

# Distribution and importance of polyphagous *Liriomyza* species (Diptera, Agromyzidae) in vegetables in Vietnam

Arild Andersen, Tran Thi Thien An & Einar Nordhus

Andersen, A., Tran, T. T. A. & Nordhus, E. 2008. Distribution and importance of polyphagous *Liriomyza* species (Diptera, Agromyzidae) in vegetables in Vietnam. *Norw. J. Entomol.* 55, 149–164.

Field collections of polyphagous *Liriomyza* species were conducted in vegetables in 50 of Vietnam's 62 provinces during 2002–2007. A total of more than 16 800 specimens were identified to species. *L. sativae* Blanchard, 1938 was the dominant species, making up 75.2 % of the total material. It was present and common in all the 50 investigated provinces. *L. huidobrensis* (Blanchard, 1926) made up 8.6 % of the material and was found in 7 provinces in the central parts of the country, from Dong Nai to Da Nang. *L. trifolii* (Burgess, 1880) made up 8.4 % of the material and was found in 13 provinces in the central parts of the country, from Ho Chi Minh City to Hue. *L. bryoniae* (Kaltenbach, 1858) made up 4.0 % of the material and was found in 15 provinces in most of the country north of Ho Chi Minh City. *L. chinensis* (Kato, 1949) made up 3.0 % of the material and was found in 20 provinces all over the country. It was mainly found in onion (*Allium cepa* L.). *Chromatomyia horticola* (Goureau, 1851) made up 0.8 % of the material and was found in relatively low numbers in 9 provinces all over the country from Lam Dong and northwards. The spread of the different species into Vietnam and their possible further spread within the country are discussed, as well as their importance as pest species on different host plants. *L. katoi* Sasakawa, 1961 is reported from Vietnam for the first time.

Key Words: *Liriomyza*, *huidobrensis*, *sativae*, *trifolii*, *chinensis*, *bryoniae*, *Chromatomyia horticola*, polyphagy, Vietnam

Arild Andersen, Norwegian University of Life Sciences (UMB), Department of Plant and Environmental Sciences, Høgskolev. 7, N-1432 Ås, Norway

Tran Thi Thien An, Nonglam University, Faculty of Agronomy, Department of Plant Protection, Thu Duc District, Ho Chi Minh City, Vietnam

Einar Nordhus, Norwegian Institute for Agricultural and Environmental Research (Bioforsk), Plant Health and Plant Protection Division, Høgskoleveien 7, N-1432 Ås, Norway

## INTRODUCTION

Several polyphagous *Liriomyza* species have been established in countries in Southeast Asia, causing major pest problems in vegetable growing areas (Martinez 1994, Shepard et al. 1998, Sivapragasam & Syed 1999, Joshi et al. 2000, Rauf et al. 2000, Tran 2000, CAB International 2001, Ha 2001,

Andersen et al. 2002, Winotai & Chattrakul 2003, Tran et al. 2005, 2007). Today the most important species are *L. sativae* and *L. huidobrensis*, while the status of *L. trifolii* and *L. bryoniae* is more uncertain. At present the exact distribution of the different species in Southeast Asia is uncertain, and at least for some of the species probably changing quickly due to further expansion. More detailed

investigations are thus needed in several countries in the area to map the current distribution of the different species. As a side-effect of investigations on these pest species, also the indigenous species *L. chinensis*, which infest *Allium*-species, and the polyphagous species *Chromatomyia horticola* has been encountered in some new areas.

Starting up a research project on pest insects in vegetables in Vietnam in 2000, the Norwegian Institute for Agricultural and Environmental Research, Division of Plant Health and Plant Protection in cooperation with several national institutes in Vietnam has aimed at mapping the distribution of *Liriomyza* pest species infesting vegetables in Vietnam. Andersen et al. (2002) gave the first report of the distribution of the different species at province level. The present paper is the second report on the spread of these species to and within Vietnam, also evaluating the relative importance of the different species as pests. We consider this detailed national mapping to be fundamental and important information when solutions for leafminer control are to be developed, not only in Vietnam, but also in other countries in Southeast Asia.

## MATERIAL & METHODS

The material was collected in December 2002–January 2007. It was mainly collected by hatching flies from infested leaves of different vegetable crops, and by sweep-netting flies in vegetable fields on several trips in different parts of Vietnam. A total of more than 16 800 specimens have been collected and identified to species. Most of the material is stored in 70% ethanol at the Norwegian Crop Research Institute in Norway, but reference material has also been stored at Nong Lam University, Ho Chi Minh City, Vietnam.

We fully acknowledge the difficulty of identifying with certainty several of the *Liriomyza* species. Accordingly, RAPD PCR has been used as a supplement to the morphological identifications. *Liriomyza* spp. used as standards was obtained from laboratory colonies in UK, Israel and South Africa. The origin of the laboratory colonies and

the method used is given in Andersen et al. (2002). Most of the primers gave distinct bands for the different species for all individuals tested, and the results obtained from the collected *Liriomyza* specimens were compared with results from the standards.

## RESULTS & DISCUSSION

The detailed results of the collections are given in the Appendix. All species were most numerous in the fields in the spring in February–April.

### *Liriomyza sativae* Blanchard, 1938

*L. sativae* was clearly the dominant *Liriomyza* species in vegetables in Vietnam, making up 75.1 % of the material. It was found in all the 50 investigated provinces, and up to the present time it has been found in 54 of the 62 provinces in Vietnam (Figure 1). As reported also by Andersen et al. (2002) and Tran et al. (2005, 2006, 2007), the species is common all over Vietnam, probably only lacking in areas covered by forest. This is a situation very similar to that in nearby investigated countries like China (Zhao & Kang 2000), Thailand (Winotai & Chattrakul 2003), Indonesia (Rauf et al. 2000) and Malaysia (Sivapragasam & Syed 1999). As *L. sativae* is common throughout most of Vietnam, little further spread is possible for this species within the country.

We hatched *L. sativae* from leaves of 24 different cultivated plant species, all well-known host plants (Spencer 1973, 1990). The most common ones were tomato (*Solanum lycopersicum*), French bean (*Phaseolus vulgaris*), pak-choi cabbage (*Brassica sinensis*), cucumber (*Cucumis sativus*) and yard longbean (*Vigna sesquipedalis*). In addition it was sweep-netted in fields of 23 other plant species with leafminer infestations (Appendix).

### *Liriomyza huidobrensis* (Blanchard, 1926)

Prior to this investigation, *L. huidobrensis* was known only from Lam Dong province at altitudes of 1000–1800 m (Andersen et al. 2002), and from chrysanthemum in Thua Thien Hue province (Tran et al. 2005). It is highly probable that the



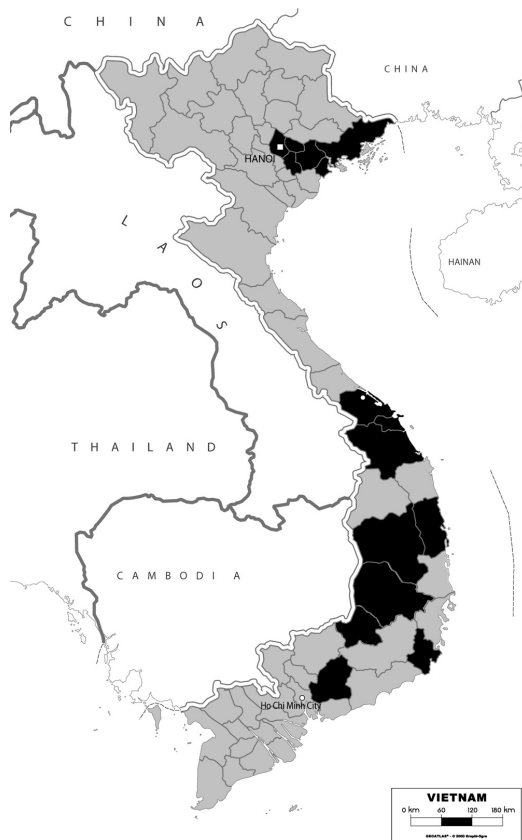
***Liriomyza bryoniae* (Kaltenbach, 1858)**

Prior to this investigation, *L. bryoniae* was reported only from the north central region of Vietnam, but not specified to province(s) (Tran et al. 2005). The finds in this investigation includes the first finds of *L. bryoniae* in Vietnam, namely in and around Hanoi in March 2003, also mentioned in Tran et al. (2006). After the initial finds we have found the species in 14 more provinces (Figure 3). Some of the areas had been thoroughly searched for *Liriomyza* leafminers in an earlier investigation (Andersen et al. 2002) without finding *L. bryoniae*. This could indicate that the species has been introduced into Vietnam quite recently. Today it is common and sometimes numerous in most parts of the country, only lacking south of Dong Nai, and possibly also between Hue and Hung Yen. Information by P. Seymour in Sivapragasam & Syed (1999) indicates that it may have been present in Southeast Asia together with *L. huidobrensis* already around 1995: “..interestingly there were several very pale, atypical specimens more like *L. strigata/L. bryoniae*”.

We sweep-netted *L. bryoniae* mainly in fields of lettuce, leaf mustard and pak-choi cabbage, but also in the following plant species with leafminer infestations: pumpkin (*Cucurbita pepo*), French bean, leek (*Allium porrum*), yard longbean, tomato, cucumber, sponge gourd (*Luffa cylindrica*), white radish (*Raphanus sativus*) and *Chrysanthemum segetum* (Appendix).

