Identification Key for Commonly Encountered Adult Ticks of Illinois

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RESOURCES

- **Link to On-line Key: https://inhs-mel.github.io/Illinois-Adult-Tick-Key/**

- **Link to Instructional Video (no sound):** https://uofi.box.com/v/Illinois-Adult-Tick-ID-Key

- **Illustration with locations on the tick body of characters used in this key** (on p. 4)**:** https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pub/pdf/agguides/pests/ipm1032.pdf

INSTRUCTIONS

Step-by-step instructions with illustrative images from the on-line key are listed below – it's recommended to work through these instructions during or after viewing the instructional video linked above.

This is a matrix key which differs from a traditional identification key. A matrix key allows the user to choose identifying characters they can easily see rather than working through the key one character after another in a fixed order. With a traditional key, if a character cannot be seen then the identification process ends. However, with a matrix key if a character cannot be seen, the user can move to a different character that might be easier for them to see.

Pages 1 – 4: Simple instructions for using key

Page 5: Advanced features that might be helpful when identifying damaged or engorged specimens

Species featured in this key

- *Amblyomma americanum*:   **Lone star tick** (or "turkey tick")
- *Amblyomma maculatum*:   **Gulf Coast tick**
- *Dermacentor variabilis*:   **American dog tick** (or "wood tick")
- *Haemaphysalis leporispalustris*:   **Rabbit tick**
- *Ixodes scapularis*:   **Blacklegged tick** (or "deer tick")
- *Rhipicephalus sanguineus*:   **Brown dog tick** (or "kennel tick")

Need help with an identification or have a question? Reach out for a consultation or send in a sample or photo:

- E-mail Dr. Holly C. Tuten, PhD with questions: htuten@illinois.edu
- Send sample or photo for a free identification, see instructions at:
    - https://medical-entomology.inhs.illinois.edu/research/free-tick-identifications/

1. Navigate to the first URL linked above and then click the blue link which says, "Access the key here", it will take you to the interactive on-line key

Illinois-Adult-Tick-Key

Matrix key to the common adult ticks of Illinois.

Key was created by Emily Struckhoff in TaxonWorks version v0.23.1 using the Distinguish software (Taxonworks community, 2022).

Access the key here

Questions? Contact Holly Tuten (htuten@illinois.edu)

2. The presentation of the next page can be changed by clicking this symbol in the upper right:

3. On one side of the page is a list of the six species of ticks this identification key was made to identify in the adult stage:

Remaining (6)

- Amblyomma americanum (Linnaeus, 1758) ✓
- Amblyomma maculatum Koch, 1844 ✓
- Dermacentor variabilis (Say, 1821) ✓
- Haemaphysalis leporispalustris (Packard, 1869) ✓
- Ixodes scapularis Say, 1821 ✓
- Rhipicephalus (Rhipicephalus) sanguineus (Latreille, 1806) ✓

4. On another side of the same page is a list of "Descriptors Useful for Identification"
   - These are morphological characters useful for identifying the adult stage of ticks commonly encountered in Illinois
   - Some of these characters can be seen easily without any microscopic aids, others might require the use of a standard dissecting microscope or powerful magnifying glass
   - Unlike most identification keys, this key does not have to be used in any particular order – choose the characters that are most easily seen

Descriptors Useful for Identification

1. Palp length

2. Scutum marking

3. Anal groove

4. Shape of Basis Capitulum

5. Palps shape

5. Clicking on the character name in blue text will open a pop-up window with images of the potential variations among different species for that particular character
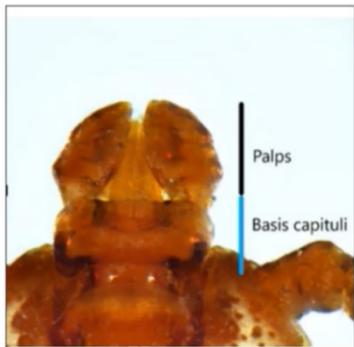

