

ASIAN TIGER MOSQUITO INFORMATION & TRAP INSTRUCTIONS





Asian Tiger Mosquito

INVASIVE BOUNDARY PROJECT

Are you ready to help knock out the Asian tiger mosquito?

We need your help for one BIG reason... the Asian tiger mosquito is spreading over a massive area that we can not cover without assistance from you! We need you to collect eggs in the your area and report back to us what you find.

In this guide you will learn about the Asian tiger mosquito and find the instructions on how to build the egg trap.

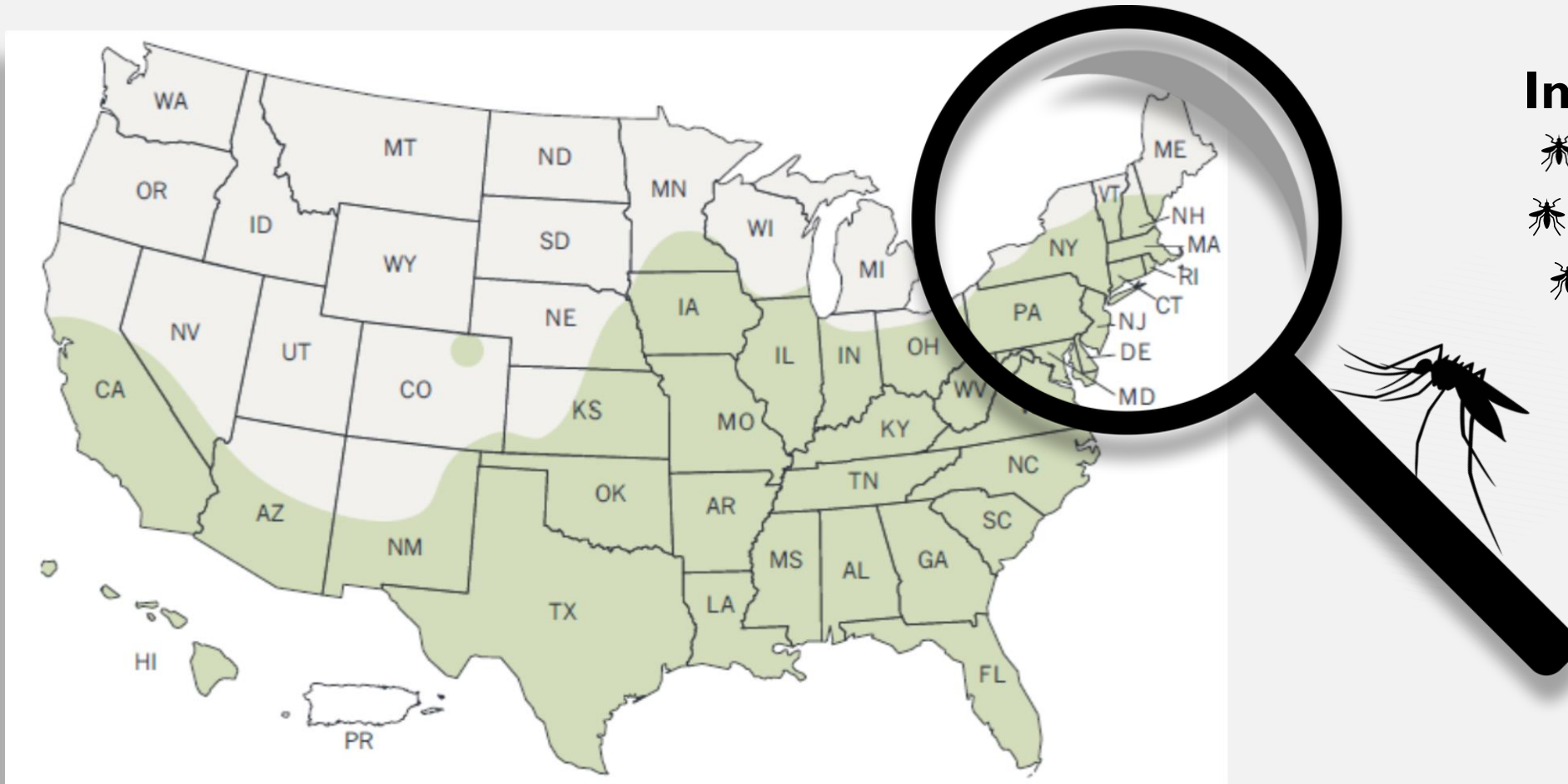


FIRST LET'S LEARN ABOUT THE ASIAN TIGER MOSQUITO!

