



The USA National Phenology Network: Data, tools, and resources to support science, management, and outreach

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www.usanpn.org

USA National Phenology Network



Collect • Store • Share
Phenology data and information

Advance Science
Inform Decisions

Communicate & Connect
Grow an Equitable and Inclusive
Network

Comprehensive community science program

- Standardized protocols for ~1,400 species of plants and animals
- Extensive training materials & support
- Mobile apps



Nature's Notebook engagement



- 500+ partners contributing data
- Active community – forum, monthly calls
- Formal training: >150 certified leaders

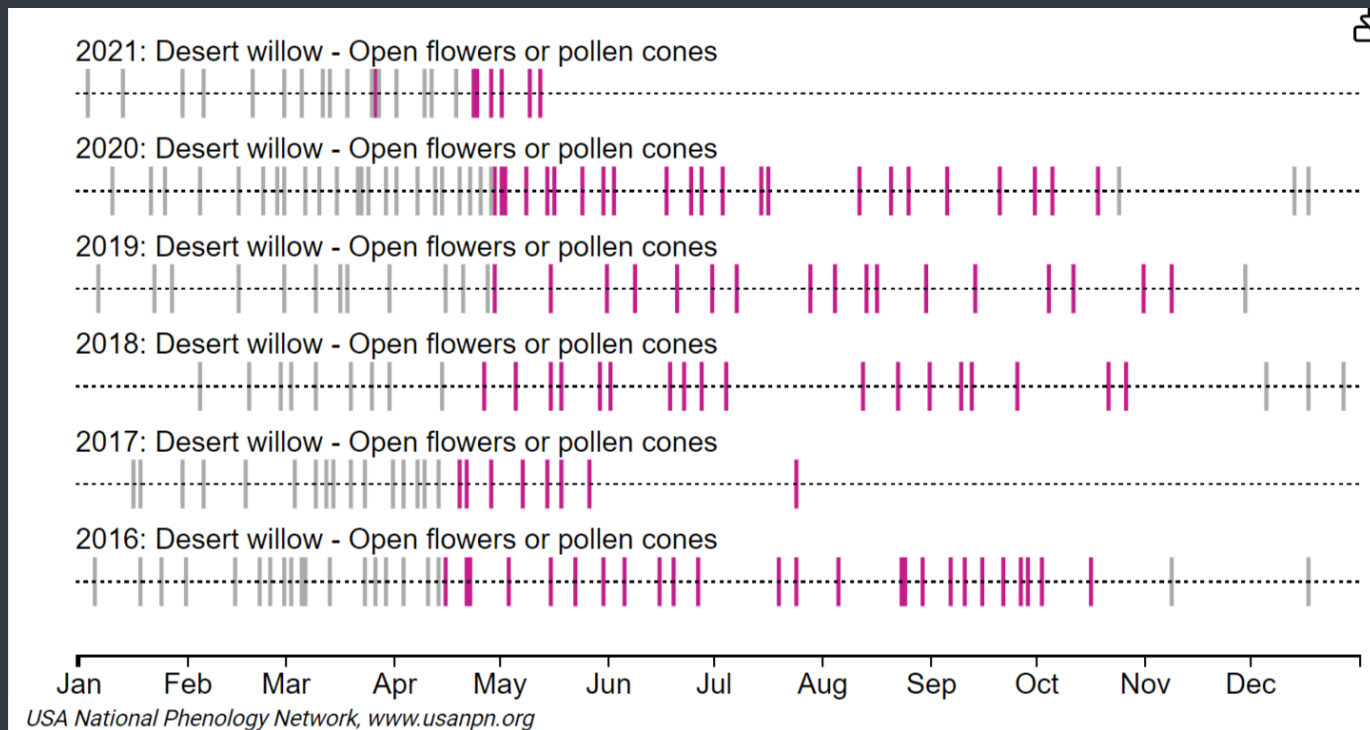


Plants	Animals	Site-visit Details
Observation Date	2021-5-19 ▼	
desert willow-front yard ▼		
Young leaves	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> ?	<input type="button" value="i"/>
	101 to 1,000 ▼	
Leaves	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> ?	<input type="button" value="i"/>
	75-94% ▼	
Colored leaves	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> ?	<input type="button" value="i"/>
Falling leaves	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> ?	<input type="button" value="i"/>
Flowers or flower buds	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> ?	<input type="button" value="i"/>
	1,001 to 10,000 ▼	
Open flowers	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> ?	<input type="button" value="i"/>
	25-49% ▼	
Save Data		Next Plant