***Liriomyza trifolii* (Burgess, 1880)**

Prior to this investigation, *L. trifolii* was reported only from Ho Chi Minh City in Vietnam (Tran 2000, Tran et al. 2005). However, the present investigation found the species spread and sometimes numerous in 12 further provinces, from Ho Chi Minh City in the south to Hue in the north (Figure 4). We also have one single female specimen collected in Mung bean in Hanoi in April 2006, but for the time being the status of this species in the northern provinces is uncertain. Although *L. trifolii* was the first *Liriomyza* species that was introduced into Asia (Parella 1987), the early introduction has however not given it a leading role as a pest species, at least not in



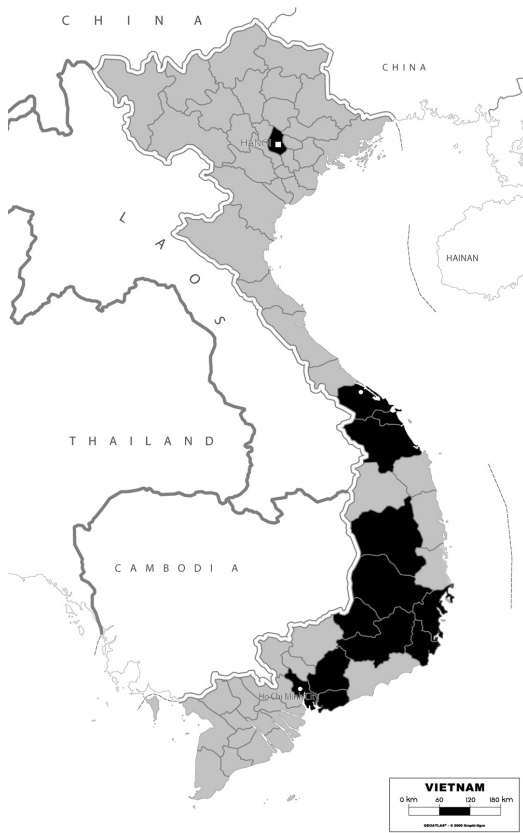
**Figure 3.** Distibution map of *L. bryoniae*. Provinces with positive finds are shown in black.

Vietnam.

We hatched *L. trifolii* from leaves of the following plant species: lettuce, pak-choi cabbage and leaf mustard. In addition it was sweep-netted in fields of Chinese mustard (*Brassica juncea*), celery (*Apium graveolens*), *Chrysanthemum segetum*, French bean, mung bean (*Vigna radiata*), potato, tomato, white radish, onion and basil (*Ocimum basilicum*) with leafminer infestation (Appendix).

***Liriomyza chinensis* (Kato, 1949)**

Although its main host plants (*Allium* species) were not systematically surveyed in this investigation, *L. chinensis* was found in 20 provinces from Kien Giang in the south to Bac Ninh in the north. The species is obviously present and common as a pest

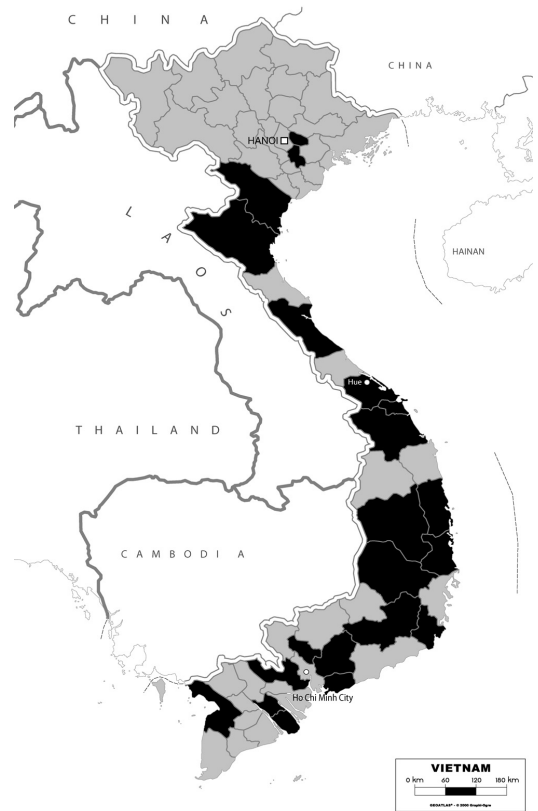


**Figure 4.** Distribution map of *L. trifolii*. Provinces with positive finds are shown in black.

species in onion-growing areas all over Vietnam, as suggested by Tran et al. (2005). Until now it has been found in 21 provinces in Vietnam (Figure 5), and the species is common also in neighbouring countries (Spencer 1973, 1990, Chen et al. 2003, Tran et al. 2005, 2006). We collected the species mainly in fields of onion, but also in leek and garlic (*Allium sativum*) (Appendix).

#### *Liriomyza katoi* Sasakawa, 1961

Eight specimens (4 males, 4 females) of this species were collected in Gia Lam, Hanoi in November 2005 by Ho Thi Thu Giang. This species, thought to originate from Japan (Spencer 1990), has not been reported previously from Vietnam, but was recently also reported from Indonesia (Malipatil et al. 2004).



**Figure 5.** Distribution map of *L. chinensis*. Provinces with positive finds are shown in black.

#### *Chromatomyia horticola* (Goureaux, 1851)

The species was found, normally in low numbers, in 9 provinces (Figure 6), spread from Lam Dong in the south to Hanoi in the north. It has previously been reported from Lam Dong province (Andersen et al. 2002), and from central and southern Vietnam without specifying the provinces (Tran et al. 2005). It has also been reported from Indonesia (Rauf et al. 2000) and southeastern China (Chen et al. 2003).

We hatched *C. horticola* from leaves of leaf mustard and cucumber. In addition it was sweep-netted in fields of onion, lettuce, garden pea, French bean, pak-choi cabbage, cauliflower (*Brassica oleracea*), potato, *Chrysanthemum segetum* and beet with leafminer infestation (Appendix).



**Figure 6.** Distribution map of *C. horticola*. Provinces with positive finds are shown in black.

## CONCLUSIONS

Among the Agromyzid leafminers in Vietnam today, *L. sativae* is obviously the most important pest species in a wide variety of vegetables all over the country, also infesting ornamentals and cotton. At present *L. huidobrensis* is an important pest only in Lam Dong province, mainly in a wide variety of vegetables, potato and chrysanthemum. For the time being it is spreading into neighbouring provinces, and could in the future spread and develop into an important pest species also in the Northern provinces. *L. bryoniae* is probably a relatively new pest species in Vietnam, for the time being mainly found in lettuce, leaf mustard and pak-choi cabbage, and spreading fast into new areas. Further spread and population build up of this pest species should be monitored. *L.*

*trifolii* is at present mainly a regional and in most areas not so numerous pest species between Ho Chi Minh City and Hue, infesting mainly lettuce, pak-choi cabbage, chinese mustard, leaf mustard and chrysanthemum. *L. chinensis* is a major pest problem in onion all over the country. *C. horticola* is present in most of the country, but has been observed in high numbers only in onion, lettuce and garden pea in Lam Dong province.

It is interesting to note that all six species are present in the Central Highlands of Vietnam, while only *L. sativae* and *L. chinensis* are present south of Ho Chi Minh City. We have often encountered two or more species in the same vegetable field, even all the four species *L. sativae*, *L. huidobrensis*, *L. trifolii* and *L. bryoniae*. That kind of coexistence between several *Liriomyza* species has also been reported by Abe and Kawahara (2001). It leads to problems both concerning identification of species and plant protection.

**Acknowledgements.** The authors are indebted to Tran Dang Hoa for collecting flies in the area around Da Nang and Hue, and Ho Thi Thu Giang for collecting flies in Hanoi. Numerous Vietnamese farmers have, with a welcoming smile, kindly let us collect infested leaves and swarming flies in their fields. Without their positive attitude, the current project would have been impossible. The study has been funded by the Norwegian Agency for Development Cooperation (NORAD) and FAO.

## REFERENCES

- Abe, Y. & Kawahara, T. 2001. Coexistence of the vegetable leafminer, *Liriomyza sativae* (Diptera: Agromyzidae), with *L. trifolii* and *L. bryoniae* on commercially grown tomato plants. *Appl. Entomol. Zool.* 36, 277–281.
- Andersen, A., Nordhus, E., Vu, T.T., Tran, T.T.A., Ha, Q.H. & Hofsvang, T. 2002. Polyphagous *Liriomyza* species (Diptera: Agromyzidae) in vegetables in Vietnam. *Trop. Agr.* 79, 241–246.
- CAB International 2001. Crop protection compendium. CD-rom.
- Chen, X.X., Lang, X.Y., Xu, Z.H., He, J.H. & Ma, Y. 2003. The occurrence of leafminers and their parasitoids on vegetables and weeds in Hangzhou area, Southeast China. *BioControl* 48, 515–527.
- Ha, Q.H. 2001. Survey for leafminers in vegetables and

- beans in Hanoi and surrounding. Hanoi Agricultural University Plant Protection Journal 3/2001, 10–14 (in Vietnamese with English summary).
- Joshi, R.C., Scheffer, S.J., Verzola, E.A. & Baucas, N.S. 2000. Primer on leafminer of vegetables in the Cordillera administrative region, Phillippines. Department of Agriculture, Regional Field Unit, Cordillera Administrative Region, 24 pp.
- Malipatil, M.B., Ridland, P.M., Rauf, A., Watung, J. & Kandowanko, D. 2004. New record of *Liriomyza* Mik (Agromyzidae: Diptera) leafminers from Indonesia. Formosan Entomologist 24, 287–292.
- Martinez, M. 1994. A new pest menaces the Oriental Region: *Liriomyza sativae* Blanchard (Diptera, Agromyzidae). Bulletin de la Societe Entomologique de France 99, 356.
- Parrella, M.P. 1987. Biology of *Liriomyza*. Annu. Rev. Entomol. 32, 201–224.
- Rauf, A., Shepard, B.M. & Johnson, M.W. 2000. Leafminers in vegetables, ornamental plants and weeds in Indonesia: surveys of host crops, species composition and parasitoids. Int. J. Pest Manage. 46, 257–266.
- Shepard, B.M., Samsudin & Braun, A.R. 1998. Seasonal incidence of *Liriomyza huidobrensis* (Diptera: Agromyzidae) and its parasitoids on vegetables in Indonesia. Int. J. Pest Manage. 44, 43–47.
- Sivapragasam, A. & Syed, A.R. 1999. The problem and management of agromyzid leafminers on vegetables in Malaysia. In Lim, GS, Soetikno, SS and Loke, WH (eds.) Proceedings of a Workshop on leafminers of vegetables in Southeast Asia, Tanah Rata, Malaysia 2–5 February 1999. (Serdang, Malaysia, CAB International Southeast Asia Regional Centre), pp. 36–41.
- Spencer, K.A. 1973. Agromyzidae (Diptera) of economic importance. Series Entomologica 9, I–XI + 405 pp. Dr. W. Junk B.V. publishers, The Hague.
- Spencer, K.A. 1990. Host specialization in the world Agromyzidae (Diptera). Kluwer Academic Publishers, Dordrecht.
- Tran, D.H., Tran, T.T.A., Konishi, K. & Takagi, M. 2005. The vegetable leafminer *Liriomyza sativae* Blanchard (Diptera: Agromyzidae) and its parasitoids on cucumber in the Hochiminh region of Vietnam. Journal of the Faculty of Agriculture, Kyushu University 50, 119–124.
- Tran, D.H., Tran, T.T.A., Konishi, K. & Takagi, M. 2006. Abundance of the parasitoid complex associated with *Liriomyza* spp. (Diptera: Agromyzidae) on vegetable crops in central and southern Vietnam. Journal of the Faculty of Agriculture, Kyushu University 51, 115–120.
- Tran, D.H., Tran, T.T.A. & Takagi, M. 2005. Agromyzid leafminers in central and southern Vietnam: Survey of host crops, species composition and parasitoids. Bulletin of the Institute of Tropical Agriculture, Kyushu University 28, 35–41.
- Tran, D.H., Tran, T.T.A., Mai, L.P., Ueno, T. & Takagi, M. 2007. Seasonal abundance of *Liriomyza sativae* (Diptera: Agromyzidae) and its parasitoids on vegetables in southern Vietnam. Journal of the Faculty of Agriculture, Kyushu University 52, 49–55.
- Tran, T.T.A. 2000. Some preliminary results of study on leafminer, *Liriomyza trifolii*. Hanoi Agricultural University Plant Protection Journal 2/2000, 8–13 (in Vietnamese with English summary).
- Winotai, A. & Chattrakul, U. 2003. Conservation of natural enemies for biological control of leaf miner fly, *Liriomyza huidobrensis*, in the north of Thailand. 6th International Conference on Plant Protection in the tropics, August 11–14 2003, Kuala Lumpur, Malaysia. 6pp.
- Zhao, Y.X. & Kang, L. 2000. Cold tolerance of the leafminer *Liriomyza sativae* (Dipt., Agromyzidae). J. Appl. Entomol. 124, 185–189