- The Asian tiger mosquito (ATM) is a huge nuisance! They actively bite during the daylight hours- from early morning until evening making outdoor activities difficult
- The ATM can transmit a number of important disease causing agents including some that are of currently a concern in the NE region
 - Dog Heartworm
 - West Nile Virus
- Knowing more about the location of the ATM can help us focus our research to prevent the spread of disease



DISEASE RISKS



In the Northeast:

- ✈ West Nile Virus
- ✈ Dog Heartworm
- ✈ Eastern Equine Encephalitis

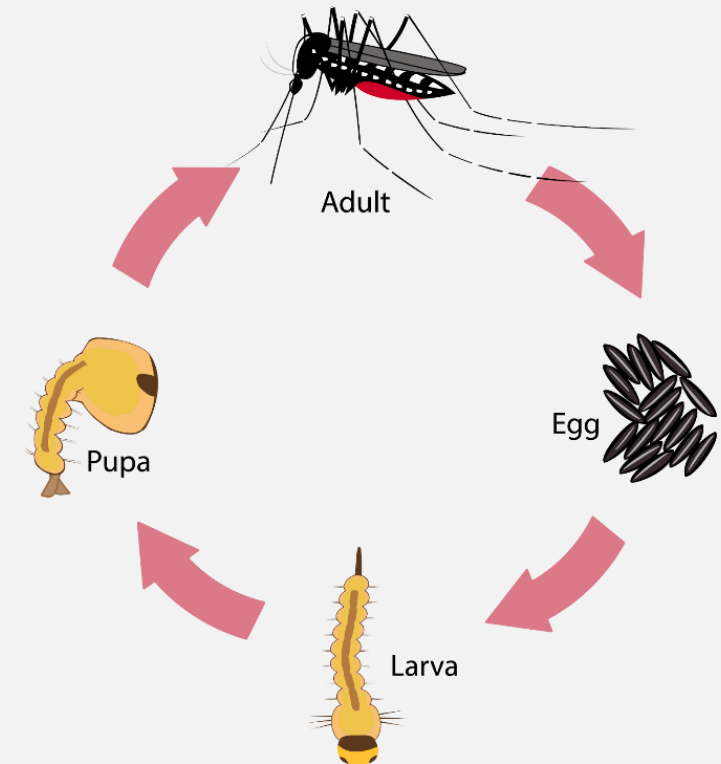
Outside the Northeast:

- ✈ Zika
- ✈ Dengue
- ✈ Yellow Fever
- ✈ Chikungunya

Map of range of Asian tiger mosquito in the United States (CDC)

