Status of Brown Marmorated Stink Bug in NC and VA

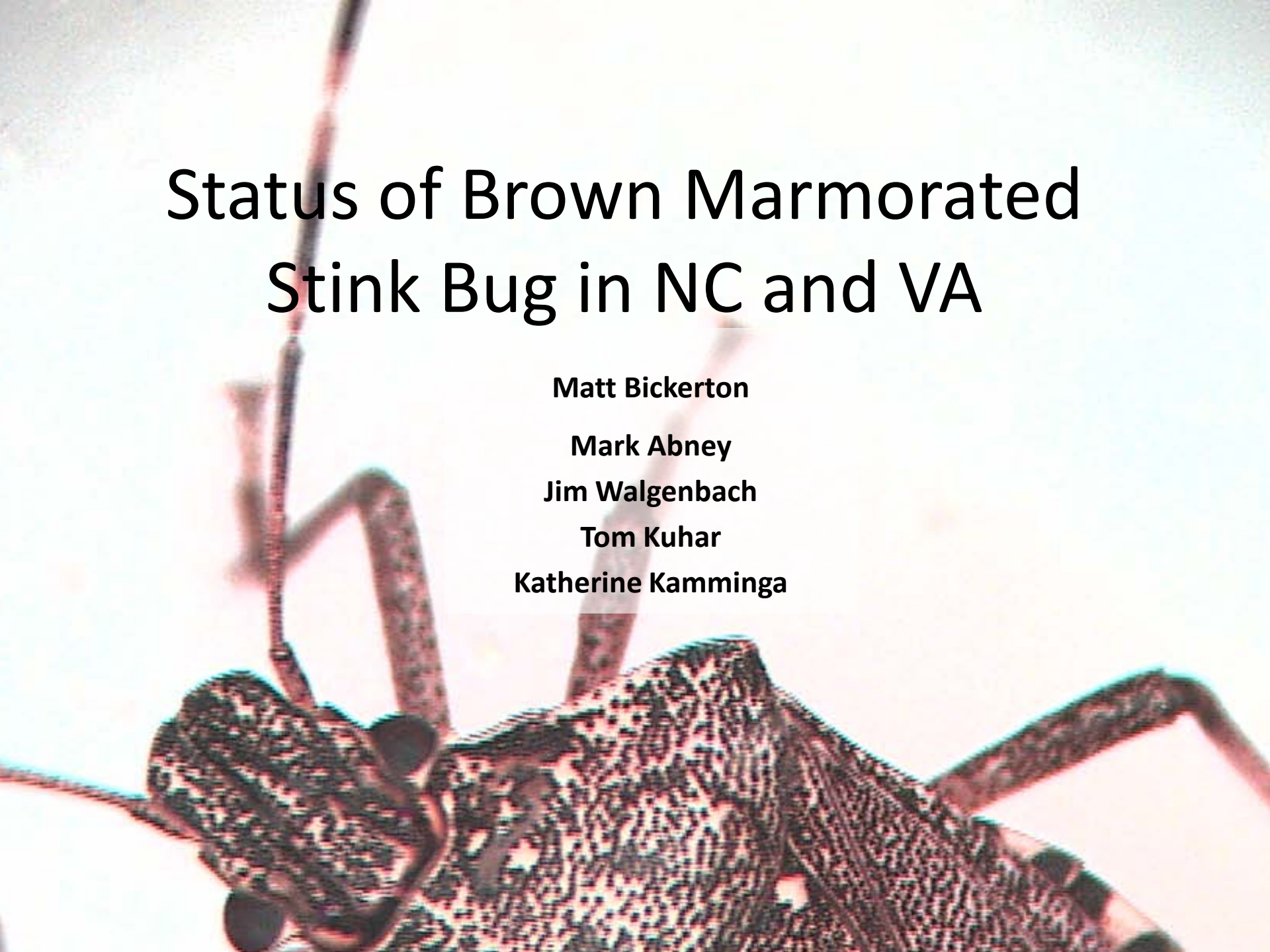
Matt Bickerton

Mark Abney

Jim Walgenbach

Tom Kuhar

Katherine Kamminga



Host Use in USA:

- Bernon (2004) documented > 60 wild host plants in PA

- Nielsen & Hamilton (2009) studied population dynamics in ornamentals and found that densities in PA were highest in
  - Early season: *Paulownia tomentosa*
  - Mid- late season: *Viburnum*, spp., *Fraxinum americanum; Paulownia tomentosa*
  - Late season: *Pyrus, spp.* (Pear)*, Paulownia tomentosa*

Objectives:

Determine the role of wild plants on population biology of BMSB

1. Determine important host plants of BMSB across geographic regions in its southern range

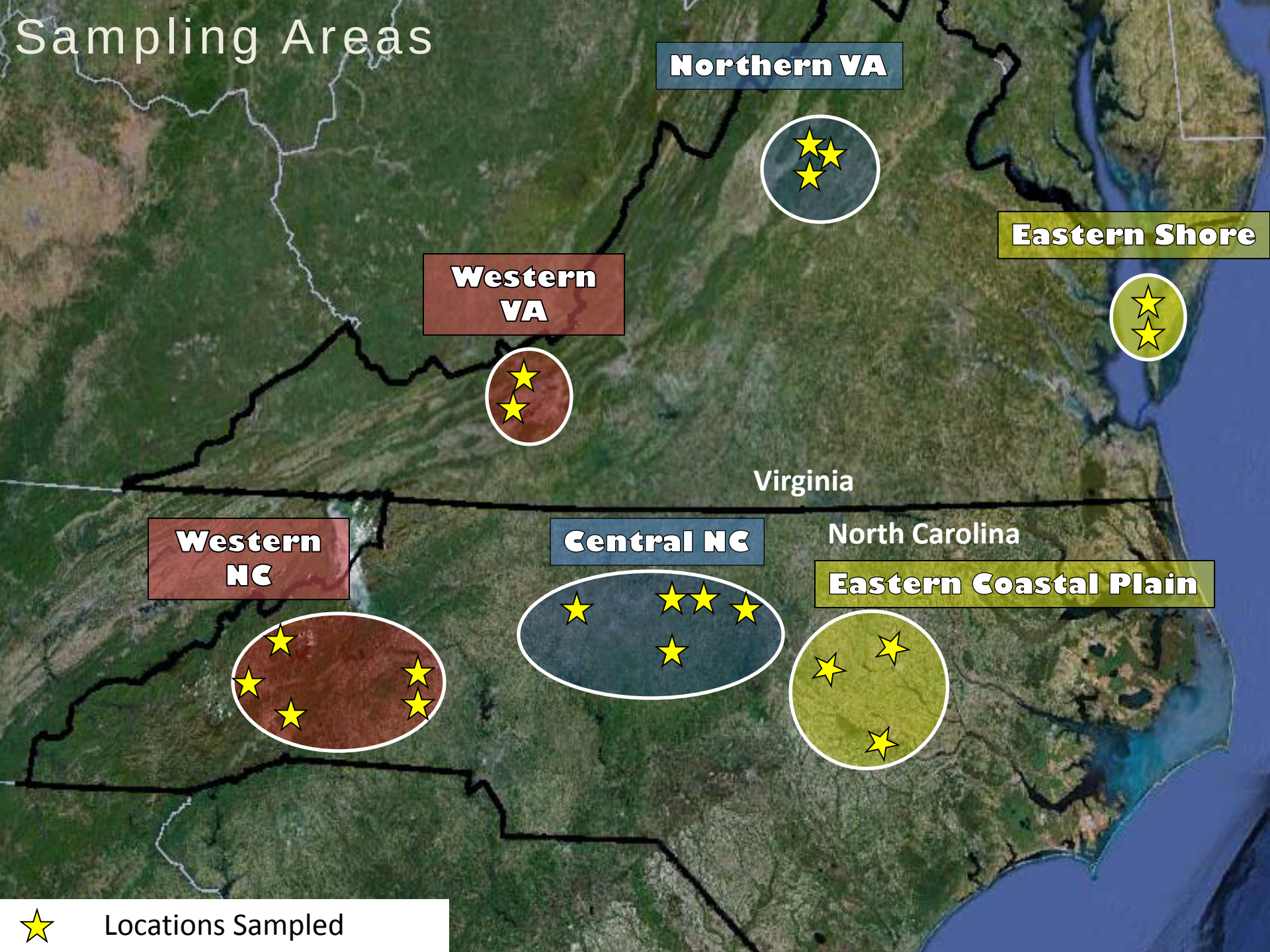
1. Determine effect of BMSB on native stink bug spp

