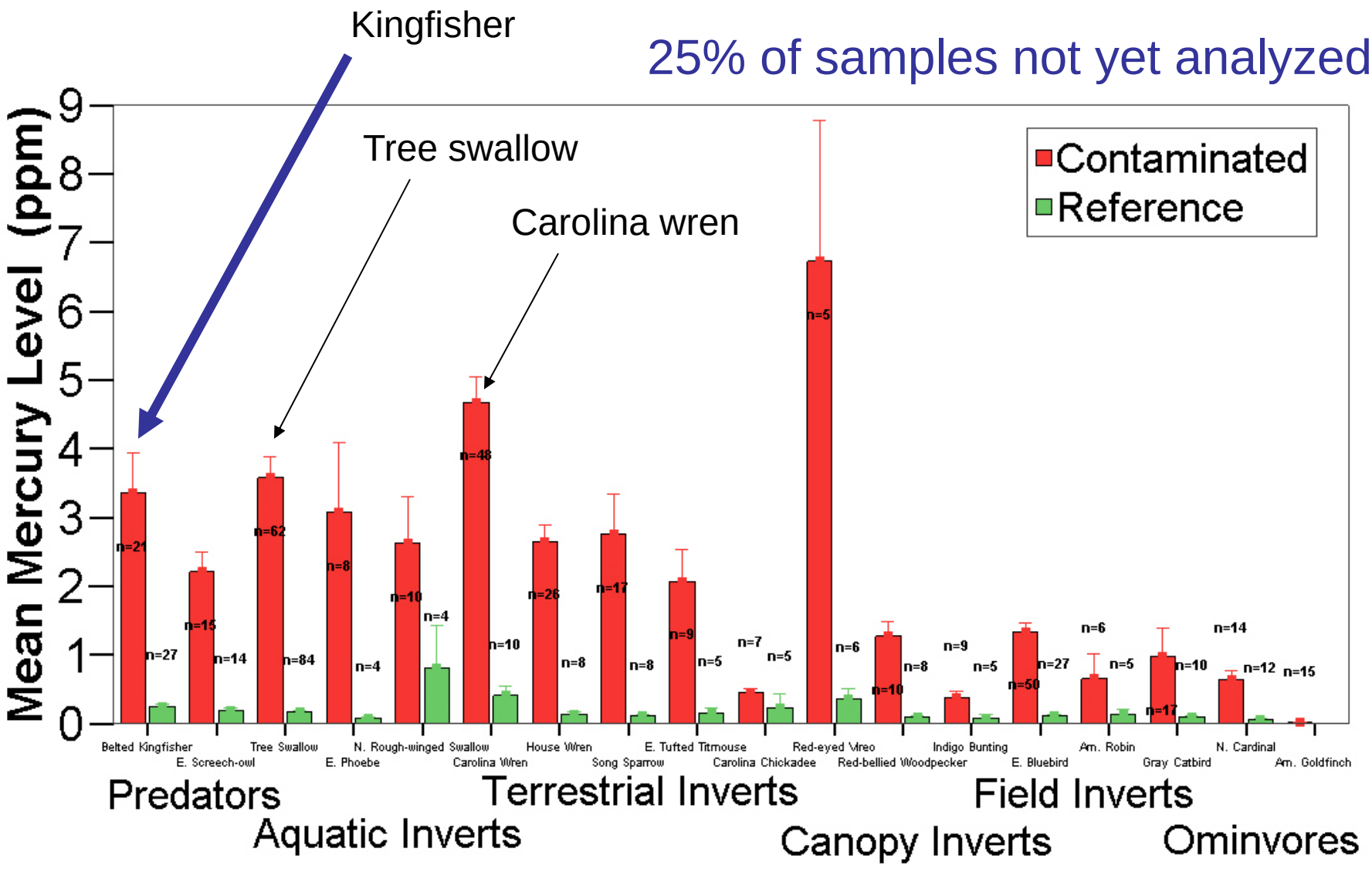
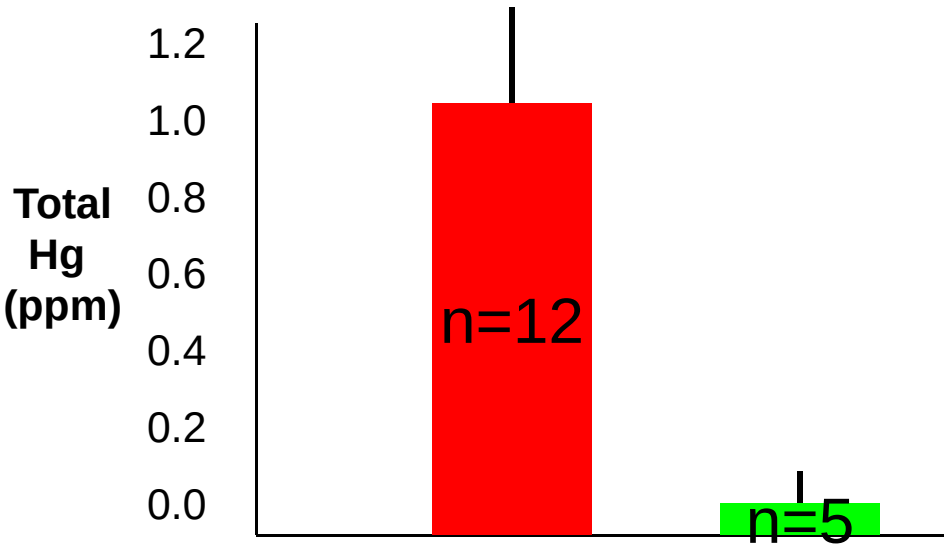
Bird Study: Year 2