Descriptors Useful for Identification

1. Palp length

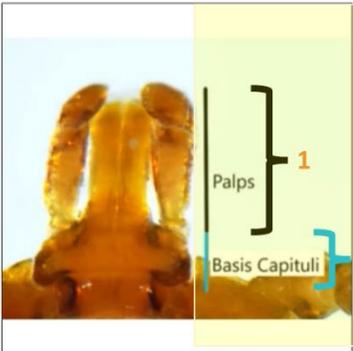Length of palps relative to the basis capitulum

Palps
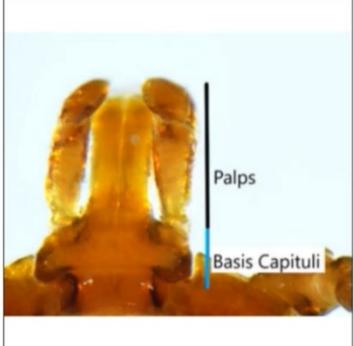
Basis Capituli

☐ Palps are much longer than length of basis capitulum

Palps

Basis capituli

☐ Palps are roughly equal to length of basis capitulum

6. Of the character state variations presented, choose the one the specimen looks like

   Example: Comparing the relative length of the "palps" (shown in blue) vs. the "basis capitulum" (shown in black)
   - **Character state 1** = palps (black) much longer than basis capitulum (blue)
   - **Character state 2** = palps (black) roughly the same length as basis capitulum (blue)

Length of palps relative to the basis capitulum

Palps

Basis Capituli

☐ Palps are much longer than length of basis capitulum

Character State 1

Palps
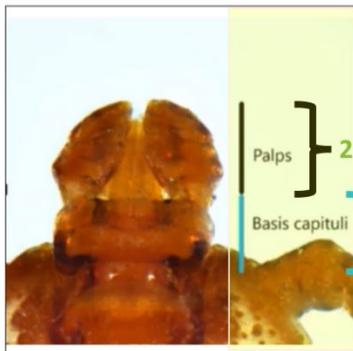
Basis capituli

☐ Palps are roughly equal to length of basis capitulum

Character State 2

Choose which one the specimen looks like
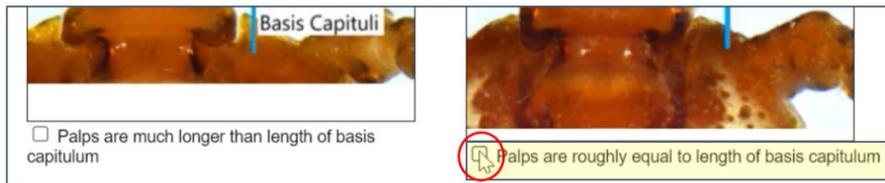
VS

