

DISCUSSION ON AN EARLIER NAME AND AUTHOR FOR THE  
TULIPTREE SCALE *TOUMEYELLA LIRIODENDRI* (GMELIN)  
(HEM., COCCOIDEA, COCCIDAE)

BY D.J. WILLIAMS & TAKUMASA KONDO

In a recent article (Kondo & Williams, 2008) designating a neotype for the tuliptree scale *Toumeyella liriodendri* (Gmelin) from Auburn, Alabama, U.S.A., on *Liriodendron tulipifera* L., we also redescribed and illustrated the species. Gmelin (1790: 2220) listed this species as *Coccus liriodendri* on *Liriodendron tulipifera* L. and quoted an article by Hill (1753) who had described the species from England as living on a tulip tree that had been imported from the U.S.A. earlier. The article quoted by Gmelin is in German and was actually a translation of an English article by Hill (1752) but, nevertheless, the action by Gmelin validated the name. The colony of the scale insect in England must have died out on the tree soon after it was described because the species has never been recorded from England or even the rest of Europe since.

We have found only recently that Goeze (1778: 343) listed this species as *Coccus liriodendron* and quoted the same article by Hill (1753) thus also validating the name as *Coccus liriodendron* Goeze. We regard the specific name *liriodendron* to be a noun in apposition and sufficiently different from the genitive singular specific name *liriodendri* coined by Gmelin. There is no evidence that Gmelin knew that Goeze had used a similar name previously. In this situation it is reasonable to assume that Goeze and Gmelin proposed similar names independently for the same organism, so that these names are here regarded as synonyms.

The combination *Coccus liriodendron* Goeze has never been used or listed in subsequent scale insect literature since Goeze described the species in 1778. On the other hand the name *Coccus liriodendri* Gmelin and its later combination *Toumeyella liriodendri* (Gmelin) have been widely used in the U.S.A. in taxonomic and economic literature, and the species is well known as a destructive pest on *Liriodendron* and *Magnolia* (both Magnoliaceae). We regard, therefore, that the older name *Coccus liriodendron* Goeze to be a *nomen oblitum* and the name *Coccus liriodendri* Gmelin to be a *nomen protectum*.

To comply with the provisions of Article 23.9.1.1. of The International Code of Zoological Nomenclature (1999) we regard the older name

*Coccus liriodendron* Goeze to be a *nomen oblitum* because the name has not been used since 1899. We regard the younger name *Coccus liriodendri* Gmelin to be the valid name and to be a *nomen protectum*. Article 23.9.1.2., however, requires us to quote at least 25 works, published by at least 10 authors in the immediately preceding 50 years and we list the following works using the present combination *Toumeyella liriodendri* (Gmelin): Ben-Dov (1993: 329), Burns (1964: 137), Burns & Davidson (1966: 1071), Burns & Donley (1970: 228), Donley & Burns (1965: 1), Giliomee (1997: 139), Gill (1988: 111), Gullan (1997: 359), Hamon & Williams (1984: 119), Hodgson (1994: 13; 1995: 49), Johnson & Lyon (1988), Kosztarab (1996: 391), Kozár (1998: 161), Kozár & Walter (1985: 78), Lambdin (1994: 387), Lambdin & Watson (1980), Matile-Ferrero (1997: 7), Miller (1985), Miller & Williams (1997: 51), Scheffer & Williams (1990), Simpson & Lambdin (1983: 2), Stimmel (1977: 13), Tremblay (1997:260), Vranjic (1997: 324), Watson *et al.* (1994), Williams (1997: 46), Williams & Kosztarab (1972: 164).

We are most grateful to Dr Svetlana Nikolaeva, International Commission on Zoological Nomenclature, London, for kindly giving us an opinion on this matter.