Kingfisher
25% of samples not yet analyzed
Tree swallow
Carolina wren
Contaminated
Reference
Mean Mercury Level (ppm)
0
1
2
3
4
5
6
7
8
9
n=21
n=27
n=15
n=14
n=62
n=84
n=8
n=4
n=10
n=4
n=48
n=10
n=26
n=8
n=17
n=8
n=9
n=5
n=7
n=5
n=5
n=6
n=10
n=8
n=9
n=5
n=50
n=27
n=6
n=5
n=17
n=10
n=14
n=12
n=15
Belted Kingfisher
E. Screech-owl
Tree Swallow
E. Phoebe
N. Rough-winged Swallow
Carolina Wren
House Wren
Song Sparrow
E. Tufted Titmouse
Carolina Chickadee
Red-eyed Vireo
Red-bellied Woodpecker
Indigo Bunting
E. Bluebird
Am. Robin
Gray Catbird
N. Cardinal
Am. Goldfinch
Predators
Aquatic Inverts
Terrestrial Inverts
Canopy Inverts
Field Inverts
Ominvores

Total blood Hg in Mallard



Contaminated:
- Basic Park
- Dooms

Reference:
- Middle
- North

SOUTH RIVER
ADULT TREE SWALLOW

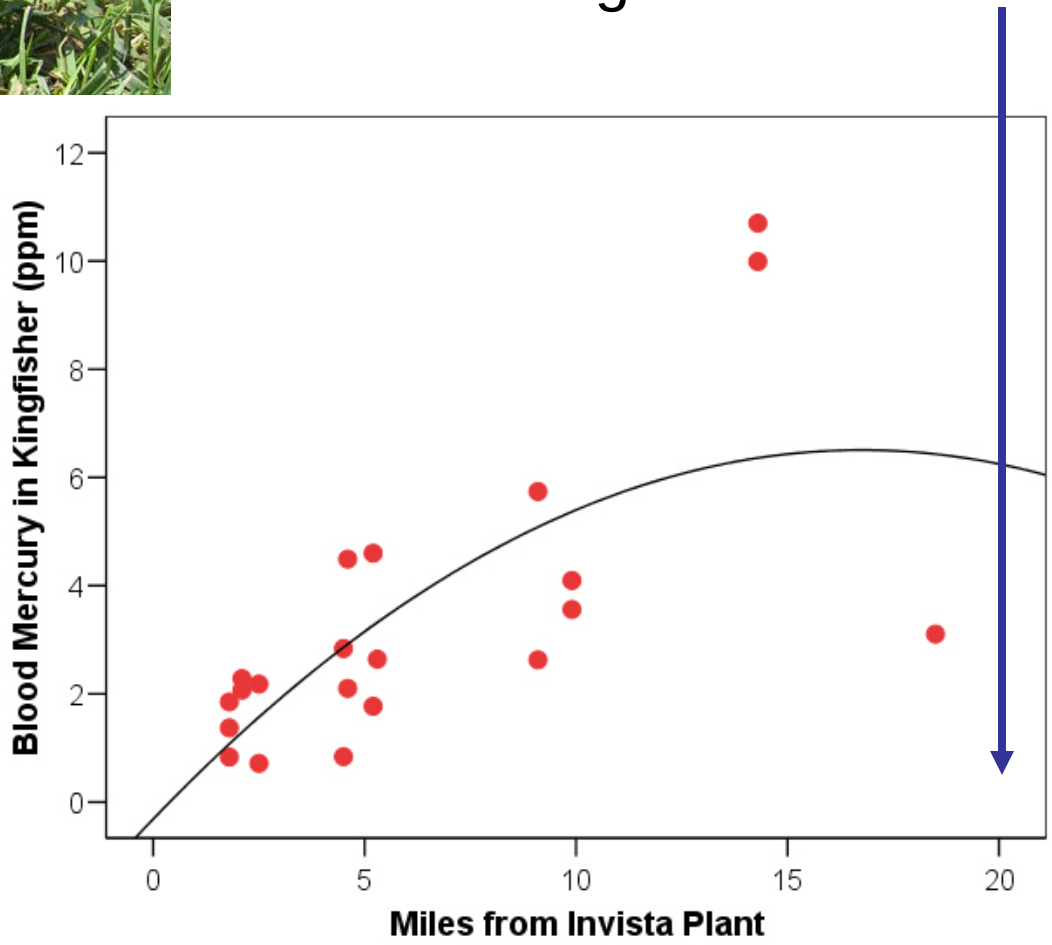
Adult blood mercury (ppm)

