

Asian Jumping Worm

Amyntas agrestis

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ESM 485/585: Ecology & Management of Bio-Invasions

Dr. Catherine de Rivera

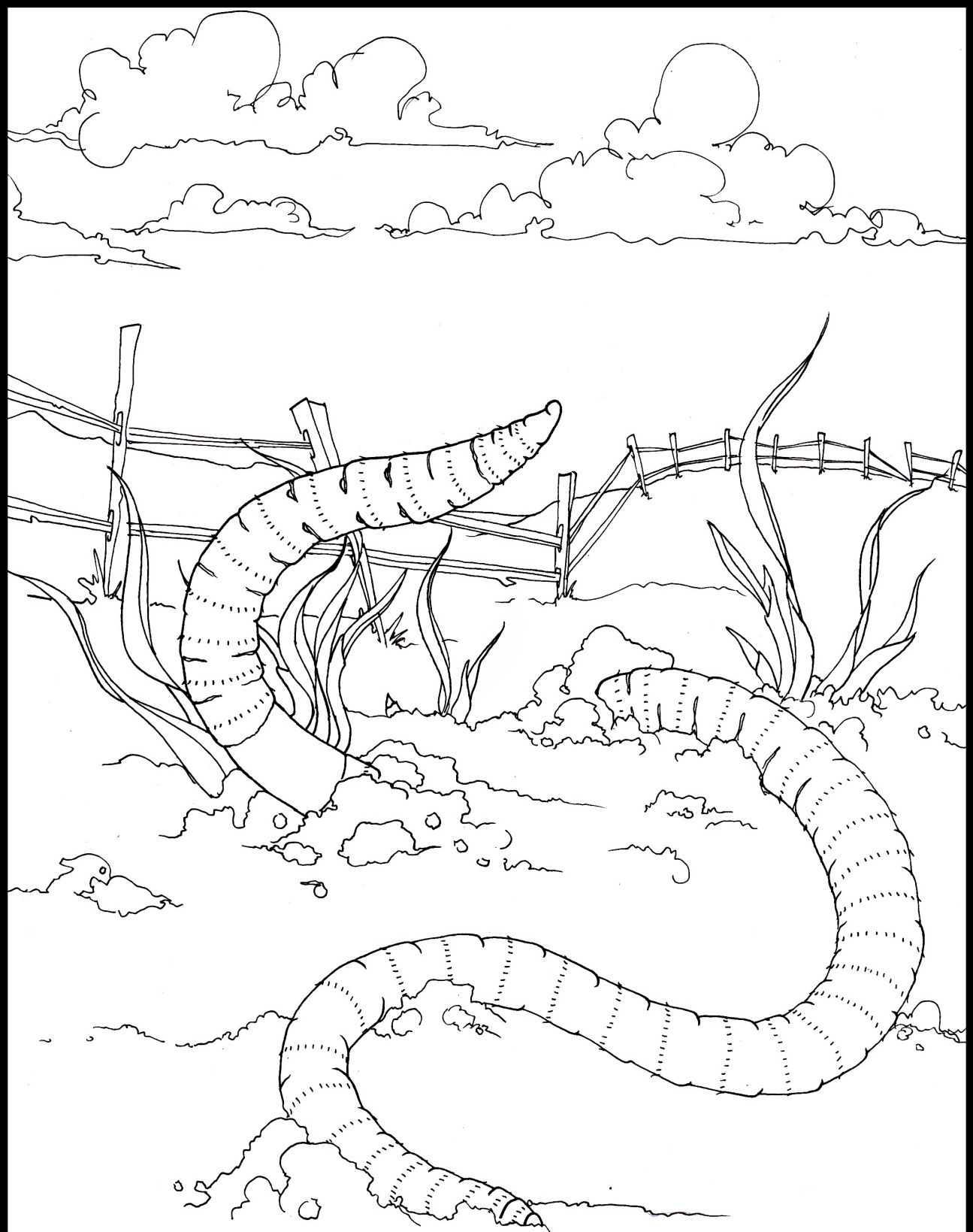
December 9, 2020

EDUCATIONAL ACTIVITIES

Coloring page

Worm dessert

Worm anatomy



Amyntas agrestis

ASIAN JUMPING WORM

WORM DESSERT

INGREDIENTS

- 12 chocolate creme-filled cookies
- 1 package instant chocolate pudding mix
- 2 cups milk
- 1 package gummy worms candy
- 1 package M&Ms