Data access, visualization

- Data query tool
- Extensive documentation
- R package



Data collection campaigns



Green Wave



Flowers for Bats



Nectar Connectors



Pest Patrol



Southwest Season Trackers



Lilacs & Dogwoods



Southwest
Season Trackers



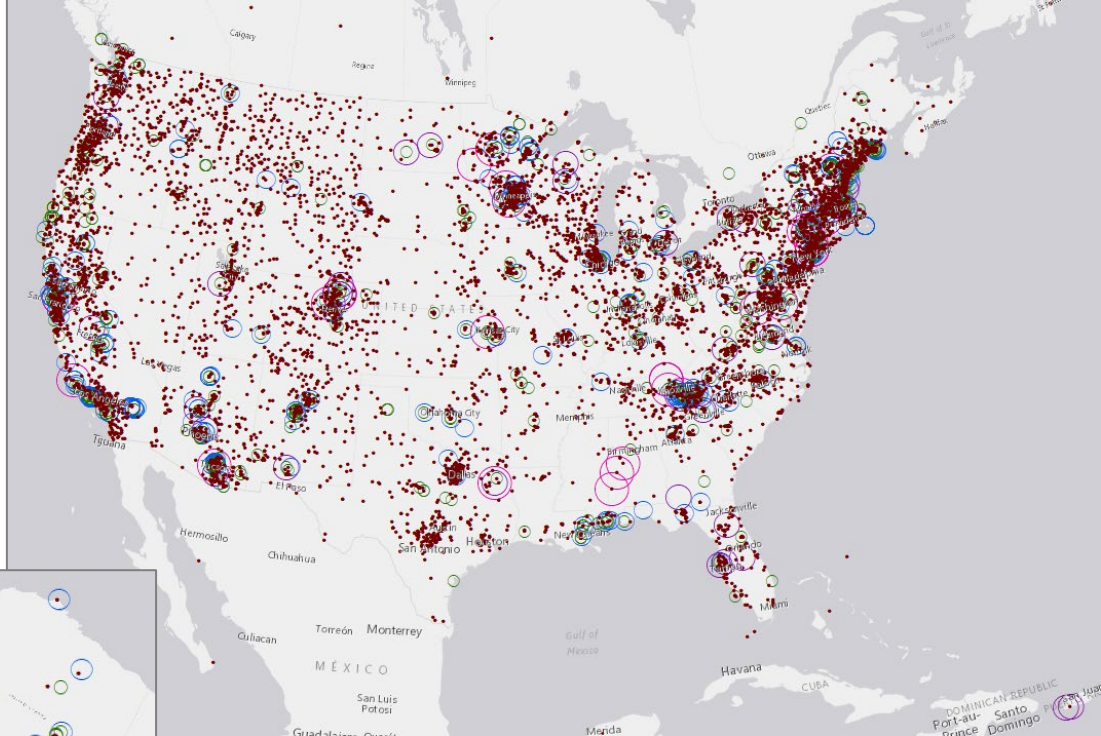
Mayfly Watch



PopClock



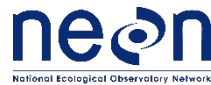
Pesky Plant
Trackers



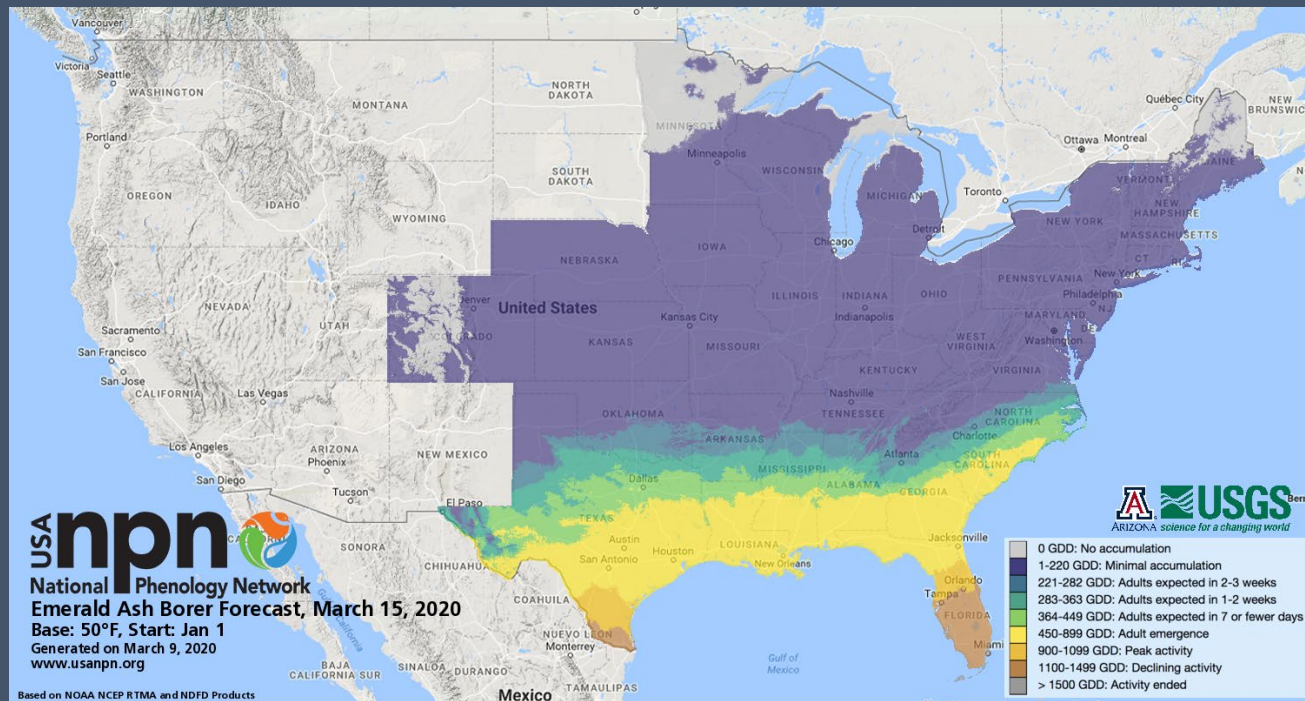
Records

- < 2,500
- 10,000
- 50,000
- 100,000
- 600,000

25M records
20K observers
16K sites

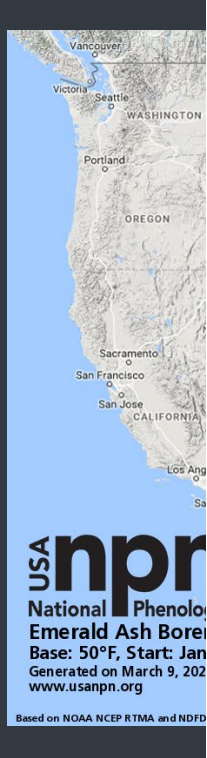


Delivering forecasts for seasonal events



Crimmins et al. 2020
Annals Entomol Soc America

Delivering forecasts for seasonal events



- Apple maggot – adult emergence
- Asian longhorned beetle – adult emergence
- Bagworm – caterpillar emergence
- Bronze birch borer – adult emergence
- Buffelgrass – green-up
- Eastern tent caterpillar – caterpillar emergence
- Emerald ash borer – adult emergence
- Gypsy moth – caterpillar emergence
- Hemlock woolly adelgid – presence of eggs, active nymphs
- Lilac borer – adult emergence
- Magnolia scale – crawler emergence
- Pine needle scale – crawler emergence
- Winter moth – caterpillar emergence
- Winter wheat – vegetative development



hins et al. 2020
s Ento Soc America

Thank you!

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and the entire USA-NPN team

