

Marriage of Sun & Frost

A Preliminary Study of West Virginia Temperature Regimes



Jeff DeBellis / Future Generations University

A sap run is the sweet good-bye of winter. It is the fruit of the equal marriage of the sun and frost.

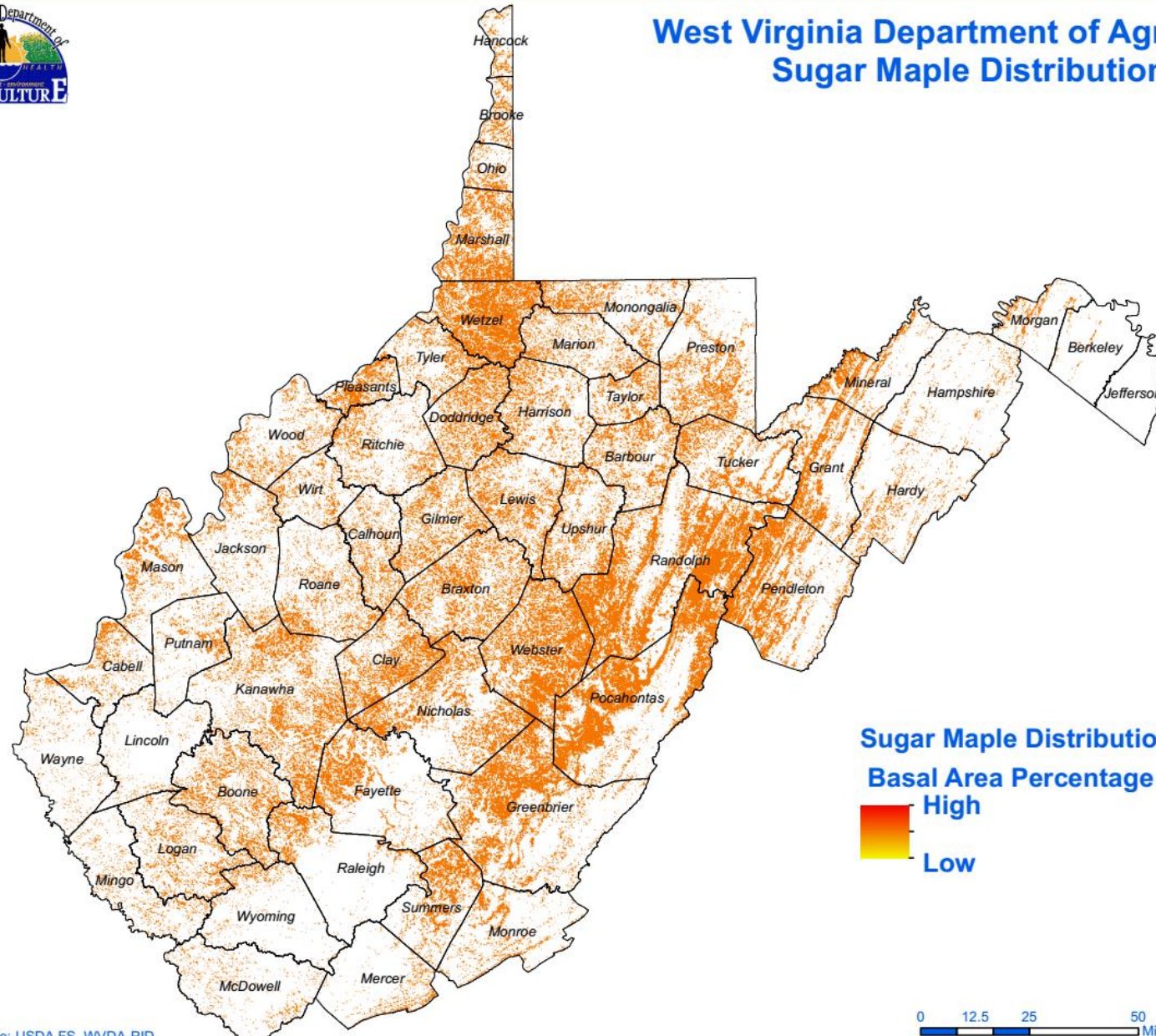
John Burroughs, 1886

When, in the morning, there is a clear sun, and the night has left ice the thickness of a dollar, the greatest quantity of sap is produced.

Alexander Henry, 1809



West Virginia Department of Agriculture Sugar Maple Distribution



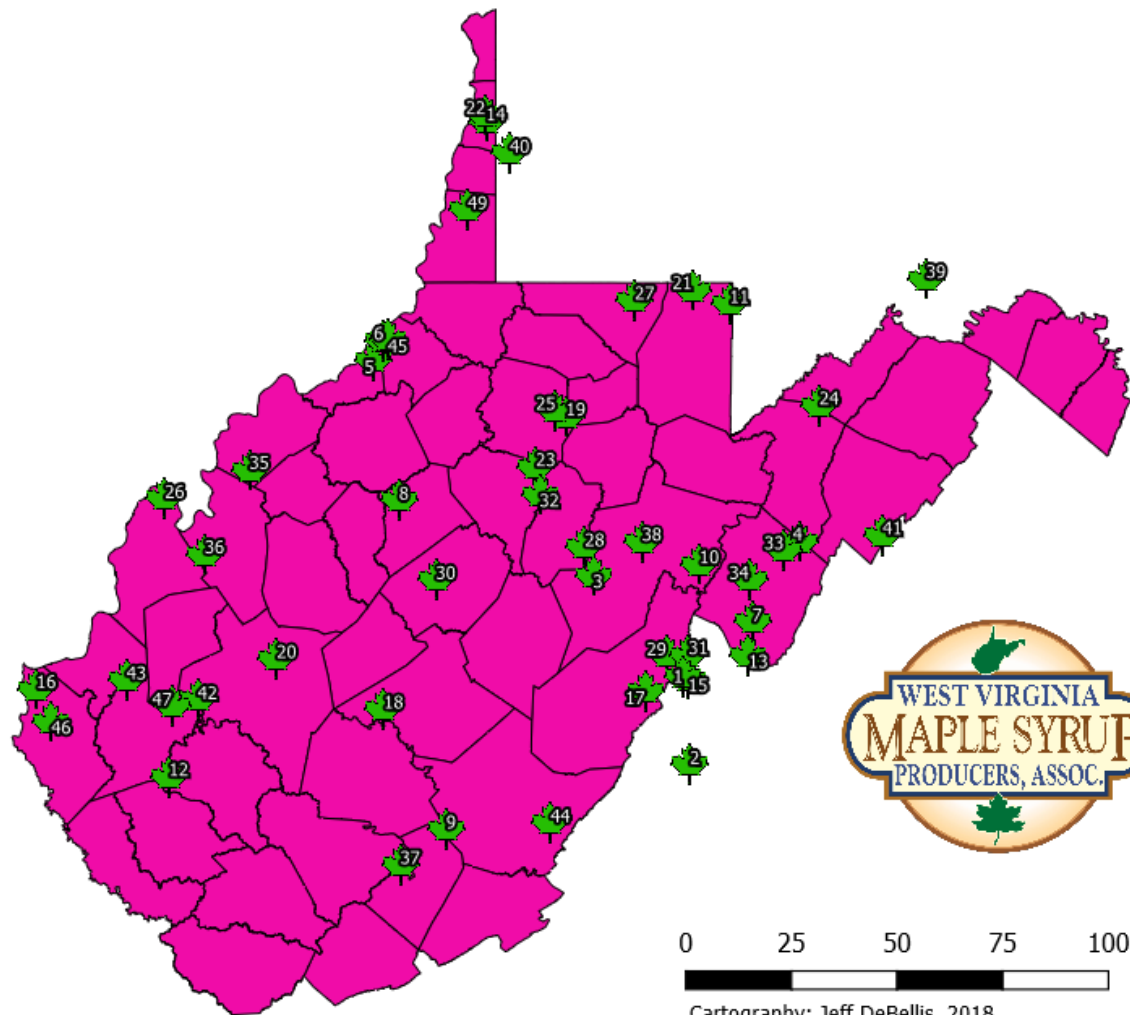
Sugar Maple Distribution
Basal Area Percentage
High
Low