Received: 25 March 2008

Accepted: 7 October 2008

**Appendix.** Material of *Liriomyza* collected from vegetables in Vietnam 2002–2007. ♂ = male, ♀ = female. \* = material hatched from leaves, no asterisk = sweep-netted in the crop.

Province	Locality	Fly material	Date of collection	Collector	Crop
<b><i>Liriomyza sativae</i> Blanchard, 1938</b>					
Lao Cai	Sa Pa: Sa Pa	2♂♂, 3♀♀	9 May 2003	A Andersen	French bean
	Sa Pa: Lao Chai	2♂♂, 1♀	9 May 2003	A Andersen	French bean
Yen Bai	Yen Binh: Vinh Kien	1♂, 1♀	29 September 2003	T K O Le(?)	-
Bac Kan	Bac Kan	2♂♂, 4♀♀	21 May 2003	A Andersen	Mung bean
	Ba Be: Yen Duong	1♀	23 May 2003	A Andersen	Tomato
Thai Nguyen	Phu Luong: Giang Tien	3♂♂, 11♀♀	21 May 2003	A Andersen	Mung bean
Vinh Phuc	Vinh Yen	3♂♂, 6♀♀	29 April 2003	A Andersen	French bean
	Me Linh: Phuc Yen	7♂♂, 17♀♀	29 April 2003	A Andersen	French bean
	Tam Duong: Tam Dao	1♂, 3♀♀	30 April 2003	A Andersen	French bean
Ha Noi	Gia Lam: Hanoi Agric Uni.	402♂♂, 919♀♀	8 March–27 May 2003	A Andersen	French bean
	Gia Lam: Hanoi Agric Uni.	3♂♂, 16♀♀	13 May 2003	A Andersen	Longbean
	Gia Lam: Hanoi Agric Uni.	2♂♂, 28♀♀	13 May 2003	A Andersen	Mung bean
	Dong Anh: Tien Duong	1♂, 3♀♀	February–June 2005	T D Dang	-
	-	10♂♂, 7♀♀	15 May 2005	T T G Ho	Sponge gourd
	-	3♂♂, 5♀♀	15 May 2005	T D Dang	Chinese melon
	-	12♂♂, 7♀♀	18 May 2005	T T G Ho	Cucumber
	-	5♂♂, 6♀♀	15 June 2005	T T G Ho	French bean
	-	2♂♂, 3♀♀	10 July 2005	T D Dang	Longbean
	-	7♂♂, 14♀♀	5 August 2005	T D Dang	Sweet crucifera
	-	1♂	7 August 2005	T D Dang	Chinese cabbage
	Gia Lam: Dong Du	14♂♂, 16♀♀	March 2006	T T G Ho	Pumpkin
	Gia Lam: Trau Quy	2♂♂, 2♀♀	March 2005	T T G Ho	Longbean
	Gia Lam: Dang Xa	1♂, 1♀	April 2006	T D Dang	Mung bean
	Gia Lam: Da Ton	3♂♂, 9♀♀	December 2005	T T G Ho	Mullaca
	Gia Lam: Dang Xa	12♂♂, 10♀♀	February 2006	T T G Ho	French bean
	Gia Lam: Dang Xa	2♂♂, 1♀	May 2006	T D Dang	Tomato
	Gia Lam: Dang Xa	4♀♀	March 2006	T D Dang	Oregano
Bac Ninh	Bac Ninh	20♂♂, 20♀♀	27 March 2003	A Andersen	Pumpkin
	Bac Ninh	20♂♂, 20♀♀	27 March 2003	A Andersen	Tomato
	Bac Ninh	3♂♂, 7♀♀	27 March 2003	A Andersen	Leek
	Bac Ninh	15♂♂, 21♀	26 May 2003	A Andersen	Tomato
	Bac Ninh	41♂, 77♀♀	26 May 2003	A Andersen	Pumpkin
Bac Giang	Bac Giang	9♂♂, 7♀♀	26 May 2003	A Andersen	Pumpkin
Quang Ninh	Dong Trieu: Mao Khe	14♂♂, 77♀♀	25 April 2003	A Andersen	French bean
Hai Phong	Kien Thuy	16♂♂, 6♀♀	9 March 2003	A Andersen	Tomato
Hai Duong	Gia Loc	10♂♂, 9♀♀	9 March 2003	A Andersen	French bean
Hung Yen	My Hao: Ban Yen Nhan	21♂♂, 23♀♀	30 March 2003	A Andersen	Pumpkin
Ha Tay	Thon Phuong Vien	23♂♂, 6♀♀	5 April 2003	A Andersen	Pumpkin
	Thon Phuong Vien	14♂♂, 12♀♀	5 April 2003	A Andersen	Tomato
	Yen Noi	5♂♂, 5♀♀	5 April 2003	A Andersen	Pumpkin
Thanh Hoa	Thanh Hoa: Dong Ve	28♂♂, 41♀♀	6 July 2004	T T A Tran	Pak-choi cabbage*
	-	28♂♂, 20♀♀	6 July 2004	T T An	Longbean*
	Thanh Hoa: Dong Ve	41 ex	6 July 2004	D H Tran	Mustard
	Thanh Hoa: Quang Thanh	40 ex	6 July 2004	D H Tran	Longbean
Nghe An	Quynh Luu: Quynh Luong	5♂♂, 3♀♀	11 January 2006	A Andersen	Carrot
	Quynh Luu: Quynh Luong	4♂♂, 14♀♀	11 January 2006	A Andersen	Pak-choi cabbage
	Quynh Luu: Quynh Luong	15♂♂, 24♀♀	11 January 2006	A Andersen	Tomato
Quang Binh	Dong Ha: Dong Giang	1♂, 1♀	14 January 2006	A Andersen	Marigold
Quang Tri	Trieu Phong: Trieu Dong	2♂♂, 3♀♀	29 March 2004	T T A Tran	Sponge gourd*
	Trieu Phong: Trieu Tai	6♂♂, 6♀♀	7 April 2004	T T A Tran	Tomato*
	Trieu Phong: Trieu Tai	7♂♂, 6♀♀	7 April 2004	T T A Tran	Sponge gourd*
	Trieu Phong: Trieu Tai	3♂♂	7 April 2004	T T A Tran	Wax gourd*
	Hai Lang	10♂♂, 15♀♀	30 April 2004	T T A Tran	Cucumber*
	Trieu Phong	9♂♂, 16♀♀	1 May 2004	T T A Tran	Lettuce*
	Trieu Phong	45♂♂, 50♀♀	4 May 2004	T T A Tran	Pickling eggplant*
	Trieu Phong	9♂♂, 11♀	4 May 2004	T T A Tran	Sponge gourd*
Thua Thien-Hue	Hue: Phu Xuan	14♂♂, 14♀♀	16 June 2004	T T A Tran	Cassaba melon*
	Hue: Phu Hoa	11♂♂, 10♀♀	26 June 2004	T T A Tran	Garden pea*
	Hue: Huong An	18 ex	26 January 2004	D H Tran	Radish
	Hue: Huong Long	35 ex	17 February 2005	D H Tran	French bean
	Hue: Phu Xuan	27 ex	26 June 2004	D H Tran	Cassaba melon



