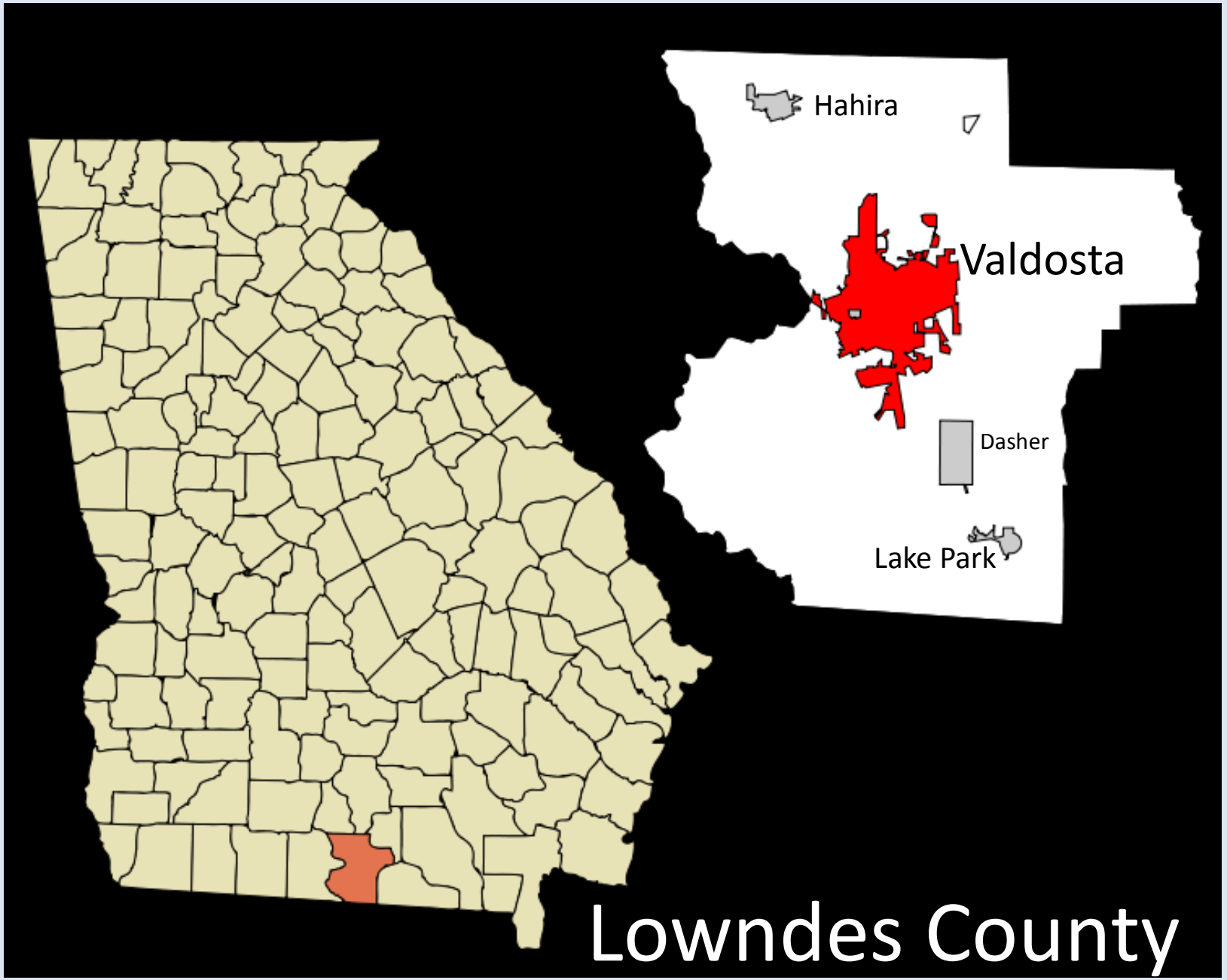
2013: A High Water Mark for WNV in Lowndes County

Mark Blackmore

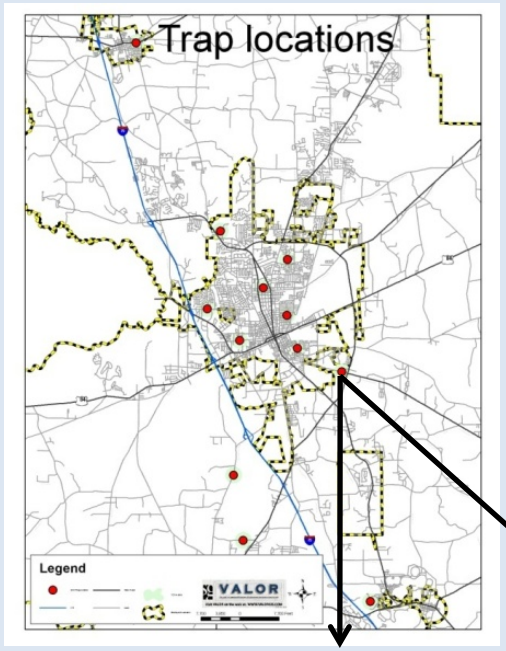
Department of Biology

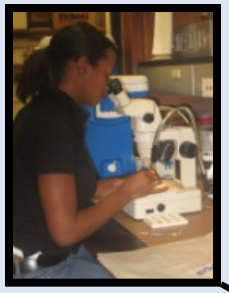
Valdosta State University

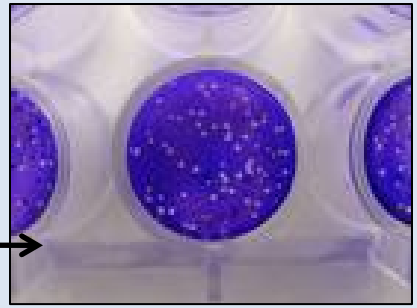

Hahira
Valdosta
Dasher
Lake Park
Lowndes County

Methods

- 12 locations
- Two trap types
- Identification
- Virus isolation
  - Plaque assay
  - Virus-specific RT-PCR



