

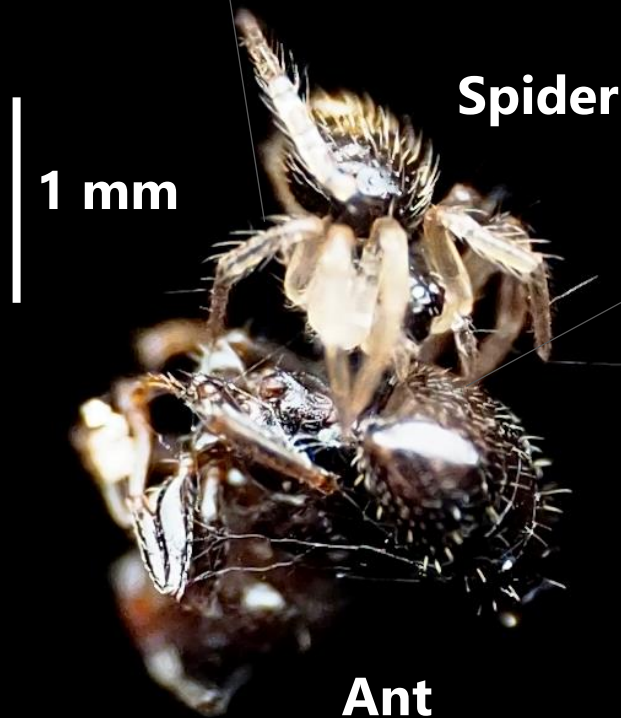
**Prey compositions and predatory behavior
of Japanese tiny ant-eating spiders
(Theridiidae: Hadrotarsinae)**



**Shogo Noguchi, Haruki Tatsuta
Kyushu University, Japan**

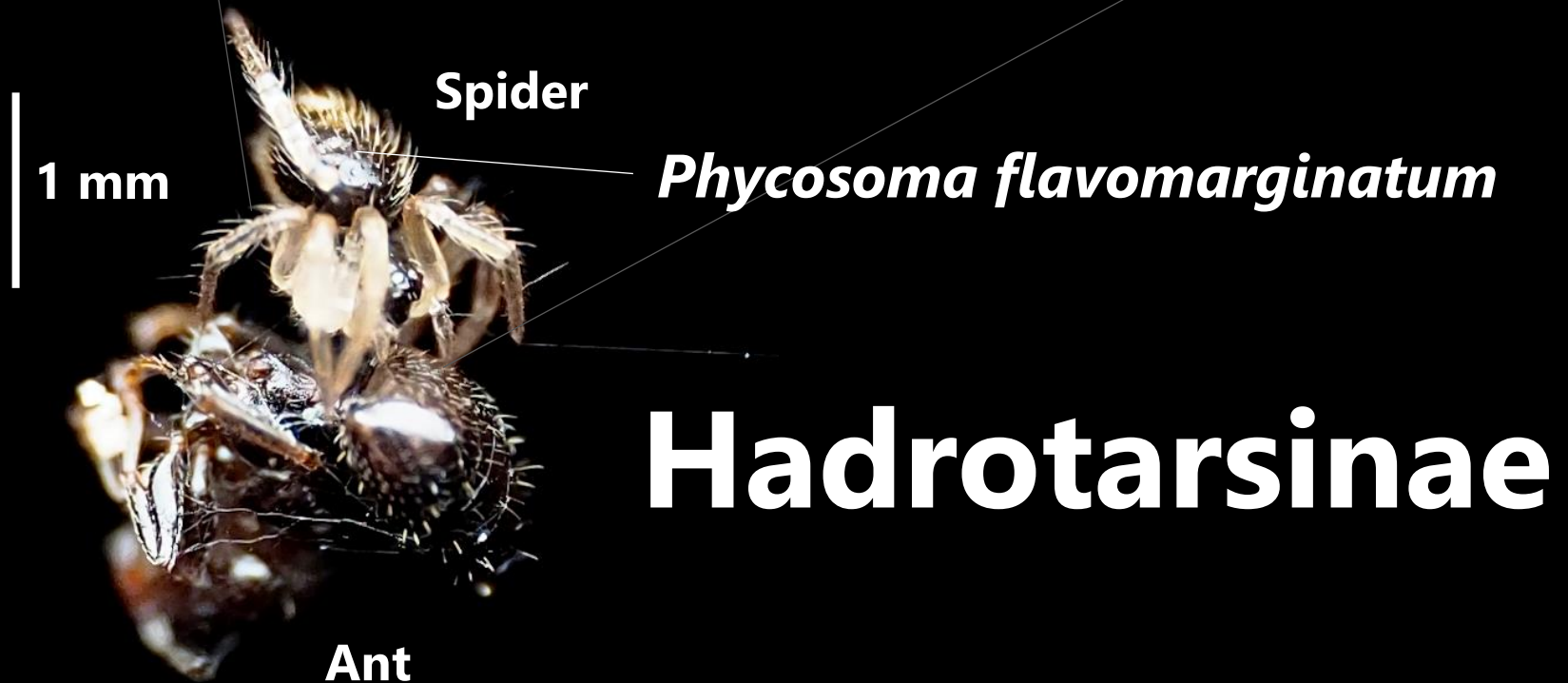
Have you ever seen a situation like this?

