

This is an English summary of the original Japanese article:

[ゲンジボタルとヘイケボタルにレンシュの法則はあてはまるか？](#)

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Tests of Rensch's rule in the Japanese fireflies *Luciola cruciata* and *L. lateralis*

Yutaka Iguchi

E-mail: bio.iguchi@gmail.com

Laboratory of Biology

Yamashita-cho 1-10-6, Okaya, Nagano Prefecture, 394-0005 Japan

BACKGROUND

Rensch's rule states that sexual size dimorphism increases with body size in animals where males are the larger sex and decreases with body size in those where females are the larger sex. There have been many studies on this rule, but it is not yet examined in fireflies where females are larger. I examined the validity of this rule in the Japanese fireflies *Luciola cruciata* and *L. lateralis*.

METHODS

Specimens of fireflies were collected in 14 sites in Nagano Prefecture, Japan (Fig. 1). Male and female body lengths were measured, and then allometry between male and female body lengths was calculated by major axis analysis.

RESULTS

In the regression of female body length on male body length, the slope of the allometric equation was greater than 1 in both species ($p < 0.02$ for *L. cruciata* and $p = 0.35$ for *L. lateralis*, Fig. 2). This indicates that although females are the larger sex, sexual size dimorphism increases with body size in both species.

CONCLUSIONS

Neither species is likely to conform to Rensch's rule, although the allometric slope was not significant in *L. lateralis*.

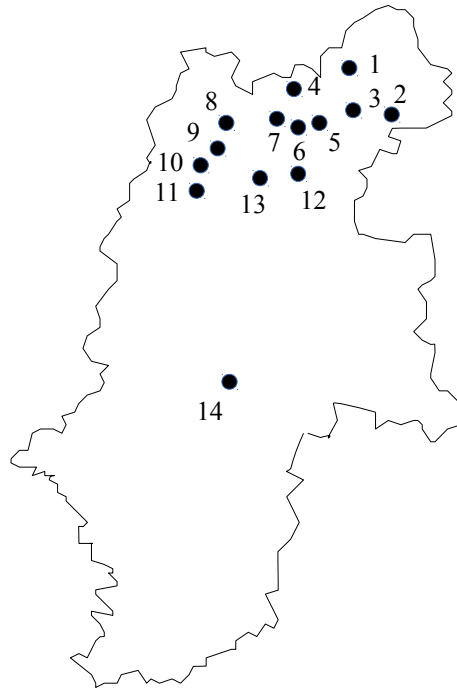


Fig. 1 Map of study sites in Nagano Prefecture. 1: Iiyama, 2: Shigakogen, 3: Nakano, 4: Shinano, 5: Toyono, 6: Sakanaka, Nagano, 7: Sakayachi, Nagano, 8: Kinasa, Nagano, 9: Ogawa, 10: Miasa, Omachi, 11: Iyari, Omachi, 12: Matsushiro, Nagano, 13: Noguchi, Nagano, 14: Matsuo-kyo, Tatsno.

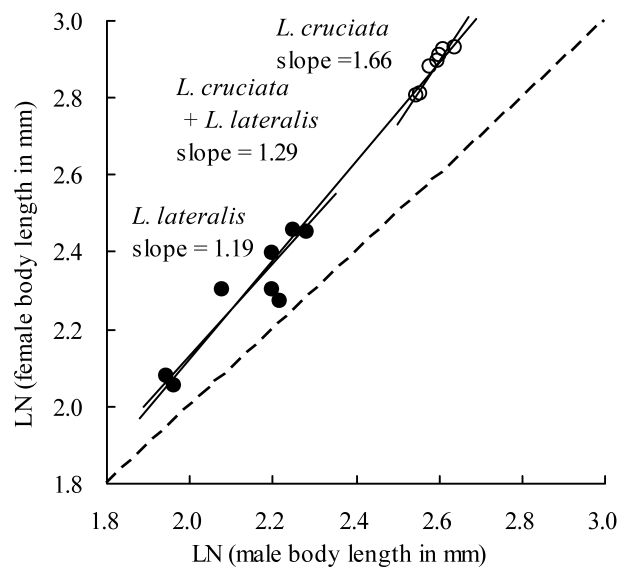


Fig. 2 Variation in male and female body length in *Luciola cruciata* and *L. lateralis*. Dashed line indicates that male body length is equal to female body length. LN denotes natural logarithm.