12
10
8
6
4
2
0

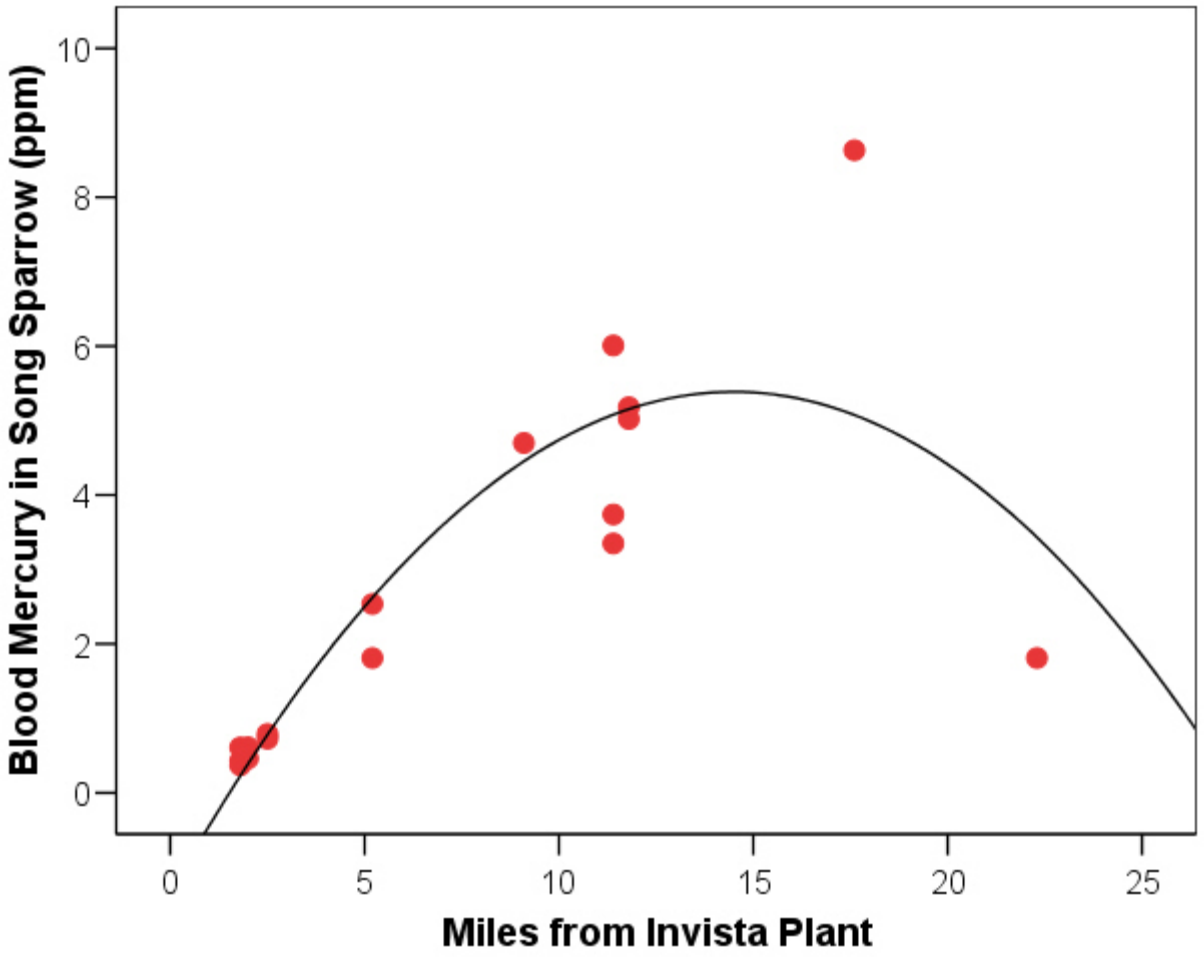
-20
-10
0
10
20
30
40

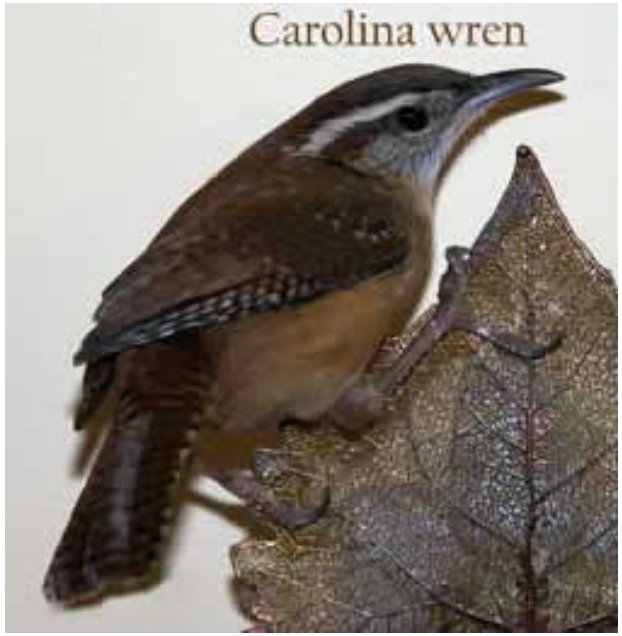
River mile from Invista

Adult kingfisher



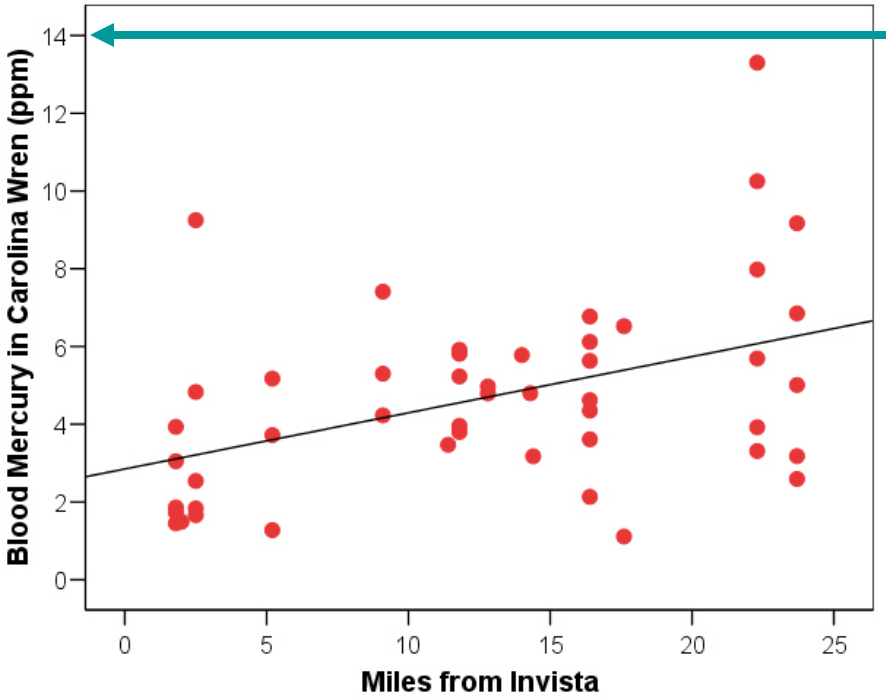
Adult Song Sparrow

