

Caterpillars Count!

CITIZEN SCIENTISTS TRACKING THE PHENOLOGY OF BIRD FOOD

We'll begin shortly!

Allen Hurlbert

UNIVERSITY OF NORTH CAROLINA-CHAPEL HILL

WEBINAR OUTLINE
AND RESOURCES

<http://tinyurl.com/CaterpillarsWebinar>

Informational
Webinar
April 2022



- What is the origin of *Caterpillars Count!*?
- What can we learn from *Caterpillars Count!*?
- How can you participate?

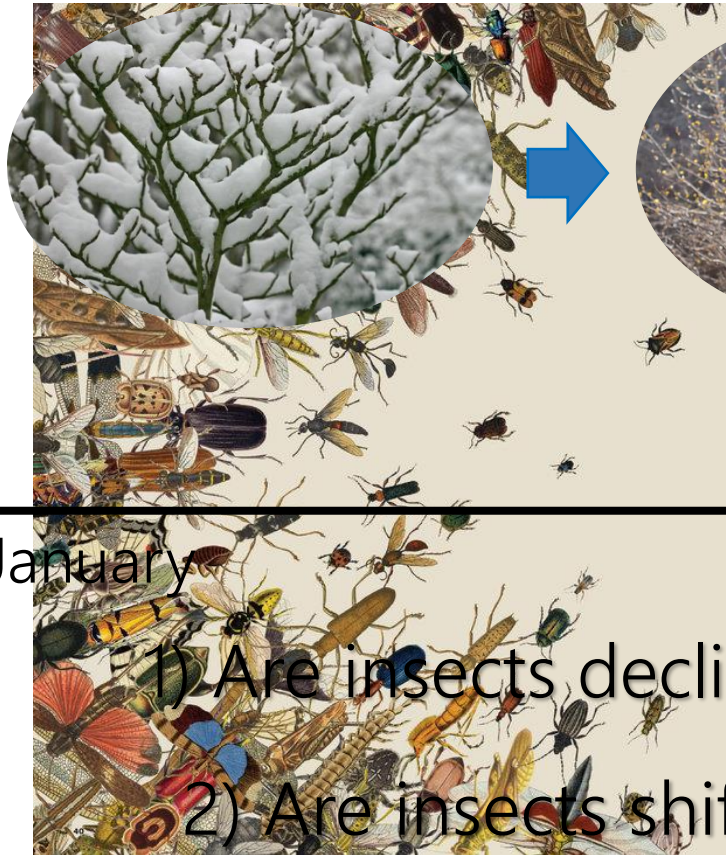


WEBINAR OUTLINE
AND RESOURCES

<http://tinyurl.com/CaterpillarsWebinar>

The Insect Apocalypse Is Here

What does it mean for the rest of life on Earth?



Index of invert

Lepi

1.0

0.5

June

0.0

1970

1980

1990

2000

2010

All other invertebrates

Dirzo et al. 2014, Science 345: 401

January

April

1) Are insects declining? Where? By how much?

2) Are insects shifting their seasonal timing?



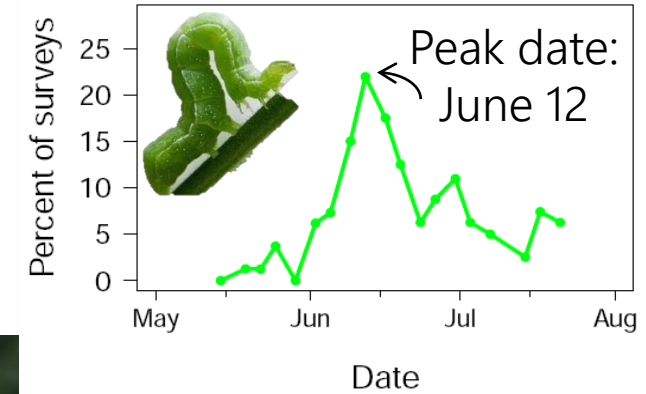
Training resources / mobile app

Conduct surveys



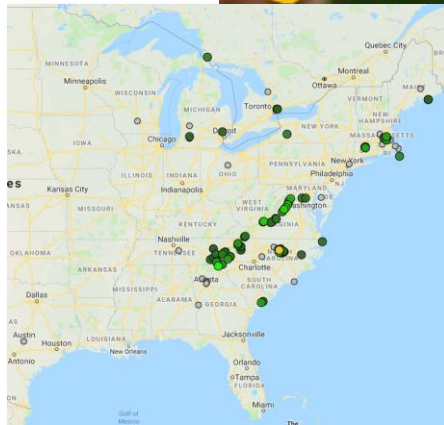
iNaturalist.org
integration

Data visualization tools

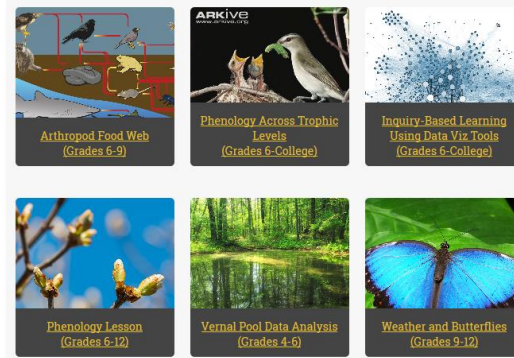


Caterpillars Count!

caterpillarscount.unc.edu



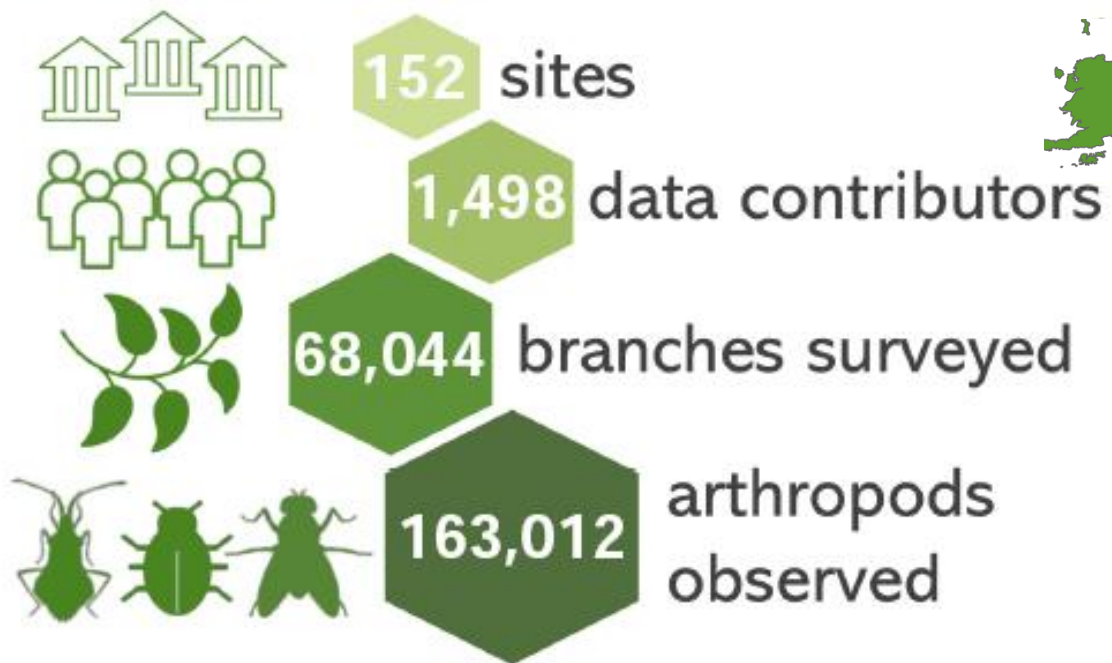
Join us!



