# CHAPTER 3

## Results

A total of twenty three whole larvae, nineteen larval exuviae (including eighteen larval exuviae of *Lt. vorax* from Tokyo), sixty five pupal exuviae, forty two adult males, and forty three adult females of *Lutzia* were examined. The collecting data were tabulated (Appendix) and the distribution map of *Lutzia* is shown in Figure 3.1

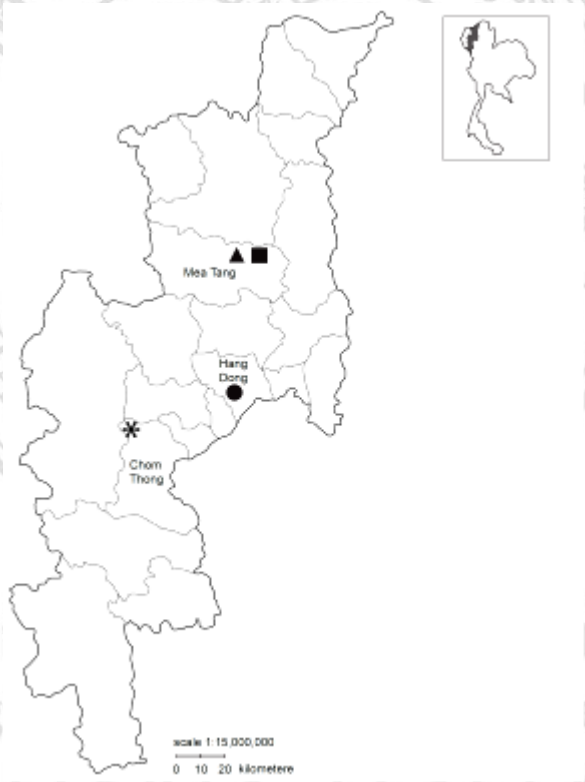


**Figure 3.1** Map showing locality of *Lutzia* collection: ● = *Lt. fuscana* (n= 15), ■ = *Lt. vorax* Ban Pang Mai Daeng (n= 27), ▲ = *Lt. halifaxii* (n=9), and ✱ = *Lt. vorax* from Doi Inthanon (n=66).

Forty eight adults with associated pupal exuviae were examined. Based on the abdominal banding patterns, the adults obtained from larvae and pupae collected from Doi Inthanon were all identified as *Lt. vorax* whereas only *Lt. fuscana* were collected at Mae Hia. At Ban Pang Mai Daeng, *Lt. vorax* and less commonly *Lt. halifaxii* were found. The adult specimens from Tokyo were all *Lt. vorax* as described by Edwards (1921).

However, *Lt. vorax* from Doi Inthanon differs from *Lt. vorax* from Ban Pang Mai Daeng in many aspects as follows. The adult of the former has the mcu crossvein of wing venation slightly placed beyond the rm whereas in the latter, the mcu is mostly before the rm (Table 3.1). The color of scales of apical pale bands on abdomen of the former is creamy white but pale yellowish in the latter (Figure 3.2).

**Table 3.1** Comparison of wing venetions of adult male and female *Lutzia* (n=91).

| Species (n) | Placing of cross vein mcu | | |
|---|---|---|---|
| | before rm | equal to rm | beyond rm |
| *Lt. fuscana* (♂=5, ♀=7) | 100% | – | – |
| *Lt. halifaxii* (♂=4, ♀=5) | 100% | – | – |
| *Lt. vorax* Ban Pang Mai Daeng (♂=15, ♀=10) | 88% | 12% | – |
| *Lutzia* sp. from Doi Inthanon (♂=20, ♀=25) | – | – | 100% |

**Figure 3.2** The abdominal banding patterns of *Lt. vorax* from Doi Inthanon (left) and from Ban Pang Mai Daeng (right).

The larvae of *Lt. vorax* from Doi Inthanon and *Lt. vorax* from Ban Pang Mai Daeng were generally similar. However, three distinct differences were observed. Seta 1-M of *Lt. vorax* from Doi Inthanon is usually branched whereas that of *Lt. vorax* from Ban Pang Mai Daeng is usually single (Tables 3.2 & 3.3). Seta 8-II,III of *Lt. vorax* from Doi Inthanon is usually single whereas that of *Lt. vorax* from Ban Pang Mai Daeng is usually branched. *Lutzia vorax* larvae from Tokyo have setae 1-M usually branched and 8-II,III single. The modal number of comb scales in *Lt. vorax* from Doi Inthanon was 56 (42–62, mean 52.89) which was not significantly different from *Lt. vorax* from Tokyo (mode 44, 38–66, mean 48.78) but was significantly higher than *Lt. vorax* from Ban Pang Mai Daeng (mode 38, 32–45, mean 38.70) (Table 3.4).

**Table 3.2** Range (mode) of the branching of abdominal setae 1-M, 8-II, and 8-III of larvae of *Lt. fuscana*, *Lt. halifaxii*, *Lt. vorax* from Pang Mai Daeng and *Lt. vorax* from Doi Inthanon compared with *Lt. vorax* from Tokyo.

| Species (n) | Setae | | |
|---|---|---|---|
| | 1–M | 8–II | 8–III |
| *Lt. fuscana* (4) | 1–2 ($1^{**}$) | 2 ($2^{\dagger}$) | 1–2 ($2^{**}$) |
| *Lt. halifaxii* (7) | 1–2 ($1^{***}$) | 1–2 ($2^{**}$) | 1–2 ($2^{**}$) |
| *Lt. vorax* Ban Pang Mai Daeng (16) | 1–2 ($1^{***}$) | 1–2 ($2^{**}$) | 1–2 ($2^{***}$) |
| *Lt. vorax* from Doi Inthanon (18) | 1–2 ($2^{*}$) | 1–2 ($1^{**}$) | 1–2 ($1^{***}$) |
| *Lt. vorax* from Tokyo (18) | 1–2 ($2^{**}$) | 1–2 ($1^{***}$) | 1 ($1^{\dagger}$) |

*: the case occurring in 70–79%, **: the case occurring in 80–89%, ***: the case occurring in 90–99%, and †: the case occurring in 100%.