2. Determine sequence of host use in Wild Plants

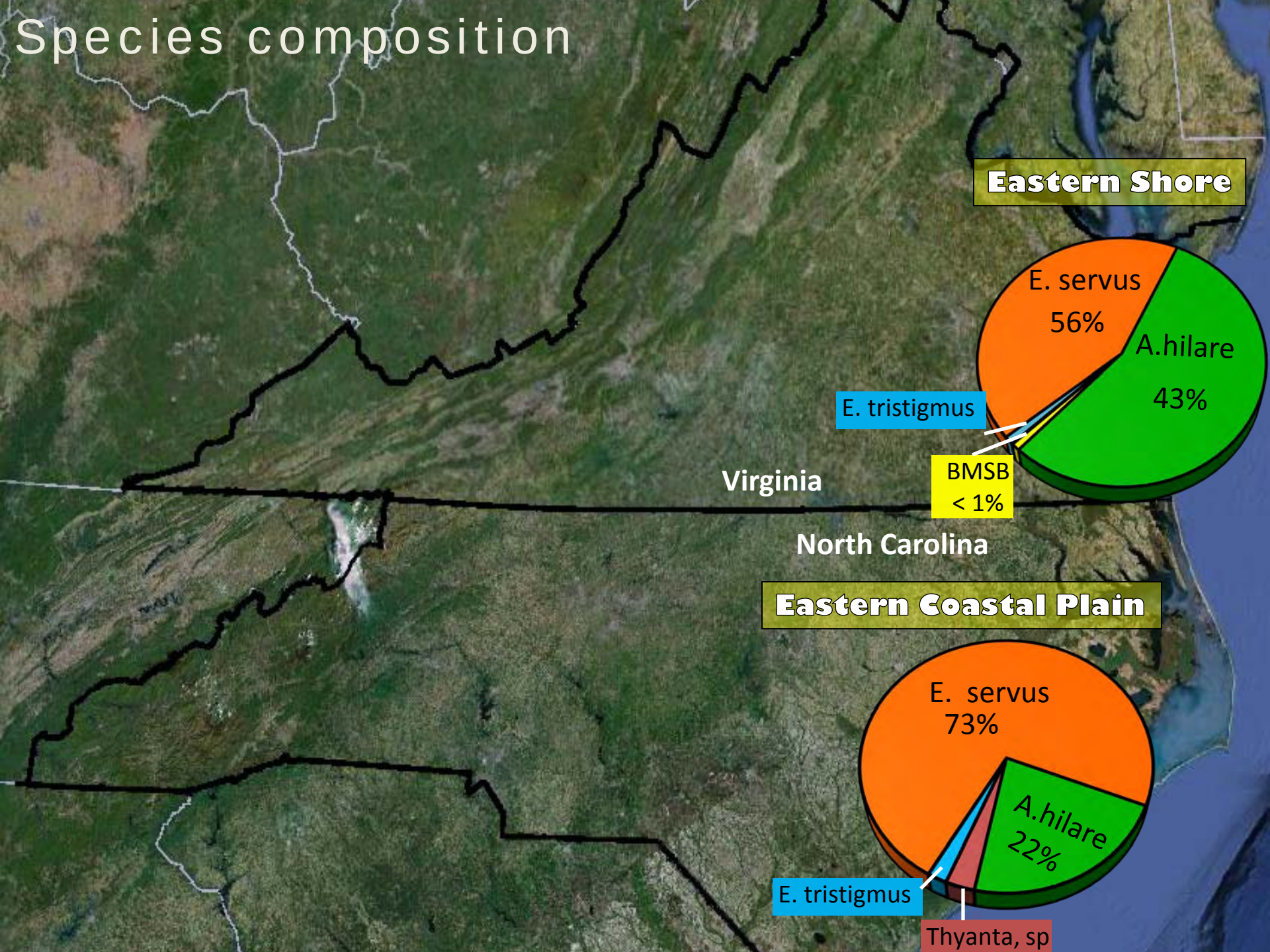
3. Determine whether wild plants augment or reduce population growth in agricultural habitats

Methods:

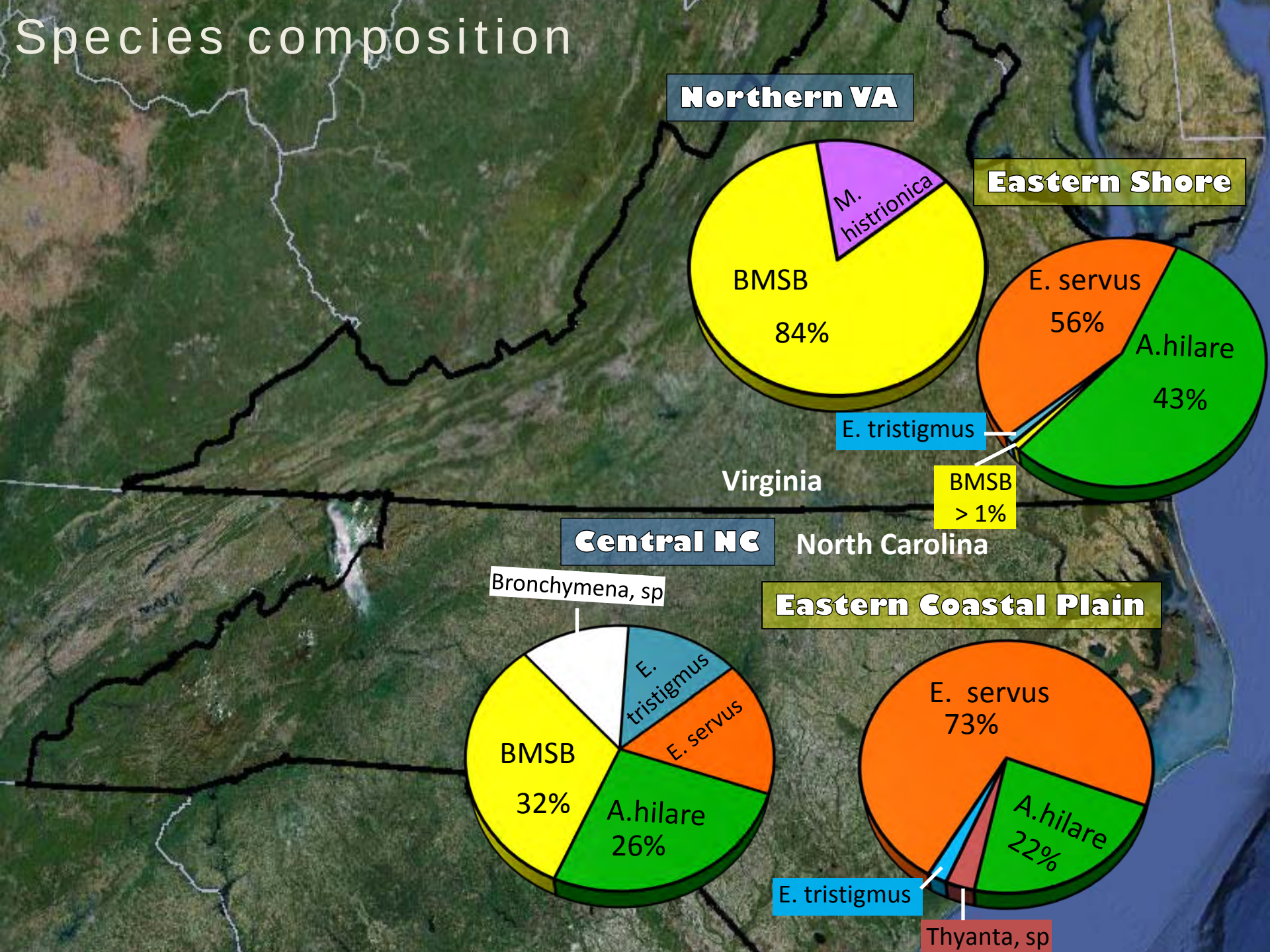
- 3 min timed samples performed every 2 wk
  - 5 reps (crop sampling)
  - Variable # reps for wild hosts
  - Visual
  - Beat sheet
    - 3 whacks / branch
  - Sweep net
    - 20 sweeps/ sample x 30


Sampling Areas
Northern VA
Eastern Shore
Western VA
Virginia
Western NC
Central NC
North Carolina
Eastern Coastal Plain
Locations Sampled