DIRECTIONS

1. Crush chocolate cookies into crumbs (you may remove creme for a more dirt-like appearance)
2. Separate worms by color
3. Mix chocolate pudding mix and milk together
4. Place 1/3 of cookie crumbs in bottom of serving container
5. Spoon 1/2 of pudding over crumbs
6. Bury one color of worms in first layer of pudding
7. Spread 1/3 of cookie crumbs over layer of pudding
8. Spread remaining pudding over the layer of cookie crumbs
9. Choose a new color worm and bury in the top layer of pudding
10. Bury some brown and yellow M&Ms in top layer of pudding
11. Sprinkle remaining cookie crumbs over top of dessert
12. Refrigerate until serving



ACTIVITY AND QUESTIONS

As you eat, pay attention to where in the dessert you find worms and M&Ms.

What color worm was in the top layer of dirt? – The worm on top could be an Asian Jumping Worm! They like to eat leaf litter and stay close to the surface.

What color worm was further down? – This worm could be a Canadian Nightcrawler! They come up to the surface for food but prefer to live up to 8 feet underground!

What do you think the M&M represents? – Cocoons!

Was it easy to find the M&Ms? – which color was easier? Cocoons could be red, brown, or yellow.

Do you think it would be easy to miss cocoons in the dirt? – They could easily be missed! Especially if you weren't looking for them. The brown ones are especially hard to find.