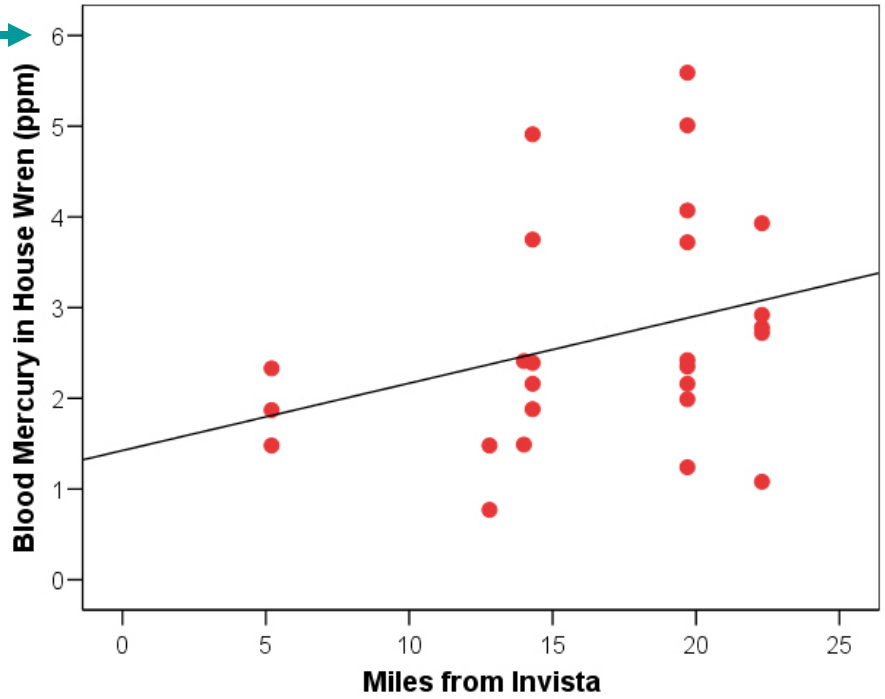


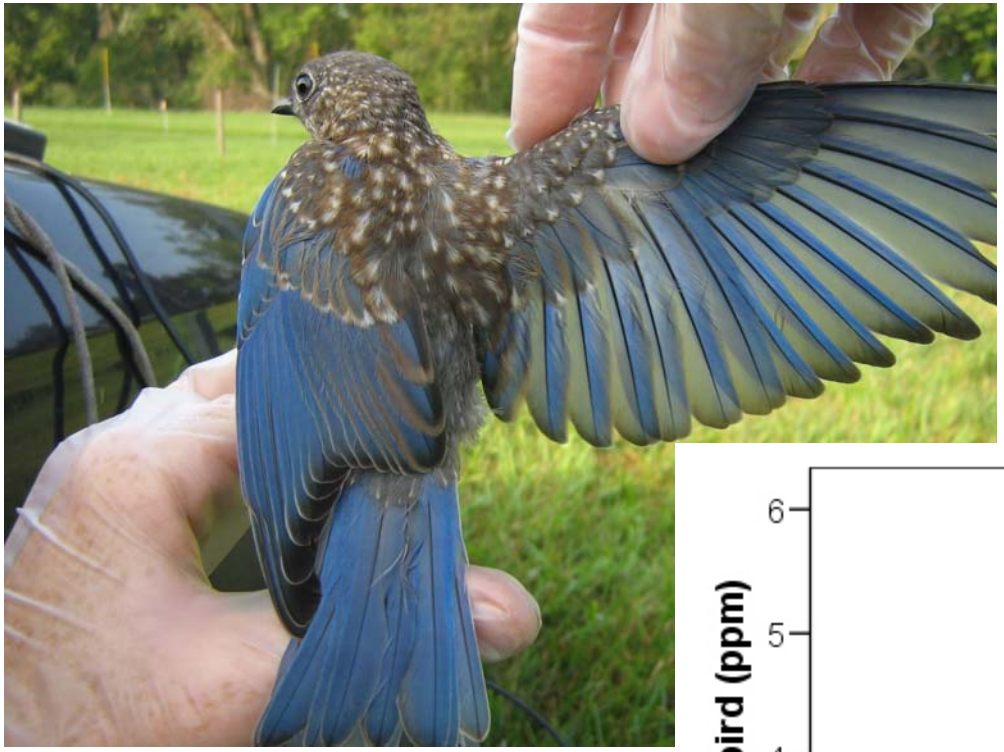

Carolina wren

House wren

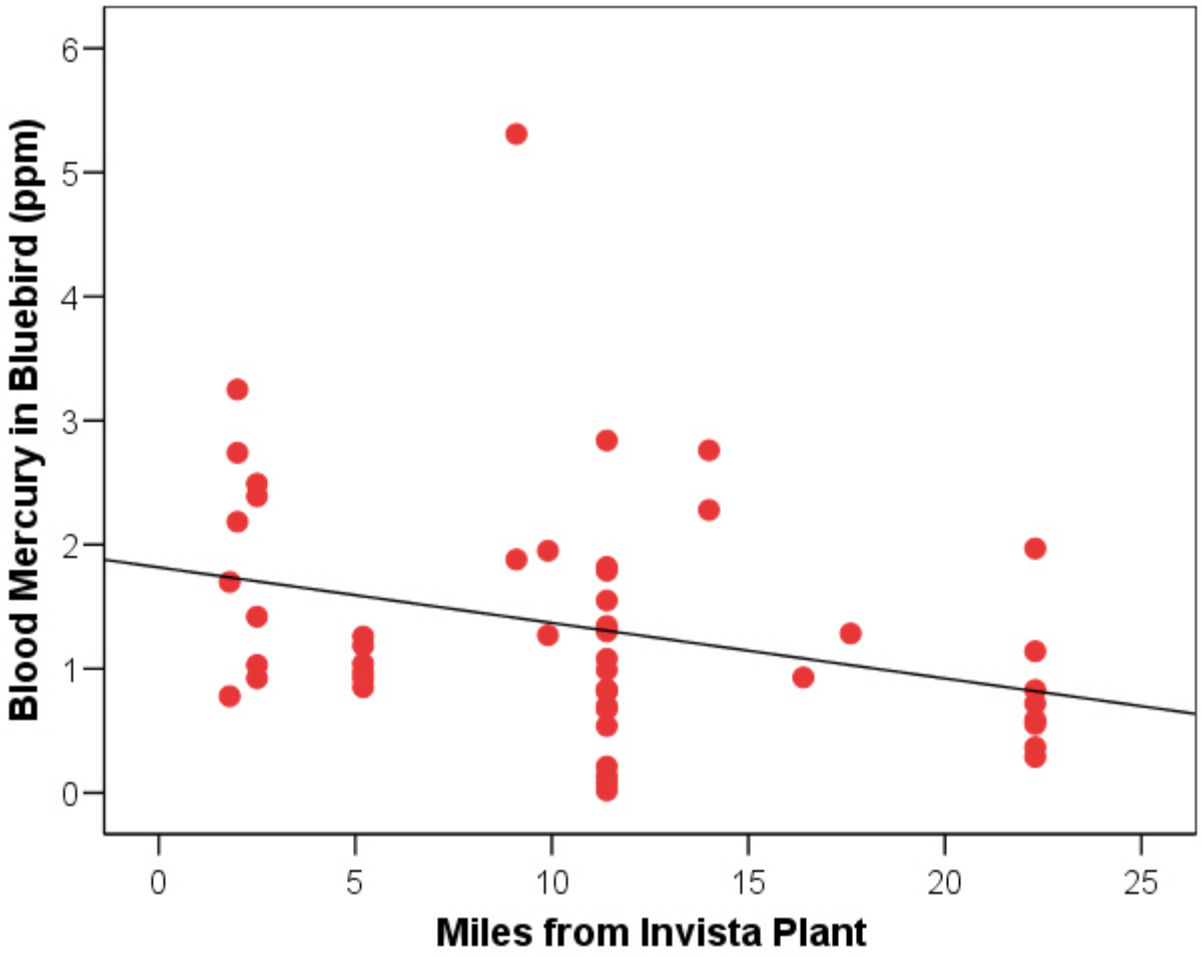

house wren - John Blackmer/River Bend Nature Center


