“Read Me” file for data presented in:

**Sexual differences in within- and trans-generational plasticity of induced morphological defense in small brown planthoppers**

Jian Wen\* and Takatoshi Ueno

Institute of Biological Control, Faculty of Agriculture, Kyushu University, Fukuoka, 819- 0395, Japan

\*to whom inquiries should be addressed:

E-mail: arcwenjian@gmail.com

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**General information**

**1. Title of dataset**

Sexual differences in within- and trans-generational plasticity of induced morphological defense in small brown planthoppers

**2. Author information**

A. Principal Investigator Contact Information

Name: Jian Wen

Institution: Institute of Biological Control, Faculty of Agriculture, Kyushu University,

Address: Fukuoka, 819- 0395, Japan

E-mail: arcwenjian@gmail.com

B. Associate or Co-investigator Contact Information

Name: Takatoshi Ueno

Institution: Institute of Biological Control, Faculty of Agriculture, Kyushu University,

Address: Fukuoka, 819- 0395, Japan

Email: ueno@grt.kyushu-u.ac.jp

**3. Date of data collection**

Data1: 2019- 1- 7~ 2019-3-25.

Data2: 2019- 4-21~ 2019-5-1.

Data3: 2019- 5-7~ 2019-5-13.

**4. Geographic location of data collection**

All the data were collected at 33.59466566375176° N, 130.21319896013276°E, 744, Motooka, Nishi Ward, Fukuoka, 819-0395, Japan.

**5. Funding sources**

There is no funding received in this study.

**Sharing/ access information**

**1. Licenses/restrictions placed on the data:**

All the data are available for reviewers or other researchers who are interesting in this filed.

**2. Links to publications that cite or use the data:**

A submitted manuscript: Wen J, Ueno T. (2021) Sexual differences in within- and trans-generational plasticity of induced morphological defense in small brown planthoppers. Proceedings of the Royal Society B. Manuscript number: RSPB-2021-0158

**3. Links to other publicly accessible locations of the data:**

There are no other publicly accessible locations.

**4. Links/relationships to ancillary data sets:**

There are no links/relationships to ancillary data sets.

**5. Was data derived from another source?**

No

**6. Recommended citation for this dataset:**

Wen J, Ueno T. (2021) Sexual differences in within- and trans-generational plasticity of induced morphological defense in small brown planthoppers, Dryad, Dataset,

<https://doi.org/10.5061/dryad.2bvq83bpk>

**Data/ file overview**

**1. File List:**

Data1. proportion of macropters, brachypters and surviving SBPHs

Data2. surviving proportion of macropters when attacked by rove beetles

Data3. number of attacks by and time taken for rove beetle to catch a macropter

**2. Relationship between files, if important:**

Not important.

**3. Additional related data collected that was not included in the current data package:**

There are no additional related data collected.

**4. Are there multiple versions of the dataset?**

No

**Methodological information**

**1. Description of methods used for collection/generation of data:**

Data1:

The data of proportion of macropters, brachypters and surviving SBPHs (small brown planthoppers) were collected by exposing different instar nymphs of SBPHs to predation risk of rove beetle *Paederus fuscipes*. When these nymphs had developed to adults, we counted the number of macropters, brachypters and total surviving number of SBPHs and calculated the proportion of them respectively.

Data2:

The data of surviving proportion of macropters was collected by rearing scared or unscared macropters with free- foraged predator, and counted the number of surviving macropters 72 hours later.

Data3:

The data of number of attacks and time taken were collected by putting one scared or unscared macropter to a peri dish with starved predator and counted the number of attacks and time needed for predator to successfully capture scared or unscared macropter.

**2 Methods for processing the data:**

Data1: we calculated the proportion of macropters and brachypters and divided them into sex by formula1:

$$Pro. of female mac.=\left(\frac{no.of female mac.}{no.of female mac.+ no.of female bra.}\right)\%$$

The “pro. of female mac.”, “no. of female mac.” And “no. of female bra.” In formula 1 represented the proportion of female macropters, number of the female macropters and brachypters respectively. Then the proportion of female brachypters, male macropters and male brachypters were calculated by using formula 1, but changed the numerator and denominator corresponding to the calculated proportion.

We calculated the proportion of surviving SBPHs (divided into sex) with formula 2:

$$Pro. of female=\left(\frac{no. of female}{no.of female+no.of male}\right)\%$$

The “pro. of female”, “no. of female” and “no. of male” in formula 2 represented the proportion of females, number of females and number of males respectively. We calculated the proportion of males by changing the numerator of formula 2 with “no. of male”.