EGG LAYING BIOLOGY

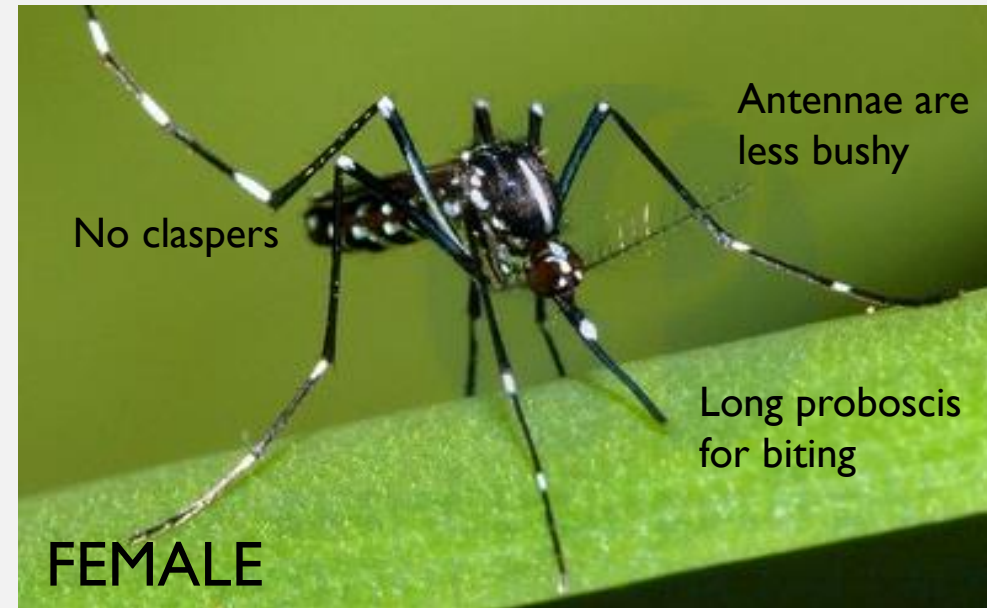
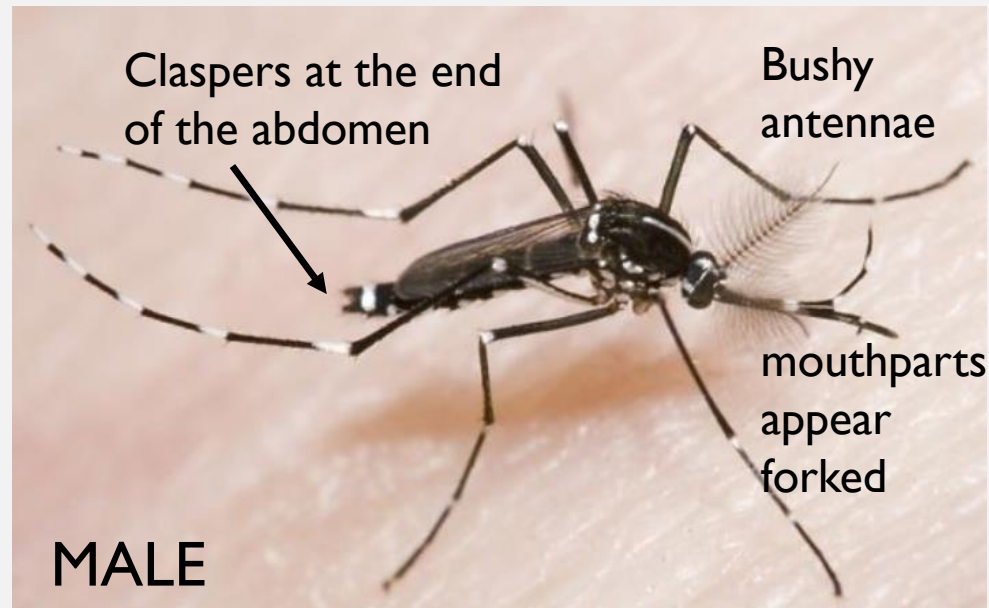
- The Asian tiger mosquito is a common invader in urban communities.
- Eggs are laid in water-filled containers that are often left over from human activities including;
 - Gardening
 - Water collection
 - Dumping of garbage
 - Rain gutters and yard equipment
- ATM eggs go through a period of time where they rest and dry above the water line before hatching.
- As the immature mosquitoes (larvae) grow, they form a pupa (like a chrysalis) before emerging as adults.



Mosquito life cycle

ASIAN TIGER MOSQUITO BIOLOGY

- Only female mosquitoes are responsible for biting and blood feeding
- Females blood feed to get the nutrients they need to make eggs
- The ATM can bite multiple times to get a full meal
- In your trap you will find both male and female mosquitoes;



THE SPREAD OF ASIAN TIGER MOSQUITO

There are two aspects of ATM biology that make their eggs super easy for humans to spread without even knowing it!

- Eggs laid in the fall can survive cold winters and will hatch the following spring. Sometimes these populations will creep north year after year.
- Dry eggs can survive outside of water for several months allowing them to hitch a ride when we travel or ship our goods long distances.