**Table 3.3** Detail of setae 1-M, 8-II, and 8-III.

| Species (n) | Percentage of specimens | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1-M | | | 8-II | | | 8-III | | |
| | one side single | both sides | | one side single | both sides | | one side single | both sides | |
| | the other branched | single | branched | the other branched | single | branched | the other branched | single | branched |
| *Lt. fuscana* (4) | 25 | 75 | – | – | – | 100 | 33.3 | – | 66.7 |
| *Lt. halifaxii* (7) | 14.3 | 85.7 | – | 28.6 | – | 71.4 | 28.6 | – | 71.4 |
| *Lt. vorax* Ban Pang Mai Daeng (15) | 7.7 | 92.3 | – | 21.4 | 7.1 | 71.4 | 13.3 | 6.7 | 80 |
| *Lt. vorax* from Doi Inthanon (18) | 33.3 | 11.1 | 55.6 | 16.7 | 77.8 | 5.6 | 11.1 | 88.9 | – |
| *Lt. vorax* from Tokyo (17) | 11.8 | 5.9 | 82.3 | 5.9 | 88.2 | 5.9 | – | 100 | – |

**Table 3.4** Range and average of the number of comb scales of larvae of *Lt. fuscana*, *Lt. halifaxii*, *Lt. vorax* from Pang Mai Daeng and *Lt. vorax* from Doi Inthanon compared with *Lt. vorax* from Tokyo.

| Species (n) | number of comb scales | |
|---|---|---|
| | range | average |
| *Lt. fuscana* (4) | 34–40 | 36.3 |
| *Lt. halifaxii* (7) | 33–41 | 37.4 |
| *Lt. vorax* Ban Pang Mai Daeng (16) | 35–45 | 39.6 |
| *Lt. vorax* from Doi Inthanon (18) | 42–62 | 52.9 |
| *Lt. vorax* from Tokyo (18) | 38–60 | 46.5 |

The integument of *Lt. vorax* from Doi Inthanon is covered with relatively short pointed spicules, similar to *Lt. vorax* from Japan, whereas it is covered by denser, longer and more sharply pointed spicules in *Lt. vorax* from Ban Pang Mai Daeng (Figures 3.3 & 3.4). The integumental spicules of *Lt. fuscana* and *Lt. halifaxii* observed under bright field microscopy are similar to those of *Lt. vorax* from Ban Pang Mai Daeng. The spicules are clearly seen under scanning electron microscopy (Figure 3.5). The illustrations of larval chaetotaxy are presented in Figures 3.6–3.8.

**A**

**B**

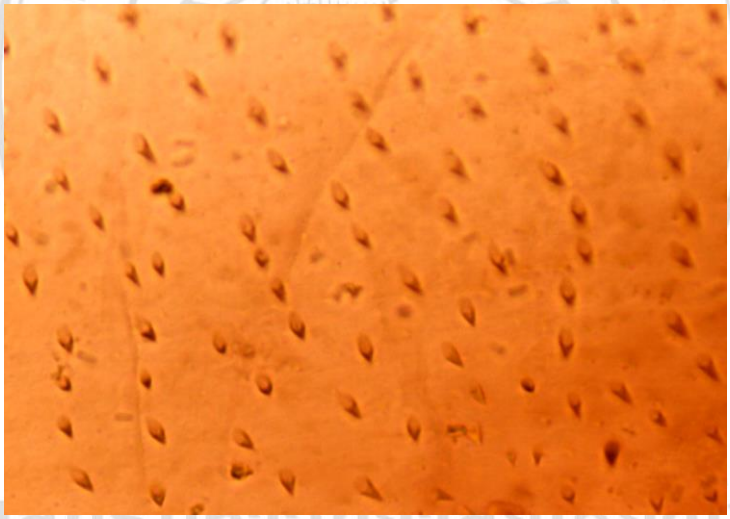

**Figure 3.3** Integumental spicules of *Lt. vorax* from Doi Inthanon: A, dorsal mesothorax; B, dorsal abdominal segment VIII.

**A**

**B**

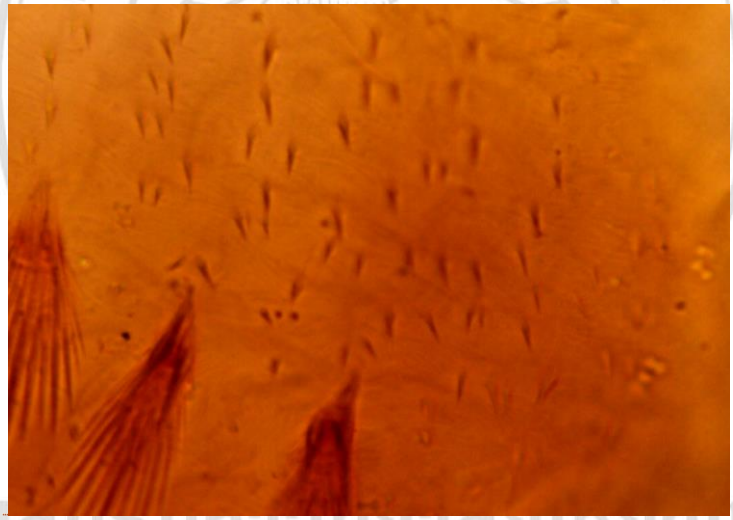

**Figure 3.4** Integumental specules of *Lt. vorax* from Ban Pang Mai Daeng: A, dorsal mesothorax; B, dorsal abdominal segment VIII.