## Appendix. Continued

Province	Locality	Fly material	Date of collection	Collector	Crop
<i>Liriomyza sativae</i> Blanchard, 1938 Continued					
	Hue: Phu Xuan	24 ex	26 June 2004	D H Tran	Mung bean
Da Nang	Ngu Hanh Son: Khue My	1♂	6 October 2005	A Andersen	Lettuce
	Ngu Hanh Son: Khue My	1♀	17 January 2006	A Andersen	Leaf mustard
	Hoa Vang: Hoa Phong	8♀♀	17 January 2006	A Andersen	Pak-choi cabbage
	Hoa Vang: Hoa Phong	11♂♂, 25♀♀	25 January 2006	T T A Tran	Cucumber*
	Hoa Vang: Hoa Phong	65♂♂, 69♀♀	25 January 2006	T T A Tran	French bean*
Quang Nam	Dien Ban	11♂♂, 7♀♀	29 February 2004	D H Tran	French bean*
	Dien Ban	7♂♂, 7♀♀	29 February 2004	D H Tran	Cucumber*
	Thang Binh	1♂, 4♀♀	28 February 2004	D H Tran	China squash*
	Thuan Hoa: Tam Ky	7♂♂, 8♀♀	28 February 2004	D H Tran	Eggplant*
	Thang Binh	8♂♂, 9♀♀	28 February 2004	D H Tran	Eggplant*
	Thang Binh	29♂♂, 31♀♀	28 February 2004	D H Tran	Tomato*
	Hoi An: Cam Ha	2♀♀	5 October 2005	A Andersen	Leaf mustard
	Hoi An: Cam Ha	1♂, 2♀♀	5 October 2005	A Andersen	Pak-choi cabbage
	Thang Binh: Binh Trieu	1♂, 3♀♀	5 October 2005	A Andersen	Leaf mustard
	Thang Binh	6 ex	27 June 2004	D H Tran	Longbean
	Thang Binh: Binh Trieu	1♂, 1♀	18 January 2006	A Andersen	Leaf mustard
	Hoi An: Cam Ha	2♀♀	18 January 2006	A Andersen	French bean
	Dai Loc: Dai Hoa	1♂, 1♀	15 February 2006	T T A Tran	French bean
	Duy Xuyen: Duy Trung	3♂♂	15 February 2006	T T A Tran	Cucumber
	Phu Ninh: Tam An	1♀	19 February 2006	T T A Tran	Lettuce
	Thuan Hoa: Tam Ky	1♂, 5♀♀	17 February 2006	T T A Tran	Tomato
Quang Ngai	Tu Nghia	1♀	3 January 2004	T T A Tran	Sponge gourd*
Binh Dinh	Phu Cat	4♂♂, 33♀♀	15 April 2003	T T A Tran	Wax gourd
	Phu Cat	8♂♂, 14♀♀	15 April 2003	T T A Tran	Water melon
	Quy Nhon: Ghenh Rang	6♂♂, 1♀	4 March 2004	A Andersen	Sponge gourd
	Quy Nhon: Nhon Phu	3♂♂, 25♀♀	4 March 2004	A Andersen	Lettuce
	Quy Nhon: Nhon Phu	6♂♂, 33♀♀	4 March 2004	A Andersen	Leaf mustard
Phu Yen	Tuy Hoa: Binh Kien	16♀♀	3 March 2004	A Andersen	French bean
	Tuy Hoa: Binh Ngoc	7♀♀, 26♀♀	3 March 2004	A Andersen	Basil
	Tuy Hoa: Binh Ngoc	4♀♀, 5♀♀	3 March 2004	A Andersen	Lettuce
	Tuy Hoa: Binh Ngoc	4♀♀, 40♀♀	3 March 2004	A Andersen	Water melon
	Tuy Hoa: Binh Ngoc	20♀♀, 17♀♀	3 March 2004	A Andersen	Tomato
Khanh Hoa	Dien Khanh	1♂, 28♀♀	25 April 2003	T T A Tran	Sponge gourd
	Dien Khanh	5♂♂, 8♀♀	25 April 2003	T T A Tran	Water melon
	Dien Khanh: Dien Son	30♀♀, 30♀♀	3 March 2004	A Andersen	Wax gourd
	Nha Trang: Vinh Thanh	30♀♀, 30♀♀	3 March 2004	A Andersen	Onion
	Nha Trang: Vinh Thanh	18♂♂, 28♀♀	3 March 2004	A Andersen	Lettuce
Kon Tum	Kon Tum	8♂♂, 6♀♀	4 May 2004	T T A Tran	Leaf mustard*
	Kon Tum	25♂♂, 17♀♀	4 May 2004	T T A Tran	Tomato*
	Kon Tum	16♂♂, 25♀♀	4 May 2004	T T A Tran	French bean*
	Kon Tum: Thong Nhat	8♂♂, 6♀♀	3 July 2004	T T A Tran	Sponge gourd*
	Kon Tum: Thong Nhat	1♂, 4♀♀	3 July 2004	T T A Tran	Cucumber*
	Kon Tum: Thang Loi	105 ex	23 May 2005	T T A Tran	Long bean*
	Kon Tum: Thang Loi	100 ex	23 May 2005	T T A Tran	Water melon*
	Kon Tum: Thang Loi	80 ex	28 May 2005	T T A Tran	French bean*
	Kon Tum: Thang Loi	80 ex	28 May 2005	T T A Tran	Tomato*
	Kon Tum: Quyet Thang	50 ex	4 January 2005	T L Luu	Tomato
	Kon Tum: Thang Loi	30 ex	29 December 2004	T L Luu	Tomato
	Kon Tum: Quyet Thang	30 ex	5 January 2005	T L Luu	French bean
	Kon Tum: Thong Nhat	7 ex	2 July 2004	T L Luu	Long bean
	-	28♂♂, 17♀♀	16 November 2005	T T A Tran	Tomato*
	-	100 ex	13 November 2005	T T A Tran	French bean*
	Kon Tum: Thang Loi	400 ex	18 March 2006	T T A Tran	Pak-choi cabbage
Gia Lai	Dak Doa: Tan Binh	1♂, 2♀♀	4 March 2004	A Andersen	Sponge gourd
	An Khe: An Khe	30♂♂, 30♀♀	4 March 2004	A Andersen	Tomato
	Anh Khe: Cu An	6♀♀	4 March 2004	A Andersen	Lettuce
	Anh Khe: Cu An	1♂, 20♀♀	4 March 2004	A Andersen	Leaf mustard
	Anh Khe: Cu An	1♂, 1♀	4 March 2004	A Andersen	Celery
	Anh Khe: Cu An	20♂♂, 30♀♀	4 March 2004	A Andersen	French bean
	An Khe: Song An	2♂♂, 3♀♀	4 March 2004	A Andersen	French bean
	Mang Yang: Dak Dj Rang	8♂♂, 17♀♀	4 March 2004	A Andersen	French bean
	Dak Doa: Tan Binh	1♂, 26♀♀	4 March 2004	A Andersen	French bean

## Appendix. Continued

Province	Locality	Fly material	Date of collection	Collector	Crop
<b><i>Liriomyza sativae</i> Blanchard, 1938 Continued</b>					
	Anh Khe: Song An	5♀♀	4 March 2004	A Andersen	Cucumber
	Pleiku: Yen The	60♂♂, 119♀♀	5 March 2004	A Andersen	French bean
	Pleiku: Yen The	5♂♂, 12♀♀	5 March 2004	A Andersen	Pak-choi cabbage
	Pleiku: Yen The	12♂♂, 30♀♀	5 March 2004	A Andersen	Cucumber
	Pleiku: Thong Nhat	30♂♂, 30♀♀	5 March 2004	A Andersen	Tomato
	Pleiku: Thong Nhat	1♀	5 March 2004	A Andersen	Lettuce
	Dak Doa	12♂♂, 8♀♀	24 April 2004	T T A Tran	French bean*
	An Khe	7♂♂, 7♀♀	24 April 2004	T T A Tran	Tomato*
	An Khe	1♀	24 April 2004	T T A Tran	Long bean*
Dak Lak	Buon Ma Thuot	1♂, 12♀♀	3 April 2003	T T A Tran	French bean
	Buon Ma Thuot	1♂, 1♀	3 April 2003	T T A Tran	Pak-choi cabbage
	Buon Ma Thuot: Tan Tien	2♀♀	5 March 2004	A Andersen	Lettuce
	Buon Ma Thuot: Tan Tien	3♂♂, 3♀♀	5 March 2004	A Andersen	Longbean
	Buon Ma Thuot: Tan Tien	16♀♀	5 March 2004	A Andersen	Pak-choi cabbage
	Buon Ma Thuot: Tan Tien	5♀♀	5 March 2004	A Andersen	Lettuce
	Buon Ma Thuot: Tan Tien	2♂♂, 19♀♀	5 March 2004	A Andersen	French bean
	Buon Ma Thuot: Tan Tien	1♂, 20♀♀	5 March 2004	A Andersen	Leaf mustard
	Ea H'Leo: Ea H'Leo	30♂♂, 30♀♀	5 March 2004	A Andersen	Tomato
Dak Nong	Cu Jut: Truc Son	2♂♂, 6♀♀	6 March 2004	A Andersen	Sponge gourd*
	Cu Jut: Truc Son	7♂♂, 21♀♀	6 March 2004	A Andersen	Sponge gourd
	Dak Mil: Thuan An	6♀♀	6 March 2004	A Andersen	Pak-choi cabbage
	Dak Mil: Thuan An	1♂, 5♀♀	6 March 2004	A Andersen	Lettuce
	Cu Jut: Dak Ghenh	2♂♂, 6♀♀	6 March 2004	A Andersen	Cucumber
	Cu Jut: Dak Ghenh	1♂, 21♀♀	6 March 2004	A Andersen	Pak-choi cabbage
Lam Dong	Don Duong: D'Ran	34♂♂, 33♀♀	30 July 2004	T T A Tran	Tomato*
	Don Duong: D'Ran	4♂♂, 2♀♀	30 July 2004	T T A Tran	Pak-choi cabbage*
	Don Duong: D'Ran	18♂♂, 25♀♀	30 July 2004	T T A Tran	French bean*
	Duc Trong: Lien Nghia	5♂♂, 10♀♀	12 November 2004	A Andersen	Potato
	Duc Trong: Lien Nghia	2♂♂, 5♀♀	12 November 2004	A Andersen	Pak-choi cabbage
	Duc Trong: Lien Nghia	30♂♂, 30♀♀	12 November 2004	A Andersen	Tomato
	Duc Trong: Lien Nghia	1♀	12 November 2004	A Andersen	Leaf mustard
	Duc Trong: Lien Nghia	21♂♂, 30♀♀	12 November 2004	A Andersen	Tomato
	Duc Trong: Lien Nghia	2♀♀	12 November 2004	A Andersen	Lettuce
	Duc Trong: Ba Choi	11♂♂, 12♀♀	12 November 2004	A Andersen	Tomato
	Don Duong: Thanh My	3♂♂, 10♀♀	13 November 2004	A Andersen	Tomato
	Don Duong: Ka Do	12♂♂, 16♀♀	13 November 2004	A Andersen	Leaf mustard
	Don Duong: Ka Do	18♂♂, 23♀♀	13 November 2004	A Andersen	Tomato
	Don Duong: Lac Xuan	1♀	13 November 2004	A Andersen	Lettuce
	Don Duong: Lac Xuan	8♂♂, 14♀♀	13 November 2004	A Andersen	Leaf mustard
	Don Duong: Lac Xuan	20♂♂, 47♀♀	13 November 2004	A Andersen	Tomato
	Da Lat: Phuong 7	1♀	14 November 2004	A Andersen	Beet
	Da Lat: Phuong 8	1♀	16 May 2006	A Andersen	French bean
	Lac Xuan: Don Duong	2♂♂, 22♀♀	12 January 2007	A Andersen	Tomato
Ninh Thuan	Ninh Son	5♂♂, 20♀♀	10 March 2003	T T A Tran	Cotton
	Thap Cham: Van Son	7♂♂, 13♀♀	2 March 2004	A Andersen	Basil
	Thap Cham: Van Son	26♂♂, 23♀♀	2 March 2004	A Andersen	Garlic
	Thap Cham: Van Son	30♂♂, 30♀♀	2 March 2004	A Andersen	Tomato
	Thap Cham: Van Son	2♂♂, 44♀♀	2 March 2004	A Andersen	Radish
	Phan Rang	48♂♂, 61♀♀	17 June 2004	T T A Tran	Sponge gourd
	Phan Rang	21♂♂, 16♀♀	17 June 2004	T T A Tran	Broad bean*
	Phan Rang	34♂♂, 47♀♀	17 June 2004	T T A Tran	Water melon*
	Phan Rang	38♂♂, 46♀♀	17 June 2004	T T A Tran	French bean*
Binh Thuan	Ham Thuan Bac: Kim Thang	16♂♂, 1♀	1 April 2004	T T A Tran	Pak-choi cabbage*
	Ham Thuan Bac: Kim Thang	10♂♂, 11♀	1 April 2004	T T A Tran	Sponge gourd*
Tay Ninh	Duong Minh Chau	60♂♂, 62♀♀	4 June 2004	T T A Tran	Cucumber*
	Duong Minh Chau	2♂♂, 5♀♀	4 June 2004	T T A Tran	Loopah melon*
Binh Phuoc	Bu Dang: Duc Phong	2♂♂, 7♀♀	6 March 2004	T T A Tran	Sponge gourd*
	Bu Dang: Duc Phong	6♂♂, 14♀♀	6 March 2004	A Andersen	French bean
	Dong Xoai: Tan Xuan	4♂♂, 24♀♀	6 March 2004	A Andersen	China squash
	Dong Xoai: Tan Xuan	1♂, 3♀♀	6 March 2004	A Andersen	Sponge gourd
	Dong Xoai: Tan Dong	30♂♂, 30♀♀	6 March 2004	A Andersen	Lettuce
	Dong Xoai: Tan Dong	10♂♂, 35♀♀	6 March 2004	A Andersen	Leaf mustard
	Dong Xoai: Tan Dong	8♂♂, 22♀♀	6 March 2004	A Andersen	Spinach