Data Source: USDA FS, WVDA-PID

Shawn McCauley
WVDA-PID

WV Maple Syrup Producers Association Member Producers



- 1 Back Creek Farms
- 2 Bert Carlson
- 3 Blue Rock Farm
- 4 Bowers Maple Farm
- 5 Camp Hidden Meadows
- 6 Cedar Run Farm #1
- 7 Cedar Run Farm #2
- 8 Cool Hollow Maple Farm
- 9 Croagh Patrick
- 10 Daniels' Maple Products
- 11 Dry Fork Maple Works
- 12 Eisentrout Farms
- 13 Estep Branch Sugar Bush
- 14 Experience Learning
- 15 Fair Lawn Farm
- 16 Family Roots Farm
- 17 Flanigan Family Maple
- 18 Frostmore Farm
- 19 Gauley River Maple Works
- 20 Great Oak Farm
- 21 Halstead Farm Maple Products
- 22 Heasley Homestead
- 23 Henthorn Maple Farm
- 24 Hitt Farms
- 25 Indian Water Maple Company
- 26 James Ferguson
- 27 James McCormick
- 28 James Keith Mick
- 29 Jamie Schuler
- 30 John Wayne Jr.
- 31 Lanagan's Lodge
- 32 Laurel Fork Sapsuckers
- 33 Maple Grove Farm
- 34 Mark's Maple Products
- 35 Minner Maple Farm
- 36 Moonhaven Farm
- 37 Moonstruck Maple
- 38 Philip Lee
- 39 Randy Robosson
- 40 Robert & Debra Panichi
- 41 Rockhaven LLC
- 42 Ronk Family Farm
- 43 Spikenard Farms
- 44 Sugar Shack
- 45 Sweetcreek Sugarworks
- 46 Toms Creek Family Farm
- 47 Trent Family Farm
- 48 We Bee Sappin