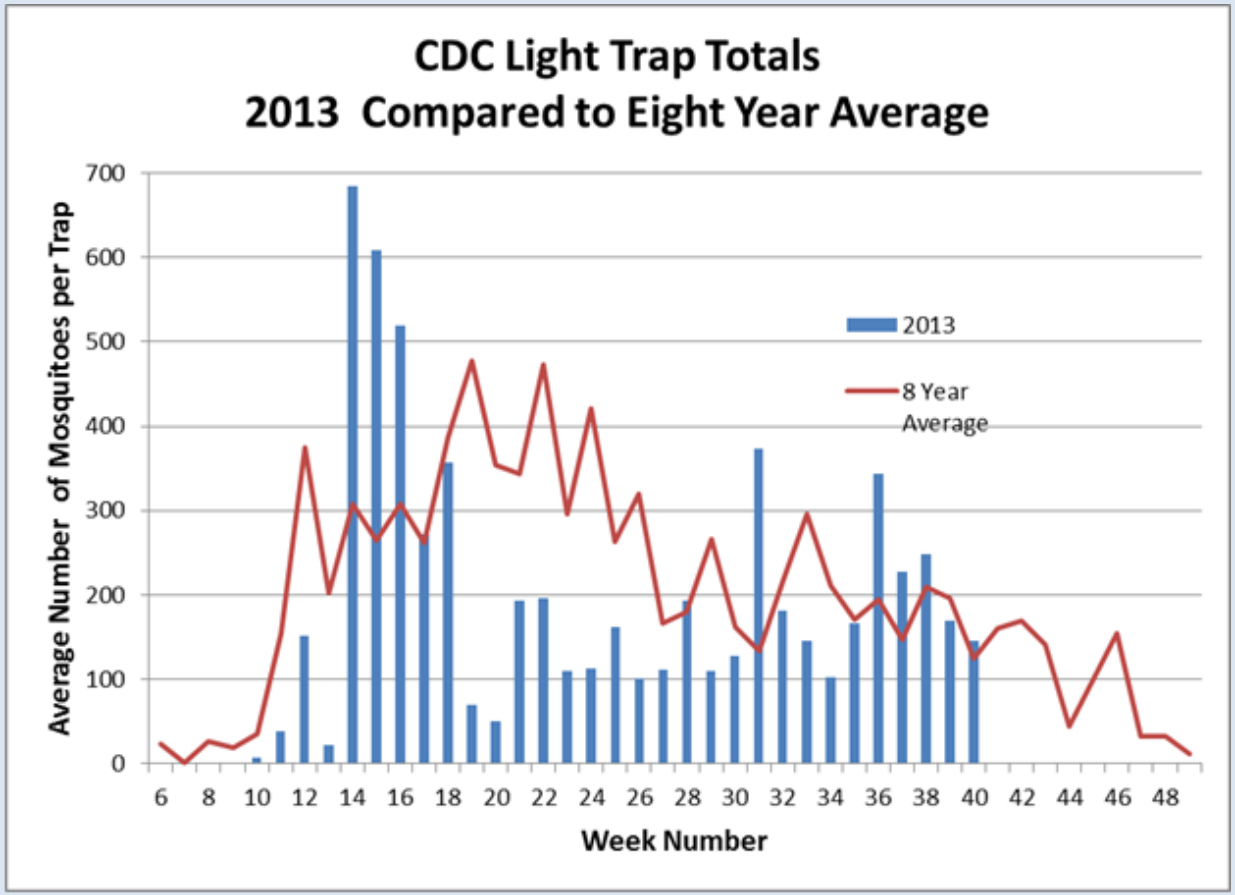


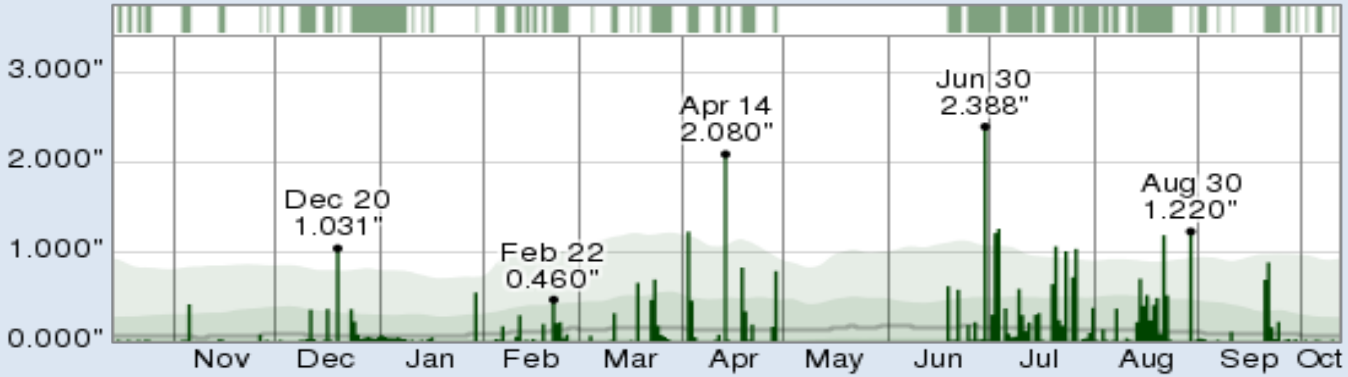


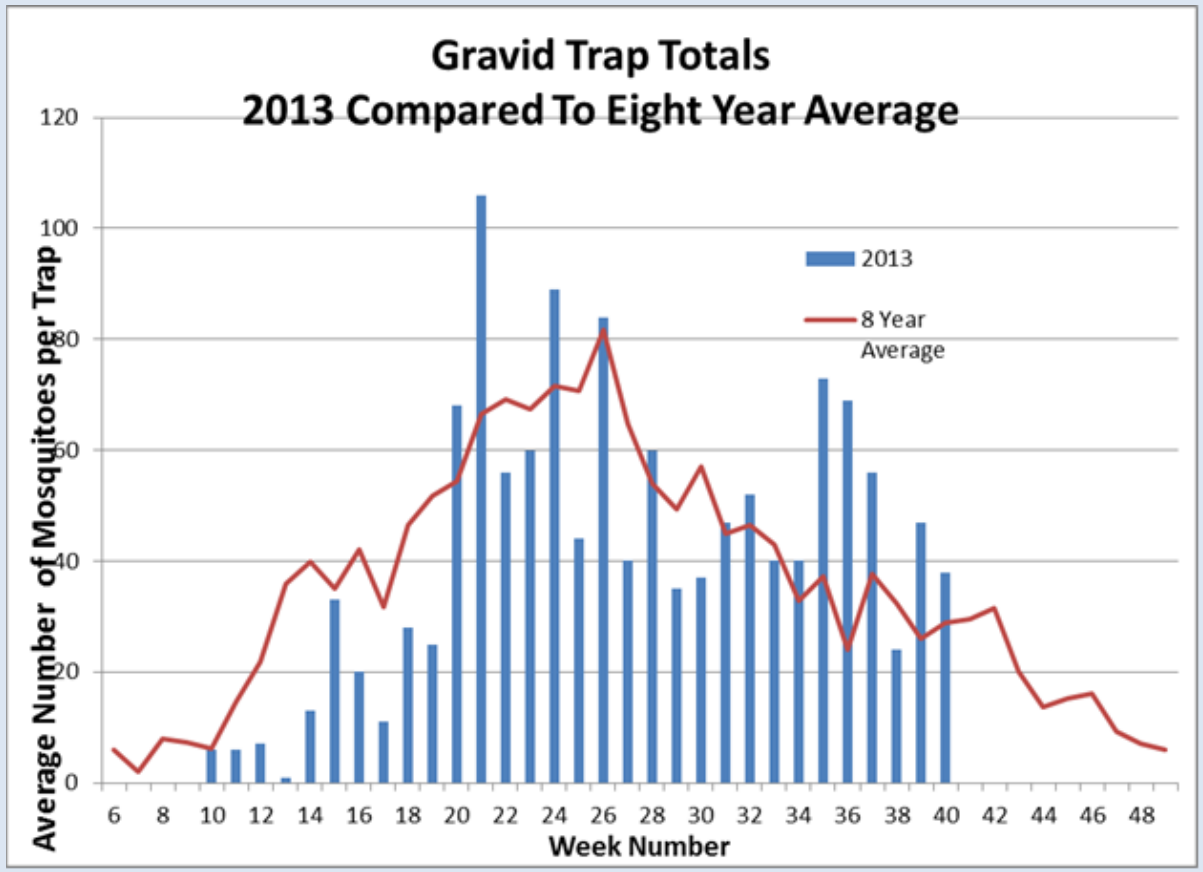
Mosquito Fauna of Lowndes County*

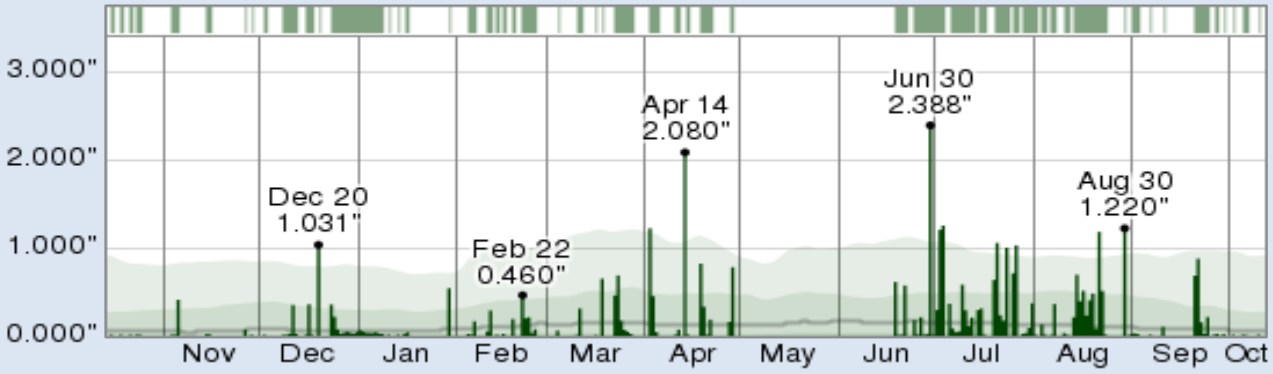
Ae. albopictus	*Cx. coronator*	*Oc. fulvus pallens*	*Ps. ciliata*
Ae. vexans	*Cx. erraticus*	*Oc. infirmatus*	*Ps. columbiae*
An. crucians s.l.	*Cx. nigripalpus*	*Oc. triseriatus*	*Ps. ferox*
An. punctipennis	*Cx. quinquefasciatus*	*Oc. mitchellae*	*Ps. howardii*
An. quadrimaculatus	*Cx. restuans*	*Oc. sticticus*	*Ps. cyanescens*
Cq. perturbans	*Cx. salinarius*	*Oc. taeniorhynchus*	*Ur. sapphirina*
Cs. inornata	*Cx. territans*	*Oc. thibaulti*	*Ur. lowii*
Cs. melanura	*Oc. atlanticus*	*Oc. sollicitans*	*Tx. rutilus*
	Oc. canadensis	*Or. signifera*	

* Includes all species collected 2001-2013


CDC Light Trap Totals
2013 Compared to Eight Year Average
Average Number of Mosquitoes per Trap
700
600
500
400
300
200
100
0
2013
8 Year Average
6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48
Week Number


3.000"
2.000"
1.000"
0.000"
Dec 20
1.031"
Feb 22
0.460"
Apr 14
2.080"
Jun 30
2.388"
Aug 30
1.220"
Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct

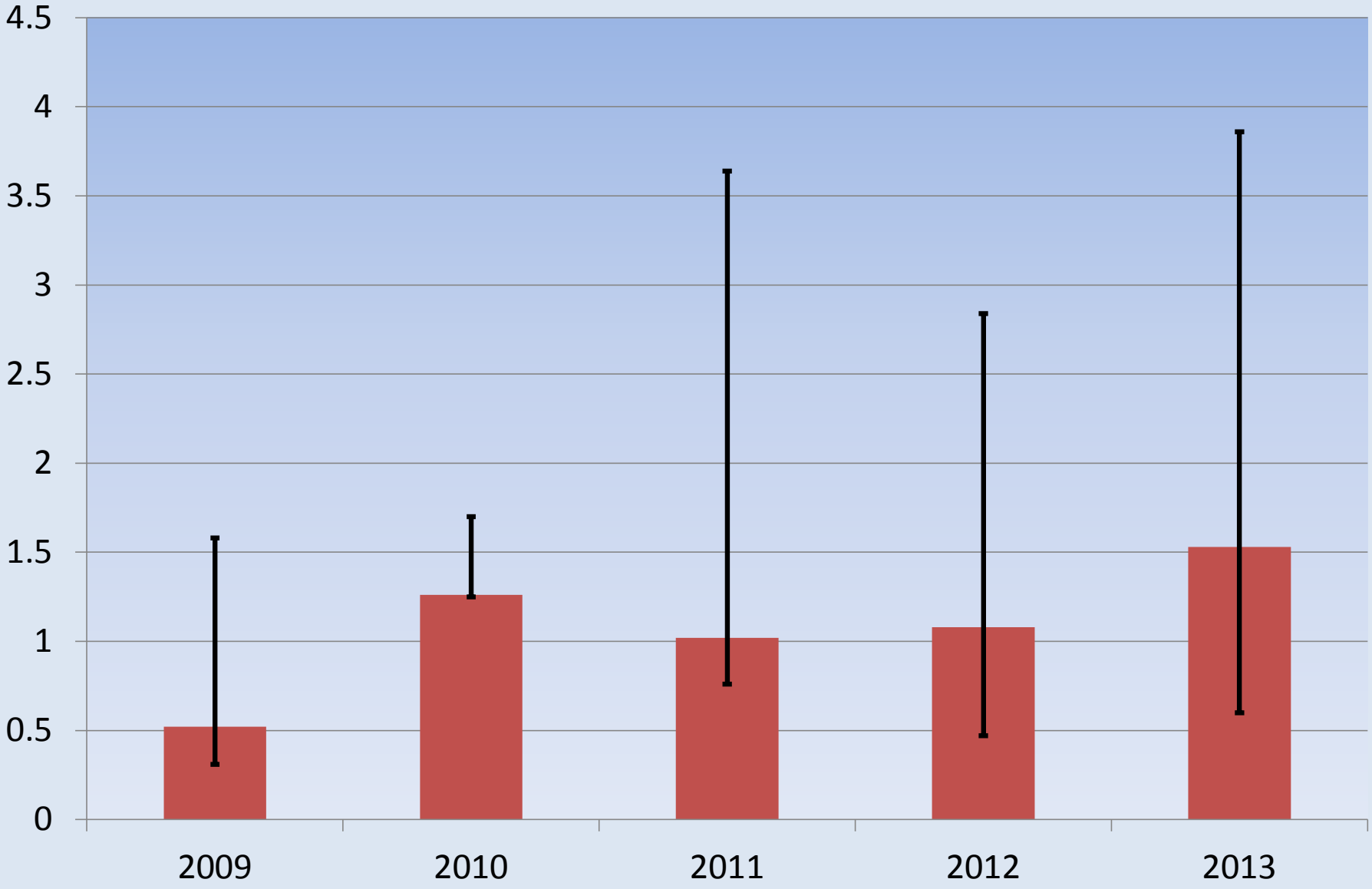

Gravid Trap Totals
2013 Compared To Eight Year Average
Average Number of Mosquitoes per Trap
Week Number
2013
8 Year Average
0
20
40
60
80
100
120
6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48


3.000"
2.000"
1.000"
0.000"
Dec 20
1.031"
Feb 22
0.460"
Apr 14
2.080"
Jun 30
2.388"
Aug 30
1.220"
Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct

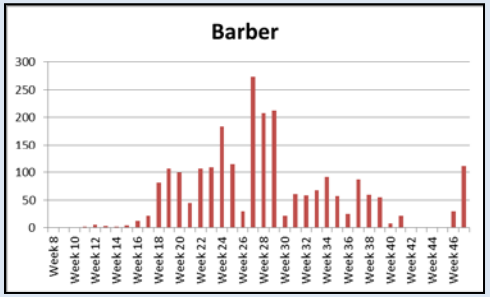
West Nile Virus Activity

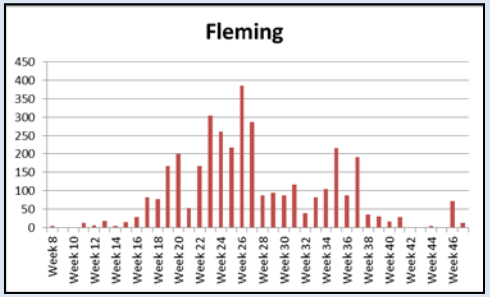
- 2013: 26 WNV positive pools (July 7- Sept 9)
  - 25 *Culex quinquefasciatus*
  - 1 *Culex nigripalpus*
- 2012: 18 WNV positive pools (May 9 – Oct 8)
- 2011: 4 WNV positive pools (July 7 – Aug 8)
- 2010: 2 WNV positive pools (July 8 – Aug 4)
- 2009: 8 WNV positive pools (July 20 – Sept 9)
- All *Culex quinquefasciatus*