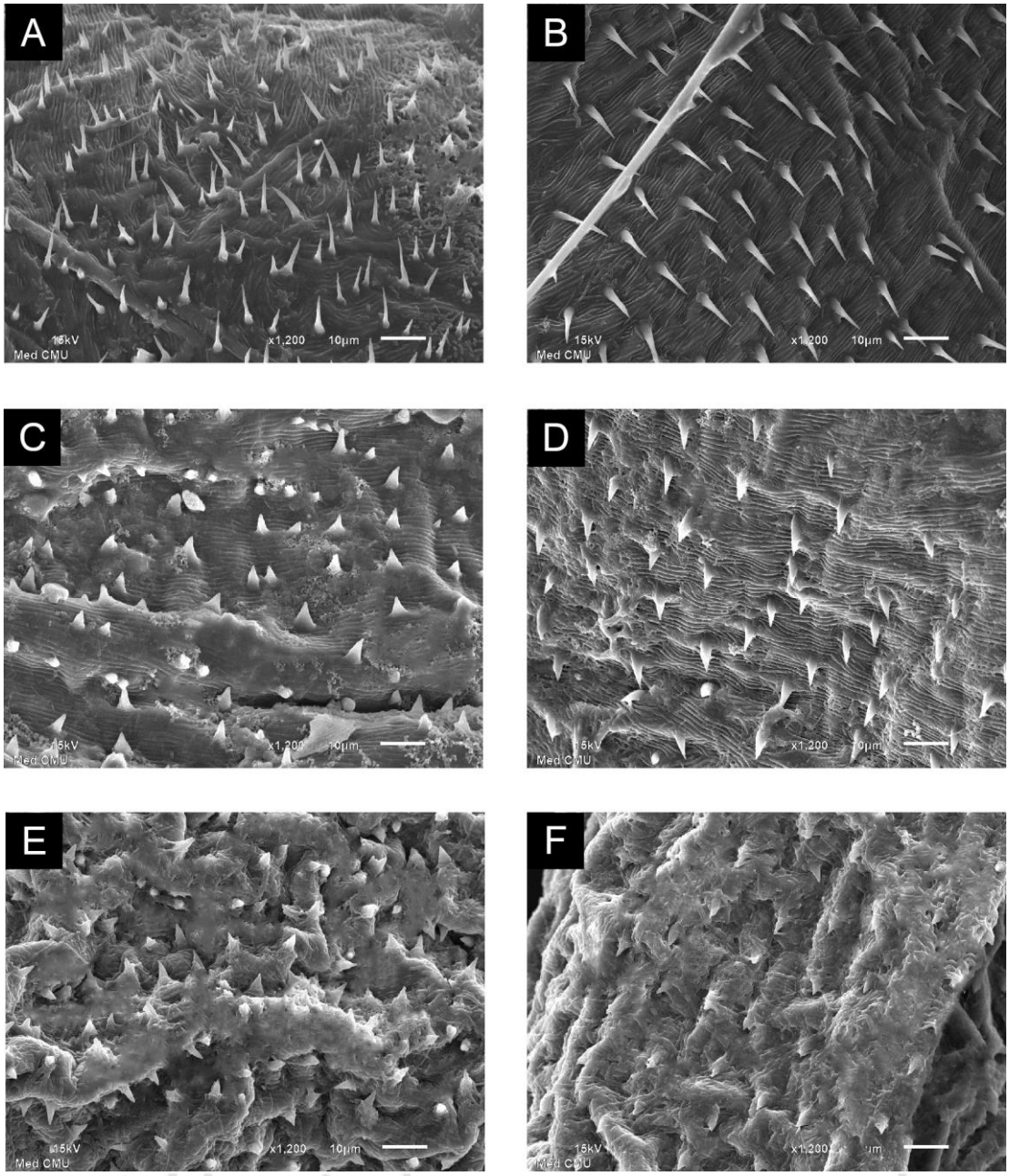




**Figure 3.5** Scanning electron microscopy of *Lutzia* larvae showing spicules on the dorsal mesothorax (left) and abdominal segment VIII (right): A & B, *Lt. vorax* from Ban Pang Mai Daeng; C & D, *Lt. vorax* from Doi Inthanon; E & F, *Lt. vorax* from Tokyo.