Cartography: Jeff DeBellis, 2018



West Virginia Department of Agriculture Sugar Maple Distribution

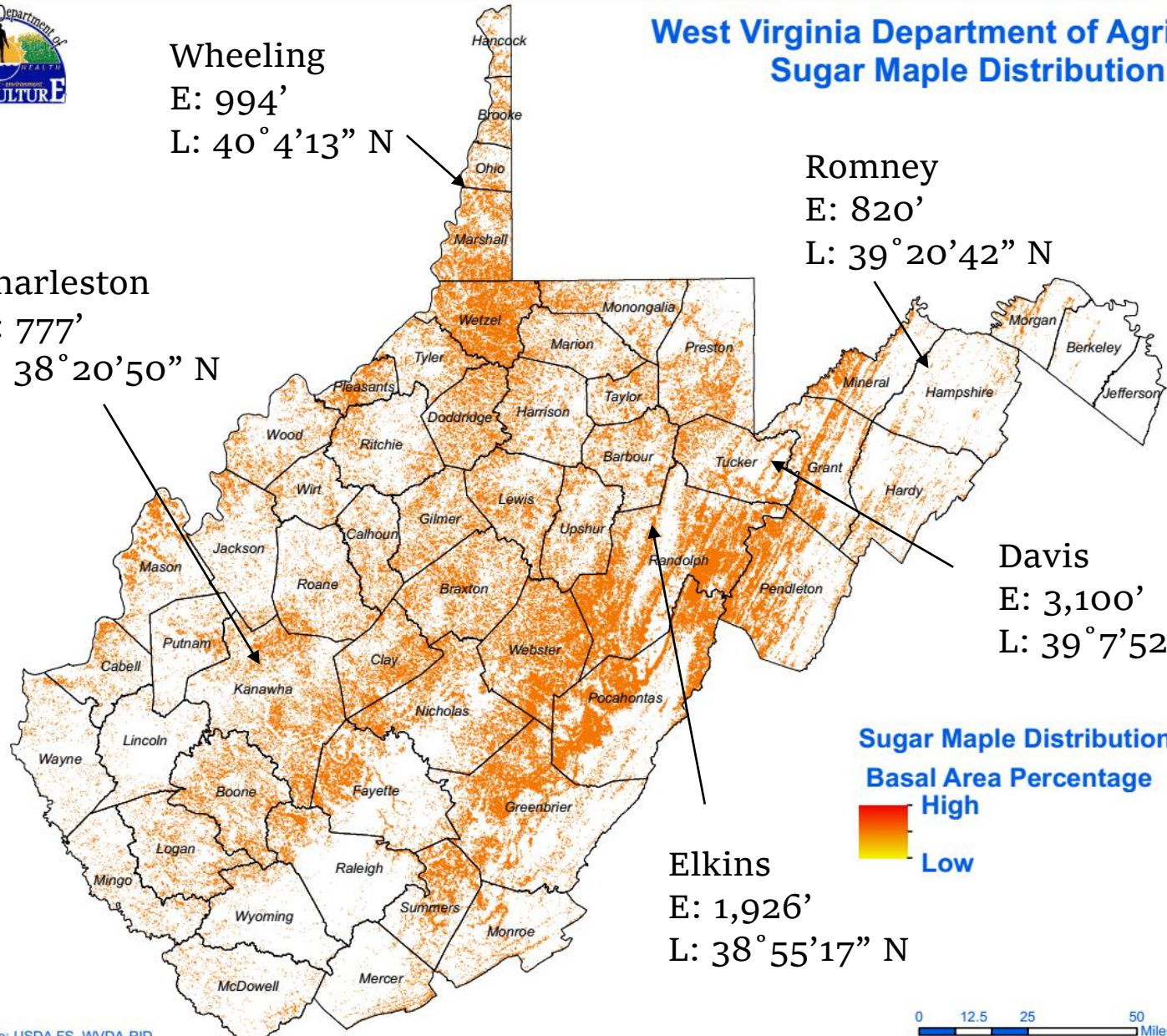
Wheeling
E: 994'
L: 40° 4'13" N

Romney
E: 820'
L: 39° 20'42" N

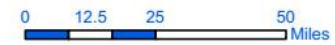
Charleston
E: 777'
L: 38° 20'50" N

Davis
E: 3,100'
L: 39° 7'52" N

Elkins
E: 1,926'
L: 38° 55'17" N



Sugar Maple Distribution
Basal Area Percentage
High
Low



Spruce Knob, Looking West, 10 Oct.



Spruce Knob, Looking East, 11 Oct.



By Chuck Whitney

Data

SC ACIS

- Product selection
- Options selection
- Station/Area selection

ID Search

davis, wv

Station: CANAAN VALLEY #2

Go Close map

Map

Station name:	CANAAN VALLEY #2	
State:	WV	
County:	Tucker County (FIPS 54093)	
Climate Division:	CENTRAL (WV04)	
Station ids:	461397 (Coop) USC00461397 (GHCN) CAAW2 (NWS LI)	
Latitude:	39.0483 degrees	
Longitude:	-79.4406 degrees	
Elevation:	3254 feet	
Available date ranges:	Max Temperature	1993-01-01 - 2018-09-11
	Min Temperature	1993-01-01 - 2018-09-11
	Precipitation	1993-01-01 - 2018-09-11
	Snowfall	1993-01-01 - 2018-09-11
	Snow Depth	1993-01-01 - 2018-09-11

Expand Search Area

Map data ©2018 Google 10 km Terms of Use Report a map error

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NOAA Regional Climate Centers

