The USA-NPN Visualization Tool:

Exploring Phenology Data

USA National Phenology Network
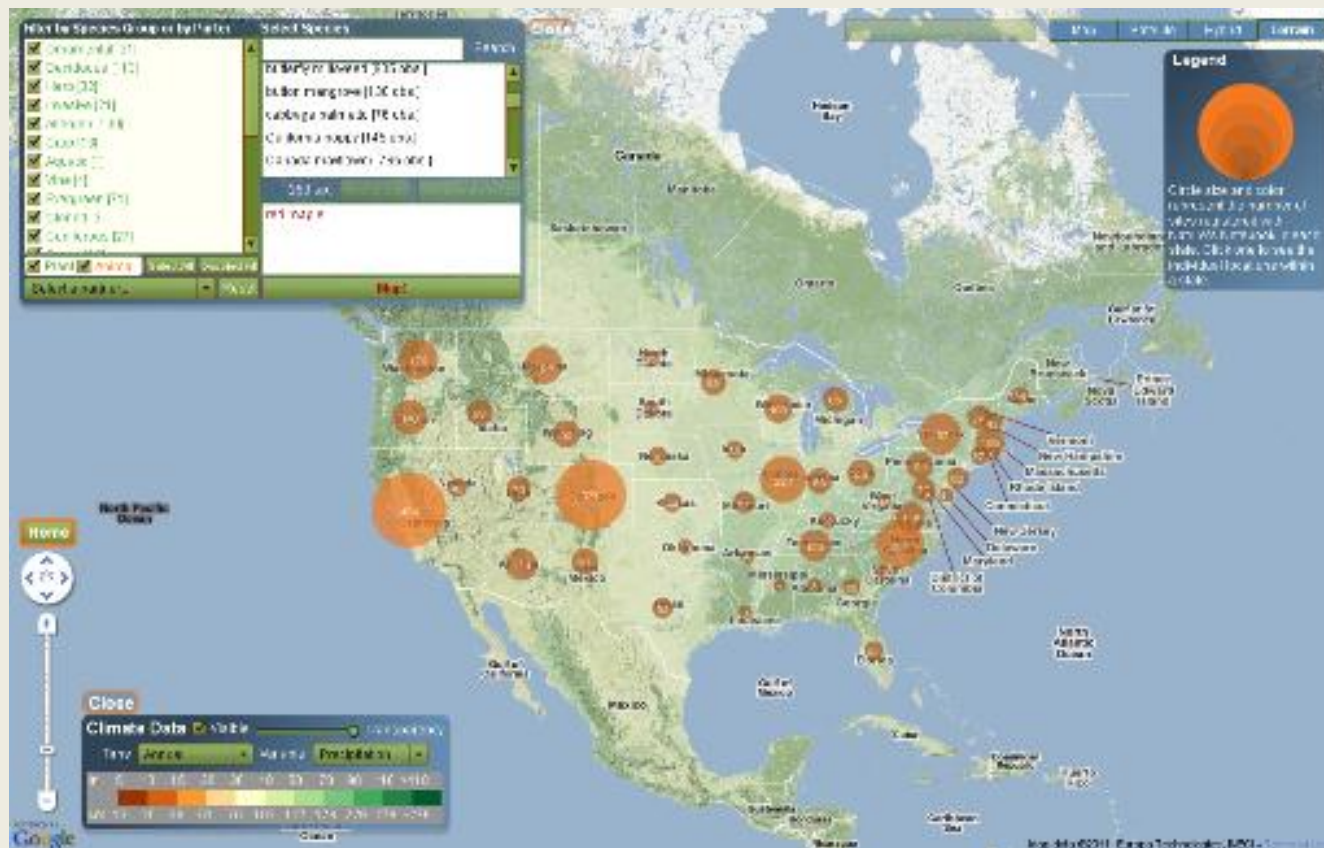
Phenology Database