## REFERENCES

- Ben-Dov, Y.**, 1993, *A systematic catalogue of the scale insects of the world (Homoptera: Coccoidea: Coccidae) with data on geographical distribution, host plants, biology and economic importance*, Sandhill Crane Press, Inc., Gainesville, Florida, 536 pp.
- Burns, D.P.**, 1964, Formicidae associated with the tuliptree scale, *Annals of the Entomological Society of America*, **57**: 137–139.
- Burns, D.P. & Davidson, R.H.**, 1966, The amino acids and sugars in honeydew of the Tuliptree Scale, *Toumeyella liriodendri*, and in the sap of the host, Yellow-Poplar, *Annals of the Entomological Society of America*, **59**: 1071–1073.
- Burns, D.P. & Donley, D.E.**, 1970, Biology of the Tuliptree Scale, *Toumeyella liriodendri* (Homoptera: Coccoidea), *Annals of the Entomological Society of America*, **63**: 228–235.
- Donley, D.E. & Burns, D.P.**, 1965, The tuliptree scale, *USDA Forest Leaflet*, **92**, 5 pp.
- Giliomee, J.H.**, 1997, Taxonomic characters – adult male. In Ben-Dov, Y. & Hodgson, C.J. (eds), *Soft scale insects, their biology, natural enemies and control*, *World Crop Pests*, **7A**: 139–142.
- Gill, R.J.**, 1988, The scale insects of California, Part 1, The soft scales (Homoptera: Coccoidea: Coccidae), *Technical Series in Agricultural Biosystematics and Plant Pathology, California Department of Food and Agriculture*, **1**, 132 pp.
- Gmelin, J.F.**, 1790, *Systema Naturae, Editio decima tertia, Aucta, reformata, cara, Regnum Animale*, Volume 1, Part 4, Insecta, Leipzig, pp. 1317–2224.
- Goeze, J.A.E.**, 1778, *Entomologische Beyträge zu Ritter Linné, zwölfien Ausgabe des Natursystems*, Zweyter Theil, Leipzig, Weidmanns Eiben und Reich, xxiv, 350 pp.
- Gullan, P.J.**, 1997, Relationships with ants. In Ben-Dov, Y. & Hodgson, C.J. (eds), *Soft scale insects, their biology, natural enemies and control*, *World Crop Pests*, **7A**: 351–373.
- Hamon, A.B. & Williams, M.L.**, 1984, The soft scale insects of Florida (Homoptera: Coccoidea: Coccidae), *Arthropods of Florida and Neighboring Land Areas*, **11**, 194 pp.
- Hill, J.**, 1752, *On the nature and qualities of an insect found on the trunks of fruit-trees, Essay I, Essays in natural history and philosophy, containing a series of discoveries, by the assistance of microscopes*, London, pp 1–20.