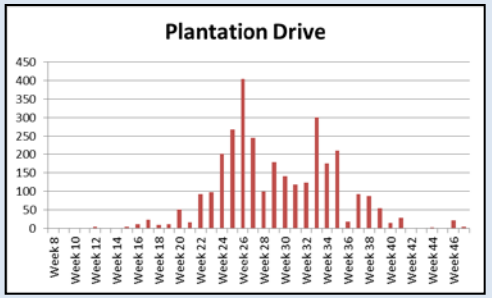
Maximum Likelihood Estimate

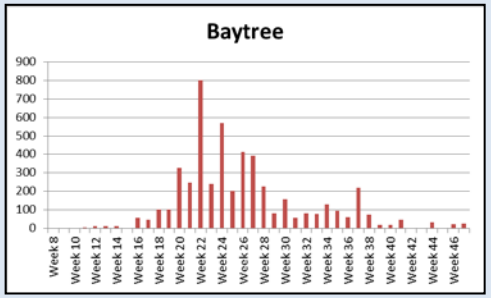


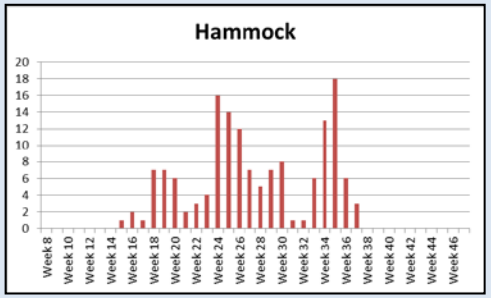
2009

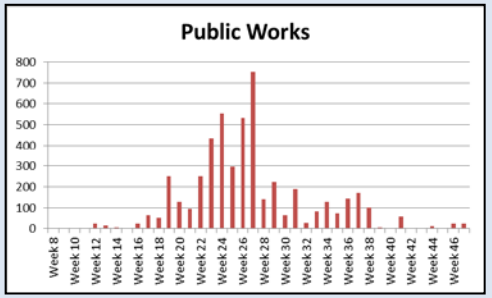

Barber

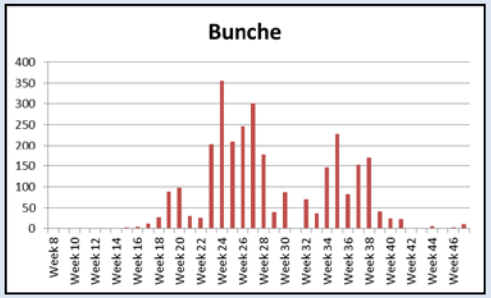

Fleming

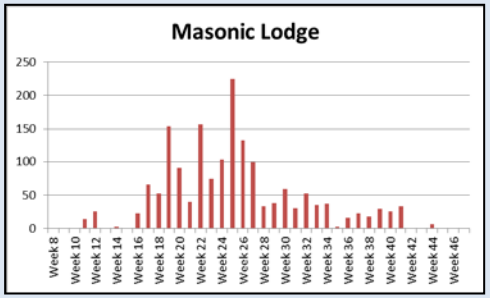

Plantation Drive

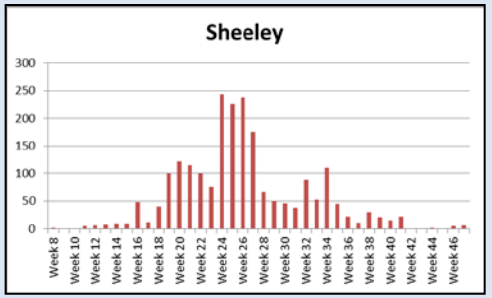

Baytree

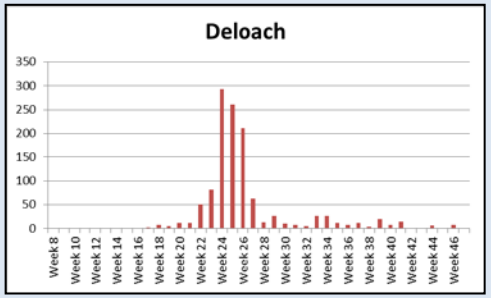

Hammock

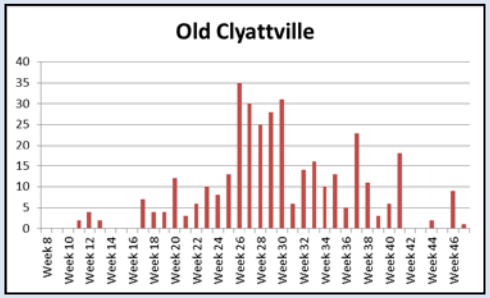

Public Works

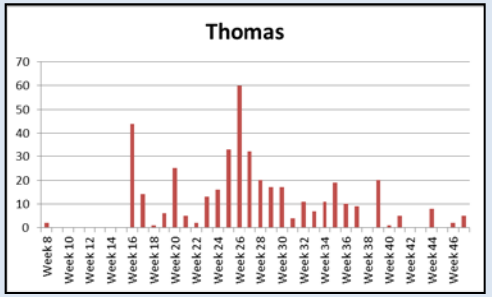

Bunche


Masonic Lodge

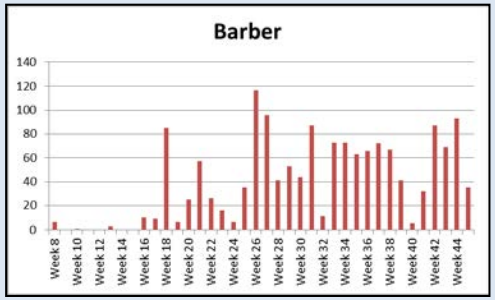

Sheeley

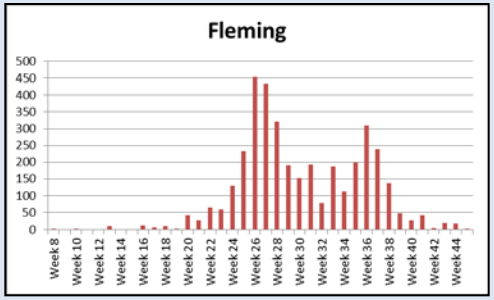

Deloach

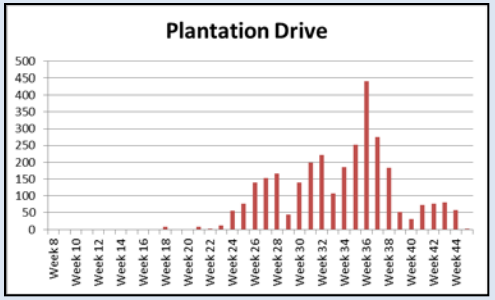

Old Clyattville

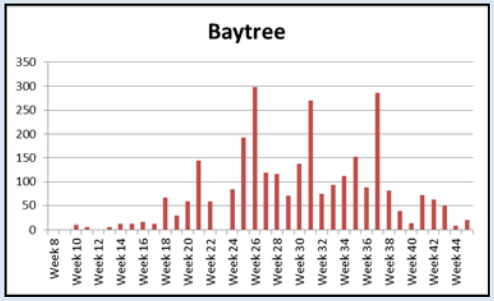

Thomas

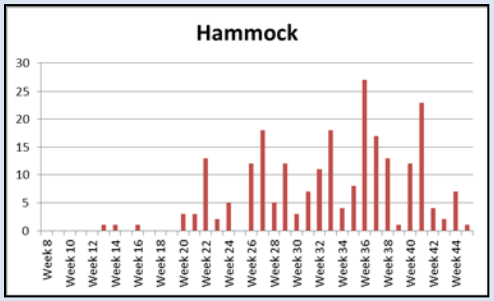
2010

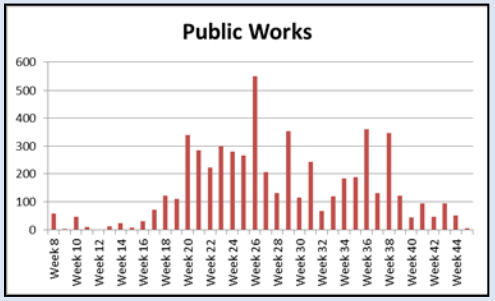

Barber
140
120
100
80
60
40
20
0
Week 8
Week 10
Week 12
Week 14
Week 16
Week 18
Week 20
Week 22
Week 24
Week 26
Week 28
Week 30
Week 32
Week 34
Week 36
Week 38
Week 40
Week 42
Week 44

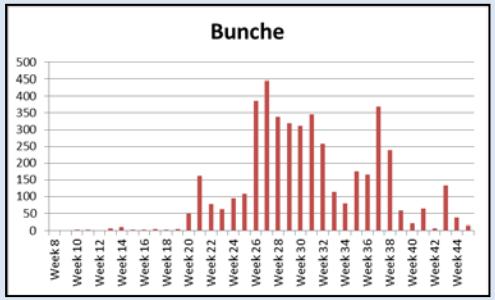

Fleming
500
450
400
350
300
250
200
150
100
50
0
Week 8
Week 10
Week 12
Week 14
Week 16
Week 18
Week 20
Week 22
Week 24
Week 26
Week 28
Week 30
Week 32
Week 34
Week 36
Week 38
Week 40
Week 42
Week 44

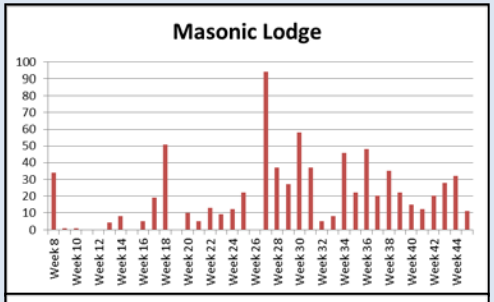

Plantation Drive
500
450
400
350
300
250
200
150
100
50
0
Week 8
Week 10
Week 12
Week 14
Week 16
Week 18
Week 20
Week 22
Week 24
Week 26
Week 28
Week 30
Week 32
Week 34
Week 36
Week 38
Week 40
Week 42
Week 44

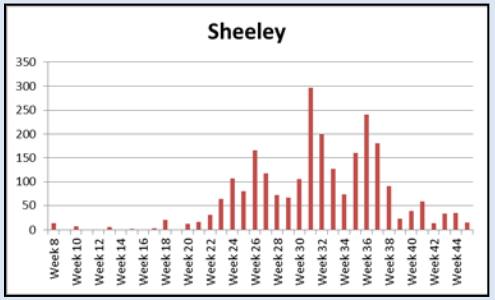

Baytree
350
300
250
200
150
100
50
0
Week 8
Week 10
Week 12
Week 14
Week 16
Week 18
Week 20
Week 22
Week 24
Week 26
Week 28
Week 30
Week 32
Week 34
Week 36
Week 38
Week 40
Week 42
Week 44

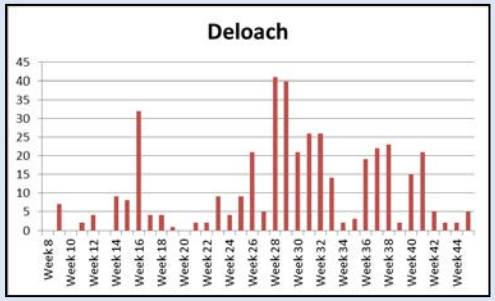

Hammock
30
25
20
15
10
5
0
Week 8
Week 10
Week 12
Week 14
Week 16
Week 18
Week 20
Week 22
Week 24
Week 26
Week 28
Week 30
Week 32
Week 34
Week 36
Week 38
Week 40
Week 42
Week 44

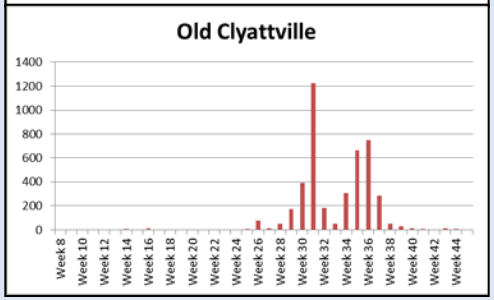

Public Works
600
500
400
300
200
100
0
Week 8
Week 10
Week 12
Week 14
Week 16
Week 18
Week 20
Week 22
Week 24
Week 26
Week 28
Week 30
Week 32
Week 34
Week 36
Week 38
Week 40
Week 42
Week 44

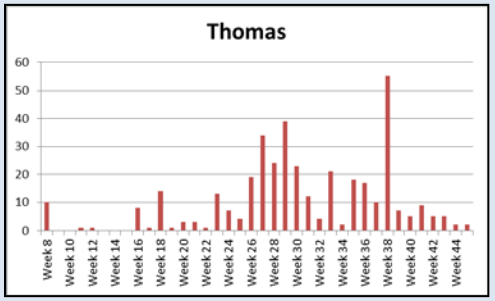

Bunche
500
450
400
350
300
250
200
150
100
50
0
Week 8
Week 10
Week 12
Week 14
Week 16
Week 18
Week 20
Week 22
Week 24
Week 26
Week 28
Week 30
Week 32
Week 34
Week 36
Week 38
Week 40
Week 42
Week 44


Masonic Lodge
100
90
80
70
60
50
40
30
20
10
0
Week 8
Week 10
Week 12
Week 14
Week 16
Week 18
Week 20
Week 22
Week 24
Week 26
Week 28
Week 30
Week 32
Week 34
Week 36
Week 38
Week 40
Week 42
Week 44