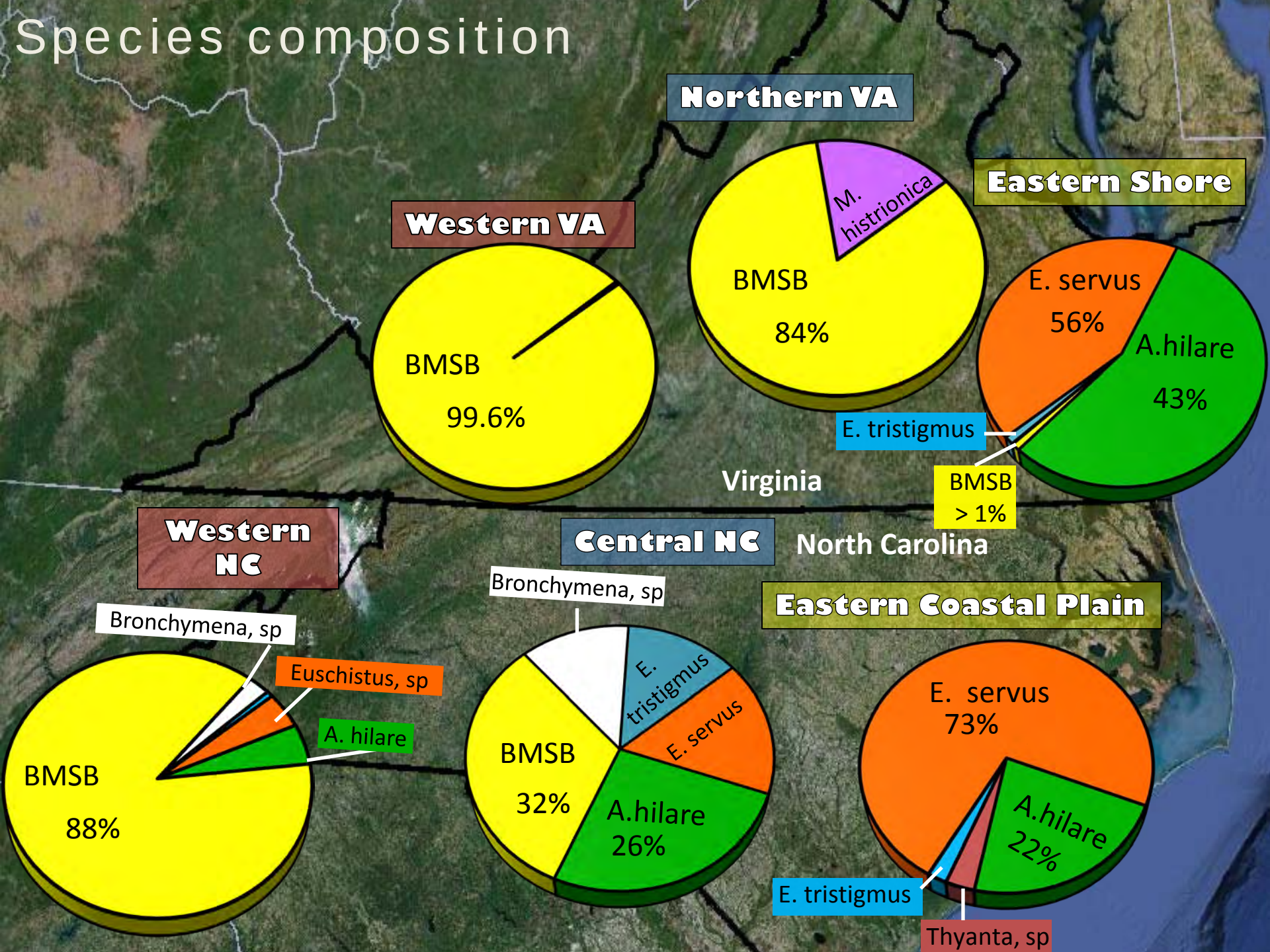
Species composition



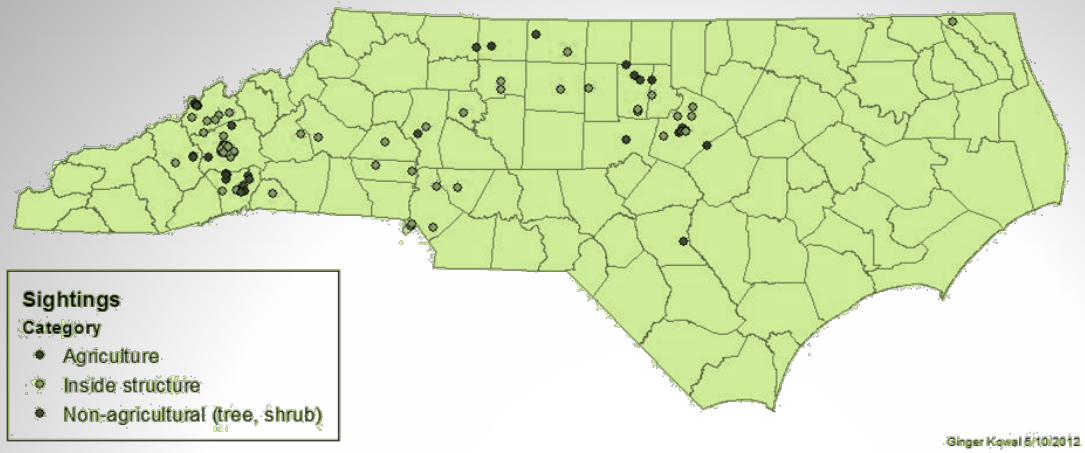
Species composition



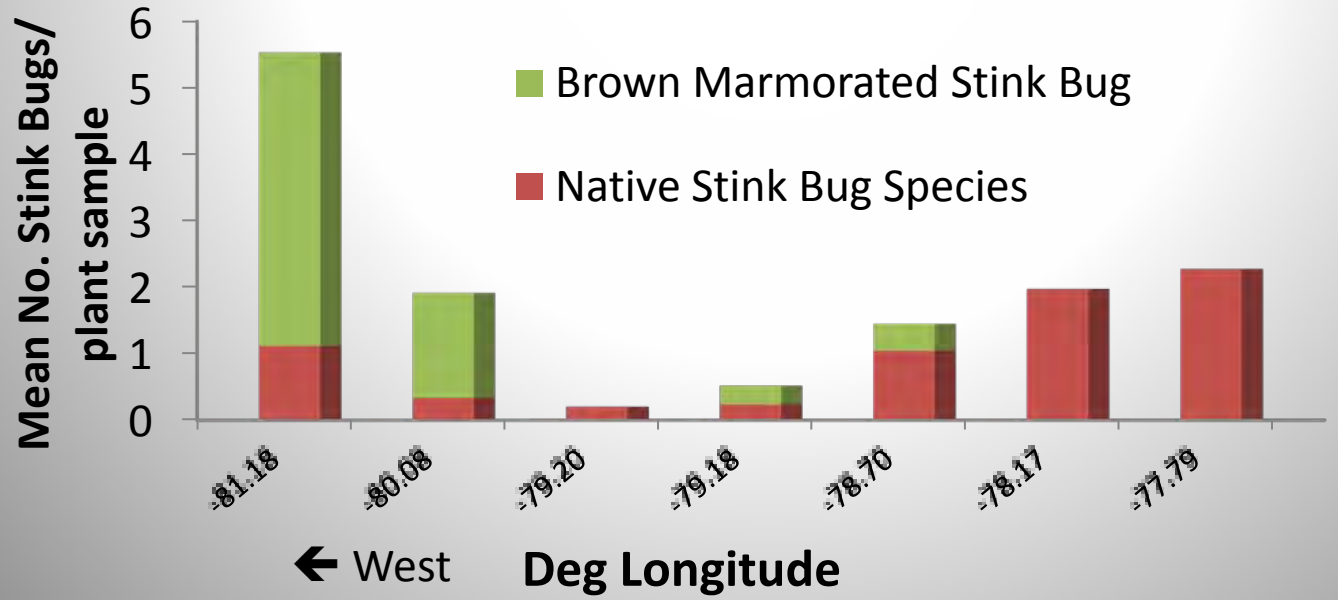
Species composition



Confirmed “Sightings”



Population Trends in NC



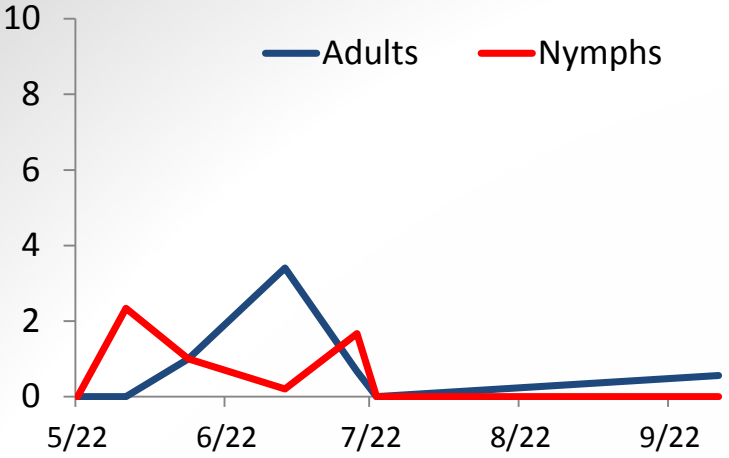
Wild and Cultivated Host Plants

