

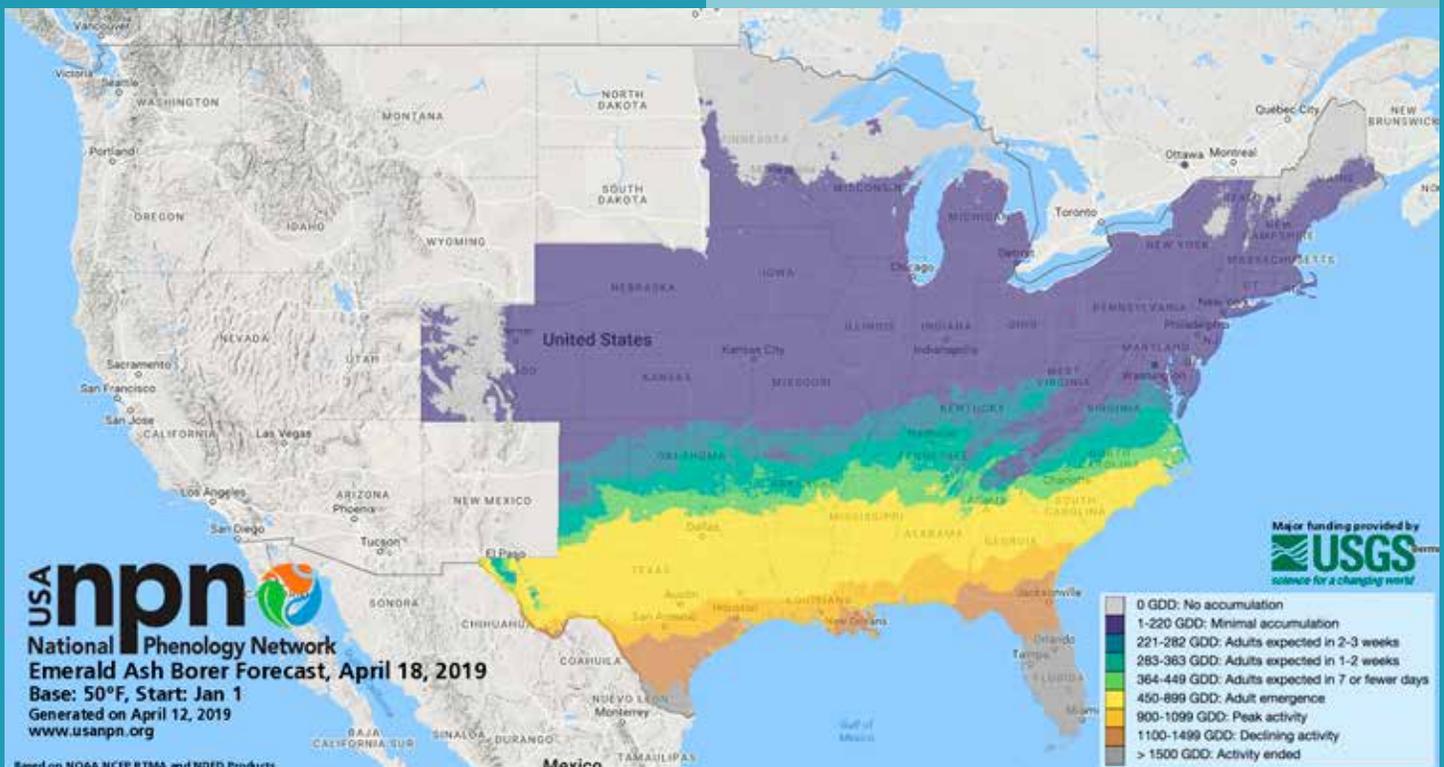
# USA National Phenology Network Expands Daily Forecasts to Twelve Insect Pests

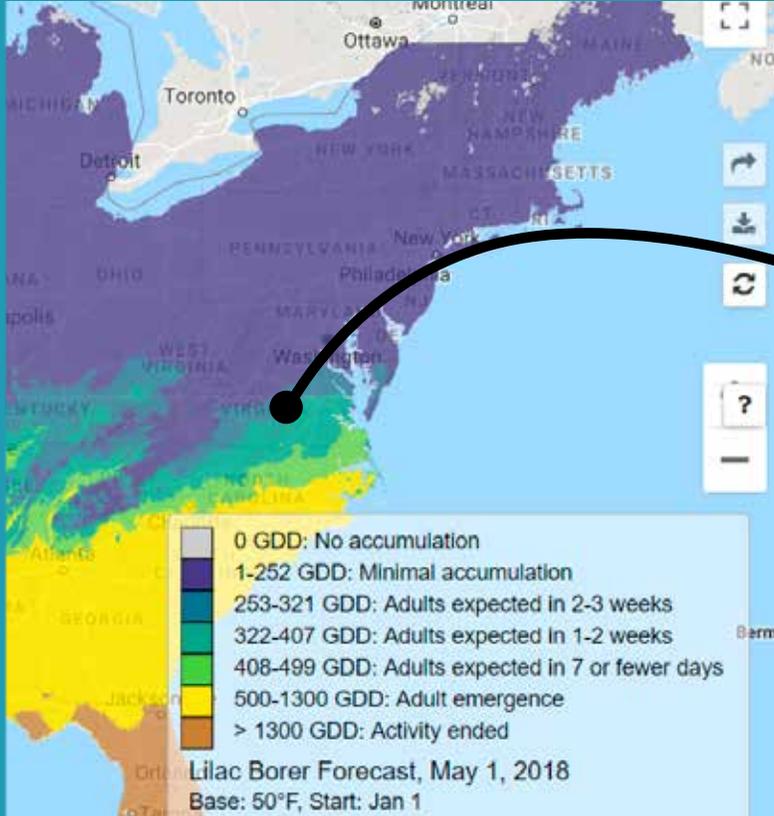
By Theresa Crimmins, Kathy Gerst, Lee Marsh, Erin Posthumus, Alyssa Rosemartin, and Jeff Switzer