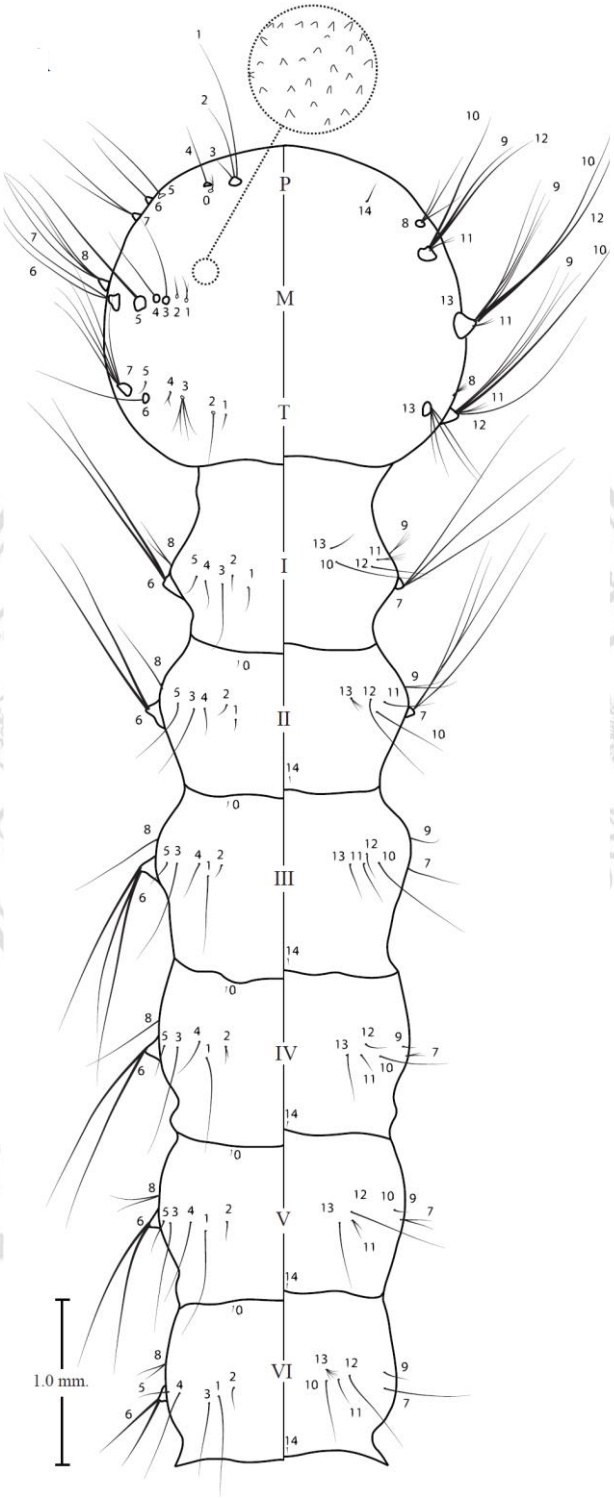


**Figure 3.6** Illustration of thorax and I–VI abdominal segments of forth-instar larva of *Lt. vorax* from Doi Inthanon. Dorsal view (left), ventral view (right).

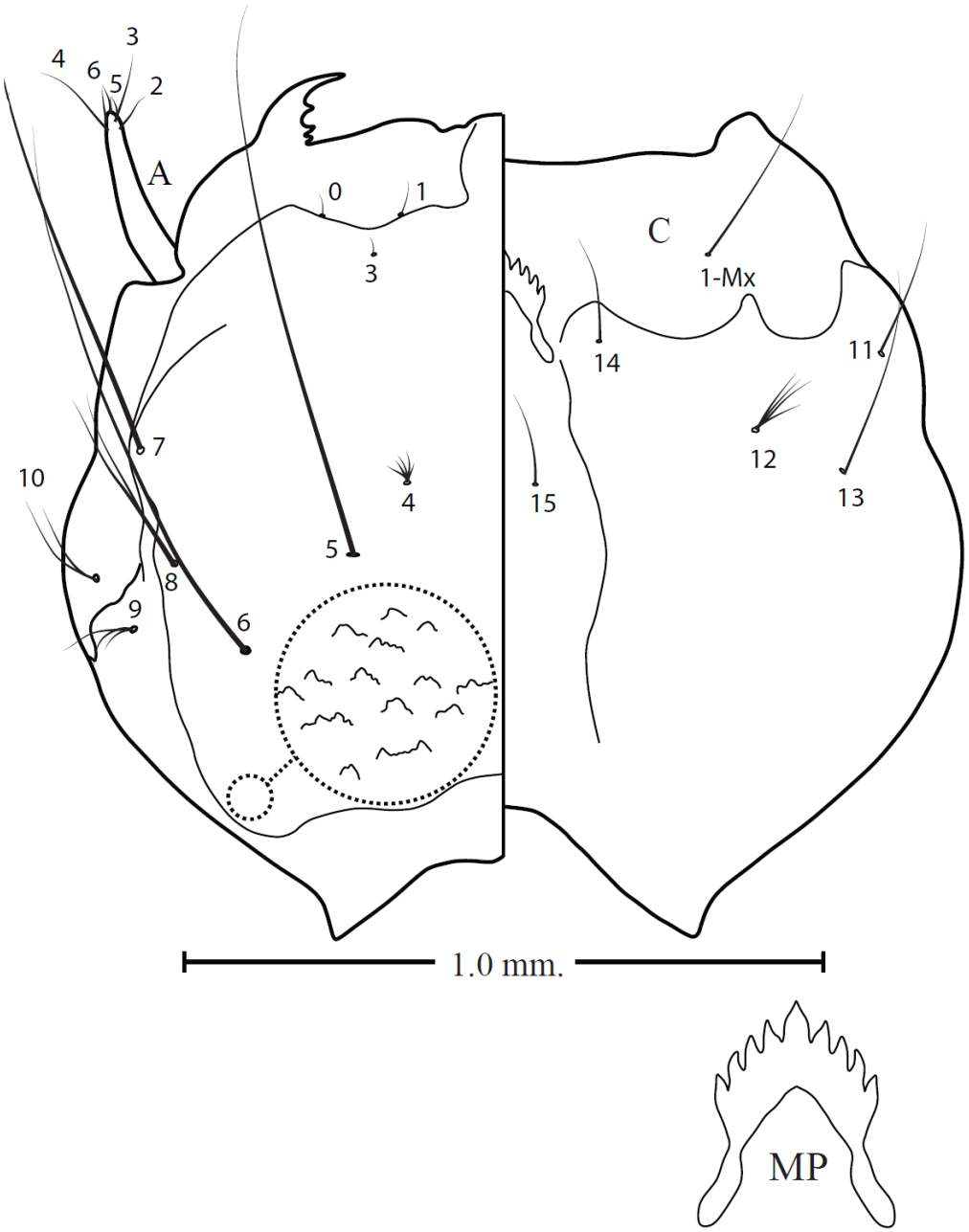




**Figure 3.7** Illustration of head capsule of forth-instar larva of *Lt. vorax* from Doi Inthanon. Dorsal view (left), ventral view (right).