Learning activities

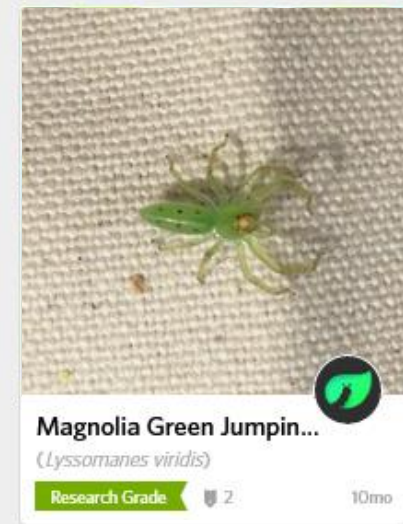
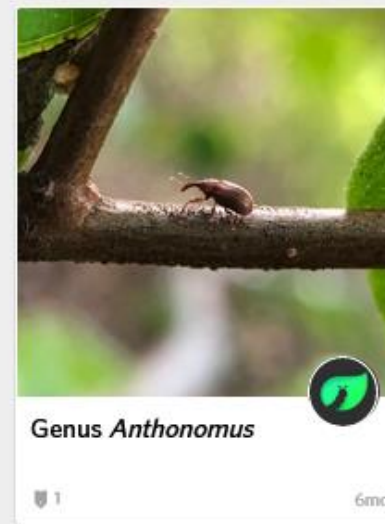
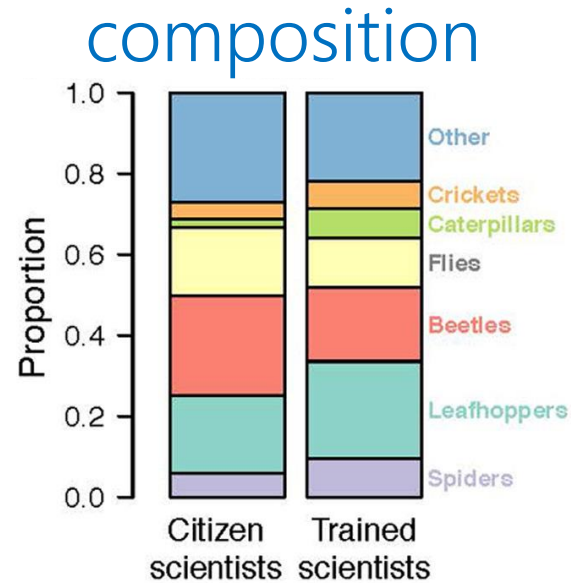


Nature centers / school groups



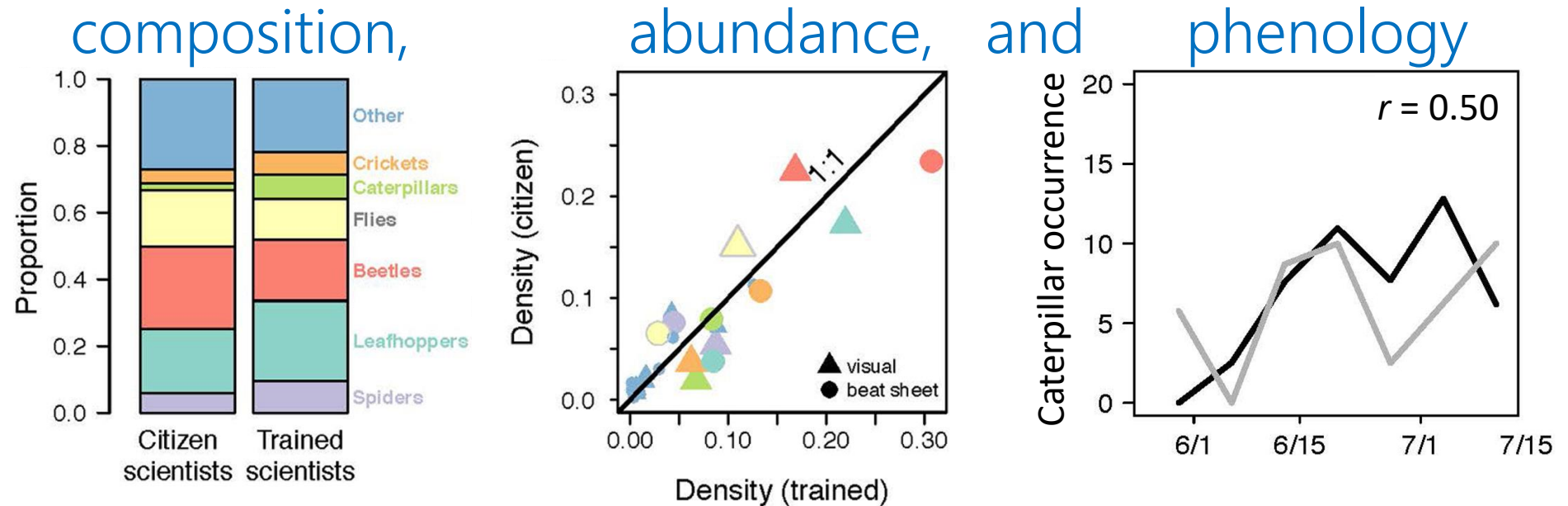
What have we learned?

Citizen scientists provide useful data on arthropod



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Citizen scientists provide useful data on arthropod

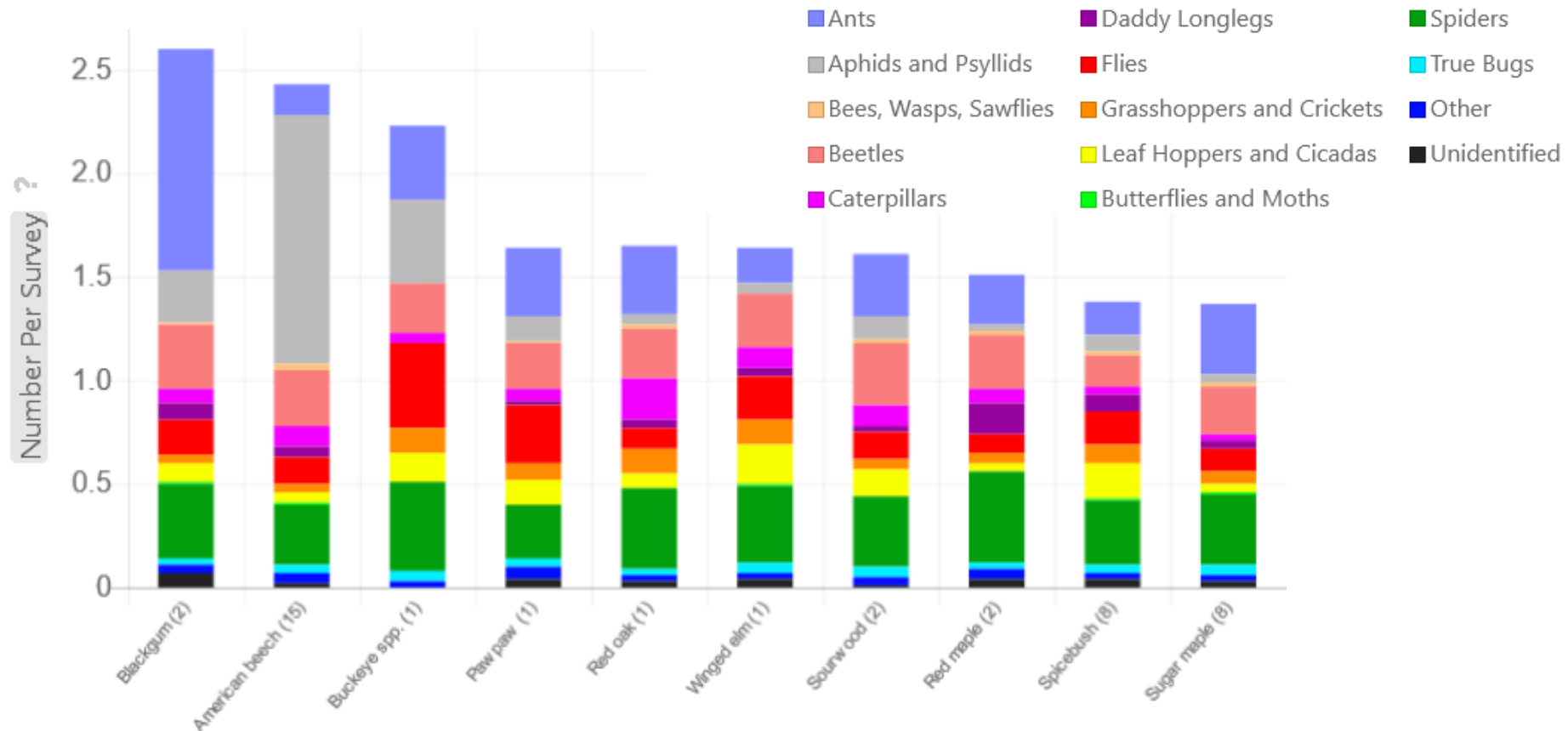


What have we learned?