Location	**# Wild Plant** Species w/ BMSB		**# Crop** Species w/ BMSB
Virginia	**2011**	**2012**	**2011 & 2012**
East	-	0	1
North	-	7	9
West	45	46	29
North Carolina	**2011**	**2012**	**2011 & 2012**
East	0	0	0
Central	6	19	4
West	11	28	8

Major Host Plants in NC and VA (Early to Mid- Season)

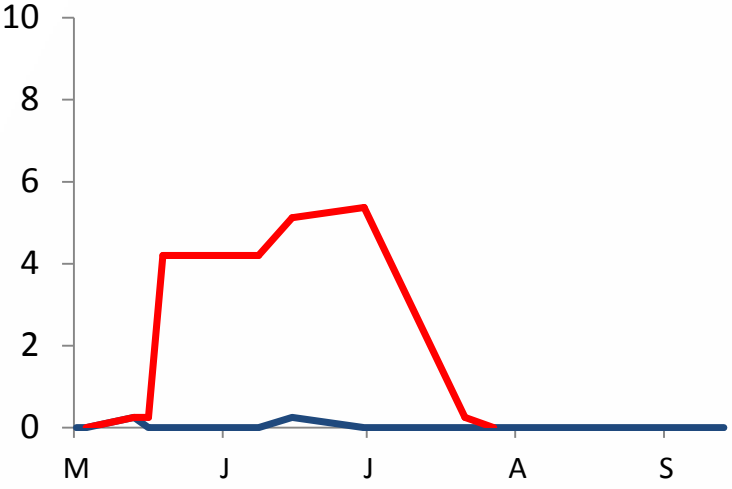
Sassafras:

Sassafras albidium Nutt

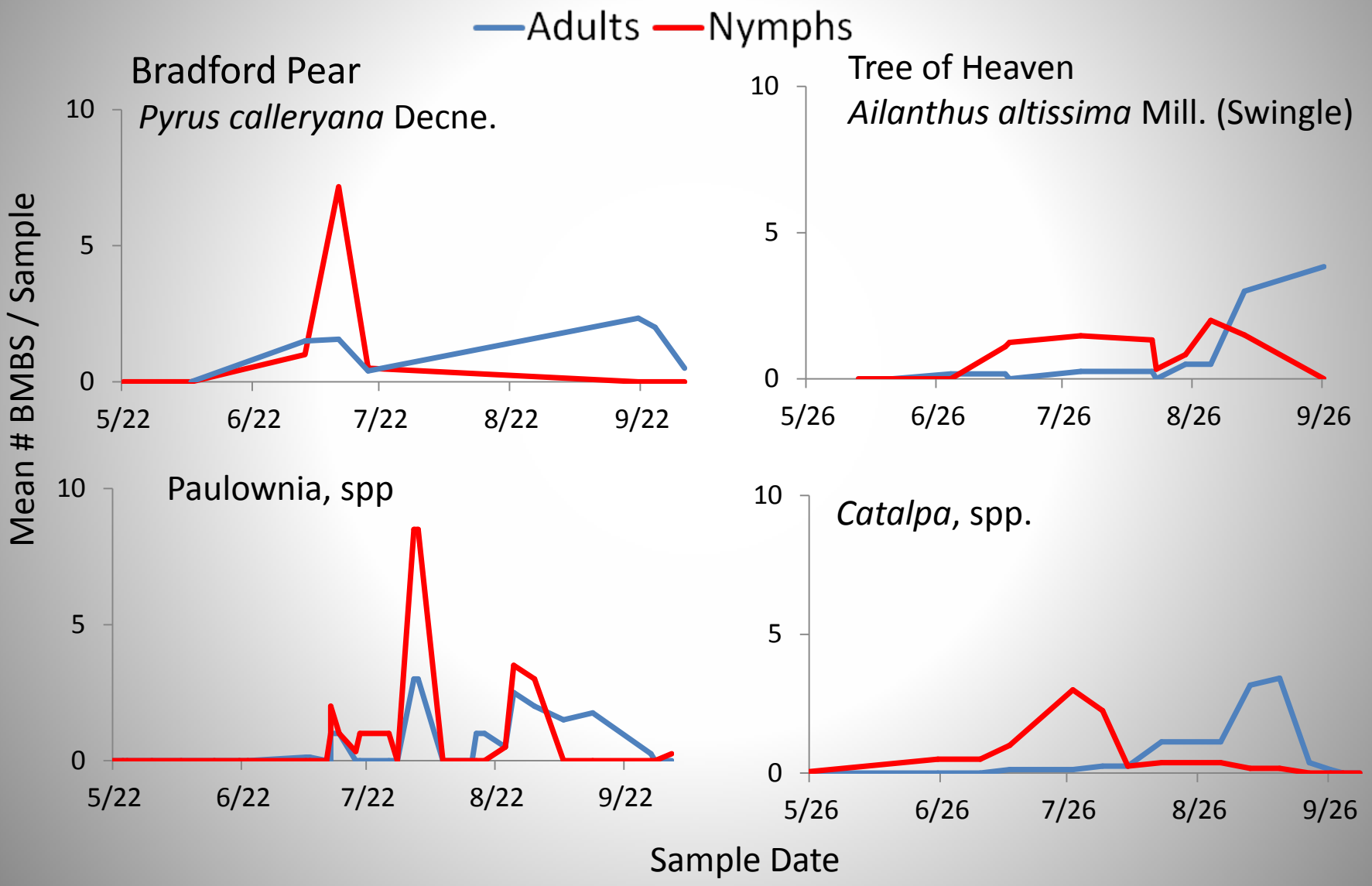


Black Cherry:

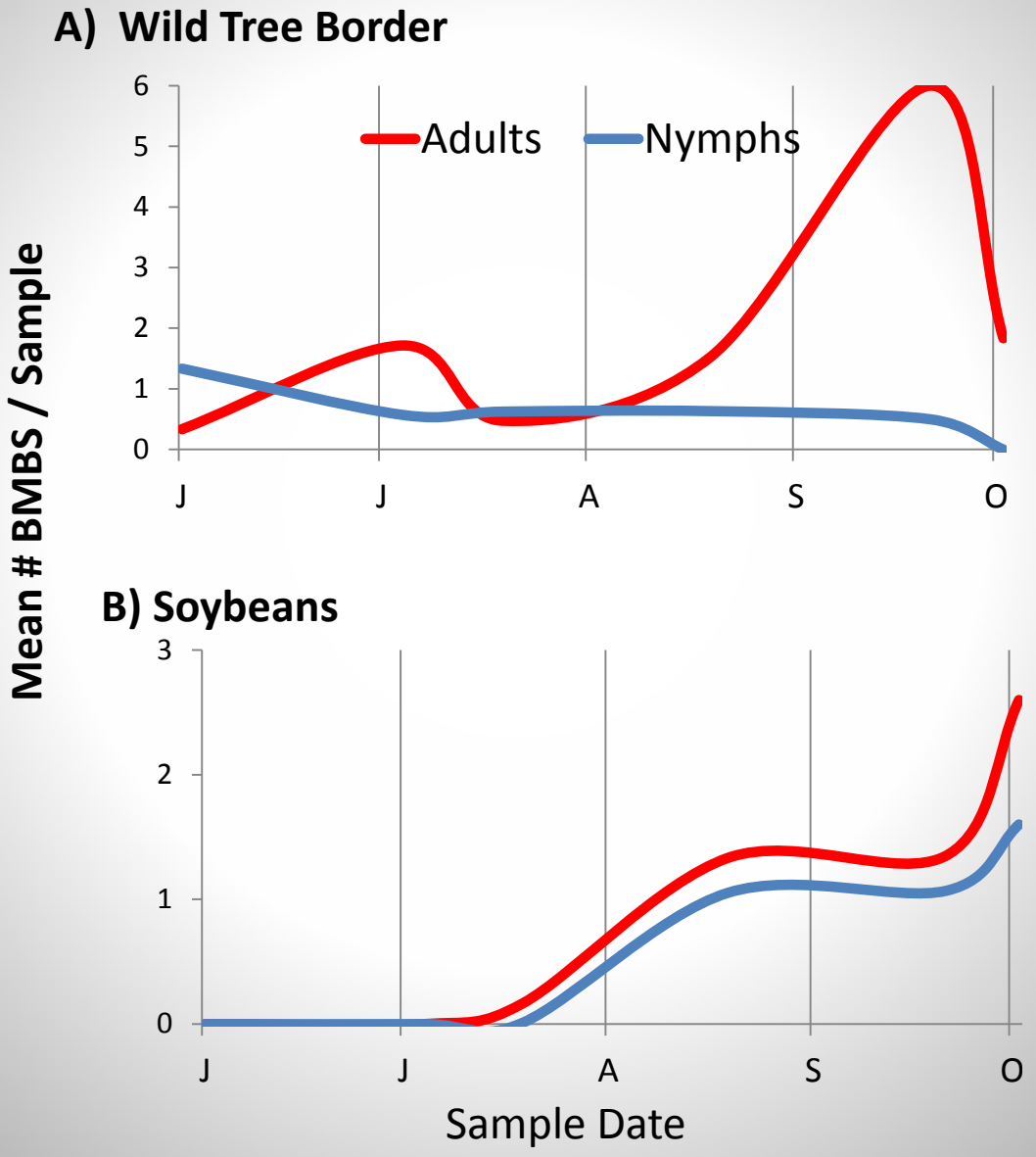
Prunus serotina Ehrh.



Major Host Plants in NC and VA (Mid- to Late Season)



Population Dynamics in Agriculture



Similar Host Plants Among Sites in VA and NC

Plant Species	# of sites with BMSB -ALL YEARS-	% of sites with BMSB
Bell Pepper	3	60%
Field Corn	3	60%
Soybean	**4**	**80%**
Redbud	3	60%
Wild Grape	3	60%
Sassafras	3	60%
Red Maple	3	60%
Cherry (Prunus Spp)	3	60%
Paulownia (Princess tree)	3	60%
Ailanthus (Tree of Heaven)	3	60%
Catalpa	**4**	**80%**

Conclusions

- Wild hosts are an important part of BMSB's life cycle.
- BMSB present in > 29 cultivated plants in Virginia and 11 in North Carolina.
- Presence of wild host plants around agricultural areas may contribute greatly to BMSB densities in crops at certain periods.
- Catalpa and soybean were the most common host plants associated with BMSB in VA and NC.

Conclusions (cont.)

- Similar host species used by BMSB in the Southeast compared with Northeast (e.g. *Paulownia, Pyrus, spp.*) but at slightly different times.

- BMSB has a major impact on pentatomid species compostion, increasing from < 1 % in the east to up to 99% of all species captured in the western areas.

Acknowledgements

- Mark Abney
- Jim Walgenbach
- Tom Kuhar
- Katherine Kamminga
- Steve Schoof
- Ginger Kowal
- Amanda Bakken
- Rocio Davila
- Melissa Somody
- James Trammel
- Justin Jones

Funding:

USDA NIFA /SCRI

Southern Region IPM

North Carolina Dept. of Agriculture

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