- 4,000 registrants at 5,000 sites

- 16,000 organisms

- >600,000 data records

- FGDC-compliant metadata and documented methodology

Available for download: www.usanpn.org/results/data

Visualization Tool Homepage

www.usanpn.org/results/visualizations

Click on a circle to see the individual sites in that state
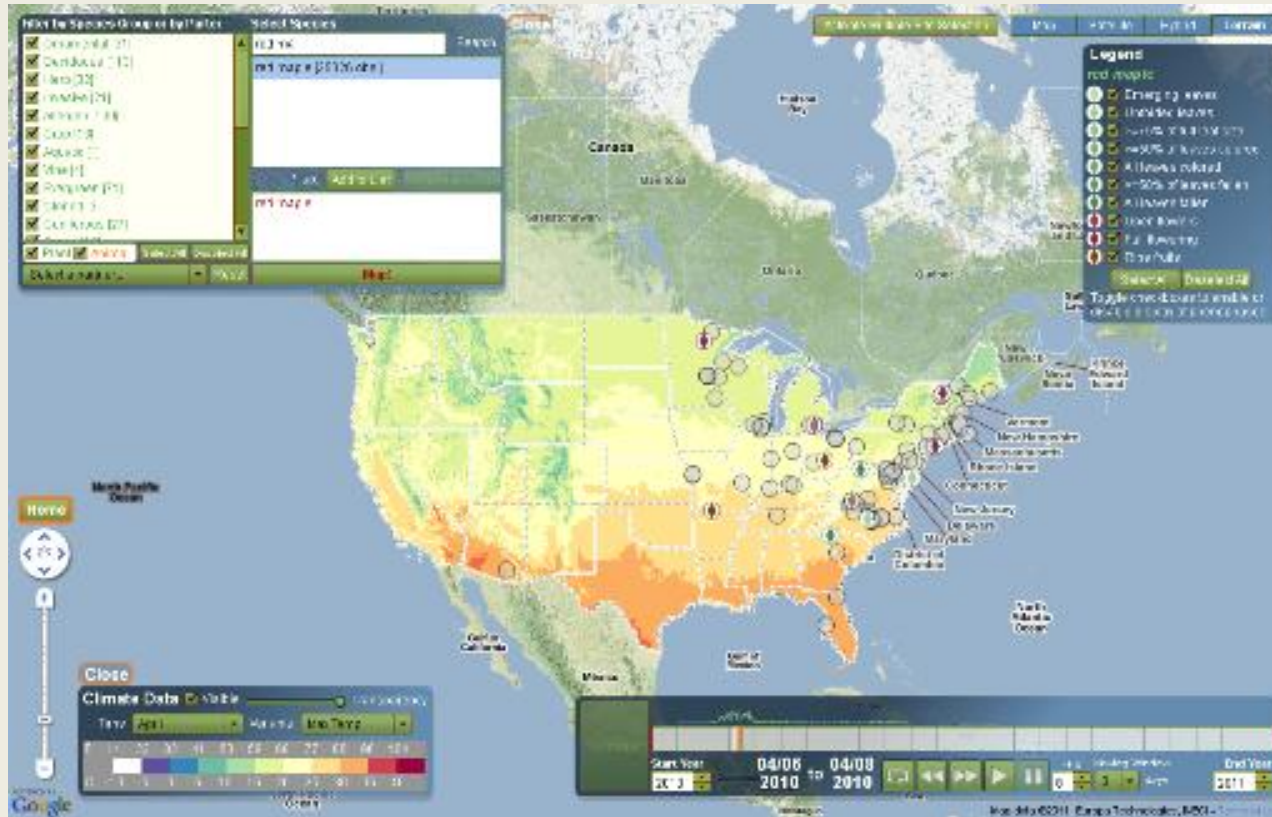
Select and Map a Species

Select a species from the box on the top right (filter by category, partner or use a keyword search). Click "**Add to List**" to show it in the box below, and then click "**Map**" to map the locations where that species has been reported on the map

A phenophase legend will appear in the upper right, and a timeslider will appear in the lower right.