Blood Mercury in Carolina Wren (ppm)
0
2
4
6
8
10
12
14
0
5
10
15
20
25
Miles from Invista

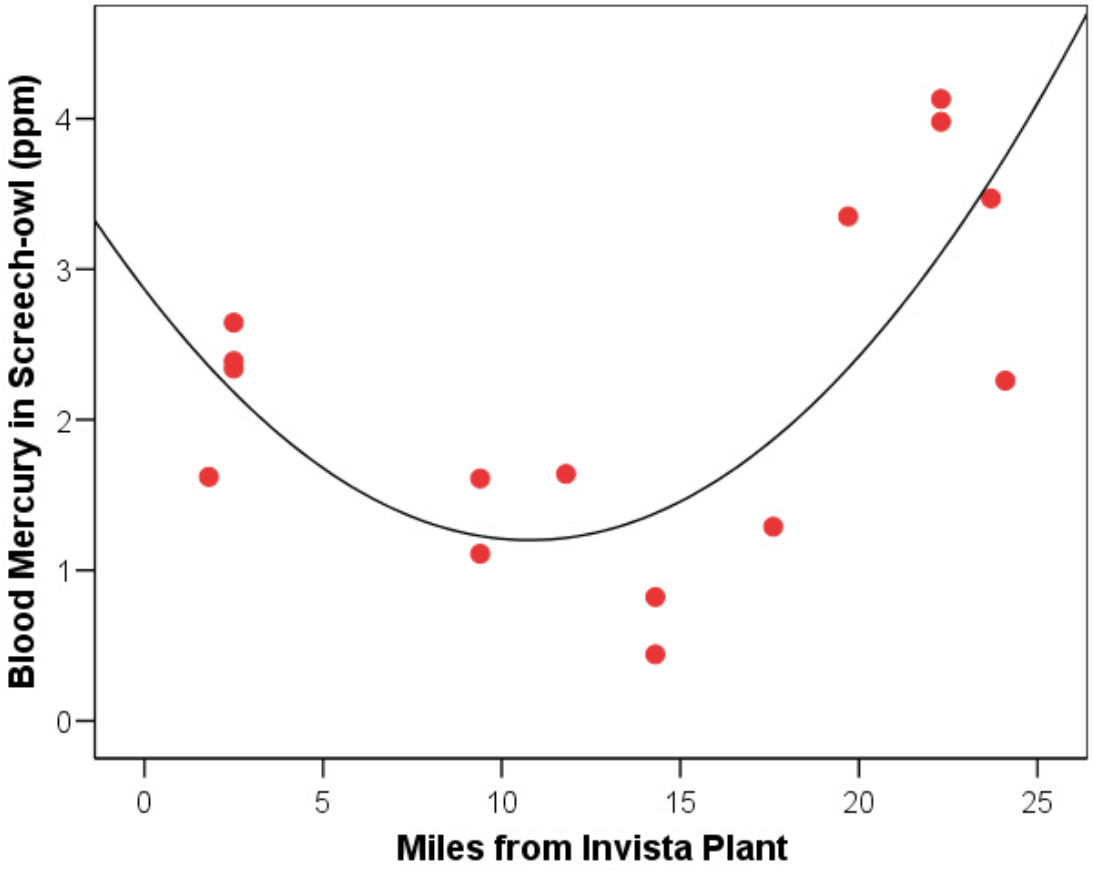

Blood Mercury in House Wren (ppm)
0
1
2
3
4
5
6
0
5
10
15
20
25
Miles from Invista