Temperature Factors

- Freeze/Thaw Cycles
- Warm Spells
- Temperature Spikes
- Growing Degree Days

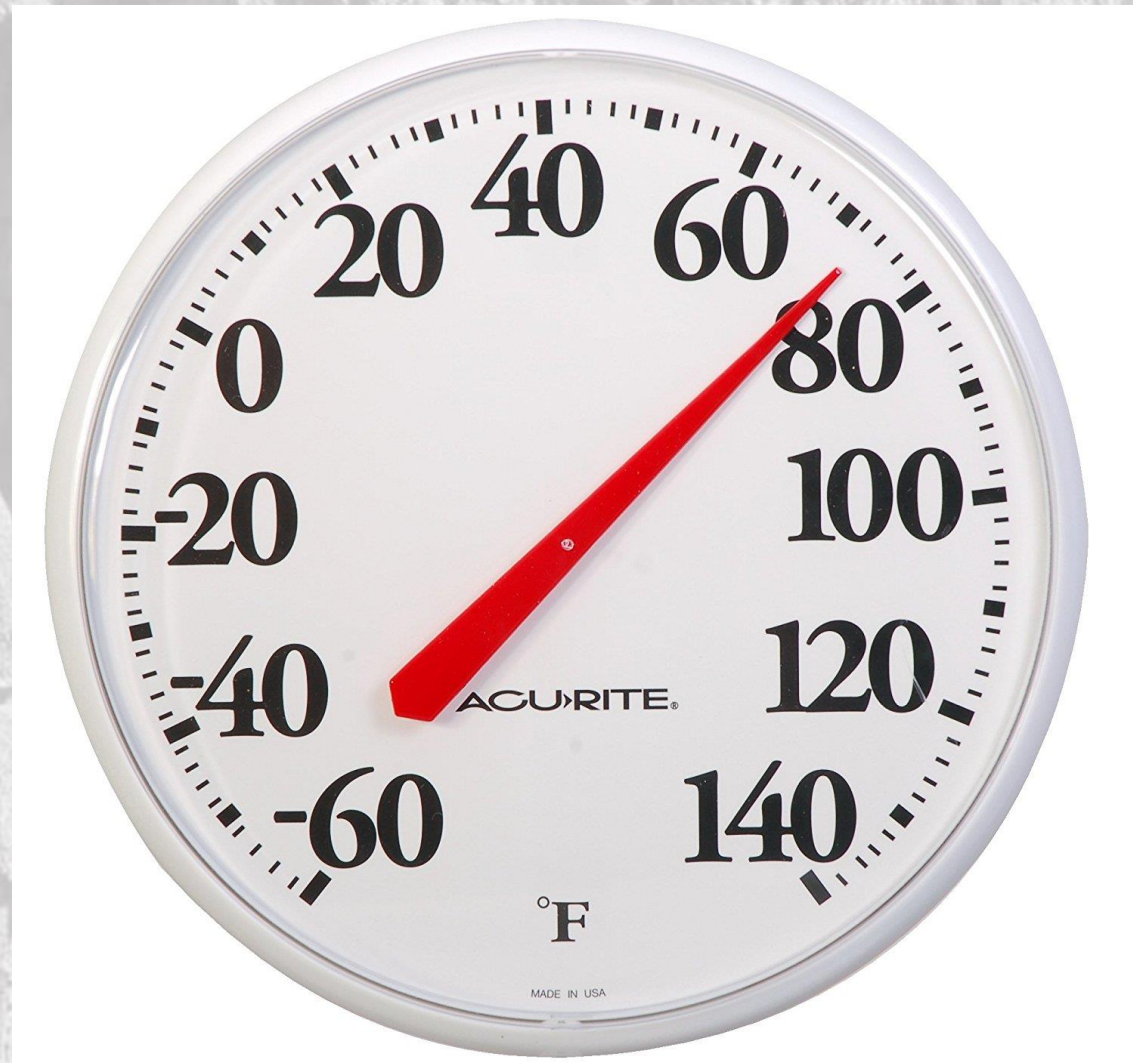
Freeze/Thaw Cycles



Warm Spells



Temperature Spikes



Cumulative Growing Degree Days

Growing Degree Days

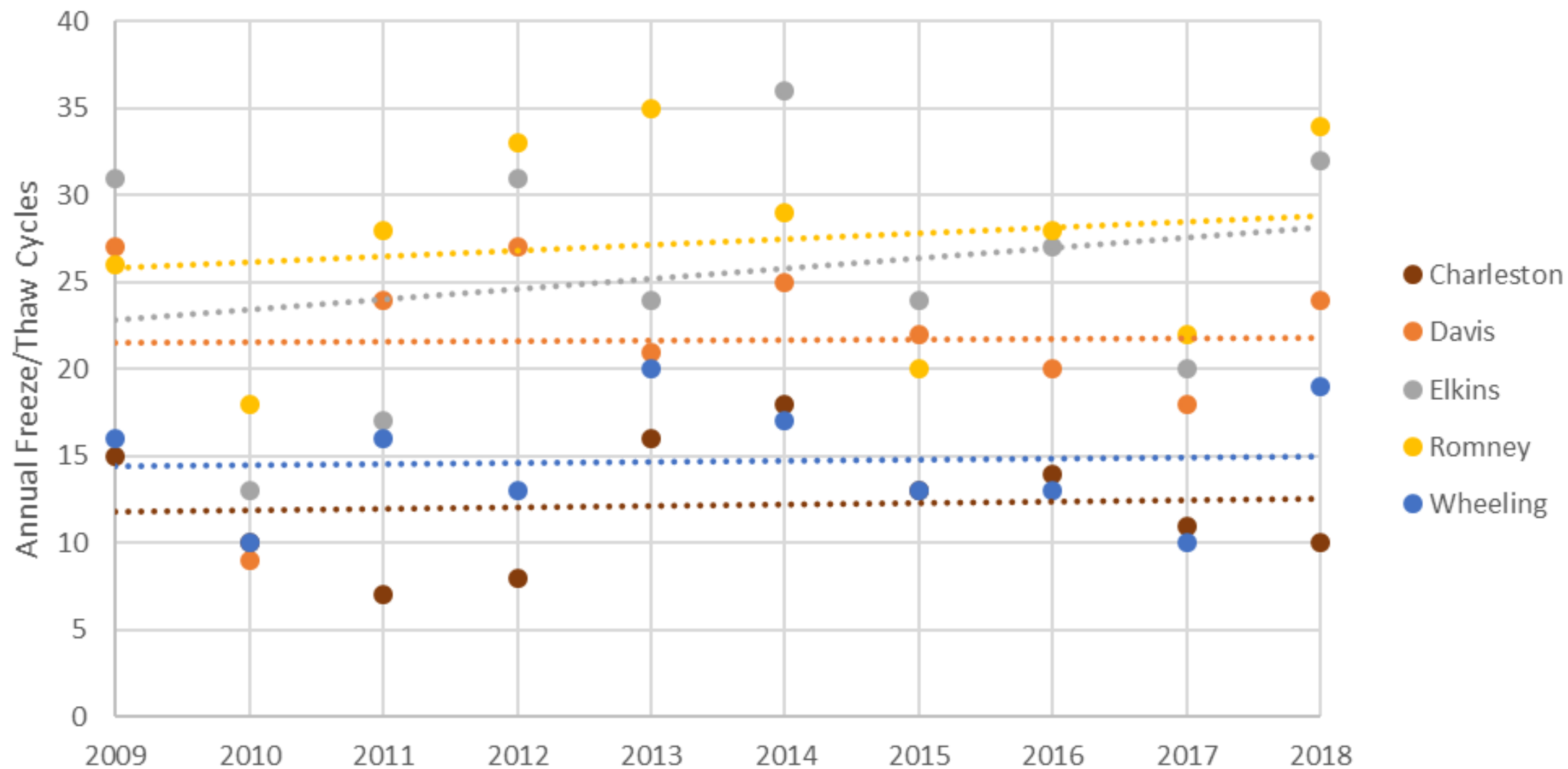
= (Avg. Daily Temp.) - (Base Temp.)

Charleston, 2015				
Date	Avg. Temp (F)	Avg. Temp - (40)	GDD	Cum. GDD
1/1/2015	31	-9	0	0
1/2/2015	38	-2	0	0
1/3/2015	49.5	9.5	9.5	9.5
1/4/2015	51.5	11.5	11.5	21
1/5/2015	30.5	-9.5	0	21

Annual Freeze/Thaw Cycles 2009-2018

	Range	Mean
Charleston	7-18	12.2
Davis	9-27	21.7
Elkins	13-36	25.5
Romney	18-35	27.3
Wheeling	10-20	14.7