- in a tree with many ants
- at night



Have you ever seen a situation like this?

- at night
- in a tree with many ants



Hadrotarsinae, tiny ant-eating spider

subfamily of comb-web spider, Theridiidae

14 genera and 325 species
(WSC, 2022)

Very tiny, ca. 2 mm

tropical and subtropical regions
(Yoshida, 2003)

Ant specialist (Yoshida, 2002)

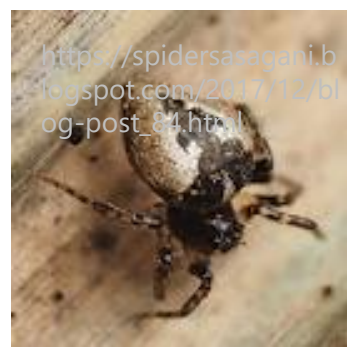


6 genera and 22 species
(Tanikawa, 2022)

- Dipoena*: 3
- Emertonella*: 1
- Euryopis*: 5
- Lasaeola*: 4
- Phycosoma*: 5
- Yaginumena*: 3



Dipoena punctisparsa



Emertonella taczanowskii



Euryopis nigra



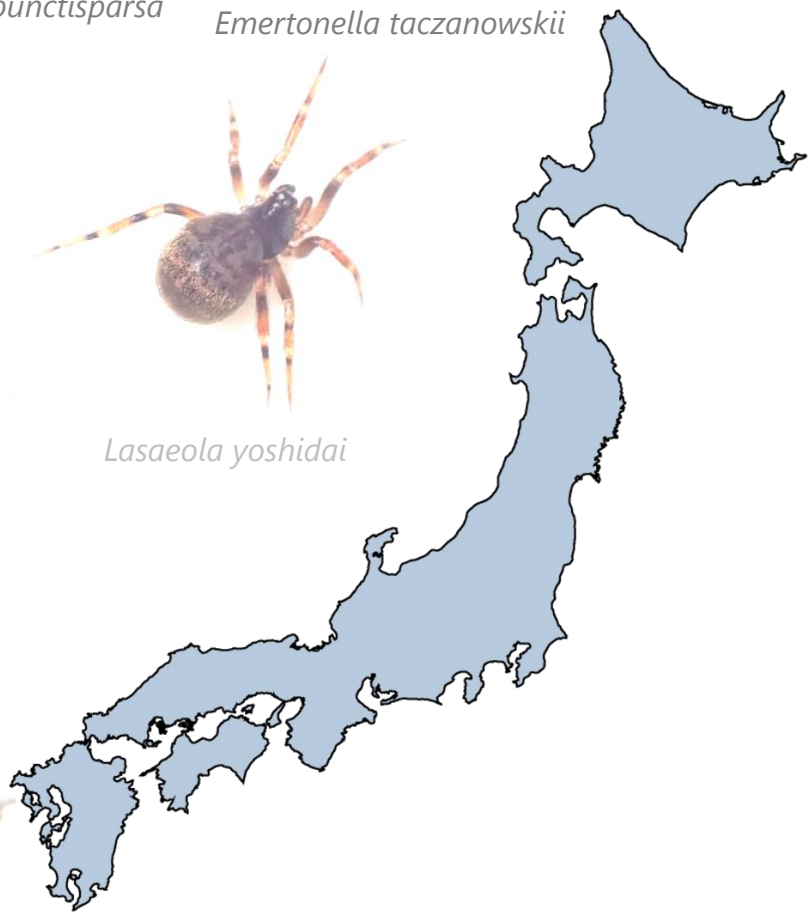
Lasaeola yoshidai



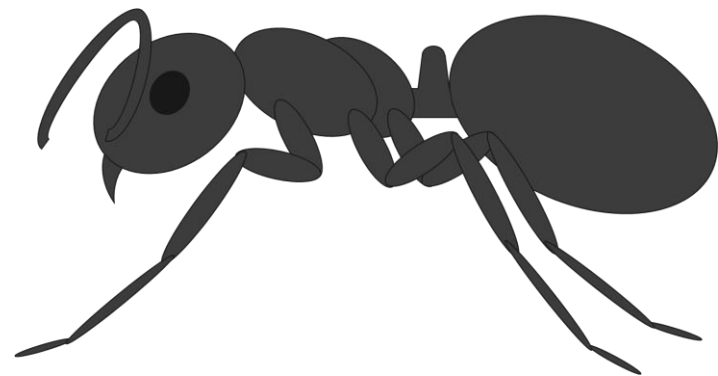
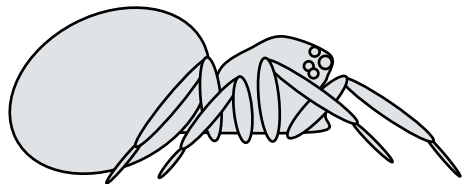
Phycosoma martinae



Yaginumena mutilata



Are Hadrotarsinae spiders really ant specialist?



Are Hadrotarsinae spiders really ant specialist?

Prey compositions

Only 13 species are regarded as “myrmecophages”

(Pekár & Toft, 2015)

Euryopsis episinoides fed other prey types (Líznarová & Pekár, 2019)

fruit flies, termites, springtails, crickets and bugs



Little information

Are Hadrotarsinae spiders really ant specialist?

Predatory behavior

do not build webs, except for *Dipoena* spp.

(Benjamin & Zschokke, 2003; Gastreich, 1999; Cathrine, 2018)

Euryopsis spp. capture ants by throwing silk and biting

(Carico 1978; Porter & Eastmond 1982; Líznavá & Pekár, 2019)



Little information

We introduced

- 1. Prey compositions**
- 2. predatory behavior**

In some Japanese hadrotarsinae spiders.

1. Prey compositions

2. Predatory behavior

Materials: 5 genera 8 species

Site: Field (Fukuoka, Kumamoto, Okinawa Pref.)