- 1753, Versuche in der Naturhistorie und der Philosophie; in einer Folge von Entdeckungen durch Hilfe der Vergrößerungsglases, aus den Englischen des Herrn John Hill's M. Dr. zu London, und der Königl. Akademie der Wissenschaften zu Bourdeaux Mitglied, Erster Versuch, Von der Natur und den Eigenschaften eines Insects, so auf Stämmern von Fruchtbäumen gefunden worden, *Hamburgisches Magazin*, **12**: 3–24.
- Hodgson, C.J.**, 1994, *The scale insect family Coccidae, an identification manual to genera*, CAB International, Wallingford, 639 pp.
- 1995, Observations on the structure of the spiracles of adult female Coccidae, *Israel Journal of Entomology*, **29**: 47–55.
- International Code of Zoological Nomenclature**, 1999, Fourth Edition, The International Trust for Zoological Nomenclature, London, 306 pp.
- Johnson, W.T. & Lyon, H.H.**, 1988, *Insects that feed on trees and shrubs*, Comstock Publishing Associates, Ithaca, N.Y., 556 pp.
- Kondo, T. & Williams, D.J.**, 2008, Neotype designation and redescription of *Toumeyella liriodendri* (Gmelin) (Homoptera: Coccoidea: Coccidae), *Journal of Insect Science*, **8**: Article 56: 1–6, available online: [insectscience.org/8.56](http://insectscience.org/8.56)
- Kosztarab, M.**, 1996, *Scale insects of northeastern North America, identification, biology and distribution*, Virginia Museum of Natural History, Special Publication, No. 3, 650 pp.
- Kozár, F.**, 1998, *Catalogue of Palaearctic Coccoidea*, Plant Protection Institute Hungarian Academy of Sciences, Budapest, 526 pp.
- Kozár, F. & Walter, J.**, 1985, Check-list of the Palaearctic Coccoidea (Homoptera), *Folia Entomologica Hungarica*, **46**: 63–110.
- Lambdin, P.L.**, 1984, Bioecology of the tuliptree scale *Toumeyella liriodendri* (Gmelin) *Proceedings of the Tenth International Symposium of Central European Entomofaunistics, Budapest, August 1983*: 387–388.
- Lambdin, P.L. & Watson, J.K.**, 1980, New collection records for scale insects of Tennessee, *Journal of the Tennessee Academy of Science*, **55**: 77–81.
- Matile-Ferrero, D.**, 1997, The adult female. In Ben-Dov, Y., & Hodgson, C.J. (eds), Soft scale insects, their biology, natural enemies and control, *World Crop Pests*, **7A**: 5–21.
- Miller, D.R.**, 1985, Superfamily Coccoidea. Scale Insects, pp. 87–123, In Dooz, A.T. (ed.), *Insects of eastern forests, Miscellaneous Publication, U.S. Department of Agriculture, Forest Service*, **1426**, 608 pp.
- Miller, G.L., & Williams, M.L.**, 1997, The male test. In Ben-Dov, Y. & Hodgson, C.J. (eds), Soft scale insects, their biology, natural enemies and control, *World Crop Pests*, **7A**: 49–54.
- Scheffer, B.J. & Williams, M.L.**, 1990, Descriptions, distribution and host plant records of eight first instars in the genus *Toumeyella* (Homoptera: Coccidae), *Proceedings of the Entomological Society of Washington*, **92**: 44–57.
- Simpson, J.D. & Lambin, P.L.**, 1983, Life-history of the tuliptree scale *Toumeyella liriodendri* (Gmelin) on yellow-poplar in Tennessee, *Tennessee Farm and Home Science, Knoxville*, **2**: 2–5.
- Stimmel, J.F.**, 1977, Tuliptree scale *Toumeyella liriodendri* (Gmelin) (Homoptera: Coccoidea), *Regulatory Horticulture (Pennsylvania Department of Agriculture)*, **3**: 13–14.
- Tremblay, E.**, 1997, Embryonic development: oviparity and viviparity. In Ben-Dov, Y. & Hodgson, C.J. (eds), Soft scale insects, their biology, natural enemies and control, *World Crop Pests*, **7A**: 257–260.
- Vranjic, J.A.**, 1997, Ecology. Effects on host plant. In Ben-Dov, Y. & Hodgson, C.J. (eds), Soft scale insects, their biology, natural enemies and control, *World Crop Pests*, **7A**: 323–336.
- Watson, J.K., Lambdin, P.L. & Langton, K.**, 1994, Diversity of scale insects (Homoptera: Coccoidea) in the Great Smoky Mountains National Park, *Annals of the Entomological Society of America*, **87**: 225–230.
- Williams, M.L.**, 1997, The immature stages. In Ben-Dov, Y. & Hodgson, C.J. (eds), Soft scale insects, their biology, natural enemies and control, *World Crop Pests*, **7A**: 31–48.

**Williams, M.L. & Kosztarab, M.**, 1972, Morphology and systematics of the Coccidae of Virginia with notes on their biology (Homoptera: Coccoidea), *Research Bulletin, Virginia Polytechnic and State University*, **74**, viii+215 pp.

D.J.W., Department of Entomology, The Natural History Museum, Cromwell Road, London SW7 5BD, U.K.

T.K., Corporación Colombiana de Investigación Agropecuaria (CORPOICA), Centro de Investigación, Palmira, Calle 23, Carrera 37, Continuo al Penal, Palmira, Valle, Colombia.

April 16th, 2008.