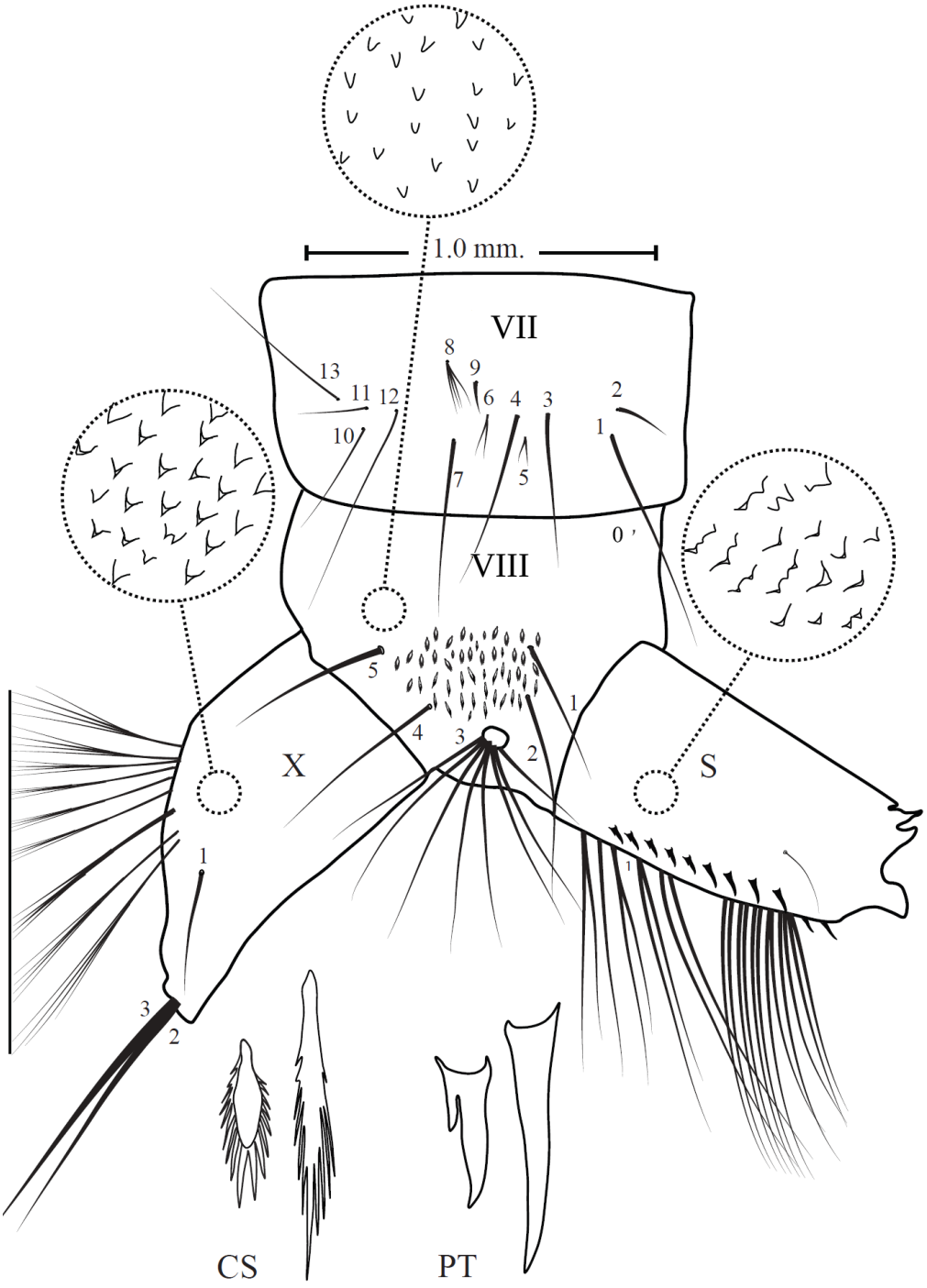


**Figure 3.8** Illustration of VII–X abdominal segments and siphon of forth-instar larva of *Lt. vorax* from Doi Inthanon.

The pupae of *Lt. vorax* from Doi Inthanon clearly differ from the pupae of *Lt. fuscana*, *Lt, halifaxii* and *Lt. vorax* from Ban Pang Mai Daeng in having setae 1 and 5 of abdominal segments V and VI mostly single whereas those of the other species are branched (Tables 3.5–3.8). The setae of *Lt. vorax* from Dai Inthanon, particularly setae 1-V,VI and 5-V,VI, are similar to those of *Lt. vorax* from Japan reported by Tanaka (2003) (Table 3.9). No clear differences on setal branching were observed in pupae of *Lt. fuscana*, *Lt. halifaxii* and *Lt. vorax* from Ban Pang Mai Daeng.

The description of *Lt. vorax* pupa from Doi Inthanon (♂=10, ♀=10) is as follows (Figure 3.9): Abdominal length: 4–5.23 mm. (average 4.8 mm.). Trumpet length: 0.86–1.05 mm. (average 0.96 mm.), index: 2.84–4.55 mm. (average 3.8 mm.). Pinna 0.3–0.48 (average 0.39 times) length of trumpet. Paddle: length 1.05–1.22 mm. (average 1.13 mm.), width 0.93–1.06 mm. (average 0.99 mm.). Cephalothorax. Seta 1-C usually single, except only 1 specimen double, 2–8 C simple, all single. Metanotum. Seta 10-C long with 3–5 branches; 11-C single, slightly longer than 10-C; 12-C single, shorter than about half time of 11-C. Abdomen. Seta 1-I dendritic with 40–53 branches, the longest seta of 1-I as long as 1–1.689 (average 1.39) times of length of side of segment I; 1-II short with 4–7 branches, as long as 0.24–0.43 (average 0.31) times of length of side of segment II; 1-III 5–6 branches, the longest seta slightly shorter than the longest seta of 1-I, as long as 0.58–0.85 (average 0.68) times of length of side of segment III; 1-IV long (nearly reaching next tergum), as long as 0.89–1.18 (average 0.94) times of length of side of segment IV, thick stem and double; 1-V dark, slightly thicker and longer than 1-IV; 1-VI slightly shorter than 1-V, the same of magnitude as 1-V, as long as 0.85–1.11 (average 0.94) times of length of side of segment VI; 1-VII thin as almost simple setae, 0.67–0.8 (average 0.74) times of length of side of segment VII, single; 2-I–VII weak, very short, all single; 3-I–VLL usually single except 3-IV forked, 3-I thick and sharp, equal to the longest seta of 1-I; 5-I short, forked, with 3–7 branched; 5-II single, magnitude as almost simple seta, as long as 0.76–1.03 (average 0.86) times of the length of side of segment II; 5-III–IV double, 5-III as long as 0.69–0.88 (average 0.77) times of the length of side of segment III, as thick as 5-II and slightly longer than 5-II, 5-IV as thick and long as 1-IV, as long as 0.88–1.12 (average 1.09) times of the length of side of segment IV; 5-V–VI single, 5-V as long as 0.96–1.23 (average 1.09)