Data2: the surviving proportion of macropters was calculated by formula 3:

$$surviving proportion of macropters=\frac{initial number -surviving number }{initial number }\%$$

 “initial number” and “surviving number” represented the initial number of macropters and surviving number of macropters and respectively.

Data3: number of attacks by and time taken for rove beetle to catch a macropter was raw data that did not take any modification.

**3. Software- specific information needed to interpret the data:**

All data analyses were conducted with R (version 4.0.3).

Data1: Dunnett's test for multiple comparison, package “multcomp”.

Data2: Duncan's new multiple range test for multiple comparison, package “agricolae”.

Data3: Kaplan- Meier estimates, package “survival” and “survminer”

**4. Standards and calibration information:**

There is no standards or calibration information.

**5. Experiment conditions:**

Photoperiod: 16:8 (L:D), temperature: 25℃, 60% relative humidity.

**6. Describe any quality-assurance procedures performed on the data:**

Data3: The best model to regressed was: “No. attacks~ risk treatments + sex+ risk treatments: sex” for parent generation, and “No. attacks~ risk treatments” for F1 generation.

The best model of cox proportional hazards model for both parent and F1 generation is: “time taken ~ risk treatments+ Sex”.

There is no any quality-assurance procedure performed on the data1 and data2.

**7. People involved with sample collection, processing, analysis and/or submission:**

Jian Wen: sample collection, processing, analysis and submission.

Takatoshi Ueno: analysis

**Data-specific information for sexual differences in within- and trans-generational plasticity of induced morphological defense in small brown planthoppers**

**1. Number of variables:**

Data1: 2 variables (“initial stages” and “sex” in parent generation, “risk treatments” and “sex” in F1 generation)

Data2: 1 variable (risk treatments)

Data3: 2 variables (risk treatments, sex)

**2. number of cases/ rows:**

Data1: 80 rows

Data2: 20 rows

Data3: 188 rows

**3. Variable list:**

Data1

a. Name: Initial stages

Description: the initial instar of SBPH nymphs for risk exposure

Unit: instar

b. Name: Risk treatments

Description: with and without risk exposure.

Unit: no

c. Name: Sex

Description: female and male SBPHs

Unit: no

Data 2

a. Name: Risk treatments

Description: with and without risk exposure.

Unit: no

Data 3

a. Name: Risk treatments

Description: with and without risk exposure.

Unit: no

b. Name: Sex

Description: female and male SBPHs (small brown planthoppers)

Unit: no

**4. Missing data codes:**

There are no missing data codes.

**5. Specialized formats or other abbreviation used:**

Data1:

No. of macropter: number of macropters

No. of brachypter: number of brachypters

Pro. of macropter: proportion of macropters

Pro. of brachypter: proportion of brachypters

Pro. of surviving SBPHs: proportion of surviving SBPHs (small brown planthoppers)

Pcontrol: control treatments conducted for parent generation.

Fcontrol: control treatments conducted for F1 generation.

P1-PA: SBPHs nymphs are exposed to predation risk from 1st instar nymph to the beginning of adult.

P2-PA: SBPHs nymphs are exposed to predation risk from 2nd instar nymph to the beginning of adult.

P3-PA: SBPHs nymphs are exposed to predation risk from 3rd instar nymph to the beginning of adult.

P4-PA: SBPHs nymphs are exposed to predation risk from 4th instar nymph to the beginning of adult.

P5-PA: SBPHs nymphs are exposed to predation risk from 5th instar nymph to the beginning of adult.

P1-F1: SBPHs nymphs are exposed to predation risk from parent 1st instar nymph to F1 1st Instar nymph.

Data2:

Pcontrol: control treatments conducted for parent generation.

Fcontrol: control treatments conducted for F1 generation.

P3-PA: SBPHs nymphs are exposed to predation risk from 3rd instar nymph to the beginning of adult.

P3-F1: SBPHs nymphs are exposed to predation risk from parent 3rd instar nymph to F1 1st Instar nymph.

Data3:

Time taken: the time needed for *Paederus fuscipes* to capture a scared or unscared macropter.

No. of attacks: the number of attacks needed for *Paederus fuscipes* to capture a scared or unscared macropter.

Pcontrol: control treatments conducted for parent generation.

Fcontrol: control treatments conducted for F1 generation.

P3-PA: SBPHs nymphs are exposed to predation risk from 3rd instar nymph to the beginning of adult.

P3-F1: SBPHs nymphs are exposed to predation risk from parent 3rd instar nymph to F1 1st Instar nymph.