The abundance of bird food varies
A LOT from place to place!

Caterpillar Density

And with *host plant* species.

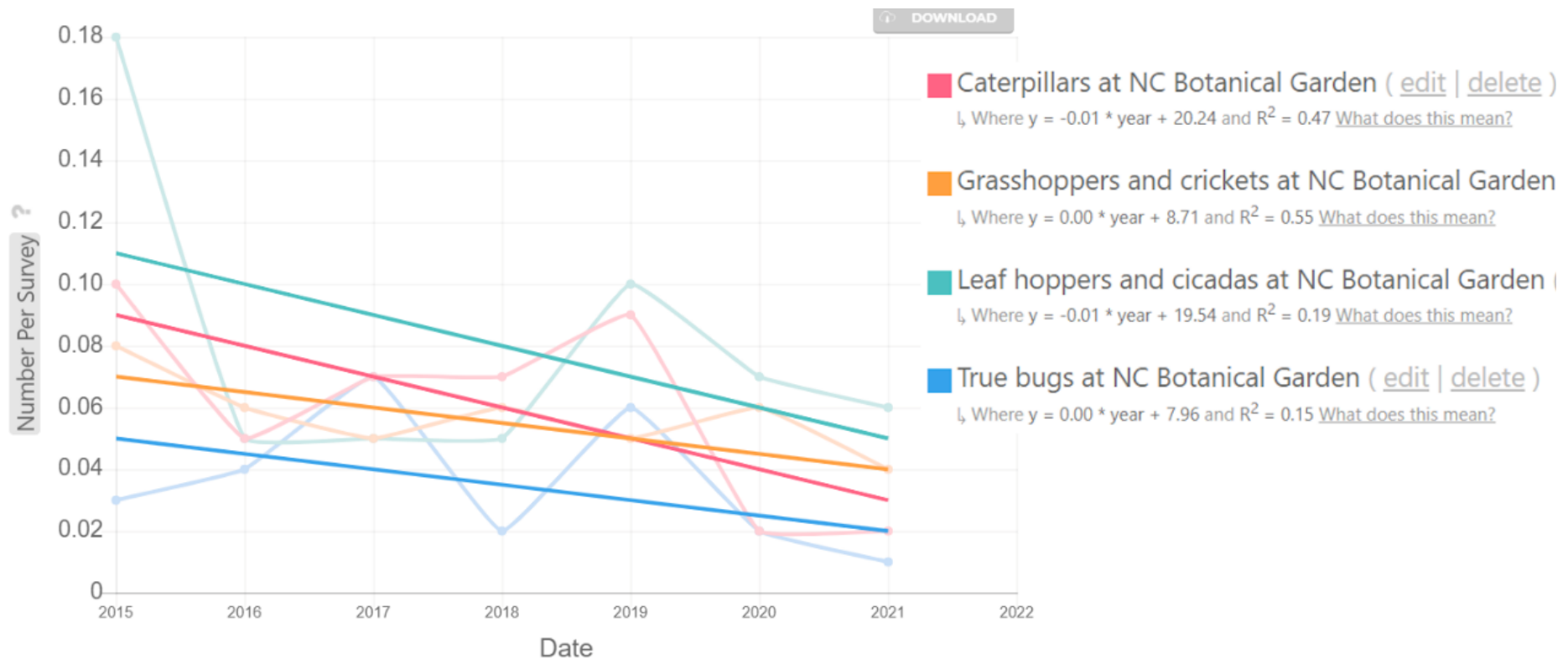


What have we learned?

Is bird food declining in general?

More in some places than others?

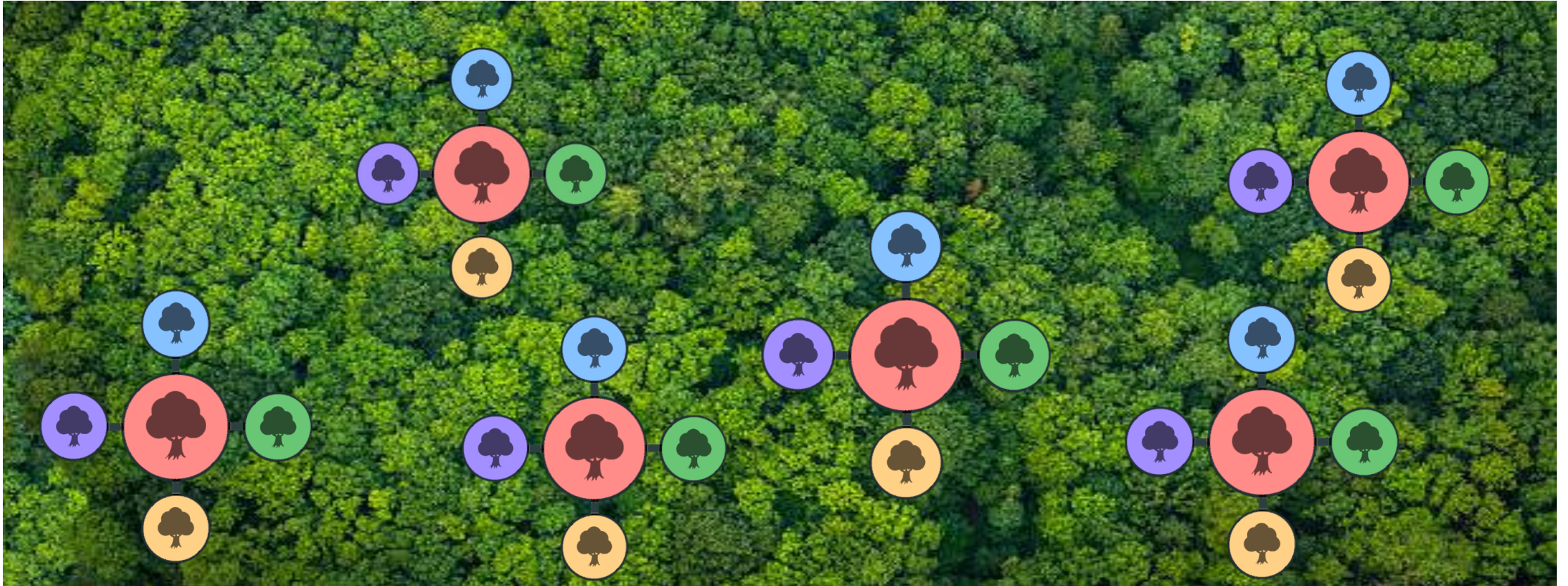
Trends



Setting up a site

Suggested set up for nature centers/schools:

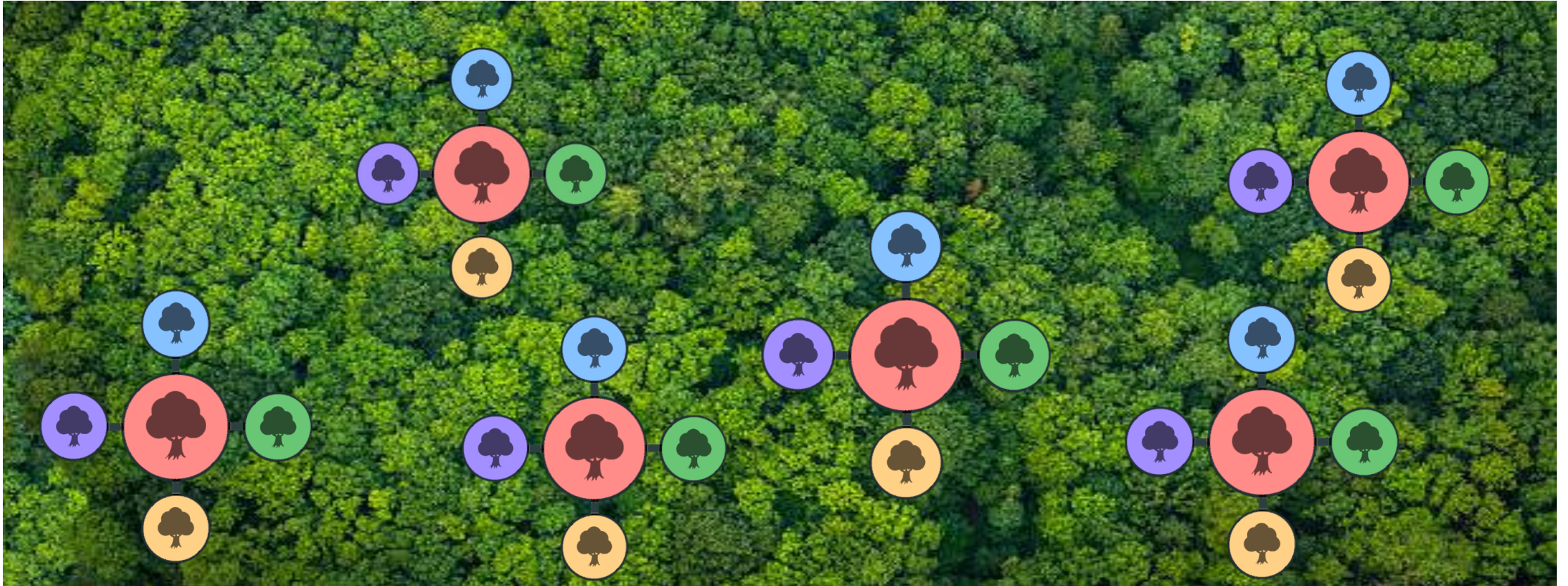
- At least **30 survey trees** (6 circles); allow 2.5 person-hours
- Weekly monitoring from May - July