In 2018, the USA National Phenology Network (USA-NPN) released a suite of “Pheno Forecast” map products for five insect pests (please see the article about this in the [May/June 2018 issue](#) of *City Trees*).

Pheno Forecast maps indicate, for a specified day, the status of the insect’s target life-cycle stage in real time across the contiguous United States. Maps are available via the USA-NPN visualization tool ([www.usanpn.org/data/visualizations](http://www.usanpn.org/data/visualizations)) and the USA-NPN website ([www.usanpn.org/data/forecasts](http://www.usanpn.org/data/forecasts)). Pheno Forecast maps are based on accumulated temperature thresholds associated with critical life-cycle stages of the target insects.

Pheno Forecast map for emerald ash borer for April 18, 2019 (generated on April 12, 2019). Colors indicate the status of adult emergence. The status of a location is determined by comparing the local Growing Degree Days accumulation to a published heat accumulation threshold for the life-cycle stage. (Please see the article, “Growing Degree Day Maps Pinpoint Pest Management Windows” in the [Jan/Feb 2018 issue](#) of *City Trees*.)





Receive email-based notifications approximately two weeks and six days prior to when the life cycle of interest for your species will occur at your location.

The original maps were adopted widely by natural resource managers, municipal arborists, and backyard gardeners. Based on this positive reception, the USA-NPN now offer Pheno Forecast maps for a total of 12 pest species:

- apple maggot (*Rhagoletis pomonella*)
- Asian longhorned beetle (*Anoplophora glabripennis*)
- bagworm (*Thyridopteryx ephemeraeformis*)
- bronze birch borer (*Agrilus anxius*)
- eastern tent caterpillar (*Malacosoma americanum*)
- emerald ash borer (*Agrilus planipennis*)
- gypsy moth (*Lymantria dispar*)
- hemlock woolly adelgid (*Adelges tsugae*)
- lilac borer (*Podosesia syringae*)
- magnolia scale (*Neolecanium cornuparvum*)
- pine needle scale (*Chionaspis pinifoliae*)
- winter moth (*Operophtera brumata*)

The USA-NPN has made several additional enhancements to the maps, including:

**Notifications!** Receive advance warning of actionable activity for your pest of interest. Sign up to be notified by email approximately two weeks, and again six days, before the predicted life cycle stage is reached at your location. Sign up to receive notifications for any or all of the pest maps at [www.usanpn.org/data/forecasts](http://www.usanpn.org/data/forecasts).

**Report pest activity at your site over the season.** The USA-NPN maintains Nature's Notebook, a program for tracking plant and animal activity over the course of the season. Tracking phenology at your site can help you choose the best time to perform management activities and serve as an early warning indicator of trouble brewing among your trees. Tracking phenology of your trees and insect pests also offers education and engagement opportunities and supports research. You can report the status of the Pheno Forecast pest species through Nature's Notebook through the USA-NPN's Pest Patrol campaign ([www.usanpn.org/nn/PestPatrol](http://www.usanpn.org/nn/PestPatrol)). The USA-NPN will use these observations to validate and improve the Pheno Forecast maps. >>

The maps available in 2019 feature a greater number of legend categories than the original maps, providing more nuanced information regarding the imminence of the event of interest. Another change is that the maps now depict the status of each pest's life cycle stage, rather than reporting on "time to treat." This leaves the decision about if and when to treat for insect pests in your hands.

Thank you for your input so far! You're invited to help improve the maps even further. The Pheno Forecast map products are continually being improved, and your input on their performance in your area is very valuable. Please share your thoughts for species to add or enhancements to make at [www.usanpn.org/phenoforecastsurvey](http://www.usanpn.org/phenoforecastsurvey). 🌿



Report your observations of pest insect activity through Nature's Notebook, the plant and animal phenology observing program of the USA-NPN.



Theresa Crimmins is the Assistant Director of the USA National Phenology Network's National Coordinating Office. She has written multiple articles for *City Trees* about techniques for using phenology to better time treatments for urban forest insect pests.



### Who is the USA National Phenology Network?

Funded primarily by the U.S. Geological Survey, the USA National Phenology Network is a national-scale consortium of individuals and organizations that collects, stores, and shares phenological data, value-added data products, and information to advance science and to support natural resource decision-making across a variety of spatial and temporal scales. The Network delivers free and readily available phenological data, connects researchers studying how species respond to climate change with managers who need this information to inform adaptive management, and creates a diverse community of stakeholders. The USA-NPN also hosts Nature's Notebook, a plant and animal phenology observation program suitable for natural resource managers as well as nature enthusiasts of nearly all ages and skill levels.