HOW YOU CAN HELP PREVENT MOSQUITOES

Remove standing water around your home. This disrupts the mosquito's breeding habitats

- Remove clutter that can gather water
- Clean rain gutters
- Dump water from gardening pots



When spending time outdoors it is important to protect yourself from bites

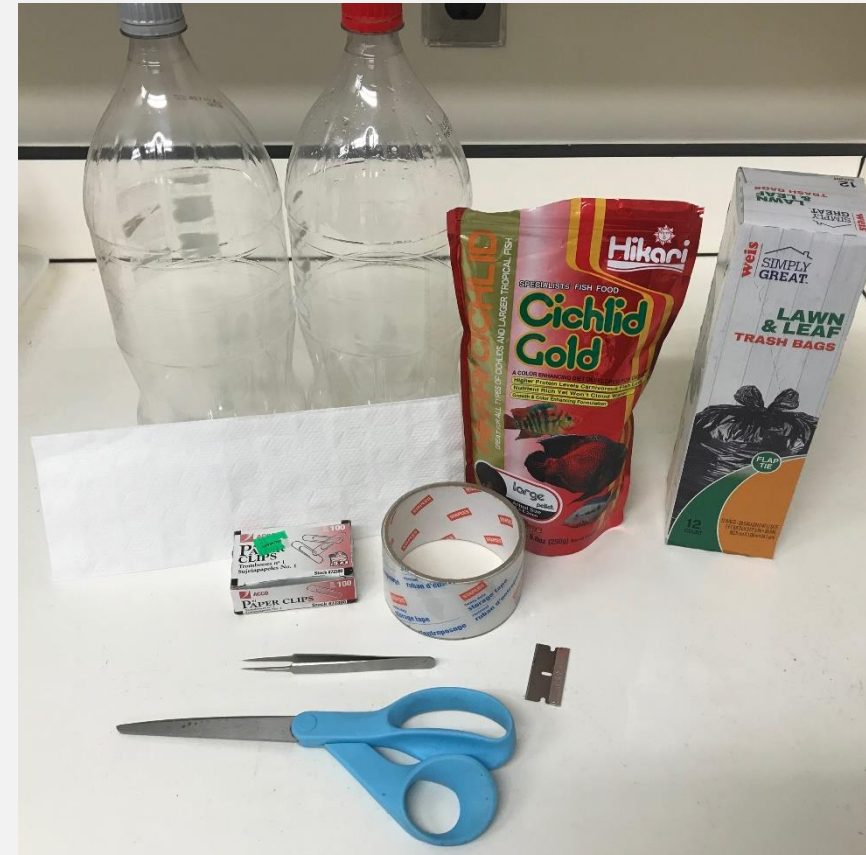
- Use EPA approved insect repellent such as DEET



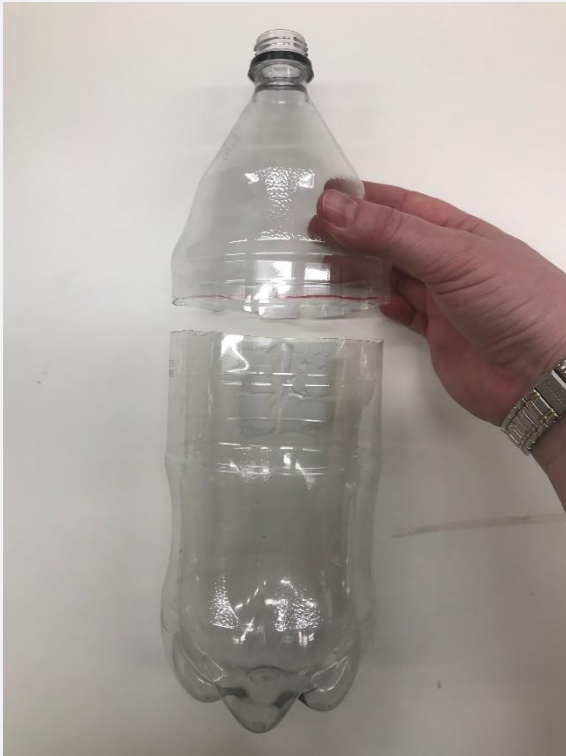
LET'S BUILD A TRAP!