## Appendix. Continued

Province	Locality	Fly material	Date of collection	Collector	Crop	
<i>Liriomyza sativae</i> Blanchard, 1938 Continued						
Binh Duong	Tan Uyen: Thai Hoa	6♂♂, 50♀♀	10 March 2004	A Andersen	French bean	
	Tan Uyen: Thai Hoa	2♂♂, 4♀♀	10 March 2004	A Andersen	Onion	
	Tan Uyen: Thai Hoa	7♂♂, 17♀♀	10 March 2004	A Andersen	Cucumber	
	Tan Uyen: Thai Hoa	5♂♂, 27♀♀	10 March 2004	A Andersen	Longbean	
Ho Chi Minh	Cu Chi	10 ex	December 2002	T T A Tran	French bean	
	Hoc Mon	10 ex	December 2002	T T A Tran	Leaf mustard	
	Hoc Mon	10 ex	December 2002	T T A Tran	Tomato	
	Binh Chanh	10 ex	25 March 2003	T T A Tran	Pak-choi cabbage	
	Cu Chi	8♂♂, 10♀♀	24 April 2003	T T A Tran	Cucumber	
	Hoc Mon: Tan Thoi Nhi	28♂♂, 29♀♀	18 November 2003	T T A Tran	French bean*	
	Thu Duc	2♂♂, 29♀♀	5 April 2004	T T A Tran	Cucumber*	
	Cu Chi: Tan Phu Trung	9♂♂, 7♀♀	6 April 2004	T T A Tran	Wax gourd*	
	Hoc Mon: Tan Thoi Nhi	20♂♂, 99♀♀	6 April 2004	T T A Tran	Okra*	
	Cu Chi: Tan Phu Trung	2♂♂, 14♀♀	6 April 2004	T T A Tran	Okra*	
	Hoc Mon: Tan Thoi Nhi	6♂♂, 10♀♀	6 April 2004	T T A Tran	Bitter Gourd*	
	Cu Chi: Tan Phu Trung	8♀♀	6 April 2004	T T A Tran	Sing-kwa*	
	Hoc Mon: Xuan Thoi Son	2♂♂, 3♀♀	6 April 2004	T T A Tran	Okra*	
	Cu Chi: Tan Phu Trung	10♀♀	6 April 2004	T T A Tran	Sing-kwa*	
	Hoc Mon: Tan Thoi Nhi	40♂♂, 58♀♀	6 April 2004	T T A Tran	Cucumber*	
	Hoc Mon: Tan Thoi Nhi	26♂♂, 100♀♀	6 April 2004	T T A Tran	Longbean*	
	Cu Chi: Tan Phu Trung	3♂♂, 3♀♀	6 April 2004	T T A Tran	Okra*	
	Cu Chi: Tan Phu Trung	15♂♂, 58♀♀	6 April 2004	T T A Tran	Bottle gourd*	
	Cu Chi: Tan Phu Trung	1♂, 13♀♀	6 April 2004	T T A Tran	Cucumber*	
	Thu Duc	5♂♂, 17♀♀	7 April 2004	T T A Tran	French bean*	
	Hoc Mon: Hiep Thanh	8♂♂, 29♀♀	9 November 2004	A Andersen	Leaf mustard	
	Hoc Mon: Hiep Thanh	4♂♂, 15♀♀	9 November 2004	A Andersen	Pak-choi cabbage	
	Hoc Mon: Xuan Thoi Son	115♂♂, 139♀♀	24 January 2006	T T A Tran	French bean*	
	Cu Chi: Tan Phu Trung	22♂♂, 11♀♀	10 December 2005	T T A Tran	Chinese mustard*	
	Thu Duc: Tam Phu	500 ex	12 November 2005	T T A Tran	Chinese mustard*	
	Thu Duc: Tam Phu	-	12 November 2005	T T A Tran	Pak-choi cabbage*	
	Cu Chi: Tan Phu Trung	12♂♂, 13♀♀	10 December 2005	T T A Tran	Pak-choi cabbage	
Cu Chi: Tan Phu Trung	4♂♂, 13♀♀	10 December 2005	T T A Tran	Chinese mustard		
Cu Chi: Tan Phu Trung	125 ex	12 November 2005	T T A Tran	Leaf mustard		
Thu Duc: Tam Phu	100 ex	12 November 2005	T T A Tran	Pak-choi cabbage		
Dong Nai	Bien Hoa	10 ex	December 2002	T T A Tran	Cucumber	
	Bien Hoa: Tan Phong	3♀♀	10 March 2004	A Andersen	Leaf mustard	
	Bien Hoa: Tan Phong	30♂♂, 30♀♀	10 March 2004	A Andersen	Pak-choi cabbage	
	Bien Hoa: Tan Phong	9♂♂, 23♀♀	10 March 2004	A Andersen	Lettuce	
	Thong Nhat: Quang Trung	16♂♂, 13♀♀	19 November 2004	A Andersen	Pak-choi cabbage	
	Thong Nhat: Quang Trung	5♂♂, 10♀♀	19 November 2004	A Andersen	Leaf mustard	
	Thong Nhat: Gia Yen 3	1♀	19 November 2004	A Andersen	Lettuce	
	Bien Hoa: Tan Phong	1♂, 5♀♀	11 November 2005	T T A Tran	Leaf mustard	
	Bien Hoa: Tan Phong	15♂♂, 7♀♀	25 November 2005	T T A Tran	Chinese mustard	
	Bien Hoa: Tan Phong	17♂♂, 12♀♀	11 November 2005	T T A Tran	White radish	
	Bien Hoa: Tan Phong	2♂♂, 4♀♀	25 November 2005	T T A Tran	Pak-choi cabbage	
	Bien Hoa: Tan Phong	12♂♂, 4♀♀	11 November 2005	T T A Tran	Pak-choi cabbage	
	Ba Ria-Vung	Tau Vung Tau	2♂♂, 9♀♀	9 April 2004	T T A Tran	French bean*
		Vung Tau	16♀♀	9 April 2004	T T A Tran	Pak-choi cabbage*
Vung Tau		5♂♂, 30♀♀	9 April 2004	T T A Tran	China squash*	
Vung Tau		1♂, 9♀♀	9 April 2004	T T A Tran	Leaf mustard*	
Vung Tau		8♂♂, 9♀♀	4 May 2004	T T A Tran	French bean*	
Vung Tau		6♂♂, 7♀♀	4 May 2004	T T A Tran	Pak-choi cabbage*	
Vung Tau		18♂♂, 47♀♀	4 May 2004	T T A Tran	Leaf mustard*	
Long An		Ben Luc: Phuoc Loi	2♂♂, 31♀♀	8 March 2004	A Andersen	Sponge gourd
	Ben Luc: Phuoc Loi	9♂♂, 60♀♀	8 March 2004	A Andersen	Pak-choi cabbage	
	Ben Luc: Phuoc Loi	16♂♂, 50♀♀	8 March 2004	A Andersen	Leaf mustard	
	Ben Luc: Phuoc Loi	1♂, 1♀	8 March 2004	A Andersen	Onion	
	Ben Luc: Phuoc Loi	25♂♂, 30♀♀	8 March 2004	A Andersen	Lettuce	
	Can Duoc: Phuoc Van	6♂♂, 13♀♀	8 March 2004	A Andersen	Field cabbage	
	Can Duoc: Phuoc Van	5♂♂, 7♀♀	8 March 2004	A Andersen	Sponge gourd	
	Can Duoc: Phuoc Van	30♂♂, 30♀♀	8 March 2004	A Andersen	French bean	
	Can Guioc	40♂♂, 50♀♀	1 May 2004	T T A Tran	Sing-kwa*	
	Can Guioc	8♂♂, 14♀♀	4 May 2004	T T A Tran	Sponge gourd	