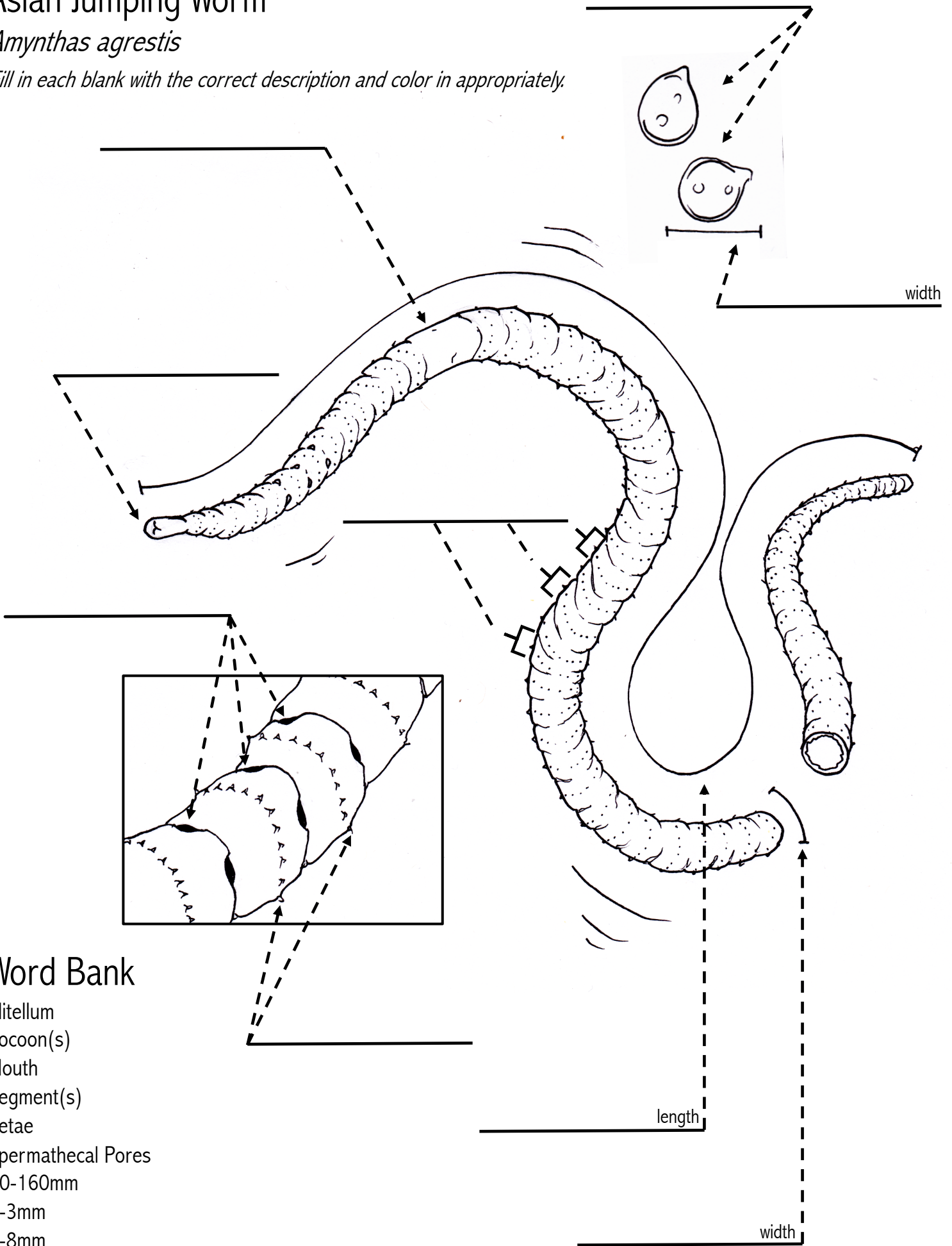
What do you think the cookie crumble on top represents? – Leaf litter! This is dead plant material that lots of decomposers love to eat.

What do you think the worms eat? – Worms love to eat leaf litter, especially the Asian Jumping Worm! Worms will also eat other organic materials found in the soil.

Asian Jumping Worm

Amyntas agrestis

Fill in each blank with the correct description and color in appropriately.



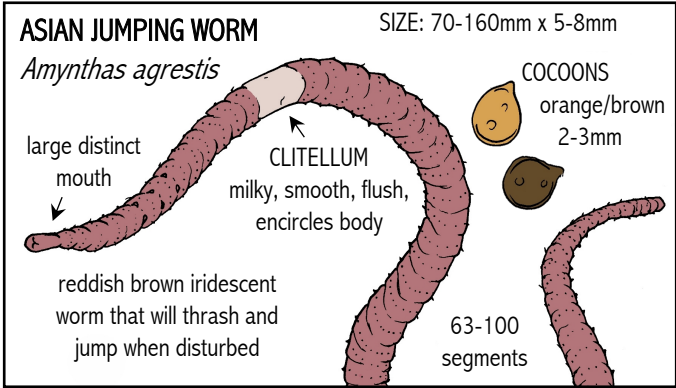
Word Bank

- Clitellum
- Cocoon(s)
- Mouth
- Segment(s)
- Setae
- Spermathecal Pores
- 70-160mm
- 2-3mm
- 5-8mm

WATCH-CARD

Amyntas agrestis

The QR code on this card is inactive. It will connect to a website with additional information on *A. agrestis* in the future.



