



Case 2804

***Drosophila putrida* Sturtevant, 1916 (Insecta, Diptera): proposed replacement of the holotype by a neotype**

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Abstract. The purpose of this application is to designate a neotype in accordance with current usage for the nominal species *Drosophila putrida* Sturtevant, 1916. Examination of the holotype shows that it belongs to an un-named species which has been consistently misidentified as *Drosophila testacea* von Roser, 1840. *D. putrida* is widely used in ecological, genetic and evolutionary studies and is restricted to the eastern U.S.A.

1. North America has two species belonging to the small, Holarctic *Drosophila testacea* species group. Their species status and nomenclature have never been critically examined and some confusion exists, partly as a result of the long and consistent misidentification of *Drosophila putrida* Sturtevant, 1916. The holotype of *putrida* is a male in perfect condition in the American Museum of Natural History (type locality: Woods Hole, Massachusetts, U.S.A.). I recently examined the holotype and its paratypes. The specimens actually belong to a species which since about 1940 has been misidentified as *Drosophila testacea* von Roser, 1840.

2. Confusion began when two externally distinct North American species in the group were fully recognized, and the name *testacea* was applied to the species most similar to the true (European) *testacea*, although current work has shown that the North American '*testacea*' is a different, morphocryptic species. Few voucher specimens exist in collections from all the biological work done on the two North American species, so it is impossible to confirm the identity of the *putrida*/*testacea*' referred to in older papers. However, there are specimens collected in Austin, Texas in the 1940's in the University of Texas collection at the American Museum of Natural History which have labels identifying *putrida* in the sense recognized today. Patterson & Stone (1952) distinguished the two species on the basis still adhered to, as does Strickberger's (1962) key which is in wide use today. Apparently, no one had ever checked Sturtevant's type specimen of *putrida*.

3. The three species in the *testacea*-group are abundant inhabitants of forests, and have been favored subjects for studies in ecology, genetics and evolution. An extensive literature exists; major papers that treat either one or both of the Nearctic species are the following: Carson & Stalker, 1951 (breeding sites); Dorsey & Carson, 1956 (host finding behavior); Grimaldi, 1985 (niche biology); Grimaldi & Jaenike, 1983 (*putrida* hosts), 1984 (larval competition); Jaenike, 1978, 1986 (host selection), 1988 (parasitism of '*testacea*'); Jaenike & Grimaldi, 1983 (oviposition population genetics); Jaenike et al., 1983 (toxin resistance); James & Jaenike, 1990 ('sex ratio' meiotic drive); Lacy, 1982, 1983, 1984 (host use and population genetics); Levitan, 1954 (distributional

records); Miller & Weeks, 1964 (distributional records); Montague & Jaenike, 1985 (parasitism); Patterson & Stone, 1952 (distributions, internal reproductive organs, distinguishing characters, chromosomes); Patterson & Wagner, 1943 (distributions); Patterson & Wheeler, 1949 (North American *Drosophila* catalogue); Sabath, Richmond & Torella, 1973 (temperature controlled color polymorphism); Strickberger, 1962 (key to North American *Drosophila*); Throckmorton, 1962a, 1962b, 1975 (*Drosophila* phylogeny); Ward, 1949 (metaphase chromosomes); Wharton, 1943 (metaphase chromosomes); Wheeler, 1981a (world catalogue); Wheeler, 1981b (Nearctic fauna). Adoption of *putrida* in the sense of the holotype would cause serious confusion because the name, as used in the above literature, would be transferred to the other species. The references listed in this paragraph all agree upon a diagnosis of *putrida* as having a pair of presutural acrostichal setulae that are stouter, decumbent and only about twice the length of other, standard acrostichal setulae.

4. A revision of the *testacea*-group is completed, utilizing adult specimens from all known localities of the range, as well as electrophoresis studies, mating tests and ecological characteristics. There is no doubt that the species represented by the *D. putrida* neotype proposed below, from New Jersey, also occurs in the locality (Massachusetts) of the holotype and that no other species share the diagnostic traits of the proposed neotype.

5. In accordance with Recommendation 75E of the Code, I refer the case to the Commission to set aside the existing type material of *D. putrida* and to confirm the designation of a neotype belonging to the taxonomic species that North American *Drosophila* workers have been consistently referring to as *putrida* for the last 50 years. What has been called '*testacea*' in North America needs a new name, diagnosis and designated type. The *putrida* neotype I propose is an adult male specimen labelled as '*Drosophila (D.) putrida* Sturtevant, 1916, NEOTYPE, Det. D.A. Grimaldi' from 'U.S.A.: New Jersey: Morris County, Pompton Plains, June, 1986, D.A. Grimaldi, coll.', and deposited in the American Museum of Natural History. No problem would exist in reconciling Sturtevant's original (1916) and subsequent (1921) descriptions of *putrida* with the neotype, since he omitted crucial diagnostic details of the presutural setae which externally distinguish the species. His description could apply to any of the *testacea*-group species; indeed, it was this insufficiently detailed description that contributed to the continued misidentification.

6. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary powers to set aside all previous fixations of type specimens for the nominal species *Drosophila putrida* Sturtevant, 1916 and to confirm the neotype designation proposed in para. 5 above;
- (2) to place on the Official List of Specific Names in Zoology the name *putrida* Sturtevant, 1916, as published in the binomen *Drosophila putrida* and as defined by the neotype designated in (1) above.

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