times of the length of side of segment V, slightly thicker and longer than 1-V, 5–VI slightly shorter than 5-V, as long as 0.88–1.15 (average 0.99) times of the length of side of segment VI, as thick as 5-V and, 5-VII single simple; 9-I with 1-3 branched, forked; 9-II–VI single, short; 9-VII thick, barbed with 5–6 branched as long as 0.34–0.43 (average 0.38) times of the length of side of segment VII; 9-VIII barbed, thicker than 9-VII with 6–9 branched, the longest setae longer than the length of side of segment VIII 0.63–0.74 (average 0.69) times. Paddle. Ovoid; 1-P single, as long as 0.25–0.36 (average 0.28) times length of 2-P, and 0.03–0.04 (average 0.03) times length of paddle; 2-P with 1–3 branches.

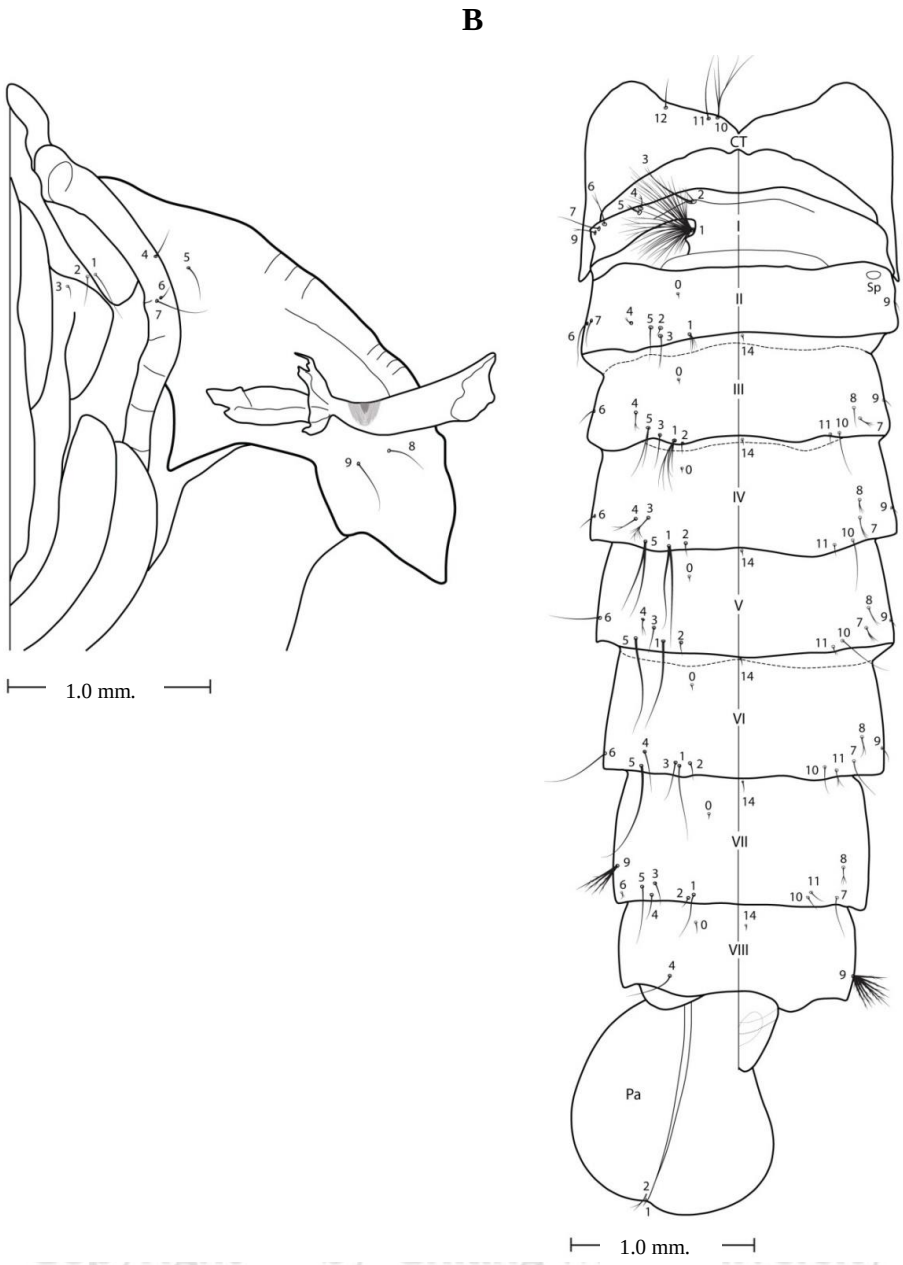


**Figure 3.9** Illustrations of pupal exuviae of *Lt. vorax* from Doi Inthanon: A, ventral view of cephalothorax (left); B, dorsal view (left) and ventral view (right) of metathorax and abdomen.