Annual Freeze/Thaw Cycles 2009-2018



Freeze/Thaw Cycles & Extended Thaws

2018

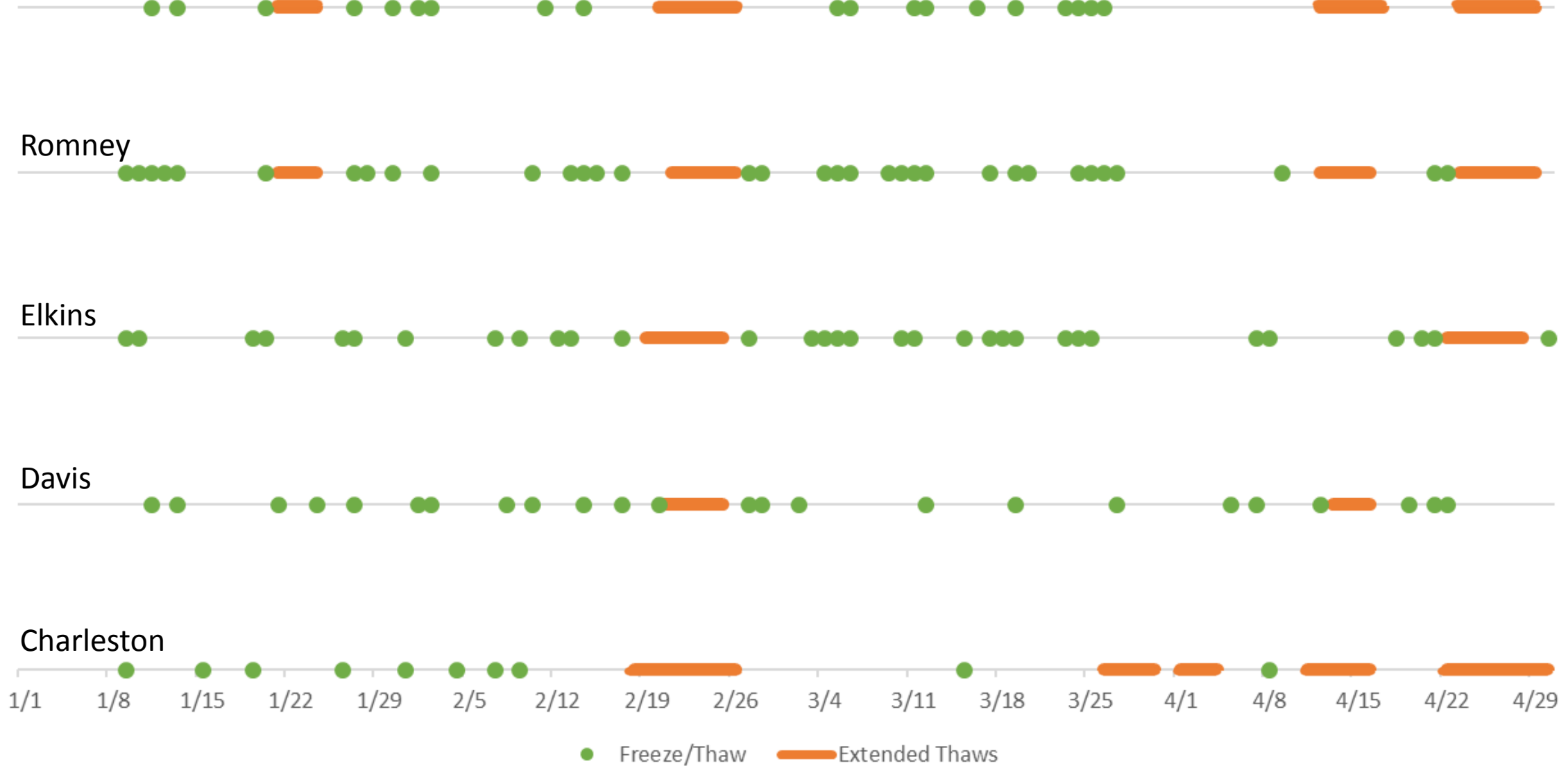
Wheeling

Romney

Elkins

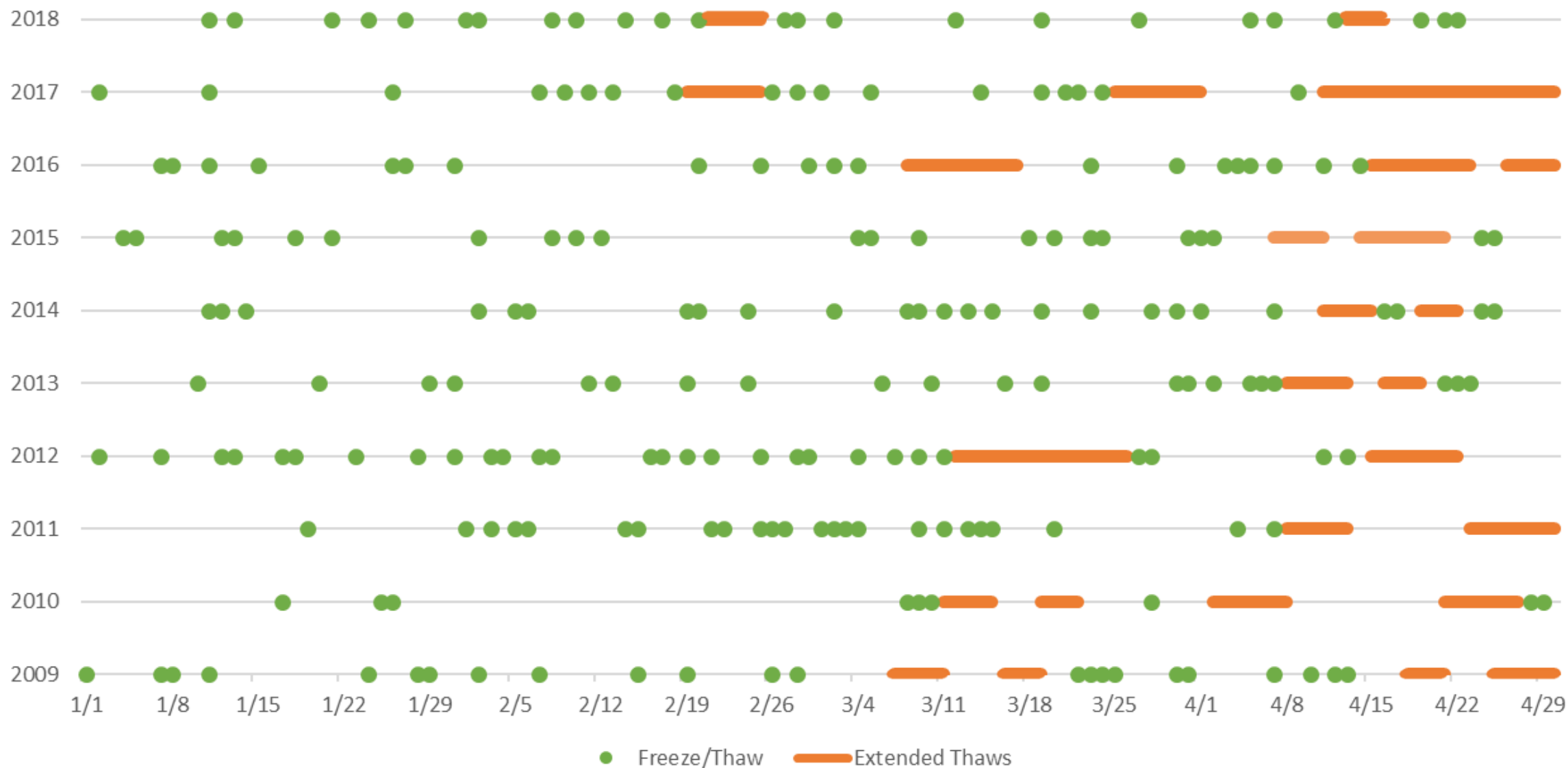
Davis

Charleston



Annual Freeze/Thaw Cycles & Extended Thaws

Davis, 2009-2018