Setting up a site

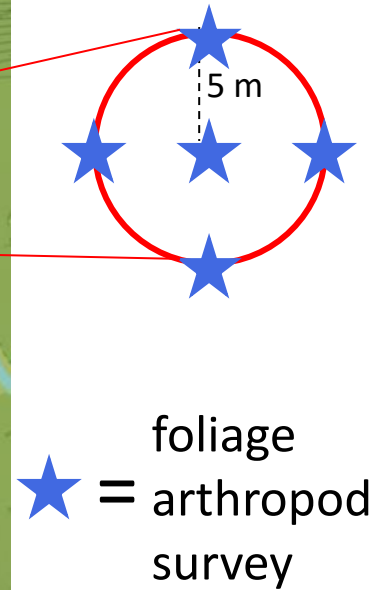
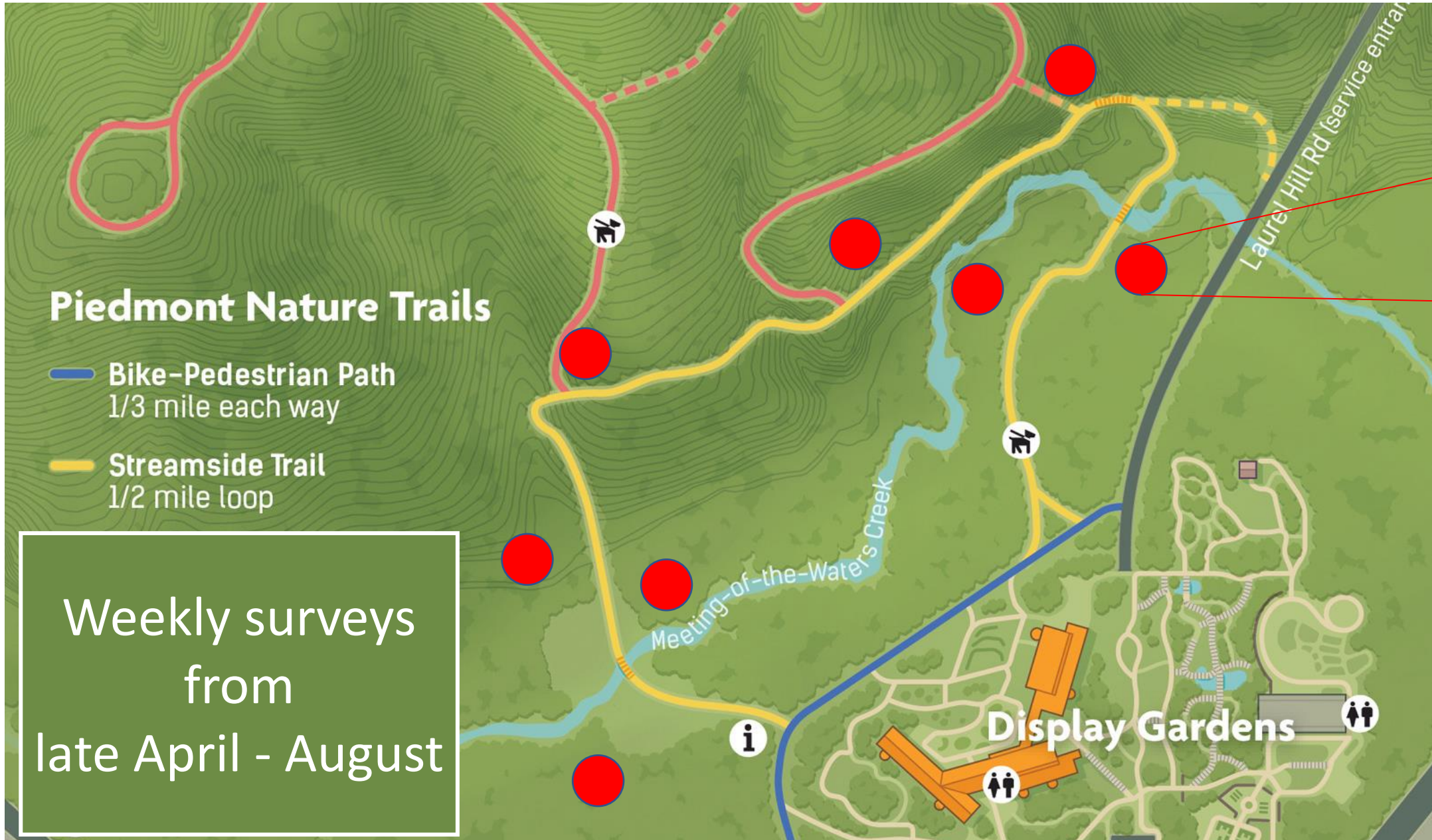
Suggested set up for home/backyard:

- At least **10 survey trees** (2 circles); allow <1 person-hour
- Spatial layout is flexible



Example at NC Botanical Garden:

40 surveys in 8 groups
along Streamside Trail



Create a Site

- No permission required!
- Website > My Account > Create New Site

CREATE NEW SITE

If you know what it takes to host a site and you're ready for it, then go ahead and create one!

SITE NAME:

short and descriptive

ORGANIZATIONAL URL (OPTIONAL):

?

http://

SITE DESCRIPTION:

Explain briefly the nature of your site, e.g., "Prairie Ridge Ecostation is an outdoor nature center

0/140

SITE LOCATION (DRAG & ZOOM):



NUMBER OF PLANTS YOU WILL SURVEY:

must be multiple of 5

SITE PASSWORD (THAT YOU ARE WILLING TO SHARE WITH VISTORS AT THIS SITE):

to verify submissions

🔒

CONFIRM SITE PASSWORD:

to verify submissions

🔒

Conducting surveys

Visual survey
(~5 min each)

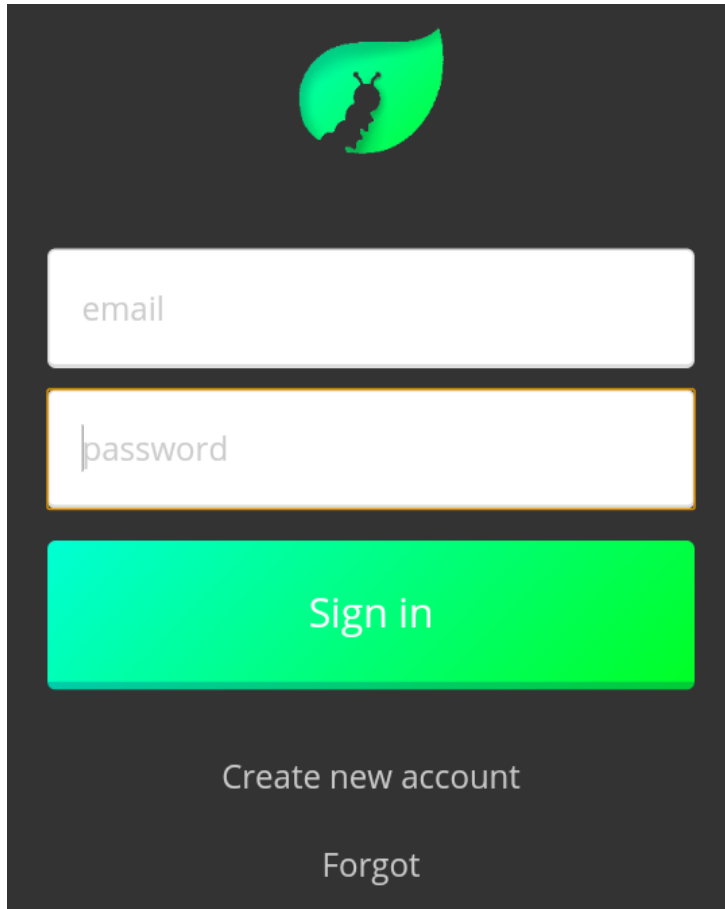


Beat sheet
survey
(2-3 min each)