Supplies

- Paper towel
- Packing tape
- 3-4 large paper clips
- Black garbage bag
- Fish, dog, or cat food
- Two empty 2 liter soda bottles
- Tweezers
- Scissors
- Razor



CREATE AN EGG TRAP



Cut two soda bottles about a half inch below where the bottle tapers.
A razor works well for this task

*Set aside one bottle for later



Cut a piece of a black garbage bag wide enough to wrap around the bottom portion of the bottle and roughly twice as tall.

CREATE AN EGG TRAP



Secure the garbage bag to the bottle using packing tape.



Wrap the plastic all the way around the bottle and secure with tape.

*You will have excess at the top

CREATE AN EGG TRAP



Fold the top half of the black garbage bag down and wrap over the bottle as shown. This section will be pulled up when the top part of the trap is added.



Line the inside of the trap with a paper towel and secure with paper clips. Paper towel should be easily removable later in the process.

CREATE A CHAMBER FOR ADULT MOSQUITOES



Moving on to your second bottle, gather a tapered end and the remaining bottom part and some tape.



Remove cap and place the tapered end inside the bottom part. Tape to secure.

TIME TO CATCH SOME EGGS!



Fill the bottom part of the trap with water to around halfway up the paper towel. Add 2 crushed dry pet food pellets. Can be fish, dog, or cat food.



Place trap on a level surface in a covered and shaded area of your yard. This will prevent the trap from overflowing with rain water.

COLLECT YOUR EGGS

Small black
dots



Look for characteristic small black eggs on the paper.
Once you have eggs in your trap, let them rest as is for 3-4 days.



After the resting period, carefully pour the water out of the trap into dirt or grass. If there is a gap in your paper towel this makes a good location to pour.

*Pouring in the dirt ensures any larvae or eggs that flow out with the water will not survive

DRY EGGS

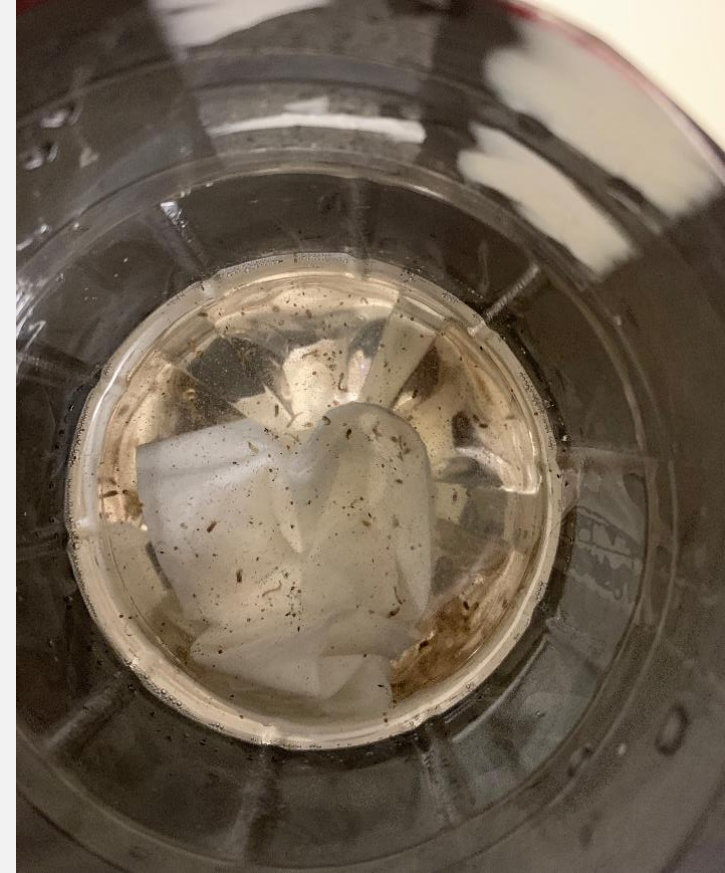
- Leave the towel in the trap
- Allow the egg paper to dry fully at room temperature for up to 12 hours
- Towel should be dry to the touch but not so dry that it is stiff to the touch
- If drying outside, be sure to protect the eggs from ants which will destroy them