Adult Bluebird



Adult screech-owl



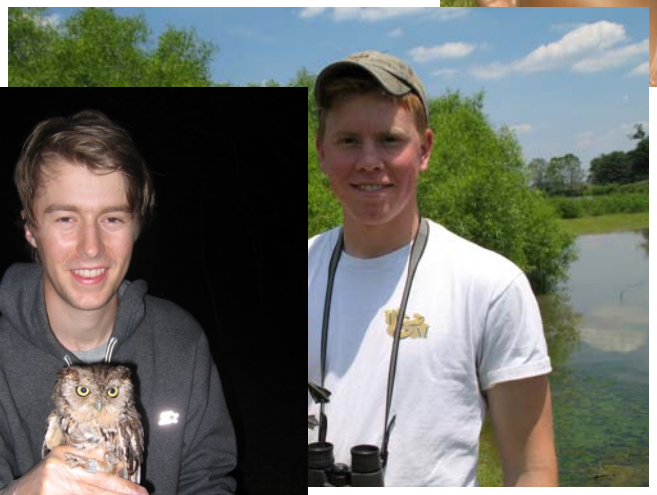
Tracking post-fledging bluebirds

Anne Condon, W&M Masters student

Rachel Fovargue
W&M Freshman

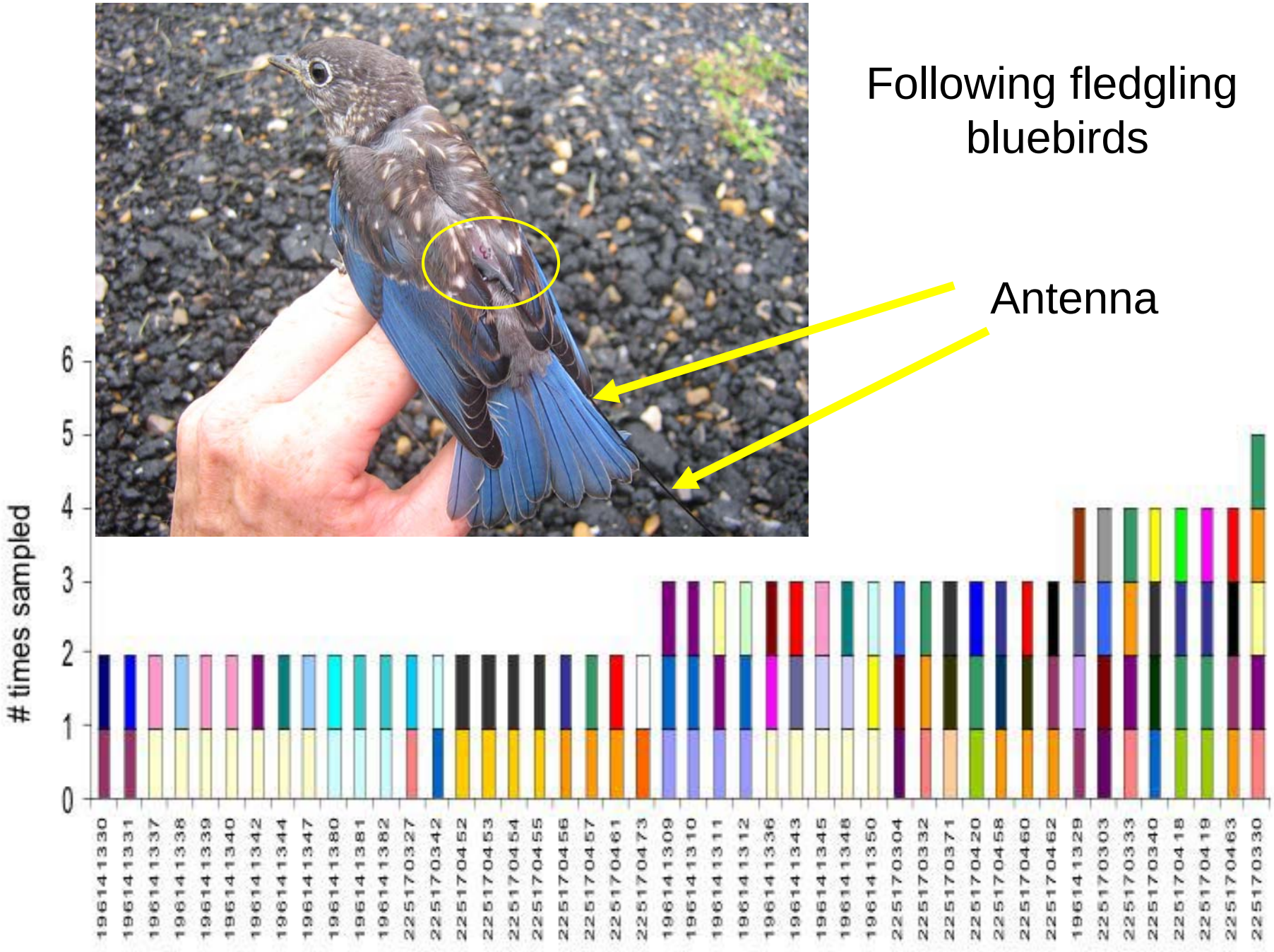
Maryse Leandre
Thomas Nelson Community College