Mobile app

Create account / Sign in



A mobile app login screen with a dark gray background. At the top center is a logo consisting of a green leaf with a black silhouette of a person standing on it. Below the logo are two white input fields: the first is labeled 'email' and the second is labeled 'password'. The 'password' field has a red border. Below these fields is a large red button with the text 'Sign in' in white. At the bottom, there are two links: 'Create new account' and 'Forgot', both in white text.

email

password

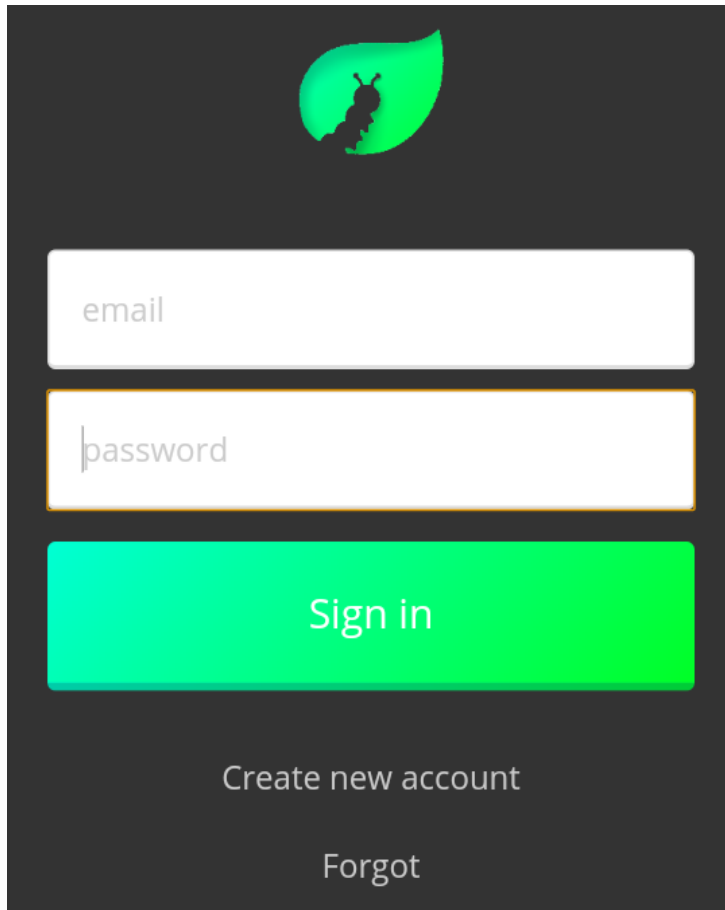
Sign in

Create new account

Forgot

Mobile app

Create account / Sign in



A mobile app login screen with a dark gray background. At the top center is a logo featuring a black silhouette of a beetle on a green leaf. Below the logo are two white input fields: the first is labeled 'email' and the second is labeled 'password'. A large red button with the text 'Sign in' is positioned below the input fields. At the bottom of the screen, there are two links: 'Create new account' and 'Forgot'.

email

password

Sign in

Create new account

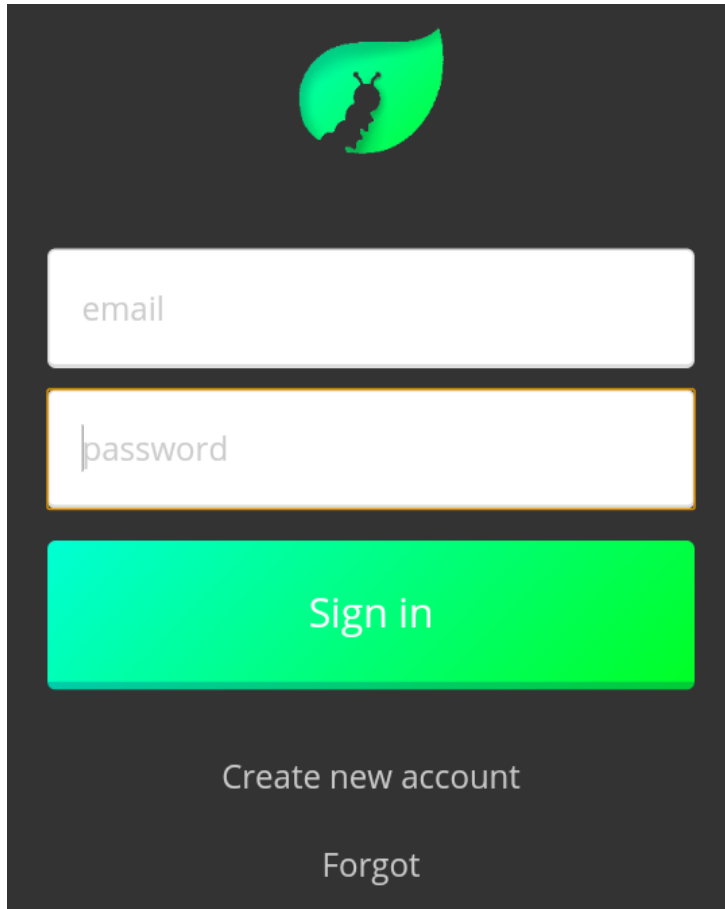
Forgot



For this test branch, the password = test

Mobile app

Create account / Sign in



The login screen features a dark background with a logo at the top center consisting of a green leaf and a black insect. Below the logo are two white input fields: the first is labeled 'email' and the second is labeled 'password'. A large red 'Sign in' button is positioned below the password field. At the bottom, there are two links: 'Create new account' and 'Forgot'.