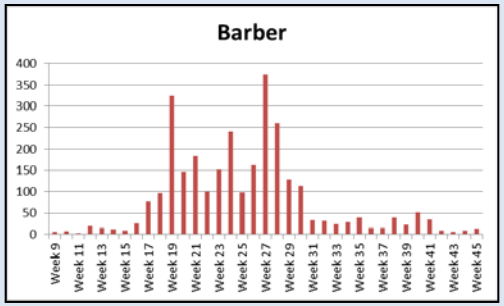

Sheeley
350
300
250
200
150
100
50
0
Week 8
Week 10
Week 12
Week 14
Week 16
Week 18
Week 20
Week 22
Week 24
Week 26
Week 28
Week 30
Week 32
Week 34
Week 36
Week 38
Week 40
Week 42
Week 44

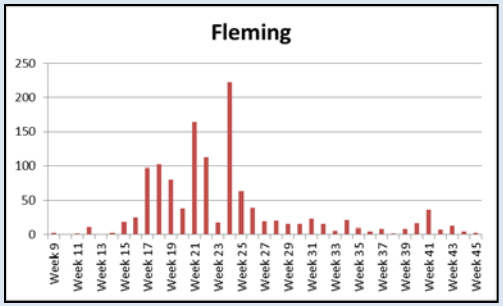

Deloach
45
40
35
30
25
20
15
10
5
0
Week 8
Week 10
Week 12
Week 14
Week 16
Week 18
Week 20
Week 22
Week 24
Week 26
Week 28
Week 30
Week 32
Week 34
Week 36
Week 38
Week 40
Week 42
Week 44

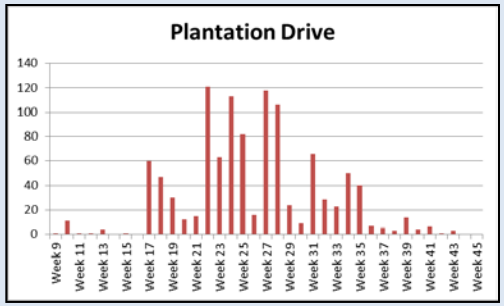

Old Clyattville
1400
1200
1000
800
600
400
200
0
Week 8
Week 10
Week 12
Week 14
Week 16
Week 18
Week 20
Week 22
Week 24
Week 26
Week 28
Week 30
Week 32
Week 34
Week 36
Week 38
Week 40
Week 42
Week 44

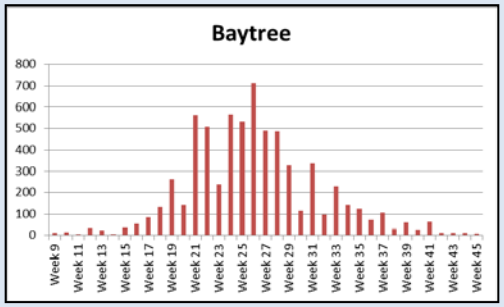

Thomas
60
50
40
30
20
10
0
Week 8
Week 10
Week 12
Week 14
Week 16
Week 18
Week 20
Week 22
Week 24
Week 26
Week 28
Week 30
Week 32
Week 34
Week 36
Week 38
Week 40
Week 42
Week 44

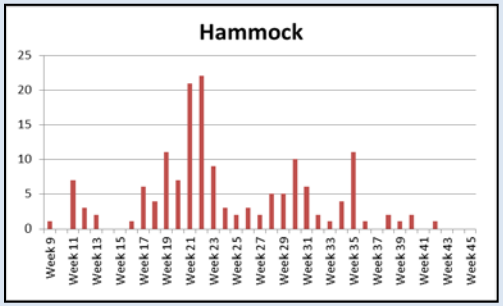
2011

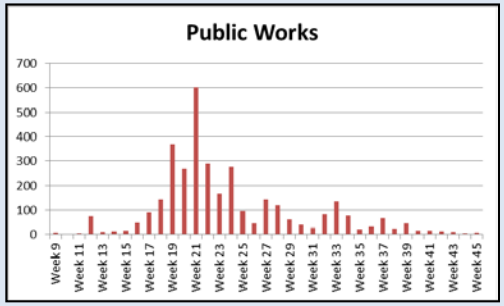

Barber
400
350
300
250
200
150
100
50
0
Week 9
Week 11
Week 13
Week 15
Week 17
Week 19
Week 21
Week 23
Week 25
Week 27
Week 29
Week 31
Week 33
Week 35
Week 37
Week 39
Week 41
Week 43
Week 45

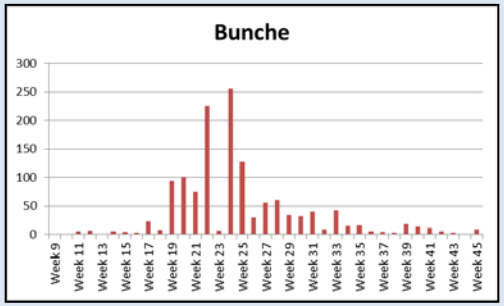

Fleming
250
200
150
100
50
0
Week 9
Week 11
Week 13
Week 15
Week 17
Week 19
Week 21
Week 23
Week 25
Week 27
Week 29
Week 31
Week 33
Week 35
Week 37
Week 39
Week 41
Week 43
Week 45

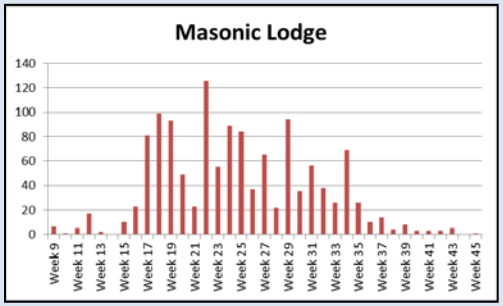

Plantation Drive
140
120
100
80
60
40
20
0
Week 9
Week 11
Week 13
Week 15
Week 17
Week 19
Week 21
Week 23
Week 25
Week 27
Week 29
Week 31
Week 33
Week 35
Week 37
Week 39
Week 41
Week 43
Week 45

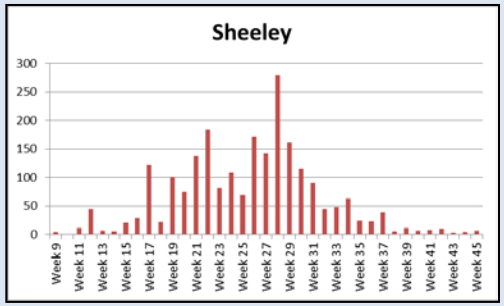

Baytree
800
700
600
500
400
300
200
100
0
Week 9
Week 11
Week 13
Week 15
Week 17
Week 19
Week 21
Week 23
Week 25
Week 27
Week 29
Week 31
Week 33
Week 35
Week 37
Week 39
Week 41
Week 43
Week 45

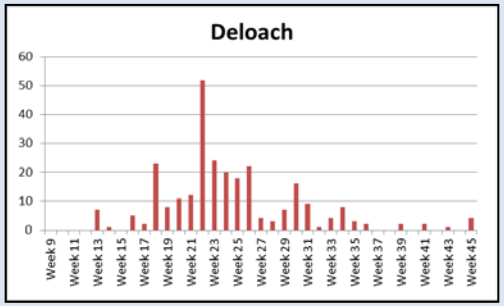

Hammock
25
20
15
10
5
0
Week 9
Week 11
Week 13
Week 15
Week 17
Week 19
Week 21
Week 23
Week 25
Week 27
Week 29
Week 31
Week 33
Week 35
Week 37
Week 39
Week 41
Week 43
Week 45

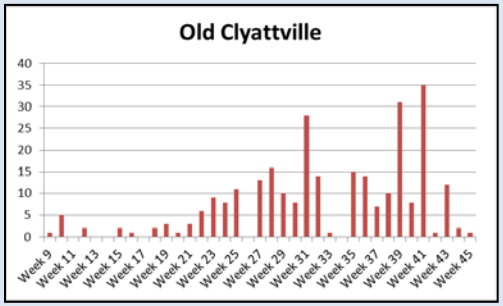

Public Works
700
600
500
400
300
200
100
0
Week 9
Week 11
Week 13
Week 15
Week 17
Week 19
Week 21
Week 23
Week 25
Week 27
Week 29
Week 31
Week 33
Week 35
Week 37
Week 39
Week 41
Week 43
Week 45

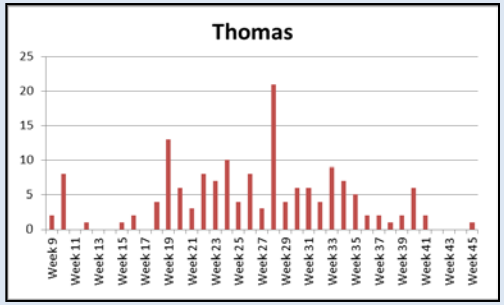

Bunche
300
250
200
150
100
50
0
Week 9
Week 11
Week 13
Week 15
Week 17
Week 19
Week 21
Week 23
Week 25
Week 27
Week 29
Week 31
Week 33
Week 35
Week 37
Week 39
Week 41
Week 43
Week 45