*Egg sheets can get a little grungy. They will have other insect matter and pet food on them. That is completely normal. The eggs should still hatch just fine



HATCH EGGS

- Unclip the paper towel from the side of the trap and push it into the bottom of the trap
- Fill the trap with water until it completely covers the paper with eggs
- Add fresh dry pet food (approximately 1 Tablespoon)
- Keep in the same environment where eggs were collected until larvae hatch



* Hatched larvae in the water at the bottom of an egg trap

ADD TOP PART OF TRAP



In order to fit the top portion snugly inside the egg trap you will need to make a small slit and push together the sides.



Place the chamber on top and secure with tape all the way around ensuring no adults will escape.



Pull the garbage bag up to cover half of the top part of the trap. Poke a few very small breathing holes with a sewing needle or pin in the top chamber.

FREEZE YOUR MOSQUITOES!

- As larvae grow they will develop into adults and move up towards the light in the top of the trap.
- Once the majority of your mosquitoes have moved up through the funnel place the entire trap into a freezer over night.
- Placing the trap into the freezer will kill all stages of the mosquito allowing you to observe the adults safely and prevent introducing any extra mosquitoes to your yard.

*If the entire trap does not fit in your freezer, cool in a refrigerator for an hour to incapacitate the mosquitoes. Quickly separate the top and bottom sections, and place all parts in the freezer.



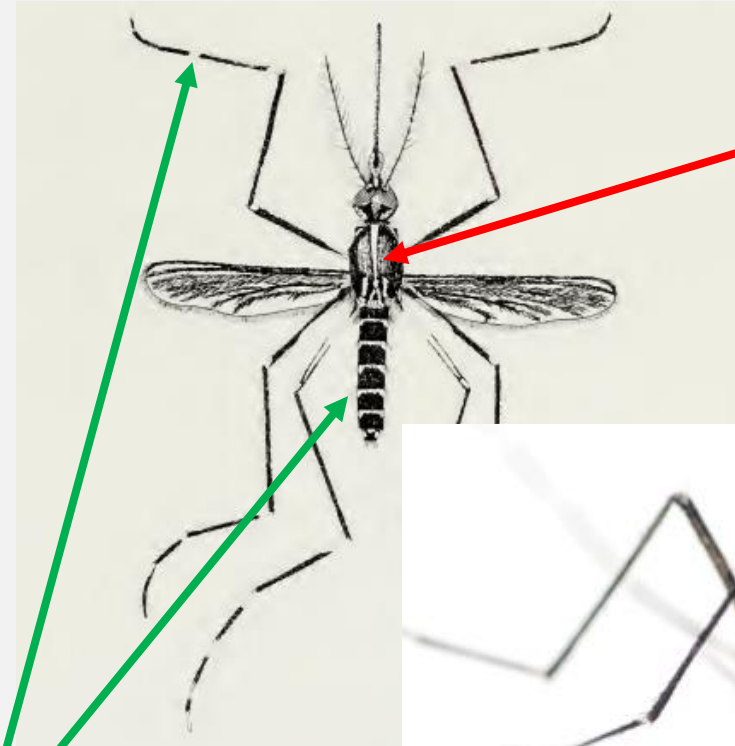
EXAMINE YOUR MOSQUITOES

- Open the trap and place your mosquitoes onto a clean dry paper towel or tissue
- Sort through the adults you have using a pair of tweezers
- Take a group photo!
- Any that don't match the description can be discarded



HOW TO IDENTIFY ASIAN TIGER MOSQUITOES

- Asian tiger mosquitoes are dark black and white striped. You can disregard any mosquitoes without this general coloring immediately.
- Look for a distinct broad white band on a black background on their thorax, down their back from the back of the head to where the wings start.
- They have black and white striped legs and body, as shown in the images on the right.