email

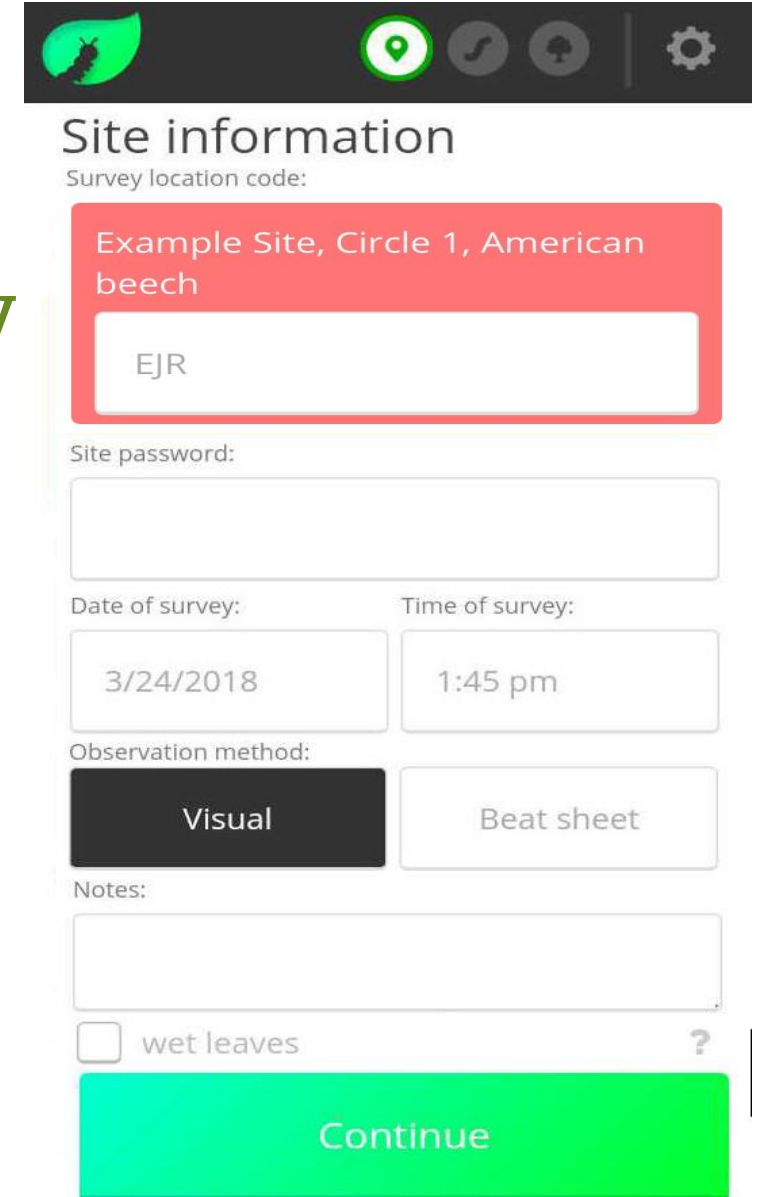
password

Sign in

Create new account

Forgot

Enter unique
3-letter survey
code



The site information screen has a dark header with a green leaf icon, a location pin icon, a magnifying glass icon, a tree icon, and a settings gear icon. The title 'Site information' is in white. Below it, the label 'Survey location code:' is followed by a red-bordered box containing the text 'Example Site, Circle 1, American beech' and a white input field with the text 'EJR'. Below this is a 'Site password:' label and a white input field. The 'Date of survey:' and 'Time of survey:' labels are followed by white input fields containing '3/24/2018' and '1:45 pm' respectively. The 'Observation method:' label is followed by two buttons: 'Visual' (dark) and 'Beat sheet' (light). Below these is a 'Notes:' label and a white input field. At the bottom, there is a checkbox labeled 'wet leaves' with a question mark icon to its right, and a large red 'Continue' button.

Site information

Survey location code:

Example Site, Circle 1, American beech

EJR

Site password:

Date of survey: 3/24/2018

Time of survey: 1:45 pm

Observation method:

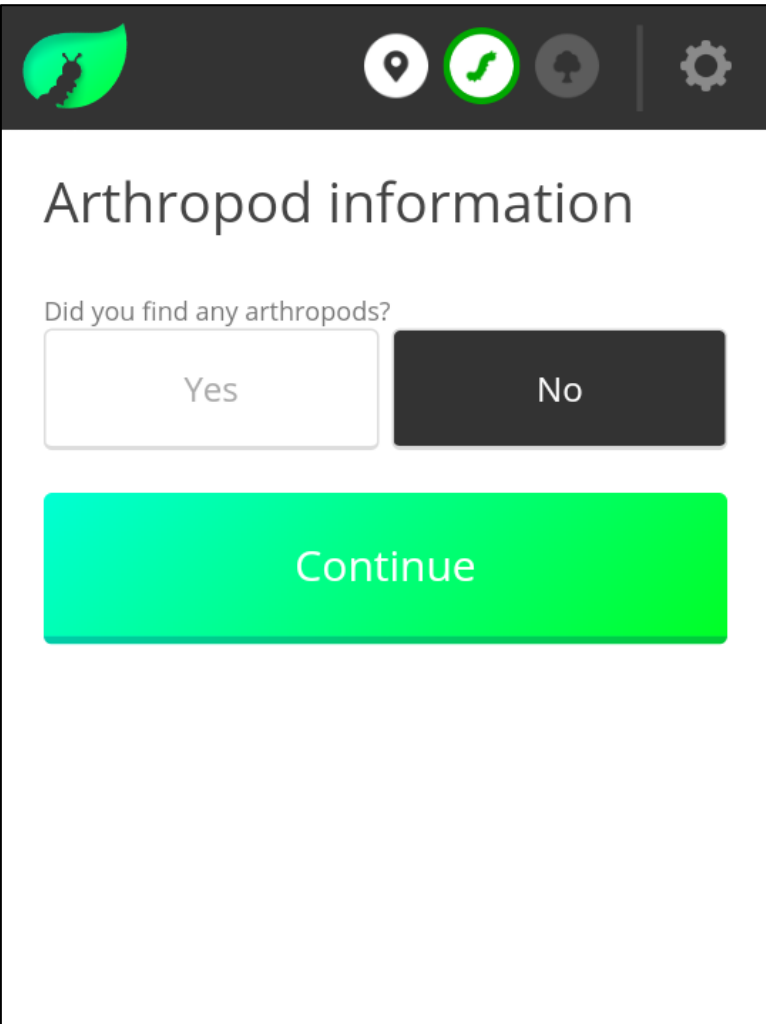
Visual Beat sheet

Notes:

☐ wet leaves ?

Continue

Mobile app



The image shows a mobile application interface for collecting arthropod data. At the top is a dark navigation bar with a green leaf icon on the left and four circular icons on the right: a location pin, a green checkmark, a tree, and a gear. Below the navigation bar, the title "Arthropod information" is displayed in a large, dark font. Underneath the title is the question "Did you find any arthropods?" in a smaller, gray font. This question is followed by two buttons: a white button with the text "Yes" and a dark gray button with the text "No". At the bottom of the form is a large, bright green button with the text "Continue" in white.

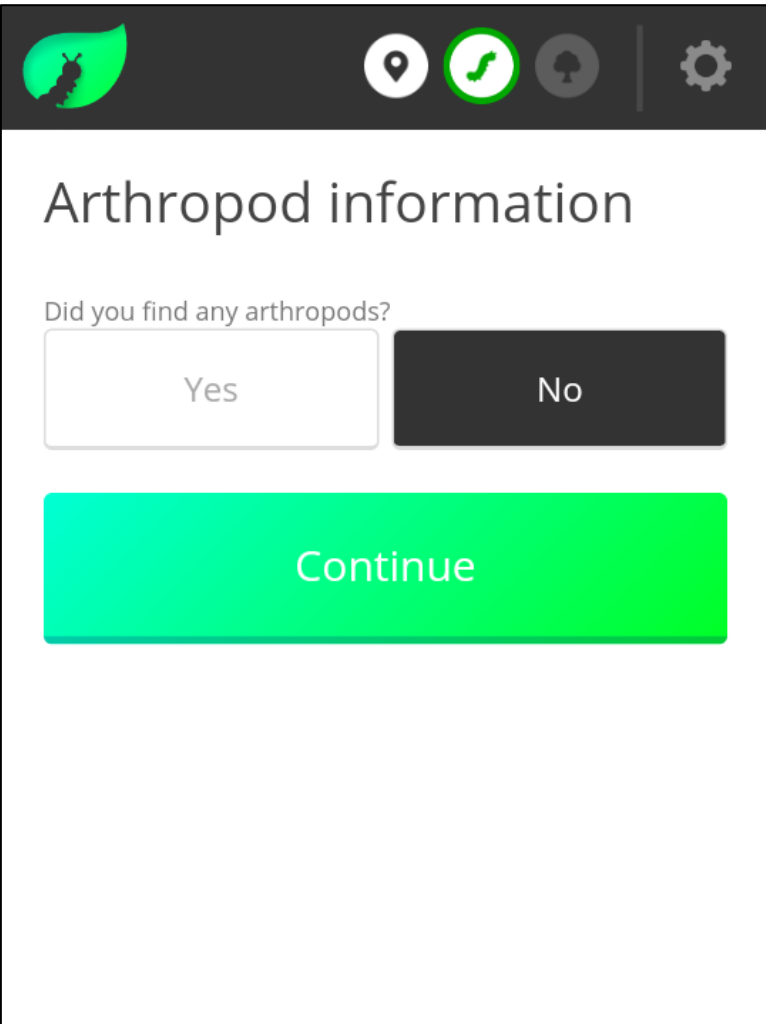
Arthropod information

Did you find any arthropods?