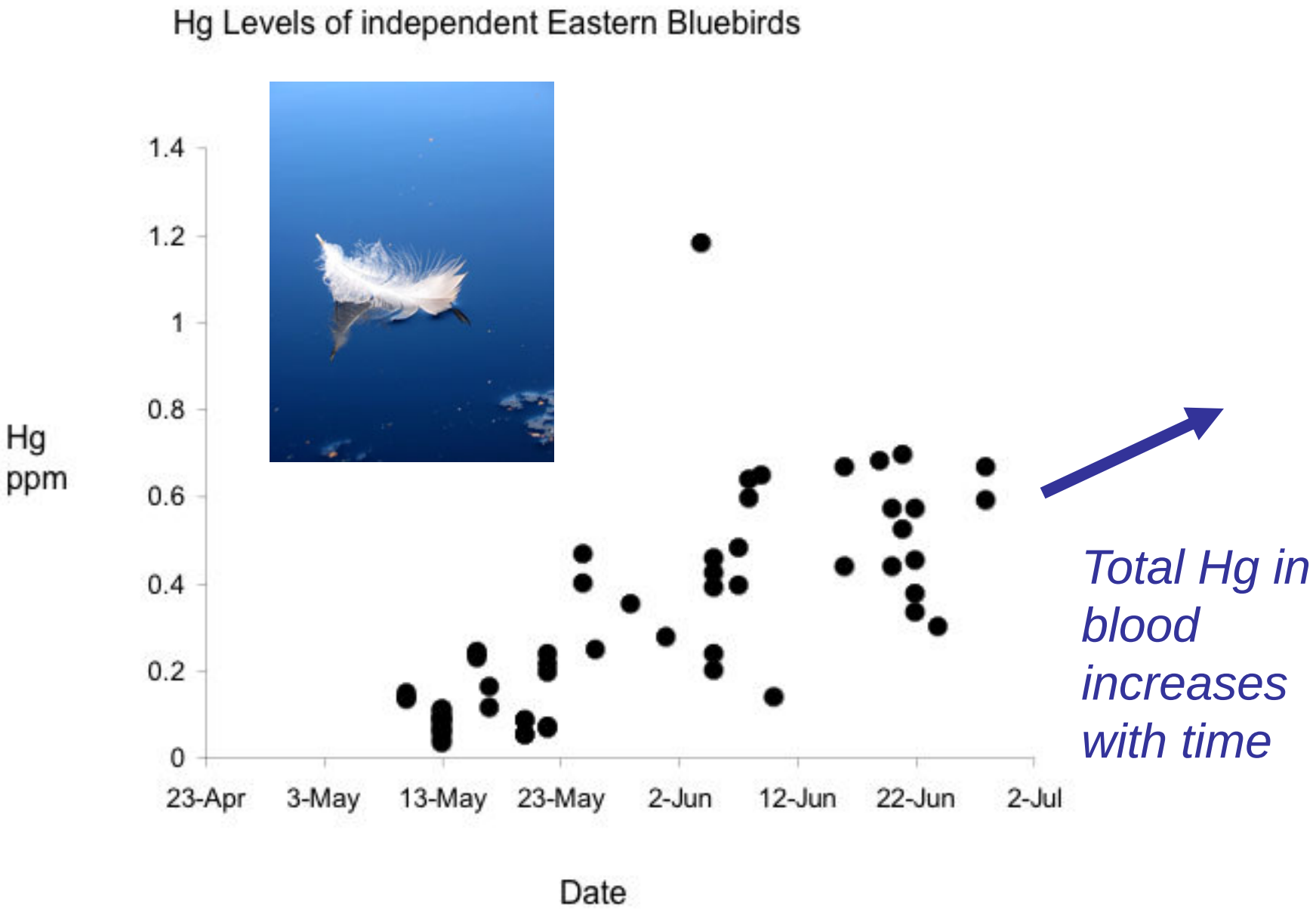
Jack Reese
W&M Sophomore



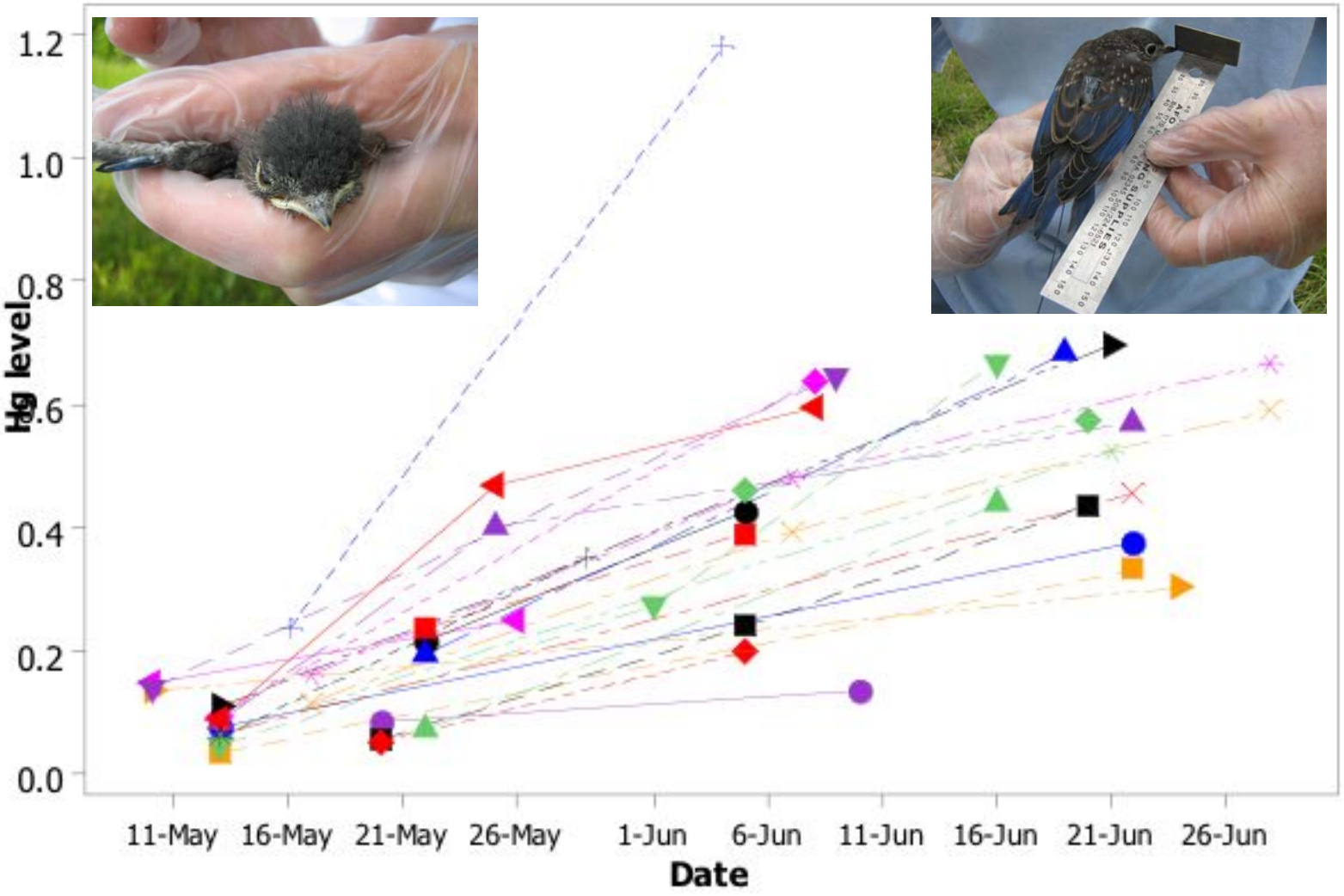
Adrian Monroe, W&M Junior

Kelly Hallinger, W&M Freshman


Following fledgling bluebirds
Antenna
times sampled
0
1
2
3
4
5
6
196141330
196141331
196141337
196141338
196141339
196141340
196141342
196141344
196141347
196141380
196141381
196141382
225170327
225170342
225170452
225170453
225170454
225170455
225170456
225170457
225170461
225170473
196141309
196141310
196141311
196141312
196141336
196141343
196141345
196141348
196141350
225170304
225170332
225170371
225170420
225170458
225170460
225170462
196141329
225170303
225170333
225170340
225170418
225170419
225170463
225170330

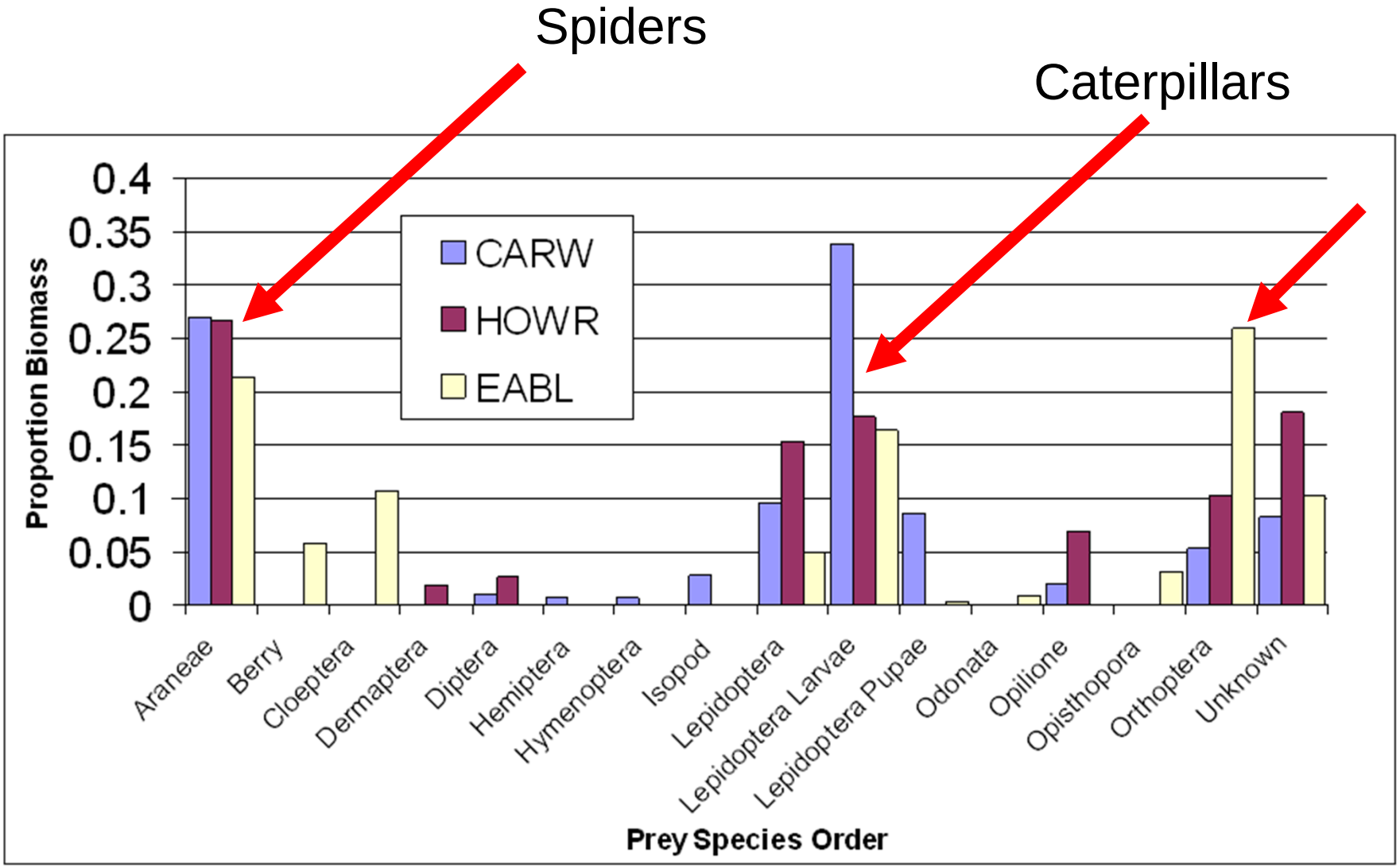

Hg Levels of independent Eastern Bluebirds
Hg
ppm
1.4
1.2
1
0.8
0.6
0.4
0.2
0
23-Apr
3-May
13-May
23-May
2-Jun
12-Jun
22-Jun
2-Jul
Date
Total Hg in blood increases with time

Blood mercury of individual fledgling bluebirds



DIET STUDY

<u>Ligature samples:</u>
Carolina wren = 90
House wren = 151
Bluebird = 171



Food items taken from nestlings

Conclusions:

- **Terrestrial songbirds are eating many spiders**
- **Nestling blood Hg increases with time since fledge**
- **Many non-targets have elevated blood Hg**
- **Hg present in several non-piscivorous food webs**

  e.g., mallard = bluebird = woodpecker

- **Distribution of Hg availability differs by species**

Anne Condon

Rebecca Brasso

Scott Friedman

Ariel White

Possible Future work:

- Distance contamination moves in bird prey
- Isotopic origins of food chains
- Relative reproductive success of wrens
- Swallow success and levels in third year of life
- Waterfowl on entire length of river
- Mallard prey items