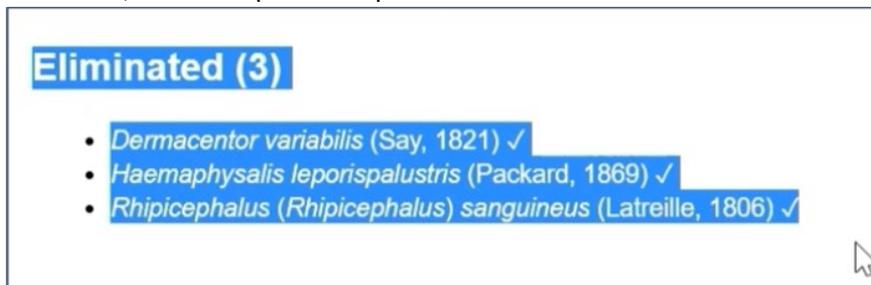Character State 1

Character State 2

7. The boxes beneath the images in the pop-up window can be clicked to select the specific character state

8. After clicking the box, click outside the pop-up window to return to main key

9. Alternatively, the pop-up window can be closed, and the character can be picked from the drop-down menu underneath it (the numbers in parentheses are the number of tick species with this particular character):
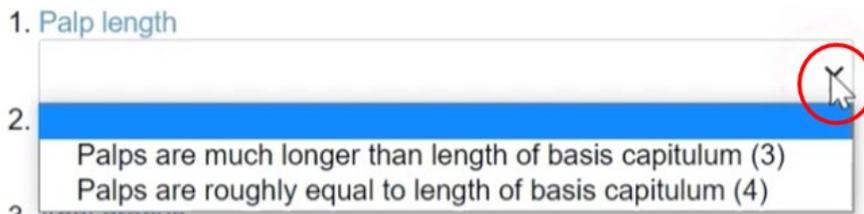
10. Once a character state is picked, a new list will appear on one side of the screen which indicates which species were eliminated by choosing that particular character state. As more characters are identified, the list of possible species will narrow.

11. Continue selecting characters for which the character states are easily seen until a single species remains. This key does not have to be used in any particular order.

12. To use the key for another specimen, reset the key to its beginning state by click this symbol in the upper right:

ADVANCED FEATURES

These are options that might be helpful when identifying damaged or engorged specimens.
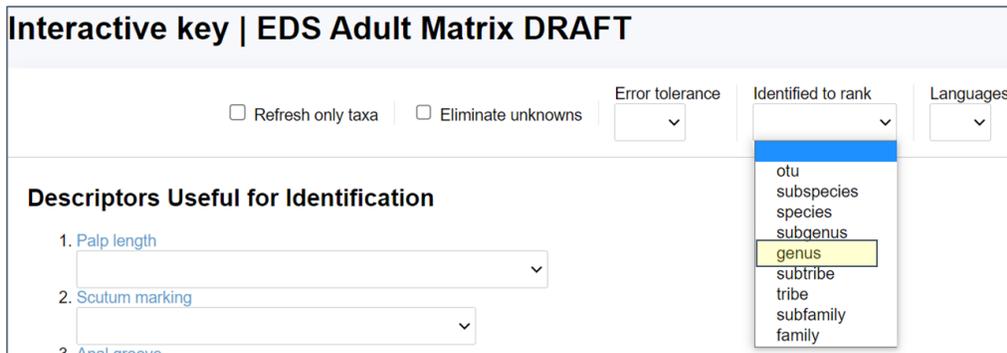
<u>Error Tolerance</u>

Clicking "Error tolerance" will change the number of mistakes that can be made by the identifier before a species is eliminated. For example, if "1" is selected, then 1 mistake in determining a diagnostic character (e.g., scutum marking) can be made before a given species with that character is removed into the eliminated column.
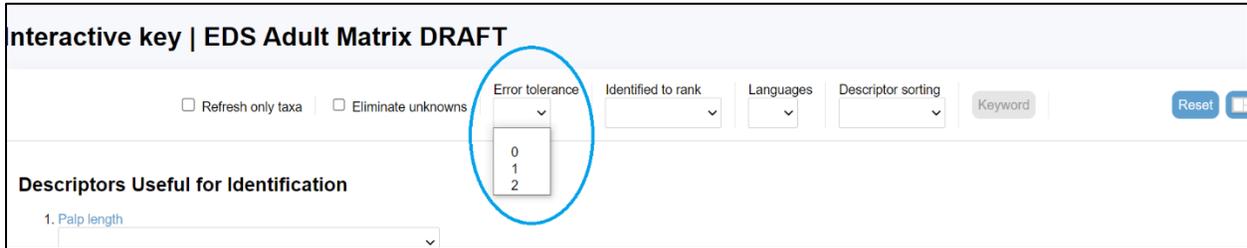
<u>Identify to Genus Instead of Species</u>

The taxonomic rank of the key can be changed using the "Identified to rank" drop down menu if identification to genus (e.g., Amblyomma species, Ixodes species) rather than species is preferred.