Yes No

Continue

Mobile app



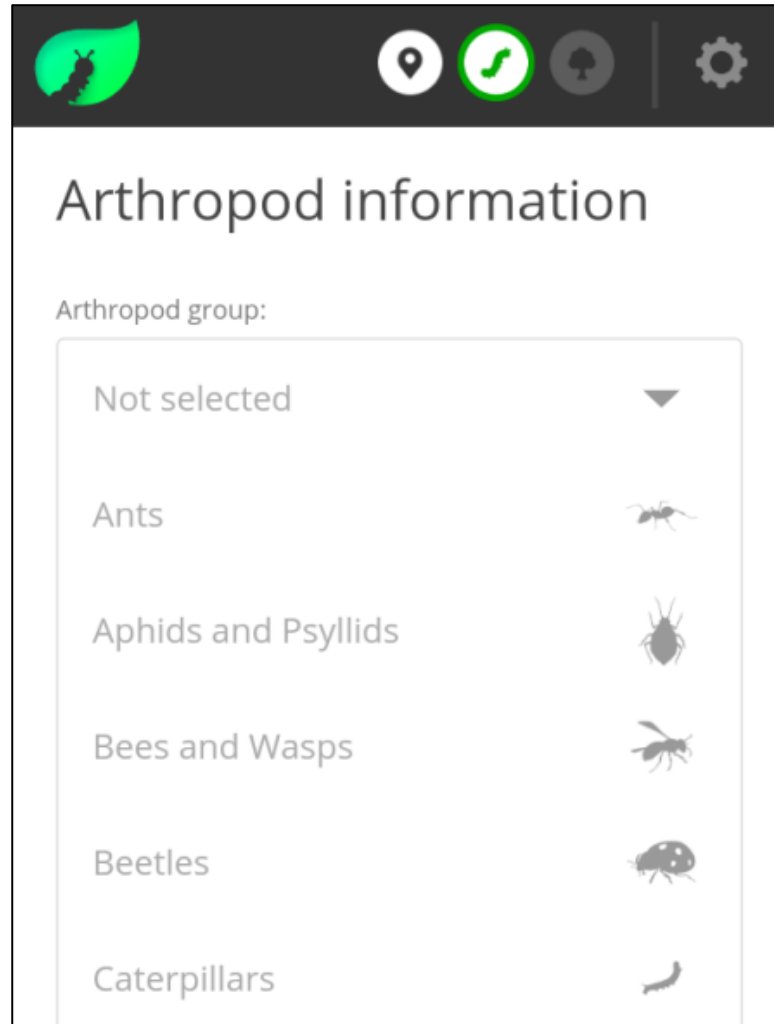
The mobile app interface features a dark header with a green leaf icon, a location pin, a green checkmark, a cloud, and a gear. The main content area is white and titled "Arthropod information". Below the title is the question "Did you find any arthropods?" followed by two buttons: "Yes" and "No". A large green "Continue" button is positioned below these options.

Arthropod information

Did you find any arthropods?

Yes No

Continue



The mobile app interface features a dark header with a green leaf icon, a location pin, a green checkmark, a cloud, and a gear. The main content area is white and titled "Arthropod information". Below the title is the label "Arthropod group:" followed by a list of options: "Not selected", "Ants", "Aphids and Psyllids", "Bees and Wasps", "Beetles", and "Caterpillars". Each option is accompanied by a small icon of the respective arthropod.

Arthropod information

Arthropod group:

Not selected

Ants






Aphids and Psyllids

Bees and Wasps

Beetles






Caterpillars

Mobile app



Arthropod information

Did you find any arthropods?



Arthropod information

Arthropod group:

Not selected






Ants

Aphids and Psyllids


Bees and Wasps


Beetles


Caterpillars








Arthropod information

[4 Ants \(3mm\)](#)

[1 Ants \(10mm\)](#)

[1 Caterpillars \(35mm\)](#)

Mobile app




Plant information

Plant species:

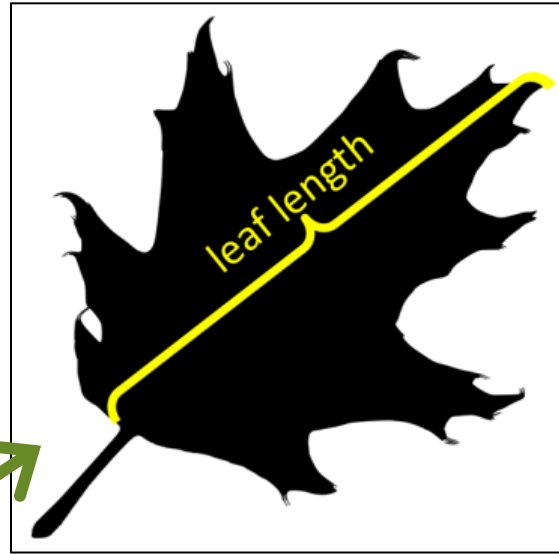
Number of leaves:

Average leaf length:






Herbivory score:



Finish



Mobile app




Plant information

Plant species:

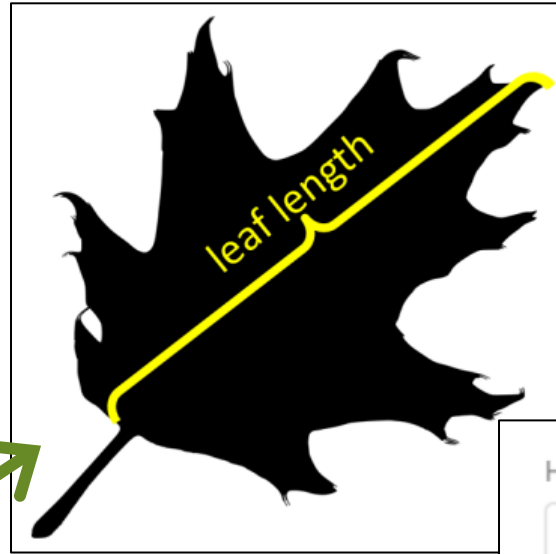
Number of leaves:

Average leaf length:

Herbivory score:



Finish



Herbivory score:

Not selected







None

Trace (1-5%)

Light (6-10%)

Moderate (11-25%)

Heavy (> 25%)



Virtual Survey

Play our virtual survey game to get practice

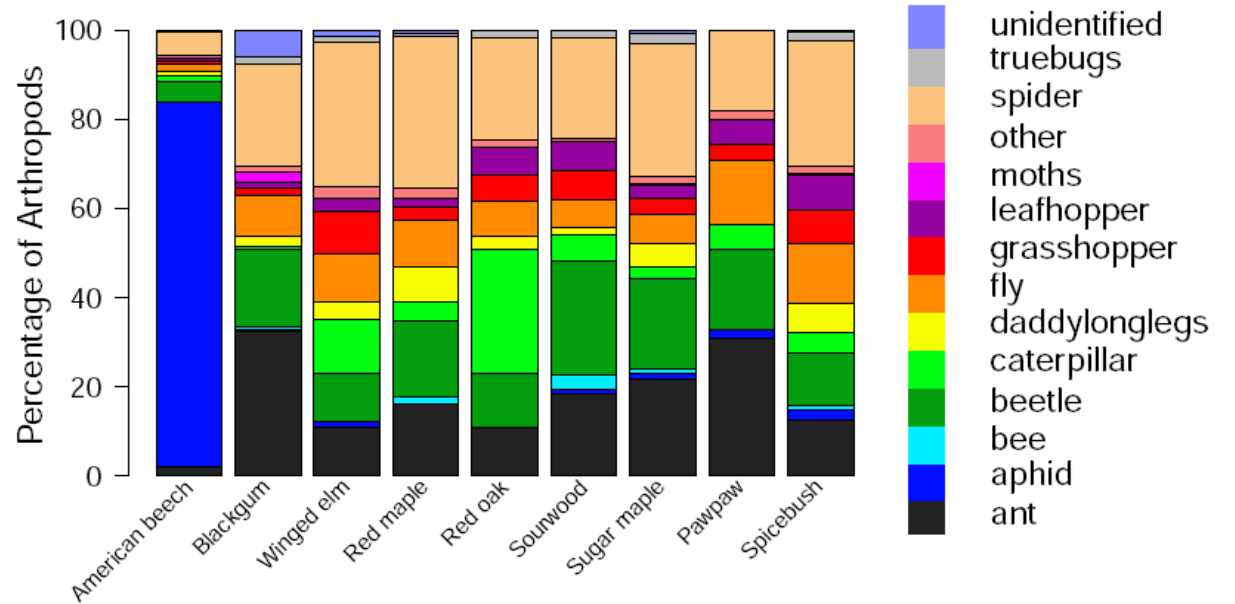
- finding bugs on a branch
- identifying them to order
- estimating their length in millimeters