REPORT TO OREGON INVASIVE SPECIES HOTLINE
www.oregoninvasiveshotline.org / 1-866-INVADER

SCAN FOR
 MORE INFO



HELP PREVENT THE SPREAD

- CLEAN SHOES AND EQUIPMENT OF DIRT / DEBRIS
BEFORE ENTERING A NEW AREA
- EXAMINE PLANTS BEFORE TRANSPLANTING
- BUY BARE ROOT STOCK
- DO NOT BUY A. AGRESTIS FOR BAIT
- INSPECT COMPOST / MULCH / SOIL FOR A. AGRESTIS
- HEAT COMPOST / MULCH / SOIL <40 DEGREES CELSIUS

WANTED POSTER

Amyntas agrestis

The QR code on this poster is inactive. It will connect to a website with additional information on *A. agrestis* in the future.

WANTED

AMYNTHAS AGRESTIS

SNAKE WORM | ASIAN JUMPING WORM | ALABAMA JUMPER | CRAZY WORM

FOR DEGRADING THE LITTER LAYER



ORIGIN

Korea & Japan

TRANSPORTATION

Fishing, hiking, composting, horticulture

SIGHTINGS

Oregon and Washington

IMPACTS

Soil composition, nutrient cycling, litter layer, understory species

IDENTIFICATION

70-160mm x 5-8mm

63-100 segments

Red / brown / purple / iridescent

Erratic jumping movements

Large distinct mouth

>40 setae per segment

CLITELUM: milky white, smooth, annular, flush with the body

SCAN FOR MORE INFO



HELP PREVENT THE SPREAD

CLEAN SHOES AND EQUIPMENT OF DIRT / DEBRIS BEFORE ENTERING A NEW AREA

EXAMINE PLANTS BEFORE TRANSPLANTING

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DO NOT BUY A. AGRESTIS FOR BAIT

INSPECT COMPOST / MULCH / SOIL FOR A. AGRESTIS

HEAT COMPOST / MULCH / SOIL <40 DEGREES CELSIUS

REPORT SIGHTINGS TO:

OREGON INVASIVE SPECIES HOTLINE

OREGONINVASIVESHOTLINE.ORG / 1-866-INVADER

TAKE ONE

ASIAN JUMPING WORM

SIZE: 70-160mm x 5-8mm

Amyntas agrestis

large distinct mouth

CLITELLUM
milky, smooth, flush,
encircles body

COCOONS
orange/brown
2-3mm

reddish brown iridescent
worm that will thrash and
jump when disturbed

63-100
segments

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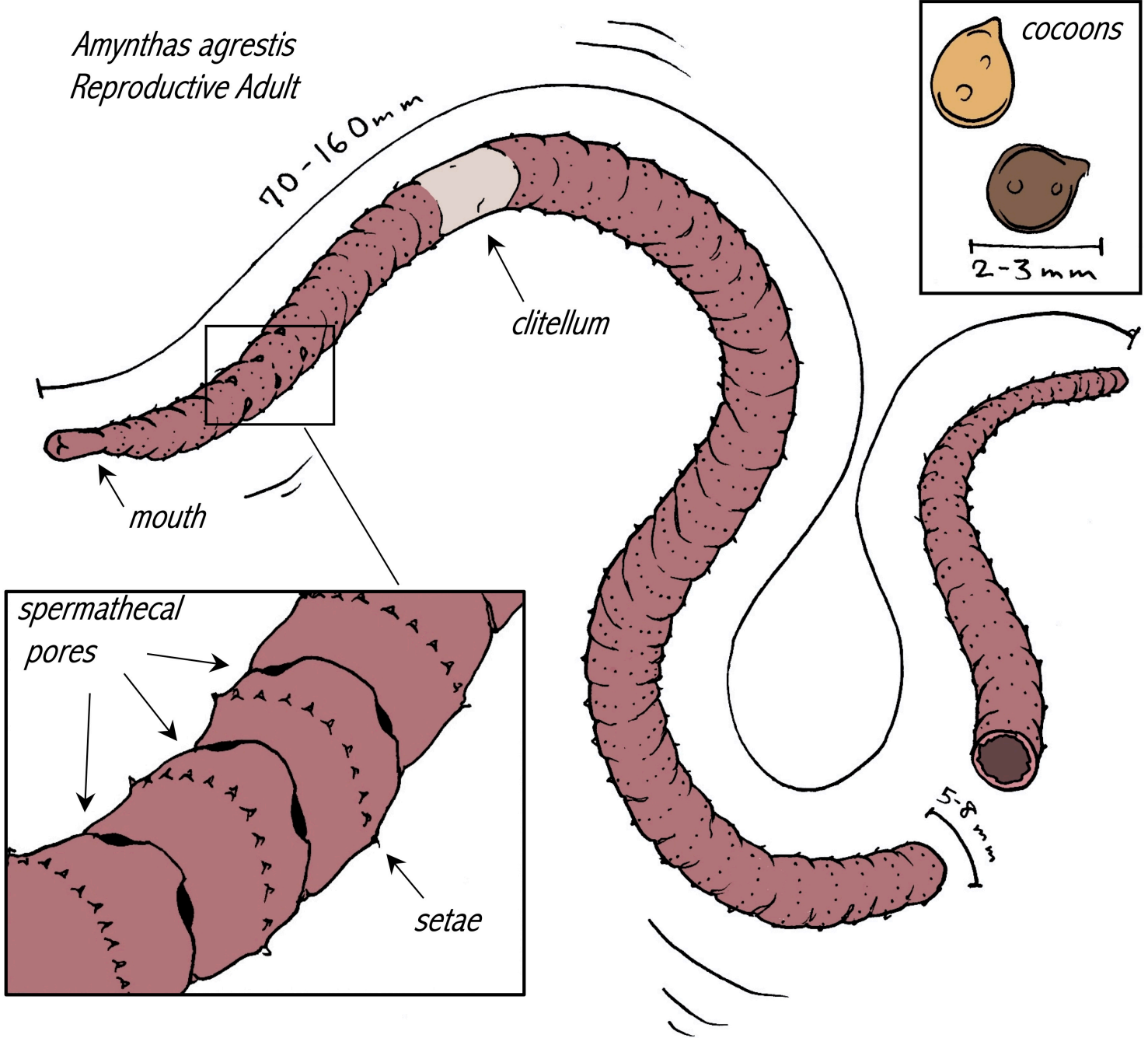
SCIENTIFIC DRAWINGS