Masonic Lodge
140
120
100
80
60
40
20
0
Week 9
Week 11
Week 13
Week 15
Week 17
Week 19
Week 21
Week 23
Week 25
Week 27
Week 29
Week 31
Week 33
Week 35
Week 37
Week 39
Week 41
Week 43
Week 45

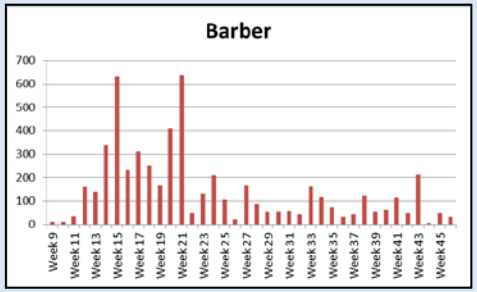

Sheeley
300
250
200
150
100
50
0
Week 9
Week 11
Week 13
Week 15
Week 17
Week 19
Week 21
Week 23
Week 25
Week 27
Week 29
Week 31
Week 33
Week 35
Week 37
Week 39
Week 41
Week 43
Week 45

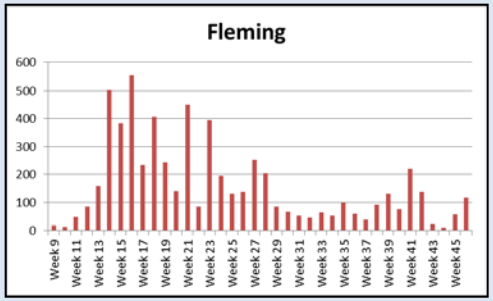

Deloach
60
50
40
30
20
10
0
Week 9
Week 11
Week 13
Week 15
Week 17
Week 19
Week 21
Week 23
Week 25
Week 27
Week 29
Week 31
Week 33
Week 35
Week 37
Week 39
Week 41
Week 43
Week 45

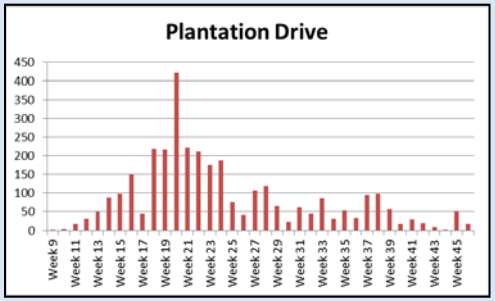

Old Clyattville
40
35
30
25
20
15
10
5
0
Week 9
Week 11
Week 13
Week 15
Week 17
Week 19
Week 21
Week 23
Week 25
Week 27
Week 29
Week 31
Week 33
Week 35
Week 37
Week 39
Week 41
Week 43
Week 45

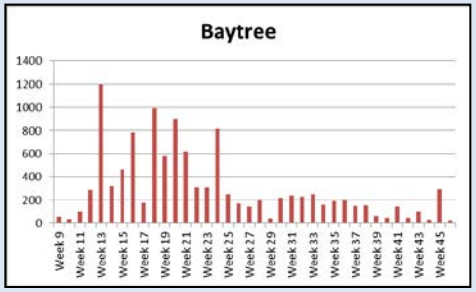

Thomas
25
20
15
10
5
0
Week 9
Week 11
Week 13
Week 15
Week 17
Week 19
Week 21
Week 23
Week 25
Week 27
Week 29
Week 31
Week 33
Week 35
Week 37
Week 39
Week 41
Week 43
Week 45