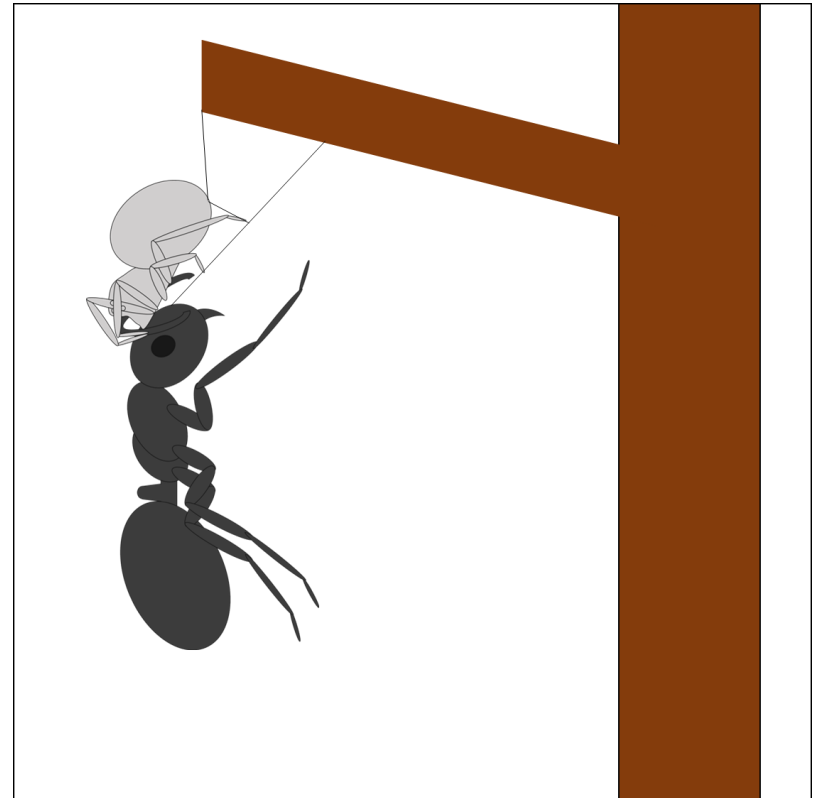
Date: April, 2021 – March, 2022

Time: 18:00 – 24:00

collect natural prey fed by
hadrotarsinae spiders



Identify prey taxa



Camponotus hemichlaena



Yaginumena castrata

1. Prey compositions

2. Predatory behavior

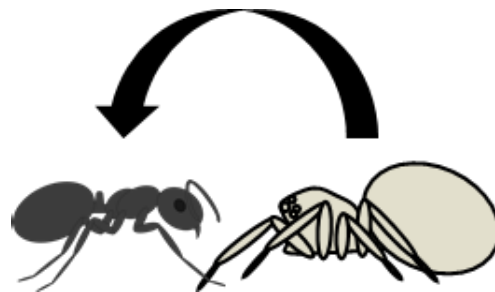
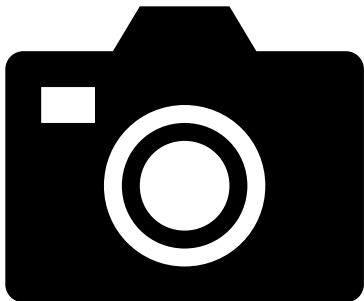
Materials: 5 genera 8 species