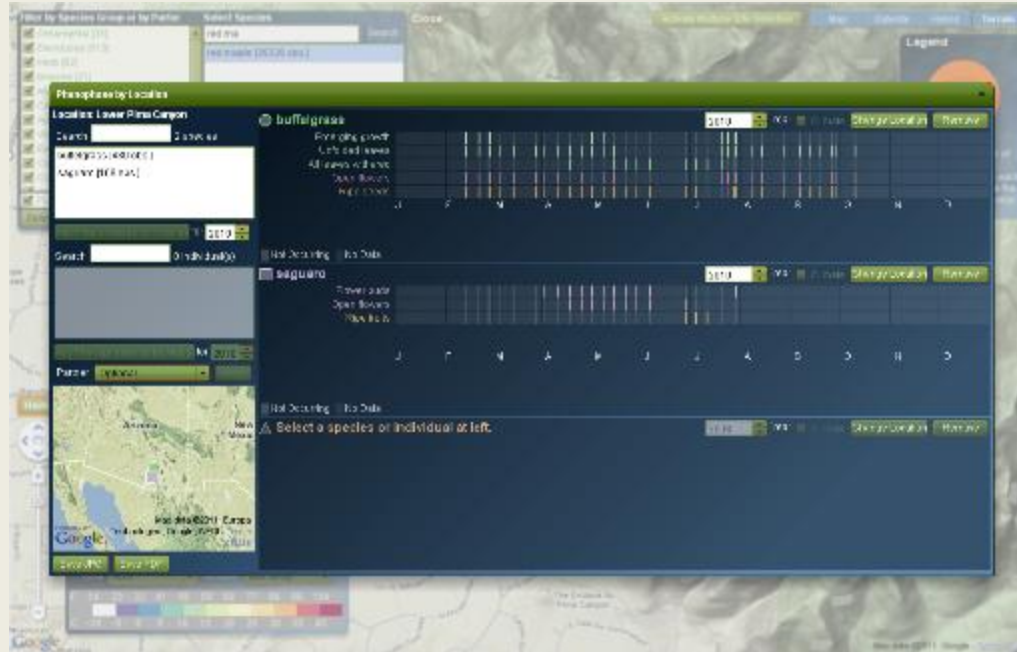Up to three species can be mapped at the same time.

Add Climate

By opening the "**Climate Map Controls**" in the lower left and setting "**Climate Data**" to visible, you can view maximum temperature, minimum temperature and precipitation either by month or annually as a background layer on the map (you may select PRISM 30 year normals or 2009 or 2010 monthly actuals for this data layer). If you animate data through time, with climate visible, you will see the climate data on the background change alongside the phenology data.

Graph Phenology Data

To explore the phenology data for a particular site or region either click on the site or set a bounding box around a region (use the "**Activate Multiple Site Selection**" button to select a region). You'll then see a graphical interface where you can view phenology data through time.
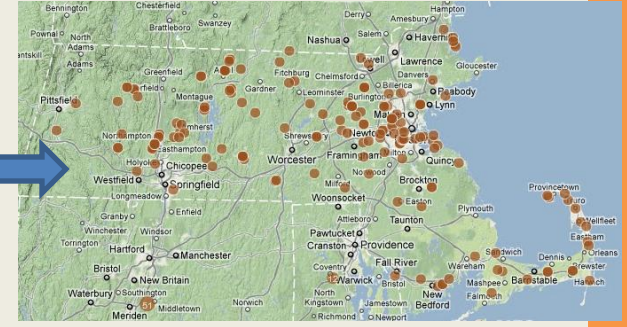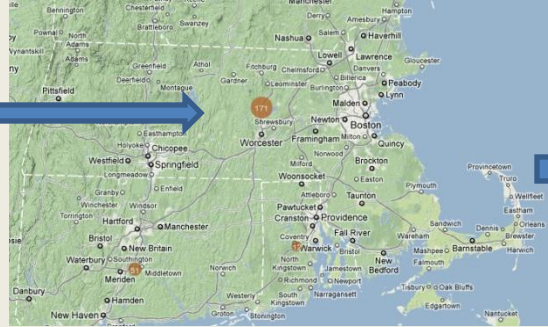
The boxes on the left show the species and individuals available for the site or region. Use the "**Add Phenophases for Species**" or "**Add Phenophases for Individuals**" to graph the data on the right. You can compare phenology graphs for up to three species in this way.
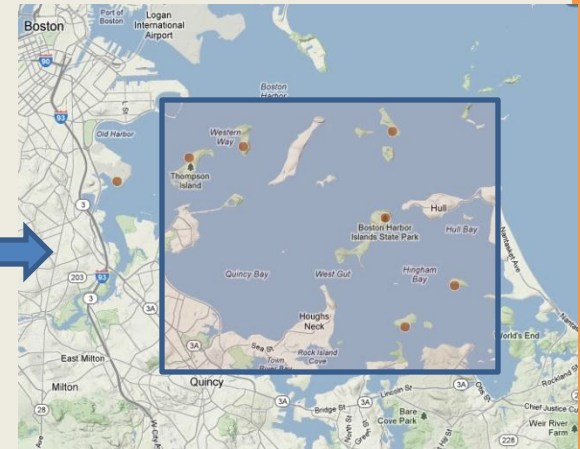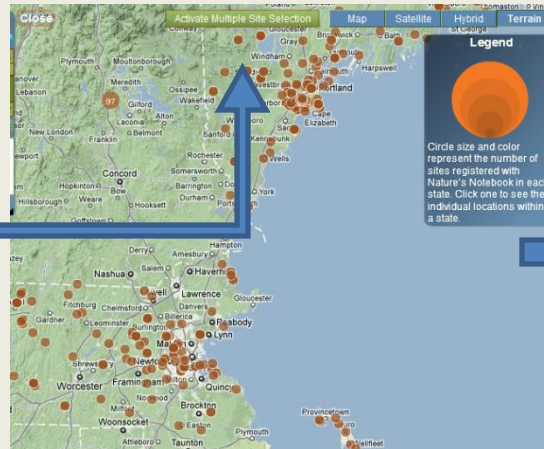