White stripe on the thorax



White banding on the legs and abdomen

COMMON CONTAINER MOSQUITOS THAT ARE **NOT** THE ASIAN TIGER MOSQUITO



Northern House Mosquito
(*Culex pipiens*)

- Light brown in color
- No white banding
- No distinct pattern visible on the thorax



Durrell D. Kapan

Rock Pool Mosquito
(*Aedes japonicus*)

- Multiple fine yellow/gold stripes down its thorax
- Dark brown/black
- Legs have white striping similar to ATM



Susan Ellis, Bugwood.org

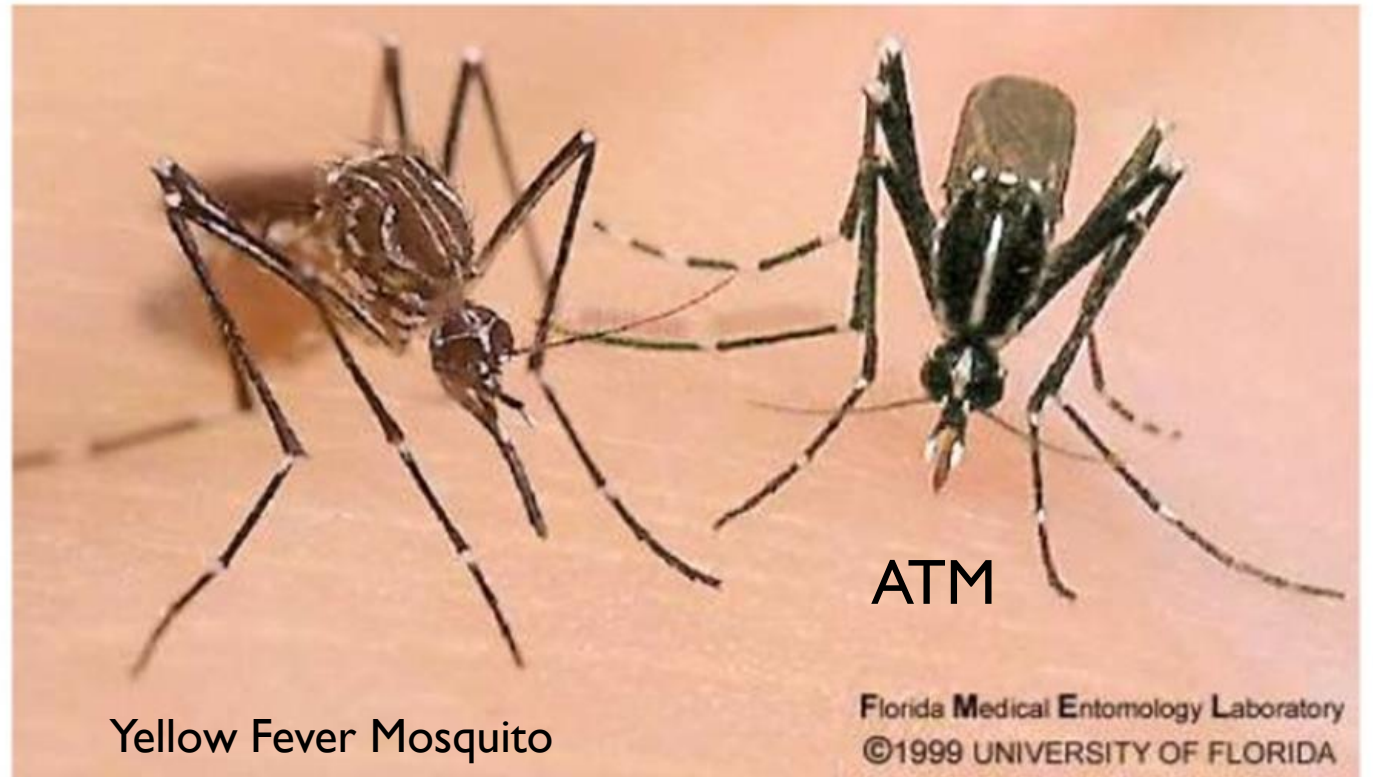
Eastern Tree Hole Mosquito
(*Aedes triseriatus*)

- Thorax has white scales covering both sides
- White "knees" on the first leg joint

SIMILAR BUT DIFFERENT

The Yellow Fever mosquito is the most likely mosquito to be mistaken for our ATM.

