Sweden it would not be any more welcome than *T. paludosa* as a substitute for *T. oleracea* as a name for Species B.

11. We now turn to the evidence of usage in recent years and claim that this is overwhelmingly in favour of the proposals of Hemmingsen and Lemche. The *Review of Applied Entomology*, Series A, vols 48-60, 1960-1972, lists many references of which the 44 tabulated below are relevant:

sp. A as <i>oleracea</i>	sp. B as <i>paludosa</i>	sp. C as <i>czizeki</i>
13	30	1

There are a further 20 references to the *T. oleracea*-group. Papers using the above nomenclature originated from Great Britain (25), Germany (5), U.S.A. (5), Canada (5), Russia (2), France (2), Italy (1), Czechoslovakia (1). There are 14 references to *Tipula* virus, especially in sp. B under the name *T. paludosa*, from the U.S.A. and Britain. No references from Scandinavia are given in that period. The references in question all deal with papers published in periodicals.

12. The following is a by no means exhaustive list of books and papers showing the variety of fields in which the nomenclature advocated by Hemmingsen & Lemche has been used (only one - Borg, 1952 - is of Swedish origin, and in that the name *paludosa* was used for Species B).

General textbook of agricultural entomology	Smith, K.M., 1931. <i>A textbook of agricultural entomology</i> . Cambridge. 285 pp.
Garden pests	Westcott, C., 1973. <i>The gardener's bug book</i> . New York. 689 pp.
Virology	Carter, J.B., 1973. <i>J. invert. Path.</i> , vol.21: 123-130, 136-143
Entomophagous fungi	Muller-Kagler, E., 1965. <i>Z. angew. Ent.</i> , vol.55: 409-418
Bacteria	Huglar, A., 1959. <i>J. Insect Path.</i> , vol.1: 60-66

- Myiasis Guegan, J., 1970. *Ann. Parasit. hum. comp.* vol.45: 243-246
- Nematology Lam, A.B.Q. & Webster, J.M., 1972a. *J. invert. Path.*, vol.20: 141-149; 1972b, *Can. ent.*, vol.104: 899-902
- Food of vertebrates Dunnett, G.M., 1955. *Ibis*, vol.97: 624-628; King, B., 1972, *British Birds* (Oct. 1972); Loi, I., 1965. *Circ. Oss. Mal. Piante*, Sez. Ent.:5
- Cytogenetics papers in *Chromosoma*, vols 7, 8, 12, 13
- Histology Bauer, H., 1932, *Z. wiss. Zool.*, vol.143: 53-76
- Ecology Barnes, H.F., 1937. *Ann. appl. Biol.*, vol.24: 356-368; Freeman, B.E., 1964. *J. anim. Ecol.*, vol.33: 129-140; 1967, *ibid*, vol.36: 123-146; 1968, *ibid*, vol.37: 339-362; 1972, *ibid*, vol.41: 537-551
- Population studies Dunnett, *op cit*; Milne, R., Laughlin, R. & Coggins, R.E., 1965. *J. anim. Ecol.*, vol.34: 529-534
- Life-cycle: eggs Meats, A., 1968. *Proc. r. ent. Soc.*, A. vol.43: 85-88; Hemmingsen, A.M., 1952. *Vidensk. Meddr. dansk. naturh. Foren.*, vol.114: 365-430
- larvae Brindle, A., 1957. *Ent. mon. Mag.*, vol.93: 202-204, *Trans. Soc. br. Ent.*, vol.14: 63-114; Loi, *op cit*; Savtchenko, E.N., 1961. *Fauna SSR*, vol.2: 1-486; 1966, *Fauna Ukrainii*, vol.14: 1-548; Theowald, Bro., 1967. *BestimmBüch Bodenfauna Europ.*, 7; Lam & Webster, 1972, *opp. cit*; Laughlin, R., 1960. *Ent. exp. app.*, vol.3: 185-197; 1967, vol.10: 52-68; Meats, *op cit*.
- pupae The same authors; Coulson, J.C., 1962, *J. anim. Ecol.*, vol.31: 1-19.