## Appendix. Continued

Province	Locality	Fly material	Date of collection	Collector	Crop
<b><i>Liriomyza sativae</i> Blanchard, 1938 Continued</b>					
Dong Thap	Cao Lanh	4♂♂, 7♀♀	17 April 2004	T T A Tran	Sponge gourd*
	Cao Lanh	12♂♂, 13♀♀	30 January 2004	T T A Tran	Longbean*
Tien Giang	Cai Lay: Nhi My	8♂♂, 10♀♀	8 March 2004	A Andersen	Wax gourd
	Cai Lay: Nhi My	4♂♂, 30♀♀	8 March 2004	A Andersen	Tomato
	Cai Lay: Nhi My	17♂♂, 30♀♀	8 March 2004	A Andersen	Water melon
	Cai Lay: Hiep Duc	8♂♂, 12♀♀	10 July 2004	T T A Tran	Sponge gourd*
	Cai Lay: Phu An	5♂♂, 6♀♀	10 July 2004	T T A Tran	Tomato*
Ben Tre	Binh Dai	5♂♂, 2♀♀	24 November 2003	T T A Tran	Pak-choi cabbage*
	Giong Trom: Tan Thanh	20♂♂, 20♀♀	24 February 2004	T T A Tran	Wax gourd*
	Giong Trom: Tan Thanh	20♂♂, 21♀♀	24 February 2004	T T A Tran	Tomato*
	Chau Thanh: Son Hoa	7♂♂, 5♀♀	24 February 2004	T T A Tran	Cassaba melon*
	Binh Dai: Thoi Lai	4♂♂, 38♀♀	24 February 2004	T T A Tran	Sponge gourd*
	Chau Thanh: Giao Long	19♂♂, 18♀♀	25 February 2004	T T A Tran	Tomato*
	Chau Thanh: Son Hoa	10♂♂, 10♀♀	25 February 2004	T T A Tran	French bean*
	Chau Thanh: Son Hoa	10♂♂, 10♀♀	25 February 2004	T T A Tran	Pak-choi cabbage*
	Chau Thanh: Tam Phuoc	30♂♂, 40♀♀	25 February 2004	T T A Tran	Tomato*
	Giong Trom: Binh Thanh	2♀♀	25 February 2004	T T A Tran	Sponge gourd*
	Giong Trom: Binh Thanh	2♂♂	25 February 2004	T T A Tran	Wax gourd*
	Ba Tri: An Hoa Tay	10♂♂, 10♀♀	25 February 2004	T T A Tran	Tomato*
	Ba Tri: An Hoa Tay	2♂♂, 4♀♀	25 February 2004	T T A Tran	Sponge gourd*
	Ba Tri: An Hoa Tay	10♂♂, 10♀♀	25 February 2004	T T A Tran	Wax gourd*
	Binh Dai: Vang Quoi Tay	12♂♂, 13♀♀	25 February 2004	T T A Tran	Tomato*
Vinh Long	Long Ho: Phuoc Hau	58♂♂, 55♀♀	9 March 2004	A Andersen	Pak-choi cabbage
	Long Ho: Phuoc Hau	30♂♂, 20♀♀	9 March 2004	A Andersen	Tomato
	Long Ho: Phuoc Hau	30♂♂, 30♀♀	9 March 2004	A Andersen	Wax gourd
	Vung Liem: Trung Thanh	1♂, 1♀	9 March 2004	A Andersen	Onion
	Vung Liem: Trung Thanh	30♂♂, 30♀♀	9 March 2004	A Andersen	Lettuce
Tra Vinh	Cau Ngang: Long Son	12♂♂, 35♀♀	9 March 2004	A Andersen	China squash
	Tra Vinh: Long Binh	9♂♂, 25♀♀	9 March 2004	A Andersen	Pak-choi cabbage
	Cau Ngang: Long Son	2♂♂, 71♀♀	9 March 2004	A Andersen	Cucumber
	Tra Vinh: Long Binh	23♂♂, 66♀♀	9 March 2004	A Andersen	Leaf mustard
	Cau Ngang: Thuan Hoa	50♂♂, 23♀♀	9 March 2004	A Andersen	Tomato
	Cau Ngang: Long Son	30♂♂, 30♀♀	9 March 2004	A Andersen	Loopah melon
An Giang	Cho Moi: Kien Thanh	16♂♂, 22♀♀	22 February 2004	T T A Tran	French bean*
	Phu Hung: Phu Tan	155 ex	3 January 2004	T T A Tran	Chrysanthemum*
Can Tho	O Mon: Thoi Long	89 ex	14 December 2003	T T A Tran	China squash*
	O Mon: Thoi Long	1♂, 3♀♀	24 December 2003	T T A Tran	Field cabbage*
Hau Giang	Phung Hiep: Long Thanh	7♂♂, 4♀♀	14 January 2004	T T A Tran	Sponge gourd*
	Phung Hiep: Long Thanh	30 ex	14 February 2004	T T A Tran	Wax gourd*
Soc Trang	Soc Trang	145 ex	12 February 2003	T T A Tran	Tomato
	My Xuyen	23 ex	12 December 2004	T T A Tran	French bean
Bac Lieu	Hong Dan: Ninh Hoa	87 ex	13 February 2004	T T A Tran	Chrysanthemum*
	Phuoc Long: Vinh Thanh	200 ex	13 February 2004	T T A Tran	Longbean*
	Phuoc Long: Vinh Thanh	78 ex	13 February 2004	T T A Tran	White radish*
Kien Giang	Rach Gia	1♂, 7♀♀	12 March 2003	T T A Tran	Leaf mustard
	Rach Gia	2♂♂, 9♀♀	23 March 2003	T T A Tran	Tomato
	Rach Gia	1♂, 5♀♀	23 March 2003	T T A Tran	Basil
	Go Quao: Vinh Phuoc A	46 ex	13 February 2004	T T A Tran	Longbean*
	Rach Gia: An Binh	7 ex	15 February 2005	T T A Tran	Pak-choi
	Minh Thuan: Vinh Thuan	7 ex	15 February 2005	T T A Tran	Lettuce
	Rach Gia: Vinh Hiep	40 ex	15 February 2005	T T A Tran	Lettuce
	Rach Gia: Vinh Hiep	25 ex	15 February 2005	T T A Tran	-
	Rach Gia: Vinh Hiep	40 ex	15 February 2005	T T A Tran	Lettuce
	Minh Thuan: Vinh Thuan	18 ex	15 February 2005	T T A Tran	Tomato
	Rach Gia: Vinh Hiep	15 ex	15 February 2005	T T A Tran	Pak-choi cabbage
Ca Mau	Ca Mau	2♂♂, 2♀♀	December 2002	T T A Tran	Cucumber
	Ca Mau	4♂♂, 13♀♀	December 2002	T T A Tran	Leaf mustard
	Ca Mau: Tan Thanh	18 ex	14 February 2005	T T A Tran	Basil
	Ca Mau: Ly Van Lam	50 ex	14 February 2005	T T A Tran	Pak-choi cabbage
	Ca Mau: Tan Thanh	20 ex	14 February 2005	T T A Tran	French bean
	Ca Mau: Tan Thanh	60 ex	14 February 2005	T T A Tran	Lettuce
	Ca Mau: Tan Thanh	50 ex	14 February 2005	T T A Tran	Leaf mustard
	Ca Mau: Tan Thanh	25 ex	14 February 2005	T T A Tran	Tomato

