N O T E

Recovery of *Oomyzus incertus* (Hymenoptera: Eulophidae), a Larval Parasitoid of *Hypera postica* (Coleoptera: Curculionidae), in Virginia[1]

Theresa A. Dellinger,[2] Roger R. Youngman and Curt A. Laub

Department of Entomology, Virginia Polytechnic Institute and State University
Blacksburg, VA 24061-0319 USA

J. Entomol. Sci. 38(1): 141-142 (January 2003)

Key Words *Oomyzus incertus, Hypera postica,* alfalfa, biological control, recovery

Oomyzus incertus (Ratzeburg) is a gregarious larval parasitoid of the alfalfa weevil, *Hypera postica* (Gyllenhal). It was introduced into the United States from France in the early 1960's as a biological control agent of *H. postica* (Streams and Fuester 1967, J. Econ. Entomol. 60: 1574-1579). Later, the parasitoid was released in numerous states across the United States over multiple years (Bryan et al. 1993, USDA-APHIS Misc. Publ. 1504). Surveys for *O. incertus* after its release showed that the parasitoid established rapidly in the northeastern United States and the mid-Atlantic states (Brunson and Coles 1968, USDA ARS Prod. Rpt. 101; Schroder et al. 1969, Ann. Entomol. Soc. Amer. 62: 812-815; Radcliffe and Flanders 1998, Integrated Pest Management Reviews 3: 225-242).

Hypera postica larvae were collected from two fields in Virginia that were part of a study monitoring the effects of alfalfa cultivars on alfalfa pest management. Study sites were located near Rustburg (Campbell Co.) in the Piedmont region of Virginia and near Blacksburg (Montgomery Co.) in the southwestern region of the state. Alfalfa weevil larvae were reared in the lab on alfalfa bouquets in ventilated cardboard cylinders until pupation. Parasitization was assessed by examination of weevil larval cadavers, weevil pupae or adults, and parasitoid cocoons. Close examination of larval cadavers of *H. postica* revealed several brittle dead larvae that were mahogany brown in color, characteristic traits of the host mummies of *O. incertus.* Host mummies were found in samples collected at the Campbell Co. location on 11 Apr, 26 Apr, and 2 May 2001, but none were found among samples collected in 2000. No *O. incertus* were recovered from *H. postica* reared in the laboratory from the Montgomery Co. location in either year.

Because multiple *H. postica* larvae were kept in each rearing container, an exact count of the number of *O. incertus* emerging from a single host mummy could not be determined (Table 1). Brunson and Coles (1968) reported that an average of 5 adult *O. incertus* is produced from a single host mummy, a value similar to the findings of

[1]Received 04 January 2002; accepted for publication 31 March 2002.
[2]Address offprint requests to T. A. Dellinger (email: tdellin@vt.edu).

Table 1. Recovery of *Oomyzus incertus* in Campbell Co., Va., in 2001

Sample date	Number of *H. postica* larvae collected	Number of *O. incertus* host mummies recovered	Number of *O. incertus* recovered		
			Number of males	Number of females	Total number
11 Apr 2001	2,448	2	0	0	0
26 Apr 2001	480	8	17	12	29
2 May 2001	167	2	5	2	7

Streams and Fuester (1967). Although two host mummies were found in the container holding *H. postica* larvae collected on 11 Apr, no adult parasitoids were recovered from that container. Because the presence of these small parasitoids was unexpected, those adult *O. incertus* may have escaped from the container when it was opened for sampling.

Over 2000 specimens of *O. incertus* were released in Virginia between 1961-1971, but it has not been reported from this state since prior to 1980 (Bryan et al. 1993). A recent 3-yr statewide survey of *H. postica* larvae in Virginia did not recover the parasitoid (Kuhar et al. 1999, J. Econ. Entomol. 92: 1184-1189). Our observations indicate that *O. incertus* is still present in Virginia, albeit at very low densities and perhaps not widespread across the state.

The overall contribution of *O. incertus* to biological control of the alfalfa weevil is considered to be low even where populations are found. Kingsley et al. (1993, Environ. Entomol. 22: 1234-1250) conducted a 9-state survey, primarily in the Northeast and upper Midwest, for parasitoids of *H. postica;* while *O. incertus* was recovered in the survey, the recovery rate was so low the authors decided not to discuss those results. *Oomyzus incertus* was rated "slightly effective" as a natural enemy in one review of the biological control program conducted for alfalfa weevil (Day 1981, Pp. 361-374. *In* G. C. Papavizas [ed.], Biological Control in Crop Production, Allenheld, Osmun, & Co., Totowa, NJ).

Other surveys have failed to recover *O. incertus* from states in which it was released and reported as established. The parasitoid was not found during surveys conducted in West Virginia in 1992 (Neel et al. 1993, W. Va. Univ. Agric. For. Exp. Stn. Circ. 158) and in 1993 (Weaver et al. 1994, W. Va. Univ. Agric. For. Exp. Stn. Circ. 160). None were found in Iowa during 1990-92 (Giles et al. 1994, Environ. Entomol. 23: 167-176); or in Tennessee during 1994-95 (Copley and Grant 1998, J. Agric. Entomol. 15: 43-51).

To some extent the low incidence of *O. incertus* may reflect the relatively few surveys made for the parasitoid, or perhaps other recoveries simply have not been reported in the literature. Despite earlier reports of establishment, populations of *O. incertus* may be in decline (Miller 1970, J. Econ. Entomol. 63: 440-443). Declines may be due to competition with the ichneumonid larval parasitoid *Bathyplectes anurus* (Thomson) (Hymenoptera: Ichneumonidae) (Miller 1970, J. Econ. Entomol. 63: 719-721), or due to the timing of insecticide treatment for potato leafhopper [*Empoasca fabae* (Harris)] (Homoptera: Cicadellidae) (Flanders and Radcliffe 2000, J. Entomol. Sci. 35: 227-238).