Site: Field & Laboratory (Fukuoka Pref.)

Date: April, 2021 – May, 2022

Time: 18:00 – 24:00

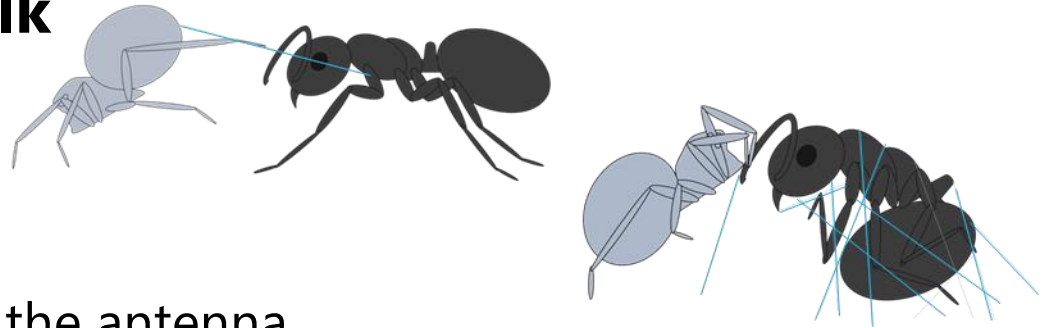
Record behavior using a compact digital camera



Two types in prey-capture behavior

1. Throwing sticky silk

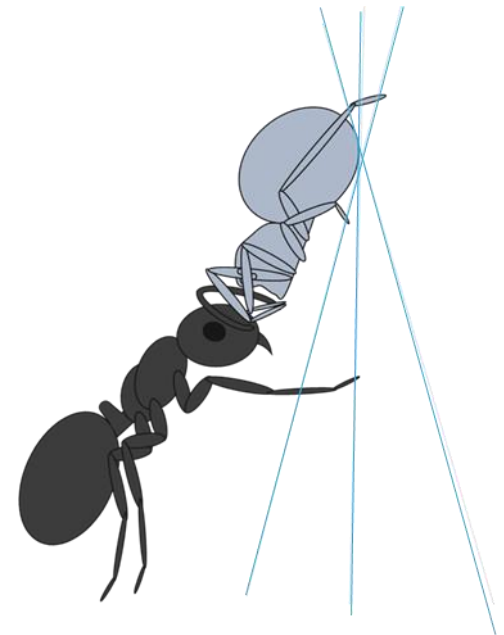
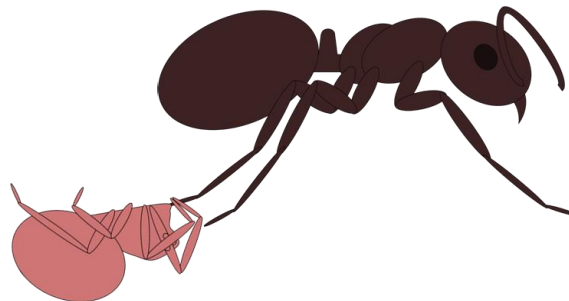
throw sticky silk