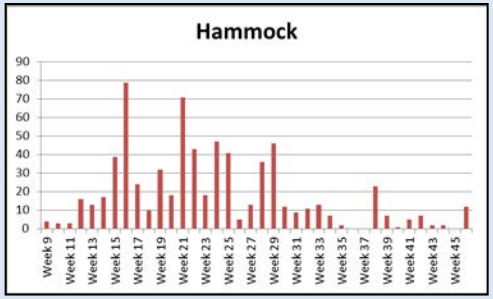
2012

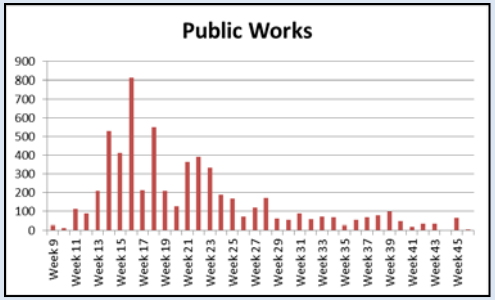

Barber

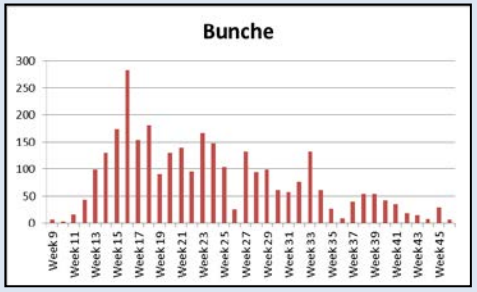

Fleming

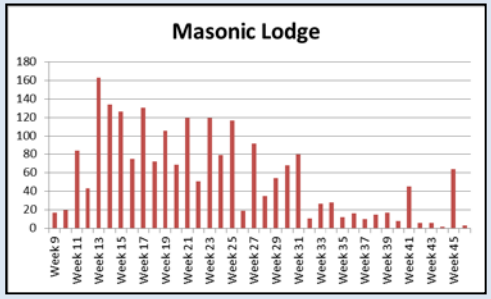

Plantation Drive

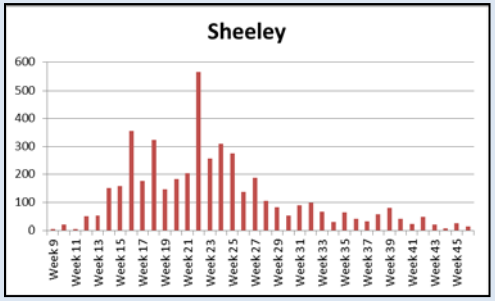

Baytree

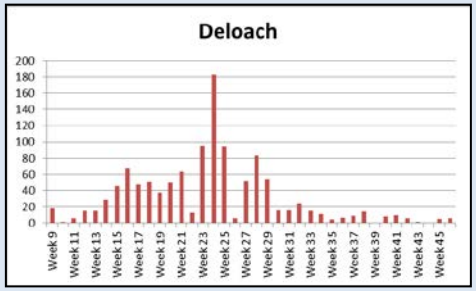

Hammock

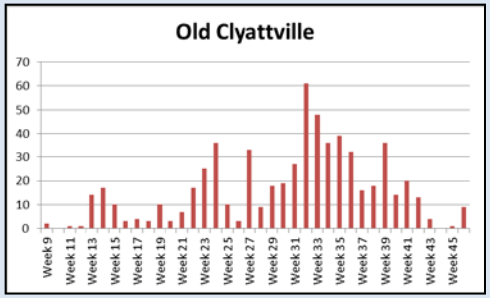

Public Works

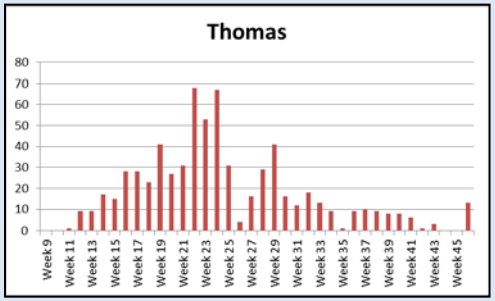

Bunche


Masonic Lodge

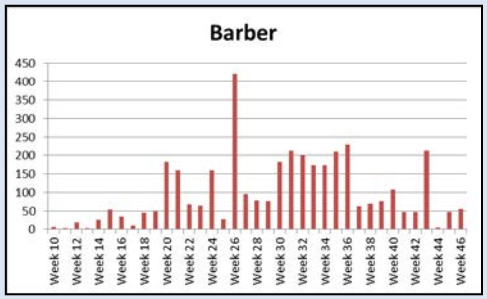

Sheeley

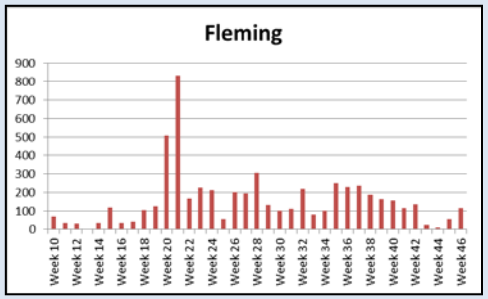

Deloach

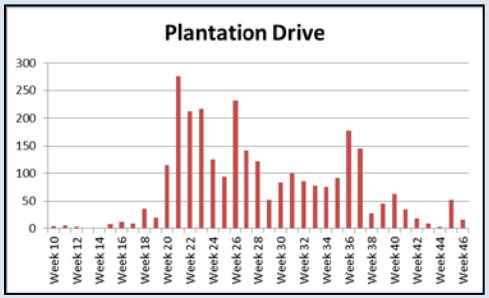

Old Clyattville

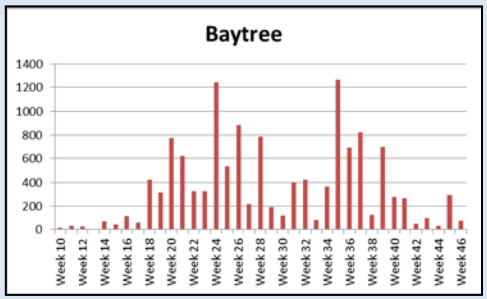

Thomas

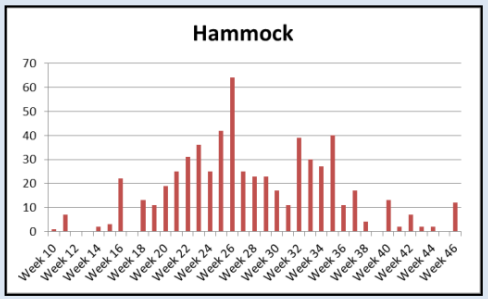
2013

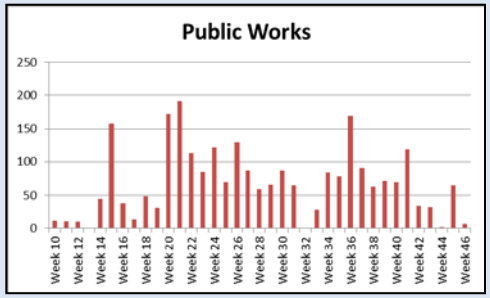

Barber
0 50 100 150 200 250 300 350 400 450
Week 10 Week 12 Week 14 Week 16 Week 18 Week 20 Week 22 Week 24 Week 26 Week 28 Week 30 Week 32 Week 34 Week 36 Week 38 Week 40 Week 42 Week 44 Week 46

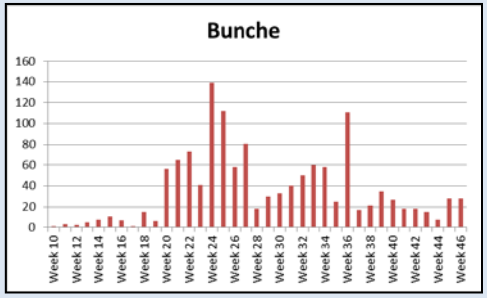

Fleming
0 100 200 300 400 500 600 700 800 900
Week 10 Week 12 Week 14 Week 16 Week 18 Week 20 Week 22 Week 24 Week 26 Week 28 Week 30 Week 32 Week 34 Week 36 Week 38 Week 40 Week 42 Week 44 Week 46

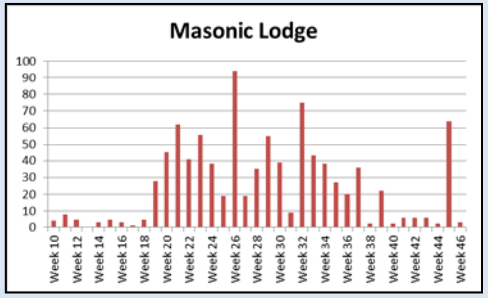

Plantation Drive
0 50 100 150 200 250 300
Week 10 Week 12 Week 14 Week 16 Week 18 Week 20 Week 22 Week 24 Week 26 Week 28 Week 30 Week 32 Week 34 Week 36 Week 38 Week 40 Week 42 Week 44 Week 46

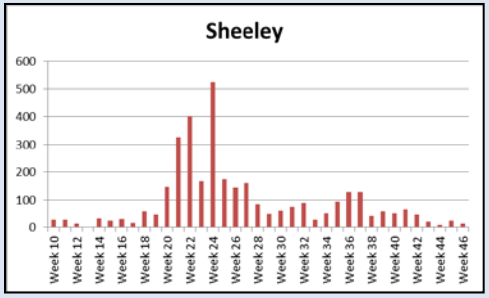

Baytree
0 200 400 600 800 1000 1200 1400
Week 10 Week 12 Week 14 Week 16 Week 18 Week 20 Week 22 Week 24 Week 26 Week 28 Week 30 Week 32 Week 34 Week 36 Week 38 Week 40 Week 42 Week 44 Week 46

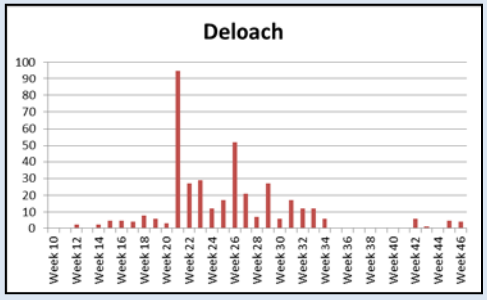

Hammock
0 10 20 30 40 50 60 70
Week 10 Week 12 Week 14 Week 16 Week 18 Week 20 Week 22 Week 24 Week 26 Week 28 Week 30 Week 32 Week 34 Week 36 Week 38 Week 40 Week 42 Week 44 Week 46

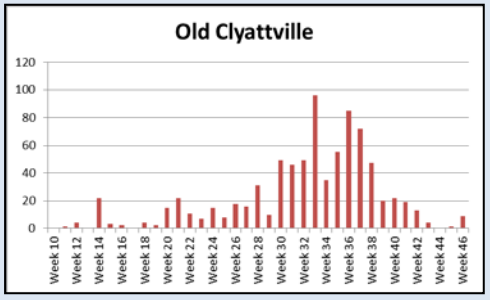

Public Works
0 50 100 150 200 250
Week 10 Week 12 Week 14 Week 16 Week 18 Week 20 Week 22 Week 24 Week 26 Week 28 Week 30 Week 32 Week 34 Week 36 Week 38 Week 40 Week 42 Week 44 Week 46

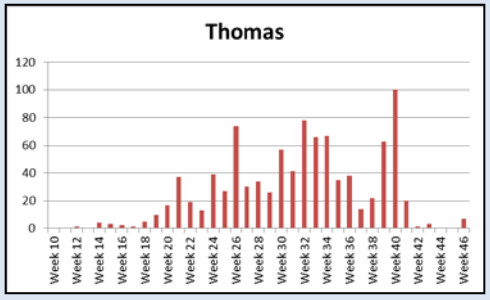

Bunche
0 20 40 60 80 100 120 140 160
Week 10 Week 12 Week 14 Week 16 Week 18 Week 20 Week 22 Week 24 Week 26 Week 28 Week 30 Week 32 Week 34 Week 36 Week 38 Week 40 Week 42 Week 44 Week 46


Masonic Lodge
0 10 20 30 40 50 60 70 80 90 100
Week 10 Week 12 Week 14 Week 16 Week 18 Week 20 Week 22 Week 24 Week 26 Week 28 Week 30 Week 32 Week 34 Week 36 Week 38 Week 40 Week 42 Week 44 Week 46

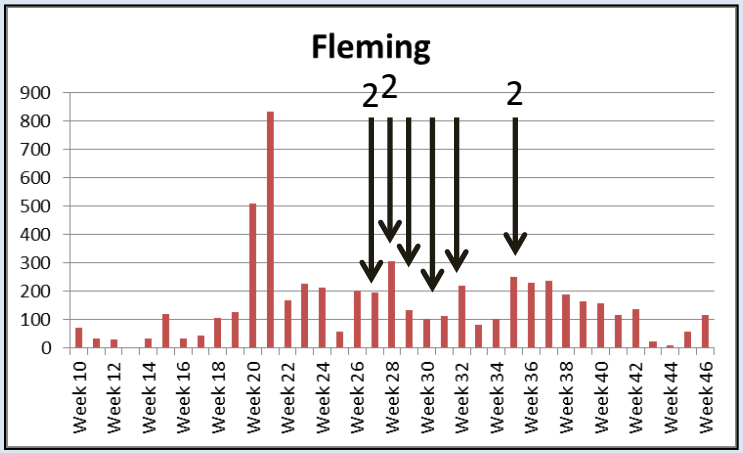

Sheeley
0 100 200 300 400 500 600
Week 10 Week 12 Week 14 Week 16 Week 18 Week 20 Week 22 Week 24 Week 26 Week 28 Week 30 Week 32 Week 34 Week 36 Week 38 Week 40 Week 42 Week 44 Week 46

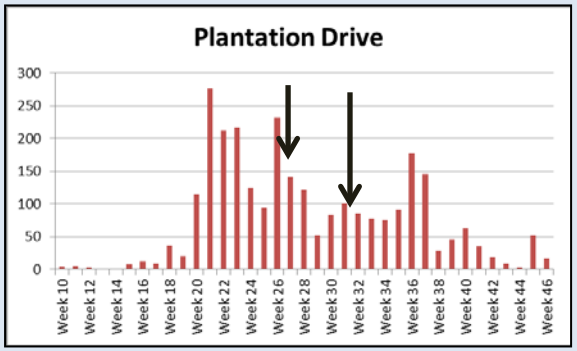

Deloach
0 10 20 30 40 50 60 70 80 90 100
Week 10 Week 12 Week 14 Week 16 Week 18 Week 20 Week 22 Week 24 Week 26 Week 28 Week 30 Week 32 Week 34 Week 36 Week 38 Week 40 Week 42 Week 44 Week 46