## Appendix. Continued

Province	Locality	Fly material	Date of collection	Collector	Crop
<b><i>Liriomyza sativae</i> Blanchard, 1938</b> Continued					
	Ca Mau: Ly Van Lam	65 ex	14 February 2005	T T A Tran	Lettuce
	Ca Mau: Ly Van Lam	30 ex	14 February 2005	T T A Tran	Leaf mustard
	Thoi Binh: Tri Phai	50 ex	14 February 2005	T T A Tran	Caynut ao
	Thoi Binh: Tan Loc Bac	10 ex	14 February 2005	T T A Tran	Lettuce
	Thoi Binh: Tri Phai	10 ex	14 February 2005	T T A Tran	Leaf mustard
	Thoi Binh: Tri Phai	30 ex	14 February 2005	T T A Tran	Lettuce
<b><i>Liriomyza huidobrensis</i> (Blanchard, 1926)</b>					
Da Nang	Ngu Hanh Son: Khue My	1♂	17 January 2006	A Andersen	Lettuce
Phu Yen	Tuy Hoa: Binh Ngoc	1♂	3 March 2004	A Andersen	Lettuce
Gia Lai	Pleiku: Yen The	1♀	5 March 2004	A Andersen	French bean
Dak Lak	Buon Ma Thuot: Tan Tien	3♂♂, 1♀	5 March 2004	A Andersen	Chrysanthemum
	Buon Ma Thuot: Tan Tien	1♂, 2♀♀	5 March 2004	A Andersen	Leaf mustard
Lam Dong	Da Lat	32♂♂, 19♀♀	25 December 2002	T T A Tran	Onion
	Da Lat	16♀♀	25 December 2002	T T A Tran	Potato
	Da Lat	1♂, 4♀♀	25 December 2002	T T A Tran	French bean
	Don Duong	1♂, 7♀♀	26 December 2002	T T A Tran	Lettuce
	Don Duong	5♂♂, 4♀♀	26 December 2002	T T A Tran	Onion
	Duc Trong	5♂♂, 14♀♀	28 December 2002	T T A Tran	Tomato
	Da Lat	4♂♂, 5♀♀	December 2002	T T A Tran	Garden pea
	Da Lat	1♂, 5♀♀	3 January 2004	T T A Tran	Potato*
	Don Duong: D'Ran	13♂♂, 18♀♀	30 July 2004	T T A Tran	Tomato*
	Don Duong: D'Ran	23♂♂, 27♀♀	30 July 2004	T T A Tran	Pak-choi cabbage*
	Don Duong: D'Ran	8♂♂, 12♀♀	30 July 2004	T T A Tran	French bean*
	Duc Trong: Lien Nghia	1♂, 8♀♀	12 November 2004	A Andersen	Potato
	Duc Trong: Lien Nghia	3♂♂, 5♀♀	12 November 2004	A Andersen	Pak-choi cabbage*
	Duc Trong: Lien Hiep	6♂♂, 30♀♀	12 November 2004	A Andersen	Leaf mustard
	Duc Trong: Lien Hiep	1♂, 2♀♀	12 November 2004	A Andersen	Tomato
	Duc Trong: Lien Hiep	6♂♂, 49♀♀	12 November 2004	A Andersen	Lettuce
	Duc Trong: Ba Choi	4♂♂, 1♀	12 November 2004	A Andersen	Tomato
	Duc Trong: Hiep An	72♂♂, 39♀♀	12 November 2004	A Andersen	Lettuce
	Don Duong: Thanh My	5♂♂, 3♀♀	13 November 2004	A Andersen	Tomato
	Don Duong: Thanh My	27♂♂, 47♀♀	13 November 2004	A Andersen	Lettuce
	Don Duong: Thanh My	2♂♂, 5♀♀	13 November 2004	A Andersen	Leaf mustard
	Don Duong: Ka Do	1♂, 60♀♀	13 November 2004	A Andersen	French bean + Leaf mustard
	Don Duong: Ka Do	12♂♂, 97♀♀	13 November 2004	A Andersen	Leaf mustard
	Don Duong: Ka Do	32♂♂, 31♀	13 November 2004	A Andersen	Tomato
	Don Duong: Lac Xuan	59♂♂, 18♀♀	13 November 2004	A Andersen	Lettuce
	Don Duong: Lac Xuan	17♂♂, 25♀♀	13 November 2004	A Andersen	Leaf mustard
	Don Duong: Lac Xuan	1♂, 4♀♀	13 November 2004	A Andersen	Tomato
	Da Lat: Phuong 7	53♂♂, 34♀♀	14 November 2004	A Andersen	Spinach
	Da Lat: Da Thien	50♂♂, 50♀♀	14 November 2004	A Andersen	Potato
	Da Lat: Phuong 7	28♂♂, 32♀♀	14 November 2004	A Andersen	Beet
	Da Lat: Phuong 7	3♂♂, 10♀♀	16 May 2006	A Andersen	Lettuce
	Da Lat: Phuong 8	24♂♂, 27♀♀	16 May 2006	A Andersen	Potato
	Da Lat: Phuong 8	30♂♂, 19♀♀	16 May 2006	A Andersen	Lettuce
	Da Lat: Phuong 8	2♂♂, 9♀♀	16 May 2006	A Andersen	Garden pea
	Da Lat: Phuong 8	4♂♂, 13♀♀	16 May 2006	A Andersen	French bean
	Da Lat: Phuong 8	1♂	16 May 2006	A Andersen	Onion
	Lac Xuan: Don Duong	1♂, 1♀	12 January 2007	A Andersen	Tomato
	Da Lat: Phuong 12	38♂♂, 42♀♀	12 January 2007	A Andersen	Potato
	Da Lat: Phuong 12	25♂♂, 25♀♀	12 January 2007	A Andersen	Chrysanthemum
Binh Phuoc	Dong Xoai: Tan Dong	5♂♂, 5♀♀	6 March 2004	A Andersen	Lettuce
	Dong Xoai: Tan Dong	1♂, 1♀	6 March 2004	A Andersen	Leaf mustard
Dong Nai	Bien Hoa: Tan Phong	1♂	10 March 2004	A Andersen	Leaf mustard
<b><i>Liriomyza bryoniae</i> (Kaltenbach, 1858)</b>					
Ha Noi	Gia Lam: Hanoi Agric Univ	16♂♂, 75♀♀	8 March - 15 May 2003	A Andersen	French bean
	Gia Lam + Dong Anh	1♂, 3♀♀	February - June 2005	T D Dang	-
Bac Ninh	Bac Ninh	10♂♂, 1♀	27 March 2003	A Andersen	Pumpkin
	Bac Ninh	1♂	27 March 2003	A Andersen	Tomato
	Bac Ninh	5♂♂, 1♀	27 March 2003	A Andersen	Leek
Quang Ninh	Dong Trieu: Mao Khe	1♀	25 April 2003	A Andersen	French bean
Hai Phong	Kien Thuy	2♂♂, 1♀	9 March 2003	A Andersen	Tomato
Hai Duong	Gia Loc	1♂	9 March 2003	A Andersen	French bean

## Appendix. Continued

Province	Locality	Fly material	Date of collection	Collector	Crop
<b><i>Liriomyza bryoniae</i> (Kaltenbach, 1858) Continued</b>					
Hung Yen	My Hao: Ban Yen Nhan	3♂♂	30 March 2003	A Andersen	Pumpkin
Thua Thien-Hue	Hue: Thuan Thanh	8♂♂, 13♀♀	15 January 2006	A Andersen	Leaf mustard
	Hue: Thuan Thanh	2♀♀	15 January 2006	A Andersen	Chrysanthemum
Da Nang	Hue: Thuan Thanh	10♂♂, 53♀♀	15 January 2006	A Andersen	Pak-choi cabbage
	Hue: Thuan Thanh	6♂♂, 18♀♀	15 January 2006	A Andersen	Lettuce
	Ngu Hanh Son: Khue My	5♂♂, 14♀♀	6 October 2005	A Andersen	Leaf mustard
	Ngu Hanh Son: Khue My	1♂, 30♀♀	5 October 2005	A Andersen	Lettuce
	Ngu Hanh Son: Khue My	18♂♂, 35♀♀	17 January 2006	A Andersen	Lettuce
Quang Nam	Ngu Hanh Son: Khue My	2♂♂, 78♀♀	17 January 2006	A Andersen	Leaf mustard
	Ngu Hanh Son: Khue My	6♂♂, 43♀♀	17 January 2006	A Andersen	Pak-choi cabbage
	Hoi An: Cam Ha	1♀	5 October 2005	A Andersen	Leaf mustard
	Hoi An: Cam Ha	3♀♀	5 October 2005	A Andersen	Pack-choi cabbage
	Thang Binh: Binh Trieu	1♀	18 January 2006	A Andersen	Leaf mustard
Binh Dinh	Quy Nhon: Nhon Phu	1♀	4 March 2004	A Andersen	Lettuce
Gia Lai	An Khe: Cu An	38♂♂	4 March 2004	A Andersen	Lettuce
	Anh Khe: Cu An	1♂	4 March 2004	A Andersen	French bean
	Pleiku: Yen The	1♀	5 March 2004	A Andersen	Pak-choi cabbage
Dak Lak	Pleiku: Thong Nhat	30♂♂, 30♀♀	5 March 2004	A Andersen	Lettuce
	Buon Ma Thuot: Tan Tien	3♀♀	5 March 2004	A Andersen	Longbean
	Buon Ma Thuot	1♂, 1♀	3 April 2003	T T A Tran	French bean
	Buon Ma Thuot	1♂, 2♀♀	3 April 2003	T T A Tran	Pak-choi cabbage
	Buon Ma Thuot: Tan Tien	7♂♂, 13♀♀	5 March 2004	A Andersen	Lettuce
	Buon Ma Thuot: Tan Tien	4♂♂, 7♀♀	5 March 2004	A Andersen	Pak-choi cabbage
	Buon Ma Thuot: Tan Tien	1♂	5 March 2004	A Andersen	French bean
	Buon Ma Thuot: Tan Tien	7♂♂	5 March 2004	A Andersen	Leaf mustard
Ninh Thuan	Thap Cham: Van Son	1♀	2 March 2004	A Andersen	White radish
Dak Nong	Dak Mil: Thuan An	1♂, 10♀♀	6 March 2004	A Andersen	Pak-choi cabbage
	Dak Mil: Thuan An	6♂♂, 8♀♀	6 March 2004	A Andersen	Lettuce
	Dak Mil: Thuan An	3♂♂, 1♀	6 March 2004	A Andersen	Pak-choi cabbage
	Cu Jut: Dak Ghenh	1♂, 1♀	6 March 2004	A Andersen	Cucumber
	Cu Jut: Dak Ghenh	2♂♂	6 March 2004	A Andersen	Pak-choi cabbage
	Cu Jut: Truc Son	1♀	6 March 2004	A Andersen	Sponge gourd
Dong Nai	Bien Hoa: Tan Phong	11♂, 11♀♀	10 March 2004	A Andersen	Leaf mustard
	Bien Hoa: Tan Phong	3♂♂, 2♀♀	10 March 2004	A Andersen	Lettuce
<b><i>Liriomyza trifolii</i> (Burgess, 1880)</b>					
Ha Noi	Gia Lam: Dang Xa	1♀	April 2006	T D Dang	Mungbean
Thua Thien-Hue	Hue: Thuan Thanh	1♂	15 January 2006	A Andersen	Chrysanthemum
Da Nang	Ngu Hanh Son: Khue My	1♂, 3♀♀	6 October 2005	A Andersen	Leaf mustard
	Ngu Hanh Son: Khue My	2♂♂, 2♀♀	6 October 2005	A Andersen	Lettuce
	Ngu Hanh Son: Khue My	1♀	17 January 2006	A Andersen	Lettuce
	Ngu Hanh Son: Khue My	1♂	17 January 2006	A Andersen	Leaf mustard
Quang Nam	Hoi An: Cam Ha	2♀♀	5 October 2005	A Andersen	Leaf mustard
Khanh Hoa	Nha Trang: Vinh Thanh	1♂	3 March 2004	A Andersen	Lettuce
Gia Lai	An Khe: Cu An	30♂♂	4 March 2004	A Andersen	Lettuce
	An Khe: Cu An	-	4 March 2004	A Andersen	Leaf mustard
	An Khe: Cu An	11♂♂, 49♀♀	4 March 2004	A Andersen	Celery
Dak Lak	Buon Ma Thuot	2♂♂, 2♀♀	3 April 2003	T T A Tran	French bean
	Buon Ma Thuot	1♂, 7♀♀	3 April 2003	T T A Tran	Leaf mustard
	Buon Ma Thuot: Tan Tien	16♂♂, 27♀♀	5 March 2004	A Andersen	Chrysanthemum
	Buon Ma Thuot: Tan Tien	1♂, 1♀	5 March 2004	A Andersen	Onion
	Buon Ma Thuot: Tan Tien	8♂♂, 70♀♀	5 March 2004	A Andersen	Lettuce
	Buon Ma Thuot: Tan Tien	1♂	5 March 2004	A Andersen	French bean
	Buon Ma Thuot: Tan Tien	2♂♂	5 March 2004	A Andersen	Leaf mustard
	Buon Ma Thuot: Tan Tien	2♂♂	6 March 2004	A Andersen	Pak-choi cabbage
Dak Nong	Cu Jut: Dak Ghenh	2♂♂	6 March 2004	A Andersen	Pak-choi cabbage
Lam Dong	Duc Trong: Ba Choi	1♀	12 November 2004	A Andersen	Tomato
	Da Lat: Phuong 8	1♂	16 May 2006	A Andersen	Potato
	Lac Xuan: Don Duong	1♂	12 January 2007	A Andersen	Tomato
Ninh Thuan	Thap Cham: Van Son	1♂	2 March 2004	A Andersen	Basil
Ho Chi Minh	Thu Duc: Tam Phu	10♂♂, 16♀♀	9 November 2004	A Andersen	Pak-choi cabbage
	Thu Duc: Tam Phu	8♂♂, 14♀♀	9 November 2004	A Andersen	Leaf mustard
	Thu Duc: Tam Phu	24♂♂, 29♀♀	12 November 2005	T T A Tran	Lettuce*
	Thu Duc: Tam Phu	250 ex	12 November 2005	T T A Tran	Pak-choi cabbage*
	Thu Duc: Tam Phu	250 ex	12 November 2005	T T A Tran	Chinese mustard