To compare data for the same species across up to three locations, use the "**Change Location**" button (loading species information into each graph for the same site; and then changing location is the best way to compare species across sites; the map in the lower left shows sites color-coded to match the graph titles). You might also want to compare three years for the same species, and same location - use the year drop down to accomplish this.

Choosing Multiple Sites

Click on the circle for the state you want. This will show you all individual sites in that state.

Choose "activate multiple sites" in the top left corner of the screen, and drag a box around all the sites you want to view.

Sharing Data

To share maps and graphs of specific data, you can go to this version of the tool: http://www.usanpn.org/files/viz/index.html
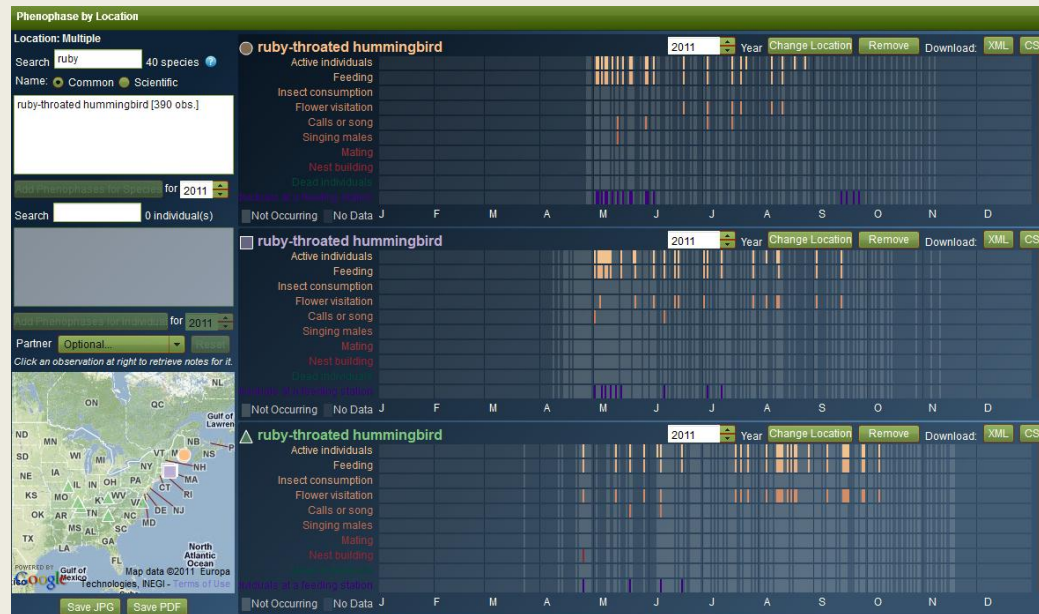
Set it up the way you want it (species, zoom level, region, time frame) and then copy the URL path. Anyone who uses this URL path can see what you see, and then interact with it further.

Example

Exploring spatial patterns:
Visualizing migration of ruby-throated hummingbirds

- This graph displays observations of ruby-throated hummingbirds from three locations in the eastern United States in 2011.

- Active individuals were reported in the mid-Atlantic states (represented as green triangles) as early as April 24. They were first reported in southern Maine (purple squares) on May 1, and farther north (orange circles) on May 2.

- The southern migration is also apparent in the autumn months.

Thank you!

You're invited to connect with USA-NPN…

- Sign up for a phenology **e-newsletter** (quarterly)
- Join the *Nature's Notebook* community **and become an observer**: Contribute to science while having fun!
- Discover **new tools and resources** for work or play

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Presentation developed courtesy of

Kasey Armstrong

Boston Harbor Islands National Recreation Area