A. agrestis – reproductive adult

Dendrobaena veneta – reproductive adult

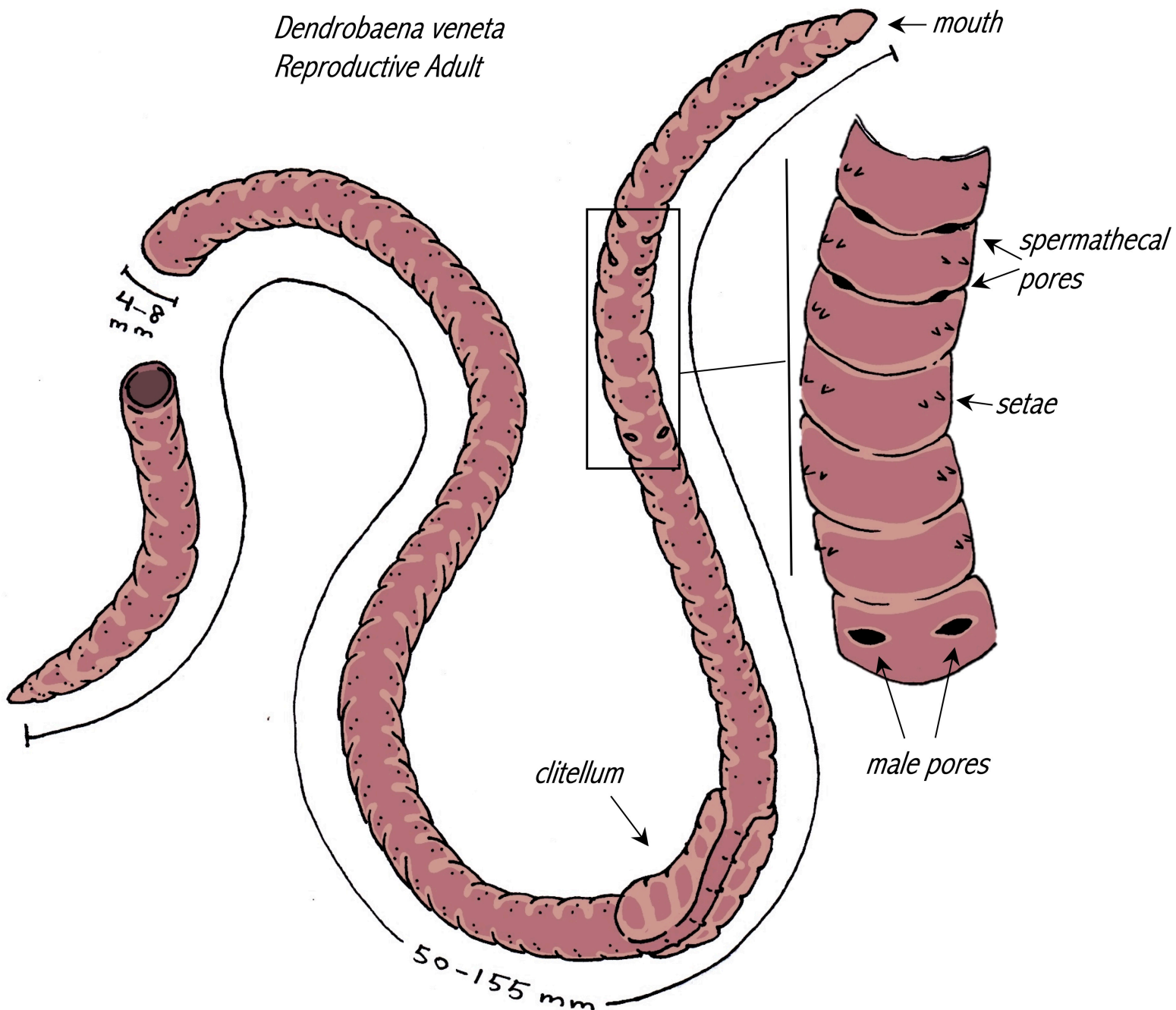
Lumbricus terrestris – reproductive adult

Amyntas agrestis
Reproductive Adult



<p>Color</p>	<p>Clitellum</p>
<p>Red/brown/purple with iridescence</p>	<p><i>A section of glandular tissue composed of reproductive segments</i></p>
<p>Size</p>	<p>The clitellum is present in segments 14-16. It is smooth, milky in color, flush with the body and fully encircles the worm.</p>
<p>Length: 70-160 mm</p>	<p>Spermathecal Pores</p>
<p>Width: 5-8 mm</p>	<p><i>Opening to the spermathecae, an organ that receives and stores sperm</i></p>
<p>Mouth</p>	<p>3 pairs between segments 5-6, 6-7, 7-8</p>
<p>This species has a large distinct mouth</p>	<p>Movement</p>
<p>Segments</p>	<p>Erratic jumping movement that can last upwards of 30 minutes</p>
<p><i>A linear series of repeating parts forming the body</i></p>	<p>Cocoon</p>
<p># of Segments: 63-110</p>	<p>Color: orange-brown</p>
<p>Setae</p>	<p>Size: 2-3mm</p>
<p><i>A stiff bristle like structure used for movement</i></p>	<p>1-3 embryos per cocoon</p>
<p>The middle of each segment has a ring of >40 setae</p>	

Dendrobaena veneta
Reproductive Adult



Color

Red/brown with yellowish/white bands

Size

Length: 50-155 mm

Width: 4-8 mm

Segments

A linear series of repeating parts forming the body

of Segments: 63-110

Setae

A stiff bristle like structure used for movement

4 wide pairs of setae on the ventral surface

Clitellum

A section of glandular tissue composed of reproductive segments

The clitellum is present ~segments 26-33 It is raised segmented, and saddle-shaped.