## Appendix. Continued

Province	Locality	Fly material	Date of collection	Collector	Crop
<b><i>Liriomyza trifolii</i> (Burgess, 1880) Continued</b>					
	Thu Duc: Tam Phu	26♂♂, 28♀♀	9 Nov 2004	T T A Tran	Leaf mustard
	Thu Duc: Tam Phu	21♂♂, 12♀♀	9 Nov 2004	T T A Tran	Pak-choi cabbage
	Thu Duc: Tam Phu	25♂♂, 25♀♀	9 Nov 2004	T T A Tran	Lettuce
Dong Nai	Thong Nhat: Quang Trung	6♂♂, 19♀♀	19 Nov 2004	A Andersen	Lettuce
	Bien Hoa: Tan Phong	8♂♂, 45♀♀	11 Nov 2005	T T A Tran	Leaf mustard
	Bien Hoa: Tan Phong	7♂♂, 9♀♀	25 Nov 2005	T T A Tran	Chinese mustard
	Bien Hoa: Tan Phong	11♂♂, 7♀♀	25 Nov 2005	T T A Tran	-
	Bien Hoa: Tan Phong	7♂♂, 4♀♀	11 Nov 2005	T T A Tran	White radish
	Bien Hoa: Tan Phong	15♂♂, 29♀♀	25 Nov 2005	T T A Tran	Lettuce
	Bien Hoa: Tan Phong	26♂♂, 50♀♀	11 Nov 2005	T T A Tran	Lettuce
	Bien Hoa: Tan Phong	15♂♂, 18♀♀	25 Nov 2005	T T A Tran	Chinese cabbage
	Bien Hoa: Tan Phong	23♂♂, 20♀♀	25 Nov 2005	T T A Tran	Pak-choi cabbage
	Bien Hoa: Tan Phong	14♂♂, 50♀♀	11 Nov 2005	T T A Tran	Pak-choi cabbage
Ba Ria-Vung Tau	Vung Tau	2♂♂, 24♀♀	9 Nov 2004	T T A Tran	Pak-choi cabbage*
	Vung Tau	1♂, 1♀	4 May 2004	T T A Tran	Pak-choi cabbage*
	Vung Tau	8♂♂, 9♀♀	4 May 2004	T T A Tran	Leaf mustard*
<b><i>Liriomyza chinensis</i> (Kato, 1949)</b>					
Bac Ninh	Bac Ninh	20♂♂, 12♀♀	27 March 2003	A Andersen	Leek
	Bach Ninh: Vo Cuong	6♂♂, 1♀	10 July 2005	T D Dang	Onion
Hung Yen	Van Lam: Nhu Quynh	7♂♂, 8♀♀	30 March 2003	A Andersen	Leek
Thanh Hoa	-	5♂♂, 5♀♀	19 June 2004	T T A Tran	Onion*
Nghe An	Quynh Luu: Quynh Luong	1♂, 1♀	11 January 2006	A Andersen	Onion
Quang Binh	Bo Trach: Dong Trach	11♂♂, 14♀♀	10 January 2006	A Andersen	Onion
Thua Thien-Hue	Hue	3♂♂, 14♀♀	15 February 2004	D H Tran	Onion*
	Hue	2♂♂, 3♀♀	17 February 2004	D H Tran	Onion*
	Huong Tra: Huong An	3♂♂, 5♀♀	15 March 2004	D H Tran	Onion*
	Huong Tra: Huong An	5♂♂, 17♀♀	15 January 2006	A Andersen	Onion
	Hue: Thuan Thanh	21♂♂, 22♀♀	15 January 2006	A Andersen	Onion
Da Nang	Ngu Hanh Son: Khue My	21♂♂, 18♀♀	6 October 2005	A Andersen	Onion
Quang Nam	Tam Ky	13♂♂, 21♀♀	17 March 2004	D H Tran	Onion*
	Hoi An: Cam Ha	4♂♂, 8♀♀	5 October 2005	A Andersen	Onion
	Hoi An: Cam Ha	7♂♂, 13♀♀	18 January 2006	A Andersen	Onion
Phu Yen	Tuy Hoa: Binh Ngoc	1♂, 16♀♀	3 March 2004	A Andersen	Onion
Gia Lai	An Khe: Cu An	6♂♂, 23♀♀	4 March 2004	A Andersen	Onion
Dak Lak	Buon Ma Thuot	3♂♂, 7♀♀	3 April 2003	T T A Tran	Onion
	Buon Ma Thuot: Tan Tien	4♂♂, 12♀♀	5 March 2004	A Andersen	Onion
Lam Dong	Da Lat: Phuong 8	1♀	16 May 2006	A Andersen	Onion
Ninh Thuan	Thap Cham: Van Son	3♂♂, 4♀♀	2 March 2004	A Andersen	-
Binh Duong	Tan Uyen: Thai Hoa	2♂♂, 7♀♀	10 March 2004	A Andersen	Onion
	Tan Uyen: Thai Hoa	1♂, 4♀♀	10 March 2004	A Andersen	Longbean
Dong Nai	Bien Hoa: Tan Ha	20♂♂, 20♀♀	10 March 2004	A Andersen	Onion
Long An	Can Duc: Phuoc Van	1♀	8 March 2004	A Andersen	Field cabbage
	Ben Luc: Phuoc Loi	3♂♂, 30♀♀	8 March 2004	A Andersen	Onion
Vinh Long	Long Ho: Phuoc Hau	1♀	9 March 2004	A Andersen	Pak-choi cabbage
	Vung Liem: Trung Thanh	8♂♂, 28♀♀	9 March 2004	A Andersen	Onion
Tra Vinh	Chau Thanh: Hoa Loi	1♂, 13♀♀	9 March 2004	A Andersen	Onion
Kien Giang	Vinh Thuan	15 ex	15 Feb 2005	T T A Tran	Onion
<b><i>Chromatomyia horticola</i> (Goureau, 1851)</b>					
Ha Noi	Gia Lam + Dong Anh	2♂♂, 3♀♀	February - June 2005	T D Dang	-
	Gia Lam: Dang Xa	3♂♂, 8♀♀	November 2005	T T G Ho	Cauliflower
	Gia Lam: Da Ton	2♂♂, 2♀♀	January 2005	T D Dang	Lettuce
Nghe An	Dien Chau: Dien Tinh	1♀	11 January 2006	A Andersen	Pak-choi cabbage
Ha Tinh	Duc Tho: Duc Xa	1♀	12 January 2006	A Andersen	Lettuce + Leaf mustard
Quang Binh	Bo Trach: Dong Trach	1♂	10 January 2006	A Andersen	Lettuce
	Dong Ha: Dong Thanh	1♂, 3♀♀	14 January 2006	A Andersen	Leaf mustard
	Dong Ha: Dong Giang	1♀	14 January 2006	A Andersen	Pak-choi cabbage
	Dong Ha: Dong Giang	1♂, 1♀	14 January 2006	A Andersen	Chrysanthemum
Quang Tri	Trieu Phong: Trieu Dong	4♂♂, 33♀♀	14 January 2006	A Andersen	Lettuce
Thua Thien-Hue	Hue	6♂♂, 5♀♀	23 February 2004	D H Tran	Leaf mustard*
	Huong Tra: Huong An	7♀♀	15 January 2006	A Andersen	Lettuce
	Hue: Thuan Thanh	2♀♀	15 January 2006	A Andersen	Leaf mustard
	Hue: Thuan Thanh	1♂, 2♀♀	15 January 2006	A Andersen	Chrysanthemum
	Hue: Thuan Thanh	10♂♂, 20♀♀	15 January 2006	A Andersen	Lettuce

## Appendix. Continued

Province	Locality	Fly material	Date of collection	Collector	Crop
<b><i>Chromatomyia horticola</i> (Goureau, 1851) Continued</b>					
Da Nang	Da Nang: Dien Ban	1♂	29 February 2004	D H Tran	Cucumber*
Dak Lak	Buon Ma Thuot: Tan Tien	1♂	5 March 2004	A Andersen	Lettuce
Lam Dong	Da Lat	1♀	25 December 2002	T T A Tran	French bean
	Don Duong	1♂, 1♀	26 December 2002	T T A Tran	Onion
	Da Lat	2♂♂, 4♀♀	December 2002	T T A Tran	Garden pea
	Don Duong: Lac Xuan	1♂	13 November 2004	A Andersen	Lettuce
	Da Lat: Phuong 7	1♂	14 November 2004	A Andersen	Beet
	Da Lat: Phuong 8	1♀	16 May 2006	A Andersen	Garden pea
	Da Lat: Phuong 8	1♀	16 May 2006	A Andersen	Lettuce
	Da Lat: Phuong 12	1♂	12 January 2007	A Andersen	Potato
	Da Lat: Phuong 12	1♀	12 January 2007	A Andersen	Chrysanthemum