<https://caterpillarscount.unc.edu/virtualSurvey>

Data Visualization Tools

<https://caterpillarscount.unc.edu/mapsAndGraphs>



Resources page

<https://caterpillarscount.unc.edu/resources>

Annual Site Report

NC Botanical Garden, 2019 Summary

Thank you for participating in *Caterpillars Count!* Here we provide a summary of what was found at your site this year. For a more in-depth exploration of the data check out our [Maps & Graphs](#) page. The raw data from your site, or any site, can be downloaded [here!](#)

Site Statistics

NC Botanical Garden joined *Caterpillars Count!* in 2015 and has 40 survey branches spread across 8 survey circles. This season (as of 27 September):

- 11 unique participant(s) submitted observations at your site,
- conducting 833 visual and 840 beat sheet surveys
- on 21 different dates
- observing a total of 2,164 arthropods
- including 158 caterpillars (present on 8.67% of surveys).
- Across all years, 38 unique participants have conducted 7,747 total surveys.

The 1,673 total surveys conducted at NC Botanical Garden this year ranks 3rd out of the 54 sites that participated in 2019.

Top Participants of 2019

User	Surveys	Arthropods	Caterpillars	% Caterpillars
G Di Cecco	501	618	58	10.38
R Cooper	326	509	36	9.82
A Hurlbert	243	306	32	12.35
G Ni	240	310	10	4.17
C Bridges	239	284	10	4.18
S Snell	74	93	10	12.16
D Pelly	36	29	2	5.56
M Abarca	5	8	0	0.00

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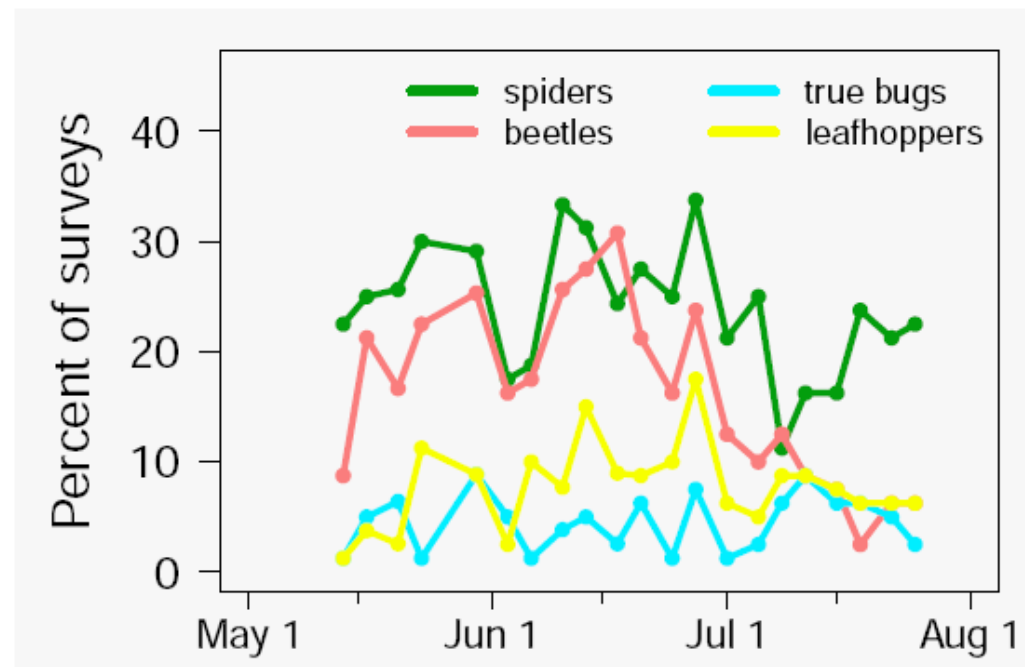
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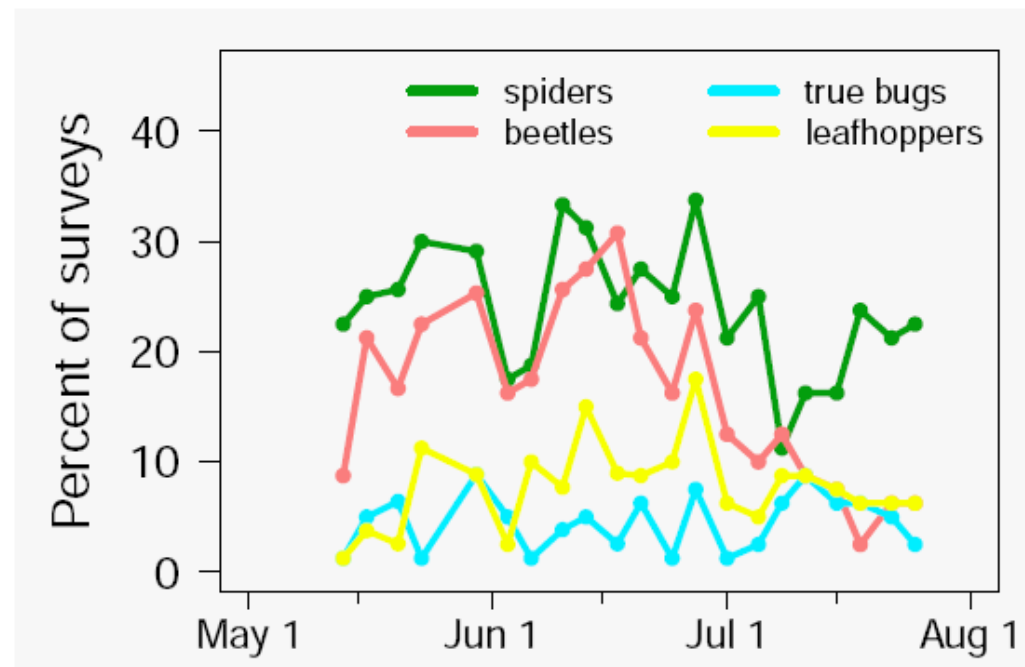
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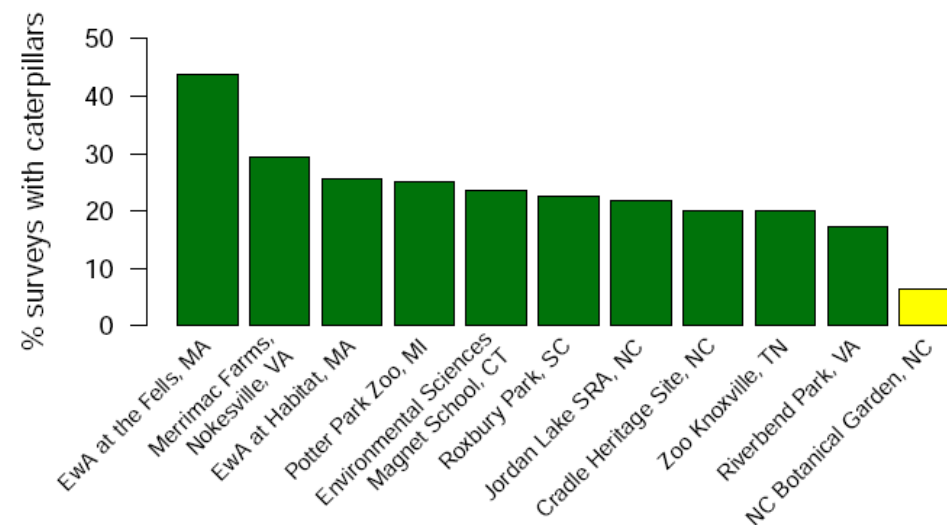
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Across all surveys ever done at NC Botanical Garden, caterpillars have been found 6.5% of the time, which ranks 32nd across sites. The top 10 sites (with ≥ 20 surveys) are shown below.





Join Us!

Sign up at caterpillarscount.unc.edu

Questions?

Email caterpillarscount@gmail.com

Dr. Allen Hurlbert, Project Leader
Funded by the National Science Foundation