bite an ant on the leg or the antenna

2. Biting

bite an ant on the leg or the antenna

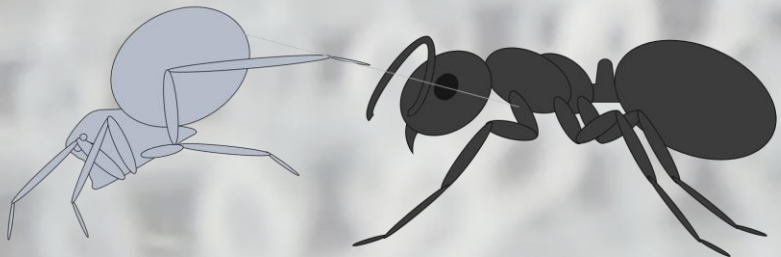


VIDEO

–Throwing sticky silk–

Spider: *Phycosoma mustelinum*

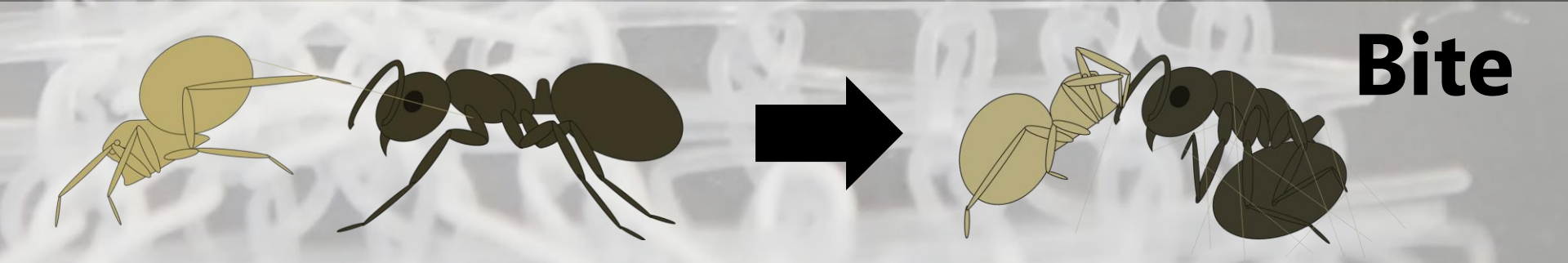
Ant: *Lasius japonicus*



Throw sticky-silk

Spider: *Phycosoma mustelinum*

Ant: *Lasius japonicus*

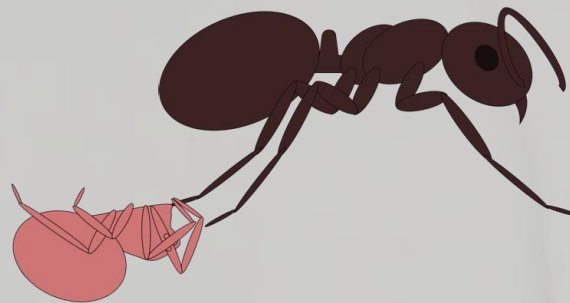


VIDEO

–Biting–

Spider: *Yaginumena mutilata*

Ant: *Lasius japonicus*



Bite

Spider: *Yaginumena mutilata*
Ant: *Lasius japonicus*



After 5 minutes...



