Reprinted from *Florida Entomologist*, Volume 72, Number (2), June, 1989.

FIRST RECORD OF A PHYTOPHAGOUS SEED CHALCID FROM BRAZILIAN PEPPERTREE IN FLORIDA

DALE H. HABECK AND FRED D. BENNETT
Department of Entomology and Nematology
IFAS, University of Florida
Gainesville, FL 32611

AND

E. E. GRISSELL
Systematic Entomology Laboratory
Plant Sciences Institute, USDA
c/o U. S. National Museum, NHB168
Beltsville, MD 20705

Brazilian peppertree, *Schinus terebinthifolius* Raddi (Anacardiaceae), a tree of Brazilian origin, has become a serious weed since its introduction as an ornamental into Florida. During a 14-month survey, Cassani (1986) recorded 115 arthropods, 46 of them phytophagous, associated with this plant in southern Florida. This list did not include any major seed feeders and for this reason, insects which limited seed production were to be given priority in the search for effective natural enemies in Brazil (Bennett et al. in press).

A collection of drupes of *S. terebinthifolius* from Jupiter, Palm Beach County, FL (by DHH) on 23 February 1988, yielded several microhymenoptera which proved to be *Megastigmus transvaalensis* (Hussey) (Torymidae). Described as *Eumegastigmus transvaalensis* by Hussey (1956), this genus was placed in synonymy with *Megastigmus* by Boucek (1978). During March-June 1988, collections, each consisting of several hundred drupes, were made at several other localities in south and central Florida. With the exception of a few emergents from two collections, one from near Miramar, Broward County on 21 March, and one from Key Largo, Monroe County on 22 March, no other specimens of this torymid have been reared.

In the United States, *Megastigmus transvaalensis* has been reported, only from California, from *Schinus molle* L. (Harper & Lockwood 1961). Our rearings represent the first record for *M. transvaalensis* from Florida and the first record from *S. terebinthifolius* in the continental United States. The species is also widespread in the seeds of *S. terebinthifolius* in Hawaii (E. R. Yoshioka, pers. comm. 1988 and personal observations by FDB in May 1988).

M. transvaalensis was described by Hussey based on specimens from seeds of *S. molle* collected in Pretoria, South Africa. It is also known, from the Canary Islands, from the same host (Grissell 1979). Interestingly, the genus *Schinus* is "limited in natural distribution to South America", although *S. molle* extends northward into Mexico (Barkley 1957). Therefore, it might seem questionable to find an endemic, African species of *Megastigmus* on plants endemic to South America. There are two reasons to believe that *M. transvaalensis* is an endemic, African species which has host-shifted from native vegetation to introduced *Schinus*. Firstly, because it is more closely related to species of Old World origin than New World, especially *M. rhusi* (Hussey) (which may be a synonym) and *M. pistaciae* (Walker). The former seed feeder attacks *Rhus* and the latter *Pistacia*, both of which are related to *Schinus* in the Anacardiaceae. And secondly, because no *Megastigmus* species have been reliably reported from South America. *Megastigmus mendocinus* Kieffer & Joergensen was reported by De Santis (1967) in Argentina, but this is a parasite of cecidomyiids on Solanaceae, a host relationship unknown in *Megastigmus*.

Although there are no records of deliberate introductions of *M. transvaalensis* by man, it seems apparent that the species has been widely distributed along with its adopted host plant. Its mode of entry into the USA is a matter of conjecture. One possibility, which we consider to be the most likely, involves the importation into the USA from Reunion via France, of the drupes of *Schinus* spp. as condiments for sale by gourmet food shops. Those of *S. terebinthifolius* were sold as pink peppercorns and have been implicated as the cause of severe digestive upsets to some diners when consumed as a condiment on meat. It is known that certain other *Megastigmus* species remain in diapause within seeds for prolonged periods of time (see Milliron 1949:361-362 for discussion). Therefore, it is probable that drupes of *Schinus* spp. imported into the USA may have been infested with *M. transvaalensis* and that adults may have emerged, escaped and established in the New World. Further studies, to assess the distribution and impact of this wasp on seed viability, are planned; these may provide a clearer picture of the mode of introduction and spread of this insect in Florida and elsewhere in the New World.

We thank G. Buckingham, J. H, Frank and M. E. Schauff for their critical review of this manuscript. Florida Agric. Exp. Sta. Journal Series No. 9278.

References Cited

Barkley, F. A. 1957. A study of the genus *Schinus* L. Lilloa 28: 5-110.

Bennett, F. D., L. Crestana, D. H. Habeck, and E. Berti-Filho (in press). Brazilian peppertree—prospects for biological control. Proc. VII Int. Symp. Biol. Contr. Weeds, pp.

Boucek, Z. 1978. A study of the non-podagrionine Torymidae with enlarged hind femora, with a key to the African genera. Jour. Entomol. Soc. South Africa. 41: 91-134.

Cassani, J. R. 1986. Arthropods on Brazilian peppertree *Schinus terebinthifolius* (Anacardiaceae), in south Florida. Florida Entomol. 69: 184-196.

De Santis, L. 1967. Catalogo de los Himenopteros Argentinos de la Serie Parasitica, incluyendo Bethyloidea. Prov. Buenos Aires, Com. Invest. Cient., La Plata. 337 pp.

Grissell, E. E. 1979. Subfamily Megastigminae, pp. 765-768 *in* K. V. Krombein & H. D. Hurd, Jr. [eds.], Catalog of Hymenoptera in America North of Mexico. Smithsonian Inst. Press, Washington, D.C. Vol. 1, 1198 pp.

Harper, R. W., and S. Lockwood. 1961. Bureau of Entomology. Forty-first Annual Report. Calif. Dept. Agric. Bull. 2: 127-129.

Hussey, N. W. 1956. A new genus of African Megastigminae (Hymenoptera: Chalcidoidea). Proc. R. Ent. Soc. Lond.(B) 25: 157-162.

Milliron, H. E. 1949. Taxonomic and biological investigations in the genus *Megastigmus*, with particular reference to the taxonomy of the Nearctic species (Hym. : Chalcidoidea : Callimomidae). Amer. Midl. Nat. 41: 257-420.