Spermathecal Pores

Opening to the spermathecae, an organ that receives and stores sperm

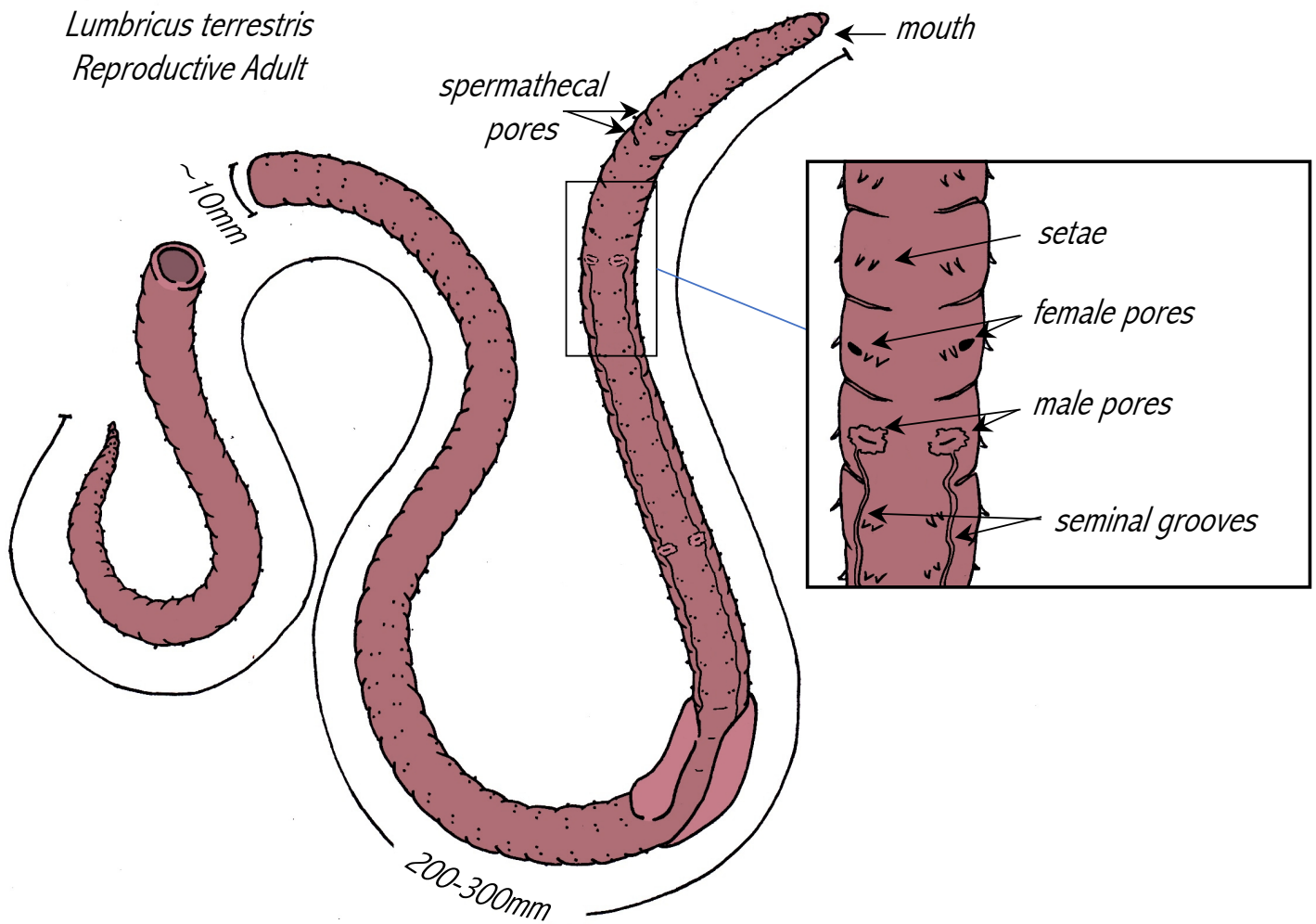
2 pairs between segments 9-10,10-11

Gonopore

External genital opening to the reproductive system

Male Pores

1 pair on segment 15



Color

Red/brown/yellow

Size

Length: 200-300 mm

Width: ~10mm

Segments

A linear series of repeating parts forming the body

of Segments: 110-160

Setae

A stiff bristle like structure used for movement

4 wide pairs of setae on the ventral surface

Clitellum

A section of glandular tissue composed of reproductive segments

The clitellum is present ~segments 33-37. It is raised, segmented, and saddle-shaped.

Spermathecal Pores

Opening to the spermathecae, an organ that receives and stores sperm

2 pairs between segments 9-10,10-11

Gonopore

External genital opening to the reproductive system

Female Pores

1 pair on segment 14

Male Pores

1 pair on segment 15 and one pair ~segment 26

Seminal Groove

Pair of shallow grooves that run from the male pores to the clitellum to transport sperm

Segment 15-clitellum

BROCHURE

Amyntas agrestis

How to Report

Washington

www.invasivespecies.wa.gov/report-a-sighting/

Oregon

www.oregoninvasiveshotline.org

1-866-INVADER

California

Wildlife.ca.gov/Conservation/Invasives

866-440-9530

invasives@wildlife.ca.gov

General

imainvasives.org

How to Manage

Asian Jumping Worms have been found to not be able to withstand temperatures of 40° C (104° F) or higher.

A way to manage these worms once found is to create an environment that is so warm so that the worms cannot survive.

Many gardeners have used the solution of **putting tarps on their compost piles** or putting them in containers to increase soil and compost temperatures. The native worms can resist high temperatures so only the native species will remain.



Have you seen me?



Help prevent this invasive worm from spreading any further!

The Asian Jumping Worm

MADE BY

MEGAN COLLEY, REBECCA SINICHKO, JOAQUIN MOORE



Background