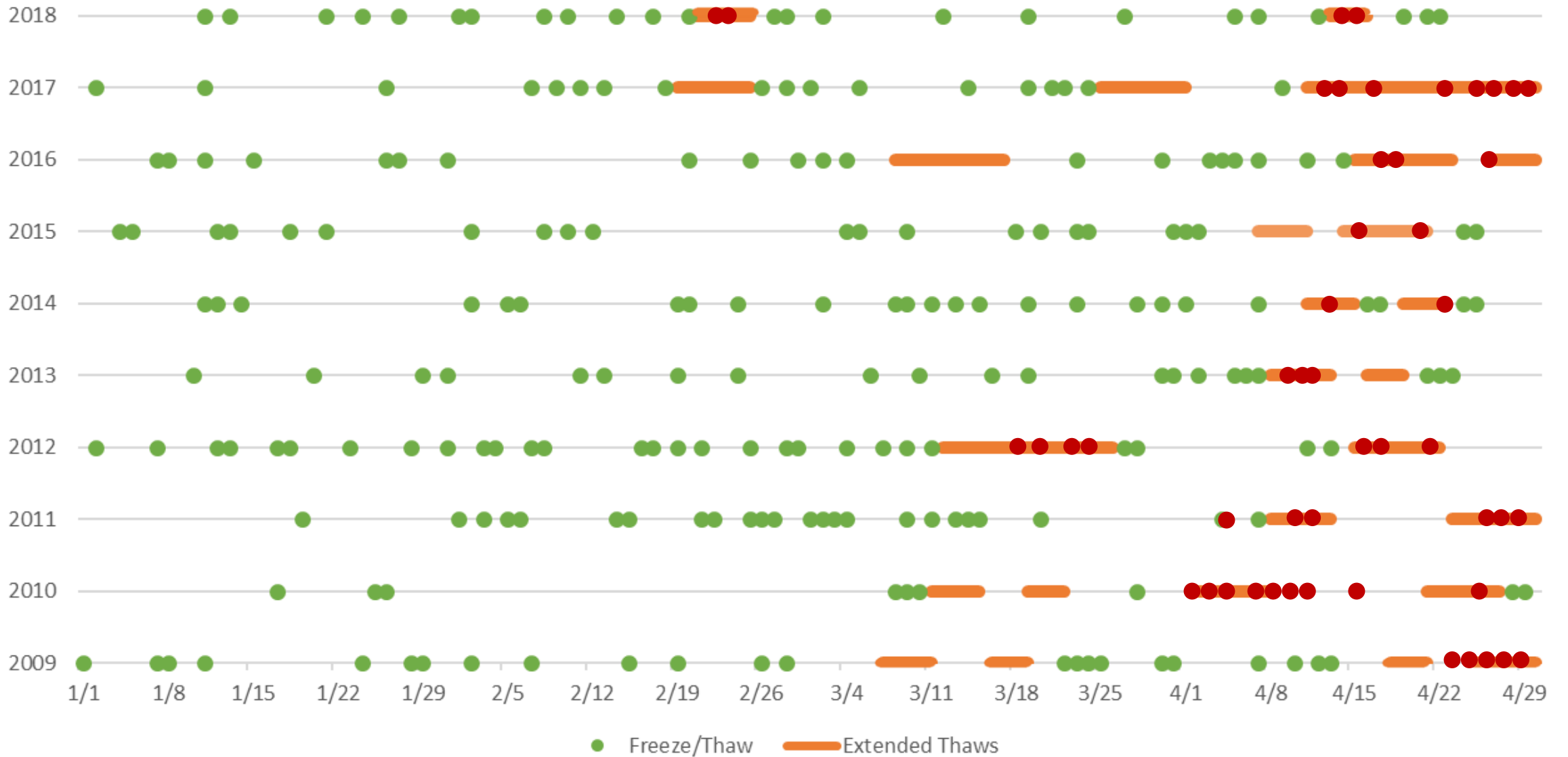


Temperature Spikes 2009-2018

	Range	Mean	Earliest Occurrence
Charleston	0-10	3.8	11 Jan (2018)
Davis	0-9	2.7	21 Feb (2018)
Elkins	1-15	7.1	7 Feb (2017)
Romney	1-17	7	13 Jan (2017)
Wheeling	0-5	1.6	21 Feb (2018)