- Delicate pattern on thorax consisting of 2 curved stripes and 2 straight stripes
- Lighter in shade
- Legs have white striping similar to ATM



TAKE A PICTURE OF A YOUR TIGER MOSQUITO

- Count how many Tiger mosquitoes you caught and report that with your location data.
- Pick your biggest and best Asian tiger mosquito, make sure it is on your white paper towel as background, and take a picture of it from above (so the head and thorax are visible) and from below.

Tips

- Don't zoom in too close to the mosquito! It is better to have a clear picture from far away than a blurry picture that is close up.
- If you are using a cell phone, tap on the screen at the location of the mosquito to focus the camera on it.



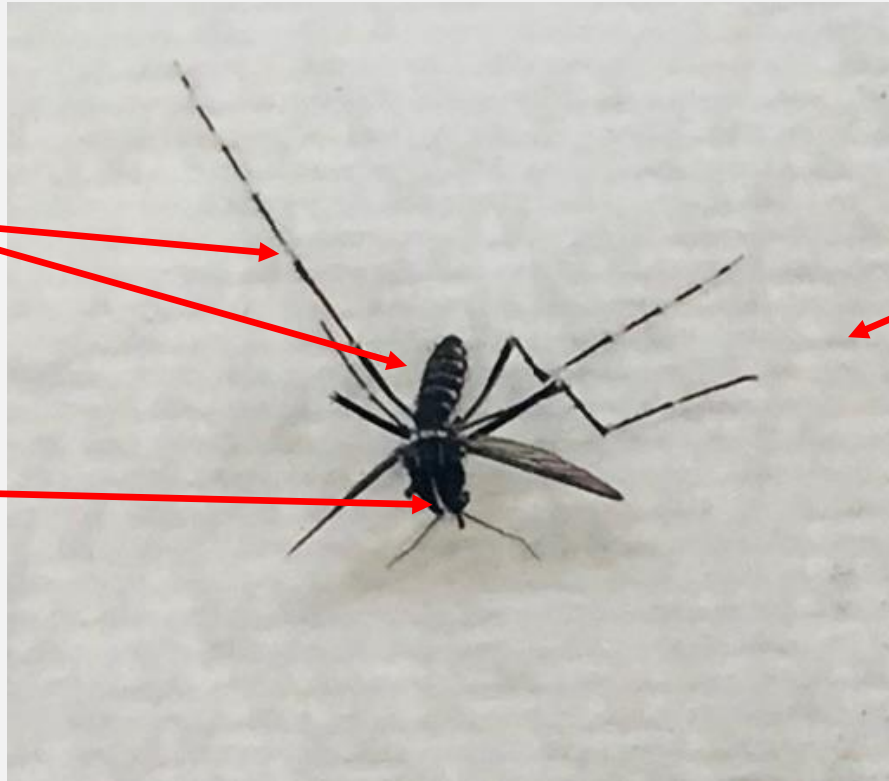
*Example of a zoomed in cell phone picture of the thorax and head of an Asian tiger mosquito

IMAGE EXAMPLES

It might feel like the images are too far away for us to use but FEAR NOT! So long as the image is focused on the mosquito we can zoom and see the important characteristics!

Black coloring with
white stripes on
legs and abdomen

Distinct white
stripe on thorax



REPORTING YOUR DATA TO US!

Once you have finished taking your pictures, send your data to us using the following form. Copy this link and paste it into your internet browser address bar.

<https://forms.gle/D7mzdMFbNTyEML6QA>

Thank you for all of your help! Your data will be used for research purposes. Any mapping of data for use on the internet or publications will be noted to the zip code level to maintain your privacy. Our map will be updated throughout August and September on our project website. We are excited to share with you the results of all of your hard work!