The Asian Jumping Worm is native to Eastern Asia but was introduced into North America for the purpose of fishing and was quickly established in the soil.

The worm has become a problem because of its ability to change the composition of the soil to make nutrients unavailable to native plants. The worm burrows (mainly found in the top meter of soil) change the soil structure that can alter soil composition and function as well.

Gardens and compost piles are where the worms and their cocoons are found most frequently and easily.

Prevention

Soil

Asian Jumping worms can be easily transported in store **bought plants and soil**. To prevent the establishment and spread of these worms, it is essential to **check all plants and mulch that you purchase**.

The small winter worm cocoons can also be **transported on shoes when travelling** from home to an outdoor recreational space. It is advised to use a **brush to dislodge any cocoons** on the bottom and sides of your shoes before going to or coming back from an outdoor recreational site like a hike or park.

Fishing Bait

The worms can also be purchased as fishing bait. It is advised to **never purchase** fishing bait under the name **Asian Jumping worm, crazy worms, Alabama jumpers, or snake worms** as these all refer to the same invasive species.

If these worms are purchased as bait, the containers must be **closed as tightly as possible** and all **unused bait must be destroyed** by placed it on concrete and crushing it.

How to Identify

Action

Asian jumping worms are best identifiable by their **thrashing and jumping when touched or disturbed**.

Looks

Asian Jumping Worms are a reddish brown worm with a **large and distinct mouth part** at one end of the worm.

They also have a **milky stripe of flesh** (called the clitellum) that completely encircles them and is flush with the rest of their bodies (shown below).

They “hibernate” during the winter months in **small brown or yellow spherical cocoons** that are “5mm in diameter.



Clitellum of an Asian Jumping Worm (flush with the rest of the body)