Annual Freeze/Thaw Cycles & Extended Thaws

Davis, 2009-2018

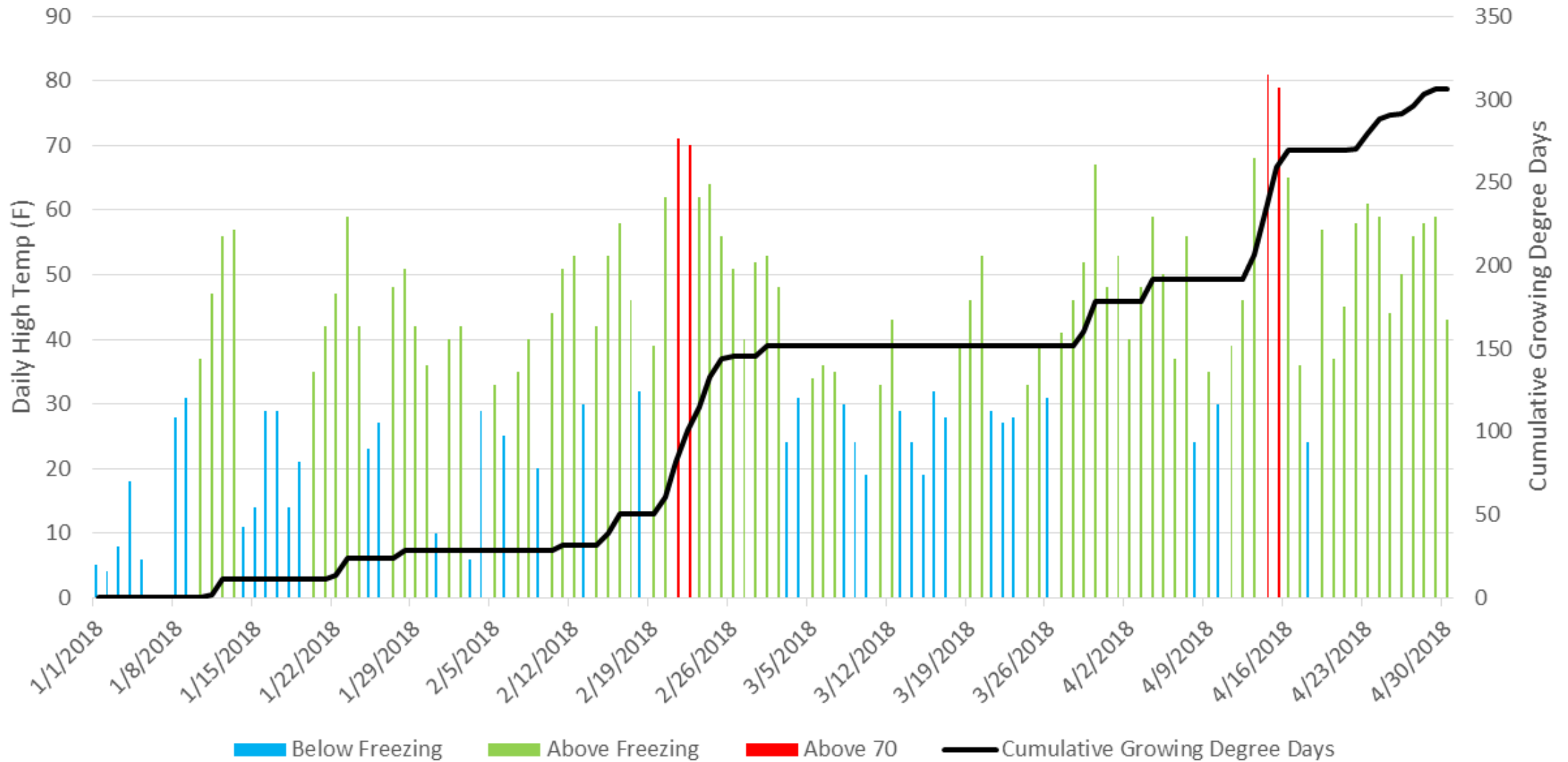




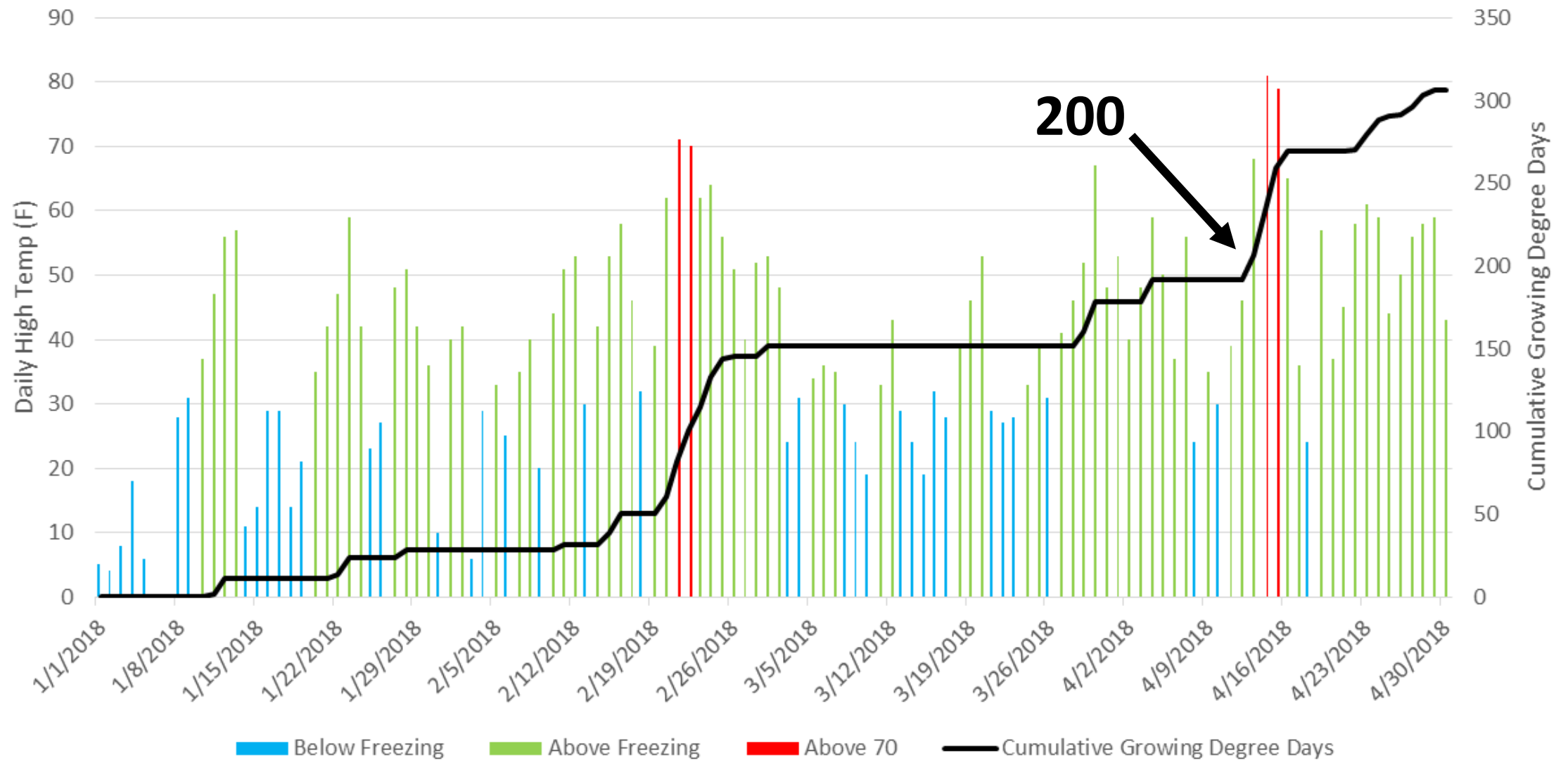
By Rebecca Conway



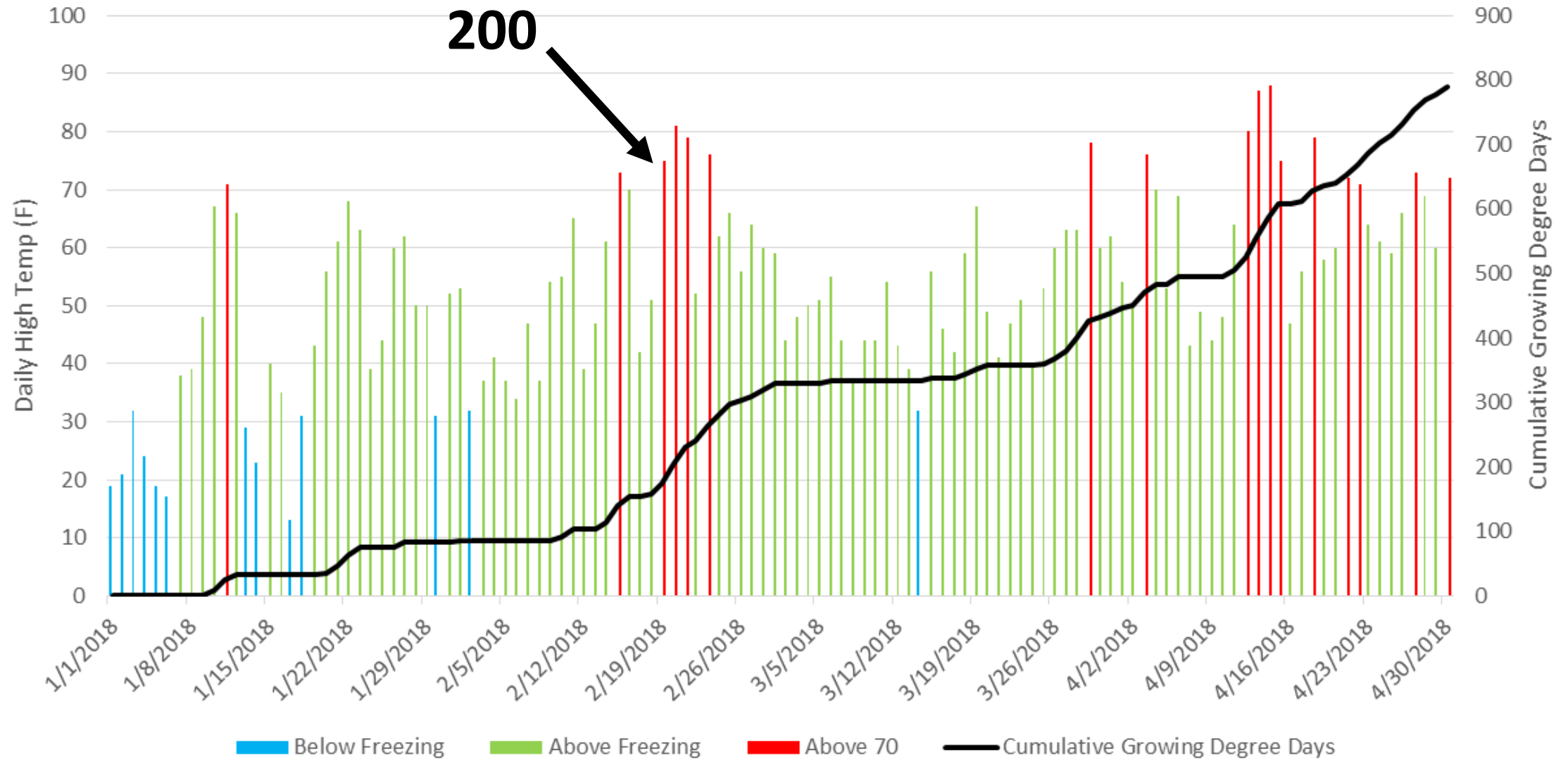
Daily Highs and Cumulative Growing Degree Days Davis, 2018