**Table 3.5** Range (mode) of the branching of abdominal setae of male and female *Lt. fuscana* (male; n=4, female; n=5).

| Seta. | Cephalothorax | Abdominal segments | | | | | | | | Paddle |
|---|---|---|---|---|---|---|---|---|---|---|
| no. | CT | I | II | III | IV | V | VI | VII | VIII | Pa |
| 0 | – | – | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | – |
| 1 | 1 (1) | 32–66 (–) | 3–6 (4) | 4–10 (7) | 3–7 (5) | 2–4 (2) | 1–3 (2,3) | 1–2 (1) | – | 1–2 (1) |
| 2 | 1–2 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1–2 (1) | 1–2 (1) | – | 1–4 (2) |
| 3 | 1–2 (1) | 1–3 (1) | 1–2 (1) | 1–2 (1) | 4–9 (5) | 1–2 (2) | 1 (1) | 1 (1) | – | – |
| 4 | 1 (1) | 2–5 (3) | 1–3 (2) | 2–5 (3) | 2–3 (2) | 2–4 (2) | 1–2 (1) | 1–2 (1) | 1 (1) | – |
| 5 | 1–2 (1) | 2–5 (4) | 1–2 (1) | 2–6 (4) | 3–8 (4) | 2–4 (2) | 1–4 (2) | 1–2 (1) | – | – |
| 6 | 1 (1) | 1 (1) | 1–2 (1) | 1 (1) | 1 (1) | 1–2 (1) | 1–3 (1) | 2–4 (2) | – | – |
| 7 | 1 (1) | 1–2 (1) | 1–2 (1) | 3–7 (5) | 2–4 (3) | 1–4 (3) | 1 (1) | 1 (1) | – | – |
| 8 | 1 (1) | – | – | 2–5 (4) | 2–5 (2) | 1–4 (2) | 1–3 (1,2) | 1–3 (2) | – | – |
| 9 | 1 (1) | 1–2 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 5–9 (5) | 8–14 (10) | – |
| 10 | 2–10 (6) | – | – | 1 (1) | 1–3 (1) | 1–2 (1) | 1–2 (1) | 1 (1) | – | – |
| 11 | 1–2 (1) | – | – | 1–2 (1) | 1 (1) | 1–3 (1) | 1–3 (1) | 1 (1) | – | – |
| 12 | 1 (1) | – | – | – | – | – | – | – | – | – |
| 14 | – | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | – |

**Table 3.6** Range (mode) of the branching of abdominal setae of male and female *Lt. halifaxii* (male; n=4, female; n=4).

| Seta. | Cephalothorax | Abdominal segments | | | | | | | | Paddle |
|---|---|---|---|---|---|---|---|---|---|---|
| no. | CT | I | II | III | IV | V | VI | VII | VIII | Pa |
| 0 | – | – | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | – |
| 1 | 2–1 (1) | 42–68 (–) | 2–6 (4) | 6–12 (8) | 3–7 (5) | 2–3 (3) | 2–3 (2) | 1 (1) | – | 1–2 (1) |
| 2 | 1–2 (1) | 1–2 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | – | 1–2 (1) |
| 3 | 1–4 (1) | 1–2 (1) | 1 (1) | 1–5 (1) | 4–10 (5) | 1–2 (1) | 1 (1) | 1 (1) | – | – |
| 4 | 1 (1) | 2–7 (3,4) | 1–3 (1) | 2–5 (2) | 1–2 (2) | 1–2 (2) | 1–2 (1) | 1 (1) | 1 (1) | – |
| 5 | 1 (1) | 2–4 (4) | 1–3 (1) | 3–5 (3) | 3–6 (4) | 2–4 (3) | 2–3 (3) | 1 (1) | – | – |
| 6 | 1–2 (1) | 1–2 (1) | 1–2 (1) | 1–2 (1) | 1–2 (1) | 1 (1) | 1 (1) | 2–3 (2,3) | – | – |
| 7 | 1 (1) | 1–2 (1) | 1 (1) | 2–7 (3) | 1–4 (2) | 2–6 (3,4) | 1 (1) | 1–2 (1) | – | – |
| 8 | 1–2 (1) | – | – | 2–5 (4) | 1–6 (3) | 1–4 (2) | 1–4 (3) | 2–5 (3) | – | – |
| 9 | 1 (1) | 1–3 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 4–7 (5) | 6–13 (11) | – |
| 10 | 3–5 (4) | – | – | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | – | – |
| 11 | 1 (1) | – | – | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1–2 (1) | – | – |
| 12 | 1 (1) | – | – | – | – | – | – | – | – | – |
| 14 | – | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1–2 (1) | 1 (1) | 1 (1) | 1–2 (1) | – |

**Table 3.7** Range (mode) of the branching of abdominal setae of male and female *Lt. vorax* Ban Pang Mai Daeng (male; n=5, female; n=5).

| Seta. | Cephalothorax | Abdominal segments | | | | | | | | Paddle |
|---|---|---|---|---|---|---|---|---|---|---|
| no. | CT | I | II | III | IV | V | VI | VII | VIII | Pa |
| 0 | – | – | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | – |
| 1 | 1 (1) | 33–57 (–) | 3–9 (5) | 5–13 (7) | 4–7 (5) | 2–4 (2) | 2–3 (2) | 1 (1) | – | 1 (1) |
| 2 | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | – | 1–2 (1) |
| 3 | 1–2 (1) | 1–2 (1) | 1 (1) | 1–2 (1) | 4–8 (5) | 1 (1) | 1–2 (1) | 1 (1) | – | – |
| 4 | 1 (1) | 2–5 (4) | 2–3 (2) | 2–5 (2) | 1–4 (2) | 1–4 (3) | 1–2 (2) | 1 (1) | 1–2 (1) | – |
| 5 | 1 (1) | 2–6 (4) | 1–2 (1) | 3–6 (3) | 3–7 (4,5) | 2–4 (3) | 1–3 (2) | 1 (1) | – | – |
| 6 | 1–2 (1) | 1–2 (1) | 1–2 (1) | 1–2 (1) | 1–2 (1) | 1 (1) | 1 (1) | 1–3 (2) | – | – |
| 7 | 1 (1) | 1 (1) | 1 (1) | 2–5 (4) | 1–4 (2,3) | 2–5 (3) | 1–2 (1) | 1–2 (1) | – | – |
| 8 | 1 (1) | – | – | 2–4 (4) | 2–6 (–) | 2–4 (3) | 1–4 (2) | 1–4 (2) | – | – |
| 9 | 1 (1) | 1–3 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 4–8 (5) | 8–13 (11) | – |
| 10 | 2–7 (5) | – | – | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | – | – |
| 11 | 1–2 (1) | – | – | 1 (1) | 1–2 (1) | 1–2 (1) | 1–2 (1) | 1 (1) | – | – |
| 12 | 1 (1) | – | – | – | – | – | – | – | – | – |
| 14 | – | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | – |

**Table 3.8** Range (mode) of the branching of abdominal setae of male and female *Lt. vorax* from Doi Inthanon (male; n=10, female; n=11).

| Seta. | Cephalothorax | Abdominal segments | | | | | | | | Paddle |
|---|---|---|---|---|---|---|---|---|---|---|
| no. | CT | I | II | III | IV | V | VI | VII | VIII | Pa |
| 0 | – | – | 1–2 (1) | 1 (1) | 1 (1) | 1–2 (1) | 1 (1) | 1 (1) | 1–2 (1) | – |
| 1 | 1–2 (1) | m | 2–10 (4) | 3–6 (5) | 1–2 (2) | 1 (1) | 1 (1) | 1 (1) | – | 1 (1) |
| 2 | 1–2 (1) | 1–2 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | – | 1–3 (1) |
| 3 | 1–2 (1) | 1–3 (1) | 1–2 (1) | 1–3 (1) | 2–7 (3) | 1 (1) | 1–2 (1) | 1 (1) | – | – |
| 4 | 1 (1) | 2–7 (4) | 1–3 (2) | 2–4 (3) | 1–6 (2) | 1–3 (2) | 1 (1) | 1 (1) | 1–2 (1) | – |
| 5 | 1 (1) | 1–4 (2) | 1–2 (1) | 1–3 (1) | 1–3 (2) | 1–2 (1) | 1–2 (1) | 1 (1) | – | – |
| 6 | 1 (1) | 1–3 (1) | 1–3 (1) | 1–3 (1) | 1–3 (1) | 1–3 (1) | 1–3 (1) | 1–4 (2) | – | – |
| 7 | 1 (1) | 1–3 (1) | 1–3 (1) | 3–7 (4) | 1–4 (2) | 1–4 (3) | 1–3 (1) | 1–3 (1) | – | – |
| 8 | 1–2 (1) | – | – | 1–4 (2) | 1–4 (2) | 1–5 (2) | 1–4 (2) | 1–4 (2) | – | – |
| 9 | 1 (1) | 1–4 (2) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 2–6 (4) | 5–12 (9) | – |
| 10 | 2–9 (6) | – | – | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1 (1) | – | – |
| 11 | 1–2 (1) | – | – | 1 (1) | 1 (1) | 1–2 (1) | 1–2 (1) | 1 (1) | – | – |
| 12 | 1–2 (1) | – | – | – | – | – | – | – | – | – |
| 14 | – | 1 (1) | 1 (1) | 1 (1) | 1 (1) | 1–2 (1) | 1–2 (1) | 1 (1) | 1 (1) | – |

**Table 3.9** Range (mode) of the branching of abdominal setae 1-III, VI, V, VI and 5-III, IV, V, VI of pupae of *Lt. fuscana* (4 males, 5 females), *Lt. vorax* from Ban Pang Mai Daeng (5 males, 5 females), *Lt. halifaxii* (4 males, 4 females), and *Lt. vorax* from Doi Inthanon (10 males, 11 females) compared with Tanaka (2003).

| Setae | Species (n) | Abdominal segments | | | | Studies |
|---|---|---|---|---|---|---|
| | | III | IV | V | VI | |
| 1 | *Lt. fuscana* (9) | 4—10 (7) | 3—7 (5) | 2—4 (2) | 1—3 (2,3) | This study |
| | *Lt. vorax* Ban Pang Mai Daeng (10) | 5—13 (7) | 4—7 (5) | 2—4 (2) | 2—3 (2) | |
| | *Lt. halifaxii* (8) | 6—12 (8) | 3—7 (5) | 2—3 (3) | 2—3 (2) | |
| | *Lt. vorax* from Doi Inthanon (21) | 3—6 (5) | 1—2 (2) | 1 (1) | 1 (1) | |
| | *Lt. fuscana* (5) | 6—11 (9) | 2—6 (5,6) | 1—3 (2) | 1—2 (2*) | Tanaka, 2003 |
| | *Lt. vorax* (20) | 4—14 (7) | 2—9 (3) | 1—4 (1) | 1—2 (1*) | |
| 5 | *Lt. fuscana* (9) | 2—6 (4) | 3—8 (4) | 2—4 (2) | 1—4 (2) | This study |
| | *Lt. vorax* Ban Pang Mai Daeng (10) | 3—6 (3) | 3—7 (4,5) | 2—4 (3) | 1—3 (2) | |
| | *Lt. halifaxii* (8) | 3—5 (3) | 3—6 (4) | 2—4 (3) | 2—3 (3) | |
| | *Lt. vorax* from Doi Inthanon (21) | 1—3 (1) | 1—3 (2) | 1—2 (1) | 1—2 (1) | |
| | *Lt. fuscana* (5) | 1—7 (5) | 1—7 (6) | 1—3 (3) | 1—3 (2) | Tanaka, 2003 |
| | *Lt. vorax* (20) | 1—5 (2) | 1—7 (2) | 1—4 (2) | 1—3 (1*) | |

*, the case occurring in 80% or more [Tanaka (2003)'s data].