Bite

Throwing sticky silk

Diopoea

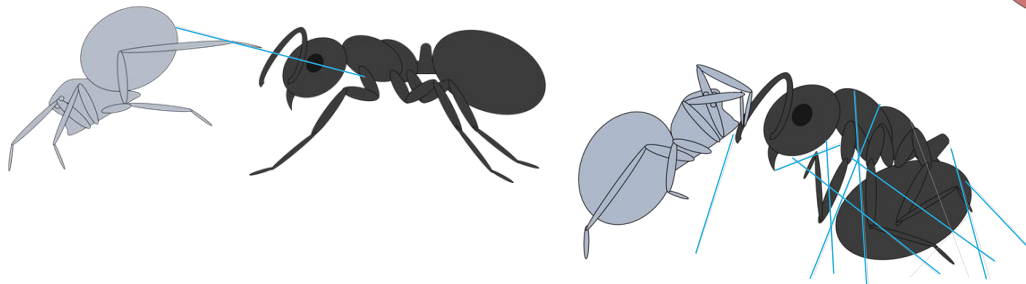
(*D. punctisparsa*)

Euryopsis

(*E. nigra*)

Phycosoma

(*P. flavomarginatum*,
P. martinae , *P. mustelinum*)



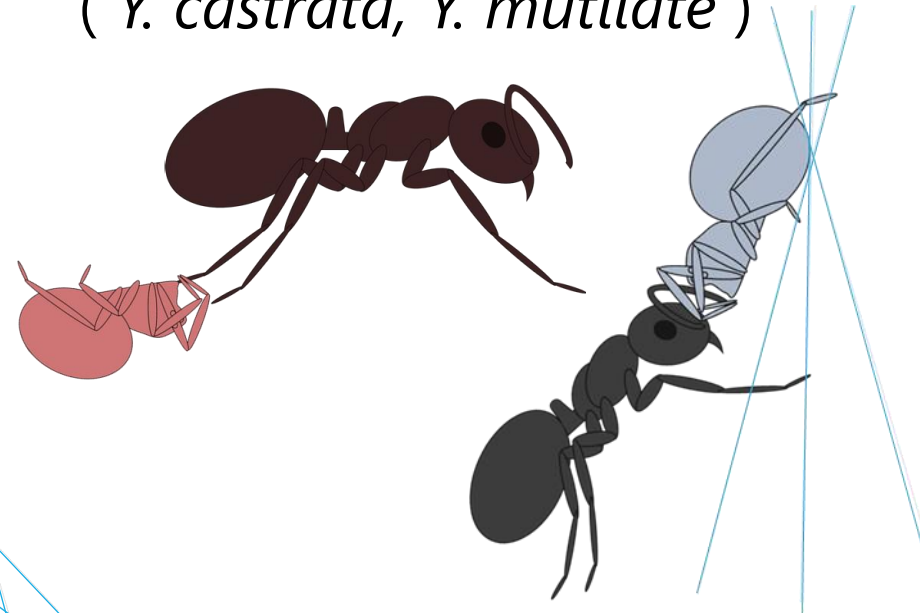
biting

Lasaeola

(*L. yoshidai*)

Yaginumena

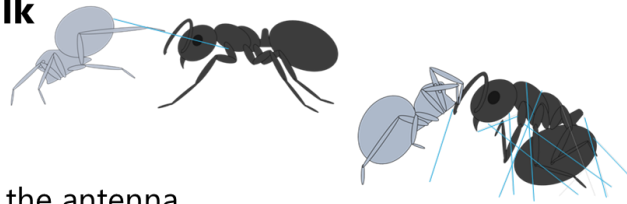
(*Y. castrata*, *Y. mutilate*)



Prey-capture behavior can be classified into 2 types.