Daily Highs and Cumulative Growing Degree Days Davis, 2018

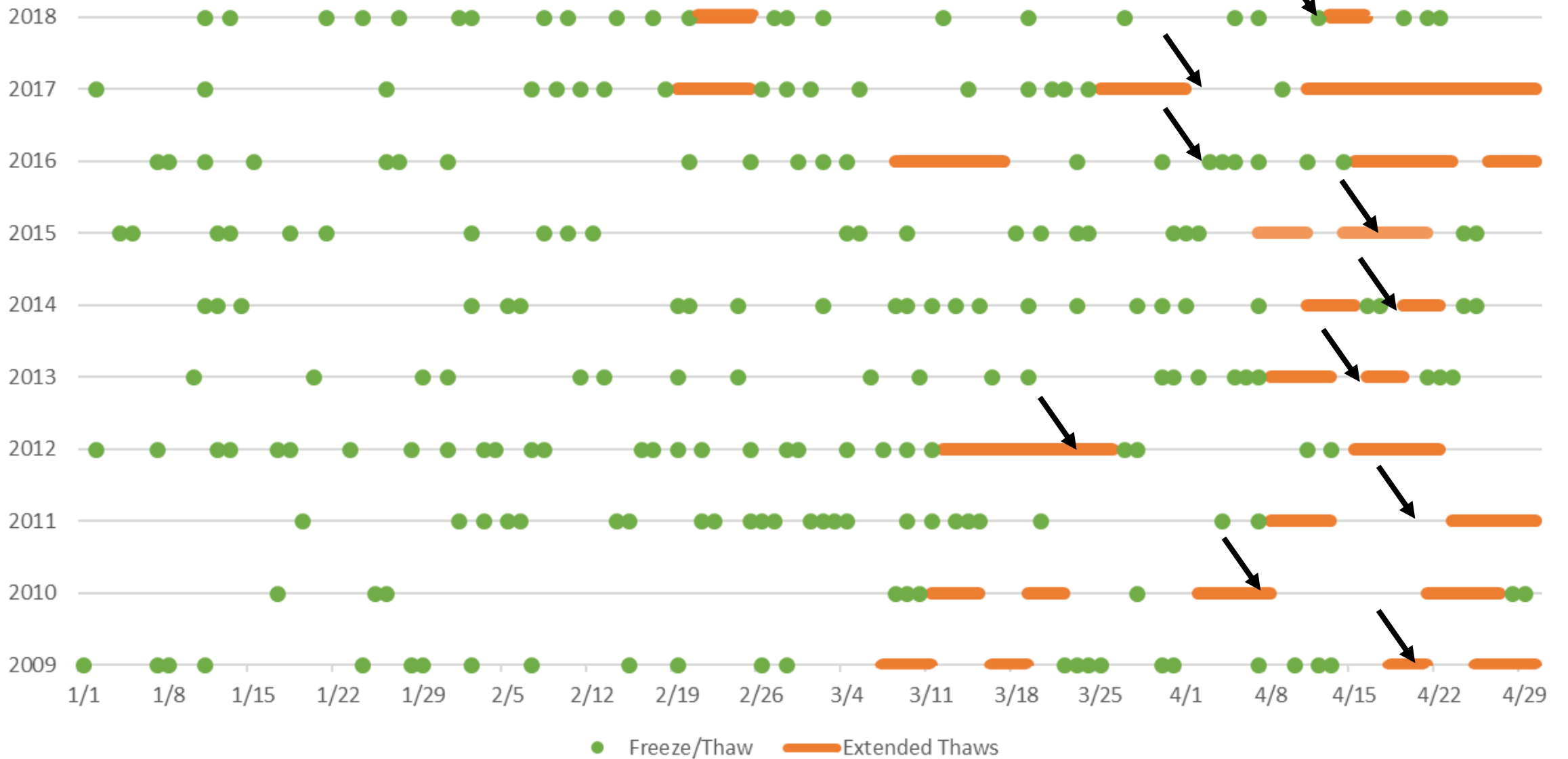


Daily Highs and Cumulative Growing Degree Days Charleston, 2018



Annual Freeze/Thaw Cycles & Extended Thaws

Davis, 2009-2018



Canary in the Sugarbush?