The species have also been used as examples in models designed to test the relative importance of factors affecting their distribution and abundance, so as to define susceptible areas and predict outbreaks. In Britain, the Agricultural Research Council has organised conferences on Leatherjackets since 1967, and since 1972 a recording and ecological scheme has been working for amateurs and professionals alike, with participation of workers in other countries (about 80 zoologists are involved). A similar group has been set up in Yugoslavia. A number of key works or checklists have been published in recent years or are in process of

being published, e.g. Die Fliegen der Palaearktischen Region, Fauna U.S.S.R., Fauna Ukrainii, Fauna European S.S.R., Belgium/Holland Checklist, British Checklist, Czechoslovakia Checklist, Romania Checklist, Swedish Checklist, Yugoslav Checklist, North American Catalogue, and numerous more local faunal lists. In works of this category, the Sweden Checklist is almost the only one not to follow the nomenclature adopted by Mannheims, 1950, based on the work of de Jong, 1925, and proposed to the Commission by Hemmingsen & Lemche. It is worthy of note that the names *fimbriata*, *fusca*, *subcunctans* and *submendosa* were not used in the *Journal of Applied Entomology* in the period reviewed above.

13. It is only since 1941, when Tjeder realised, quite correctly, that the species called *oleracea* over most of Europe could not be the one described by Linnaeus that the problem of naming these species has become not only a taxonomic problem, enough in itself, but also a nomenclatural one. In Sweden, and in Sweden alone, an attempt has been made to interpret the names correctly, but even there usage has not been unanimous (see Borg, 1952), and the attempt was not consistent with the identity of the sole surviving Linnean specimen.

14. We therefore ask the Commission

(1) to use its plenary powers

(a) to set aside all designations of type-specimen for the nominal species *Tipula oleracea* Linnaeus, 1758, hitherto made and to designate as neotype of that species the male specimen of which the hypopygium was figured by Mannheims (1952, in Lindner, *Die Fliegen der Palaearkt. Reg.* (15): 77, fig. 39b, from Kochem/Mosel);

(b) to suppress the specific name *paludosa* Fabricius, 1794, as published in the binomen *Tipula paludosa*, for the purposes of both the Law of Priority and the Law of Homonymy;

(c) to suppress the specific name *fimbriata* Meigen, 1818, as published in the binomen *Tipula fimbriata*, for the purposes of the Law of Priority but not for those of the Law of Homonymy;

(2) to place the generic name *Tipula* Linnaeus, 1758 (gender: feminine), type-species, by subsequent designation by Latreille, 1810, *Tipula oleracea* Linnaeus, 1758, on the Official List of Generic Names in Zoology;

(3) to place the following specific names on the official List of Specific Names in Zoology:

(a) *oleracea* Linnaeus, 1758, as published in the binomen *Tipula oleracea*, and as defined by reference to the neotype designated under the plenary powers in (1) (a) above;

(b) *paludosa* Meigen, 1830, as published in the binomen *Tipula paludosa*;

(c) *czizeki* de Jong, 1925, and (d) *subcunctans* Alexander, 1921, each as published in combination with the generic name *Tipula*, with an endorsement that the Law of Priority is to apply when these names are held to denote a single taxon at the same level in the

species-group;

- (4) to place the following species-group names on the Official Index of Rejected and Invalid Specific Names in Zoology:
 - (a) *paludosa* Fabricius, 1794, as published in the binomen *Tipula paludosa*, and
 - (b) *fimbriata* Meigen, 1818, as published in the binomen *Tipula fimbriata* as respectively suppressed under the plenary powers in (1) (b) and (c) above;
- (5) to place on the Official List of Family-Group Names in Zoology the name TIPULIDAE (correction of Tipulariae) Latreille, *[1802-1803], type-genus *Tipula* Linnaeus, 1758;
- (6) to place on the Official Index of Rejected and Invalid Family-Group Names in Zoology the name Tipulariae Latreille, [1802-1803], an incorrect original spelling of TIPULIDAE.

(NOTE. - The neotype proposed above was figured and described by Hemmingsen & Lemche in an appendix to their original application, 1960, *Bull. zool. Nomencl.*, vol.17: 209-213.)



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