1. Throwing sticky silk

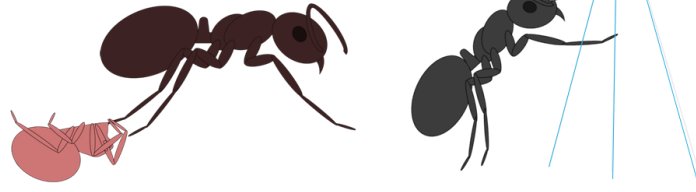
throw sticky silk



bite an ant on the leg or the antenna

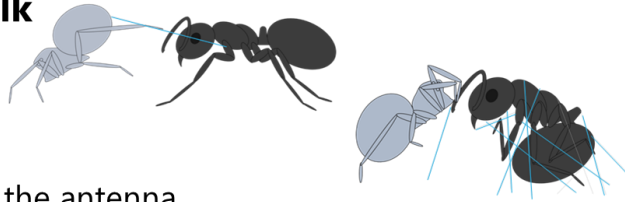
2. Biting

bite an ant on the leg or the antenna



1. Throwing sticky silk

throw sticky silk



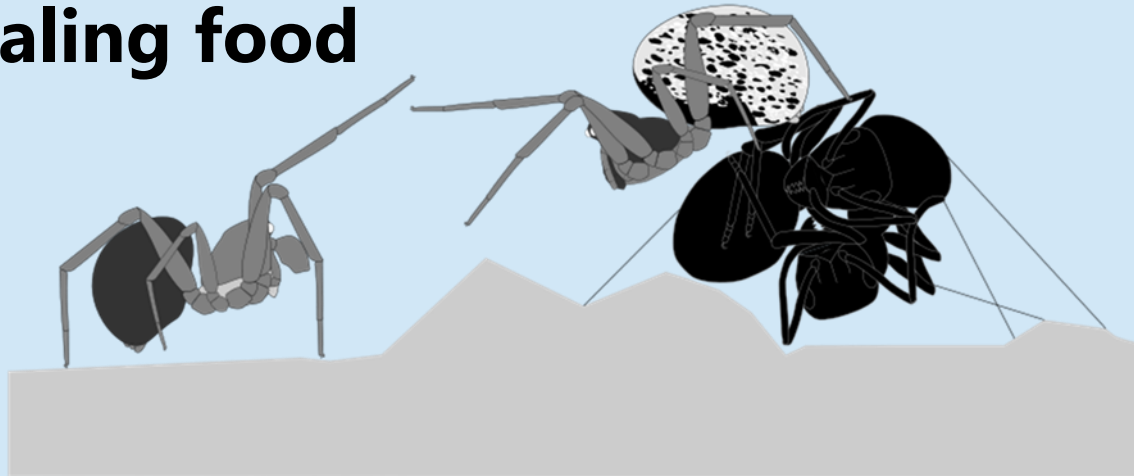
bite an ant on the leg or the antenna

2. Biting

bite an ant on the leg or the antenna



3. Stealing food



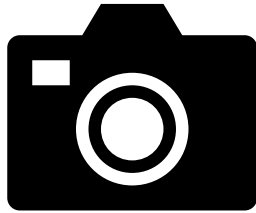
Y. castrata* stole ants from *D. punctisparsa

Site: Kumamoto Pref.

Date: May 2022

Time: midnight

Record behavior using a compact digital camera



▶ behavioral sequence information

In some Japanese hadrotarsinae spiders,

- **Prey compositions**

Diet breadth varied among species.

Some species fed prey taxa except for ants.

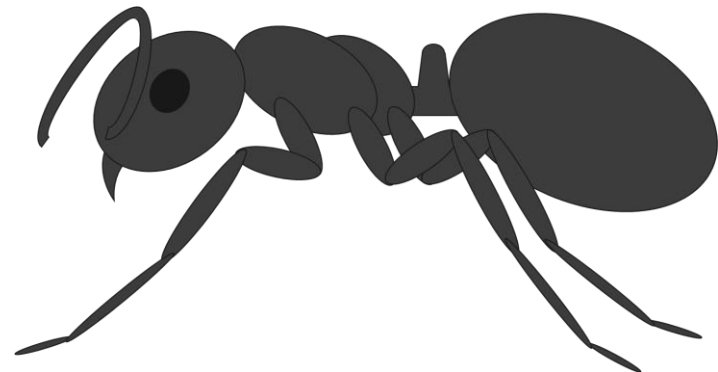
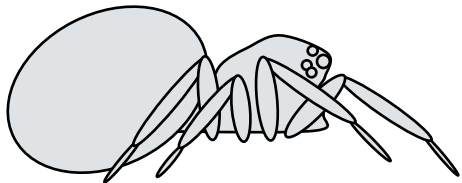
- **Predatory behavior**

Prey-capture behavior can be classified into 2 types.

→throwing sticky silk or biting

The first report of food stealing behavior in Hadrotarsinae

Are Hadrotarsinae spiders really ant specialist?



Hadrotarsinae spiders are really
ant specialist?

**Some species seems to be ant specialist,
while other species doesn't.**

- ▶ Future Task
Collecting more information on the natural history



Thank you for listening!

Acknowledgement

Seiki YAMANE (Kagoshima univ.)

Yu HISASUE (Kyusyu univ.)