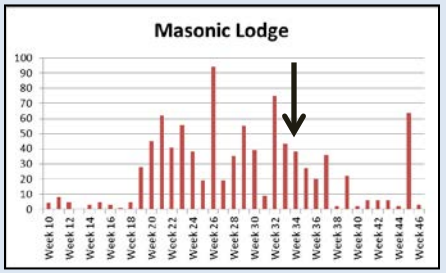

Old Clyattville
0 20 40 60 80 100 120
Week 10 Week 12 Week 14 Week 16 Week 18 Week 20 Week 22 Week 24 Week 26 Week 28 Week 30 Week 32 Week 34 Week 36 Week 38 Week 40 Week 42 Week 44 Week 46

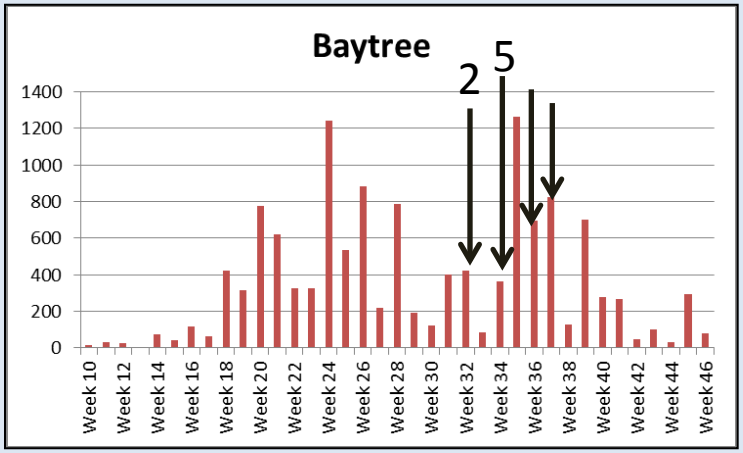

Thomas
0 20 40 60 80 100 120
Week 10 Week 12 Week 14 Week 16 Week 18 Week 20 Week 22 Week 24 Week 26 Week 28 Week 30 Week 32 Week 34 Week 36 Week 38 Week 40 Week 42 Week 44 Week 46

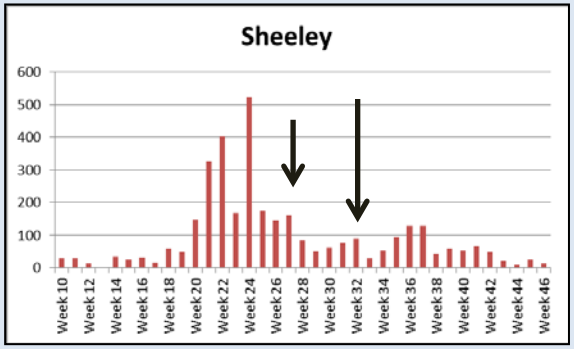
2013 WNV Positives

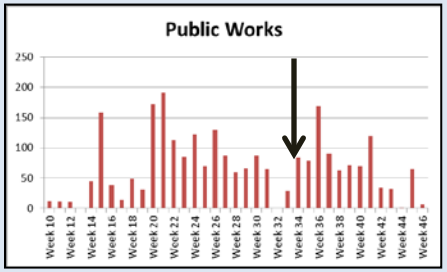


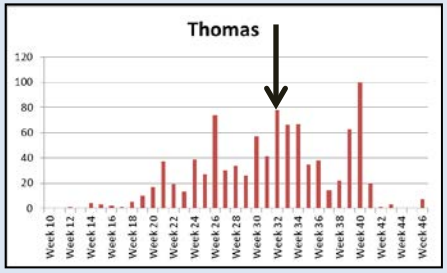




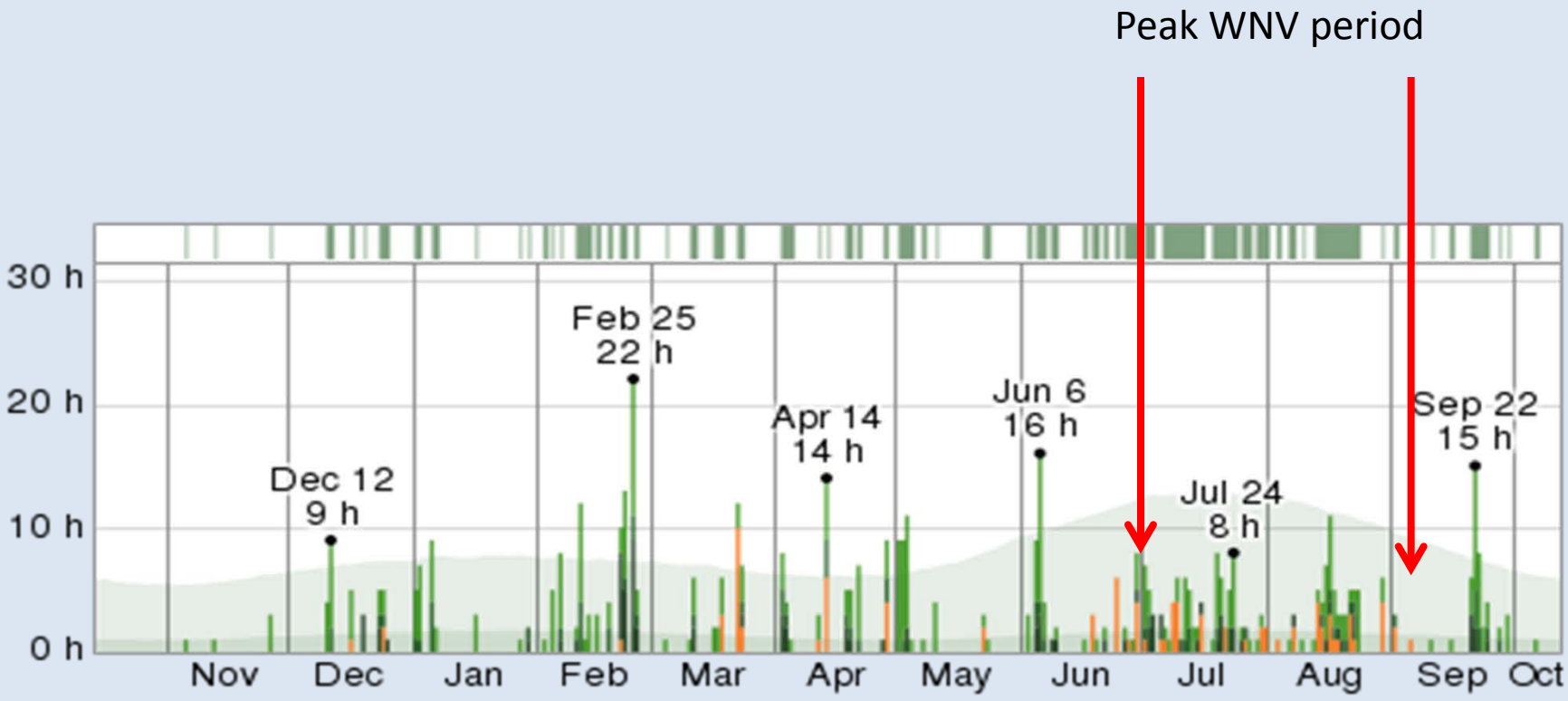






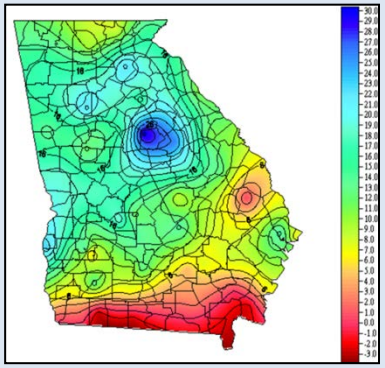


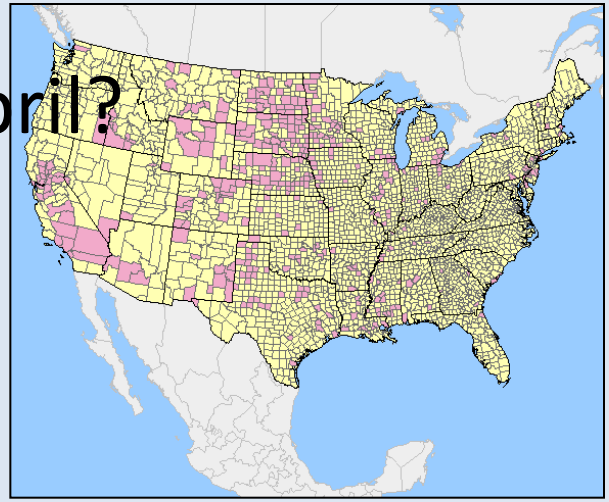
Rainfall Patterns



Questions

- Weather patterns
- Spatiotemporal analysis
- Characteristics of “hot spots”
- Relationship to risk
- Why no human cases?
- Where is the virus Oct-April?





Acknowledgments

- Lauren Smith
- Eric Chambers
- 2013 Team
  - Allison Ericson
  - Sarah Johnson
  - Ola Olorunyomi
  - Cameron Thomas
  - Laquetta Wysong
  - Rebecca Zimler
- Past students who contributed to data