

2014 Indiana Bat Summer Survey Guidance

Robyn Niver, Mike Armstrong,
Andy King, and Mark Ford

January 8, 2014



Survey Guidance Team:

- **7 USFWS Biologists:**
 - R2 – Richard Stark
 - R3 - Andy King (IN) & Keith Lott (OH)
 - R4 - Mike Armstrong (KY) & Dave Pelren (TN)
 - R5 - Robyn Niver (NY) & Barb Douglas (WV)
- **3 State Biologists:**
 - NY - Carl Herzog
 - IN - Scott Haulton
 - KY - Brooke Hines
- **3 Federal Bat Biologists:**
 - USGS - Dr. Mark Ford
 - USFS - Katrina Schultes
 - DoD - Dr. Eric Britzke

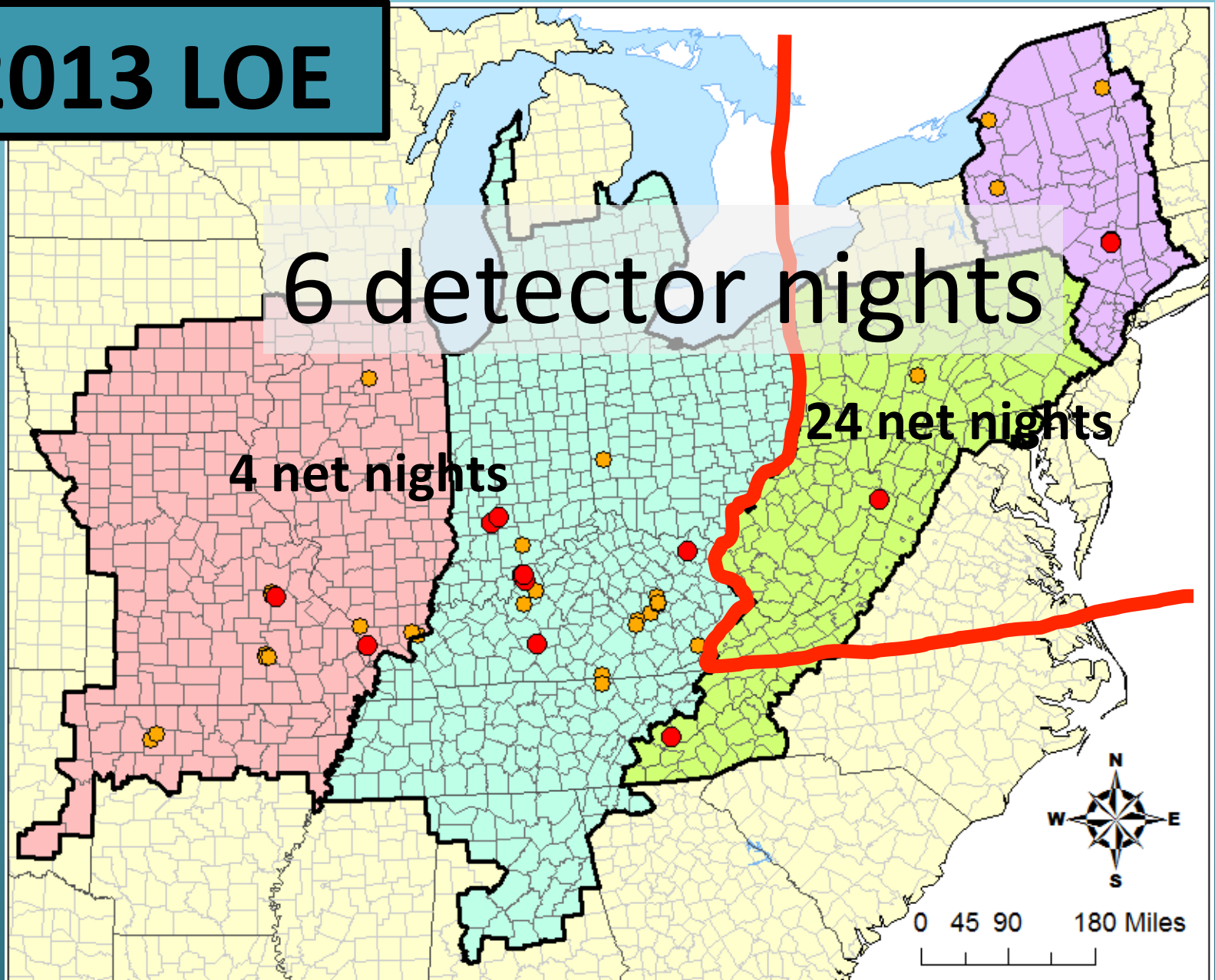
Updates since 2013 NEBWG

- 30-Day Public Comment Period announced in FR (9 Jan.)
- 30-Day Extension to comment period announced in FR (8 Feb.; 11 Mar. Close)
- Release of 2013 Revised Summer Survey Guidance *Overview* (29 Apr.)
- Release of *2013 Revised Range-wide Indiana Bat Summer Survey Guidelines* via bat working group listserves (13 May)

2013 Revised Guidelines: Phased Approach

1. **Initial Project Screening**
 - existing records search and habitat assessment
2. **Presence-Absence Surveys**
 - conduct mist netting *OR* acoustic surveys
3. **Follow-up Mist-netting Surveys (optional)** to capture any bats initially detected in Phase 2 surveys.
4. **Radio-tracking & Emergence Surveys**

2013 LOE



2014 Preparation

White Paper – Peer Review Process

- Spring 2013- USFWS Management request for Team to conduct peer review of methods used to develop survey levels of effort (LOE)
- 17 May 2013- Posted peer review plan to R5 science website and R3 Ibat website

White Paper – Peer Review Process

- **Reviewer Expertise:** Any one or combination of the following: development of bat survey methodologies, occupancy modeling, disease modeling.
- **Selection of Peer Reviewer:**
 - based on their expertise with the subject matter
 - not been involved in development of the methodologies to develop Indiana bat minimum level of effort
 - not previously provided comments on Indiana bat summer survey guidance
 - not in a position to financially benefit from the review

White Paper – Peer Review Process

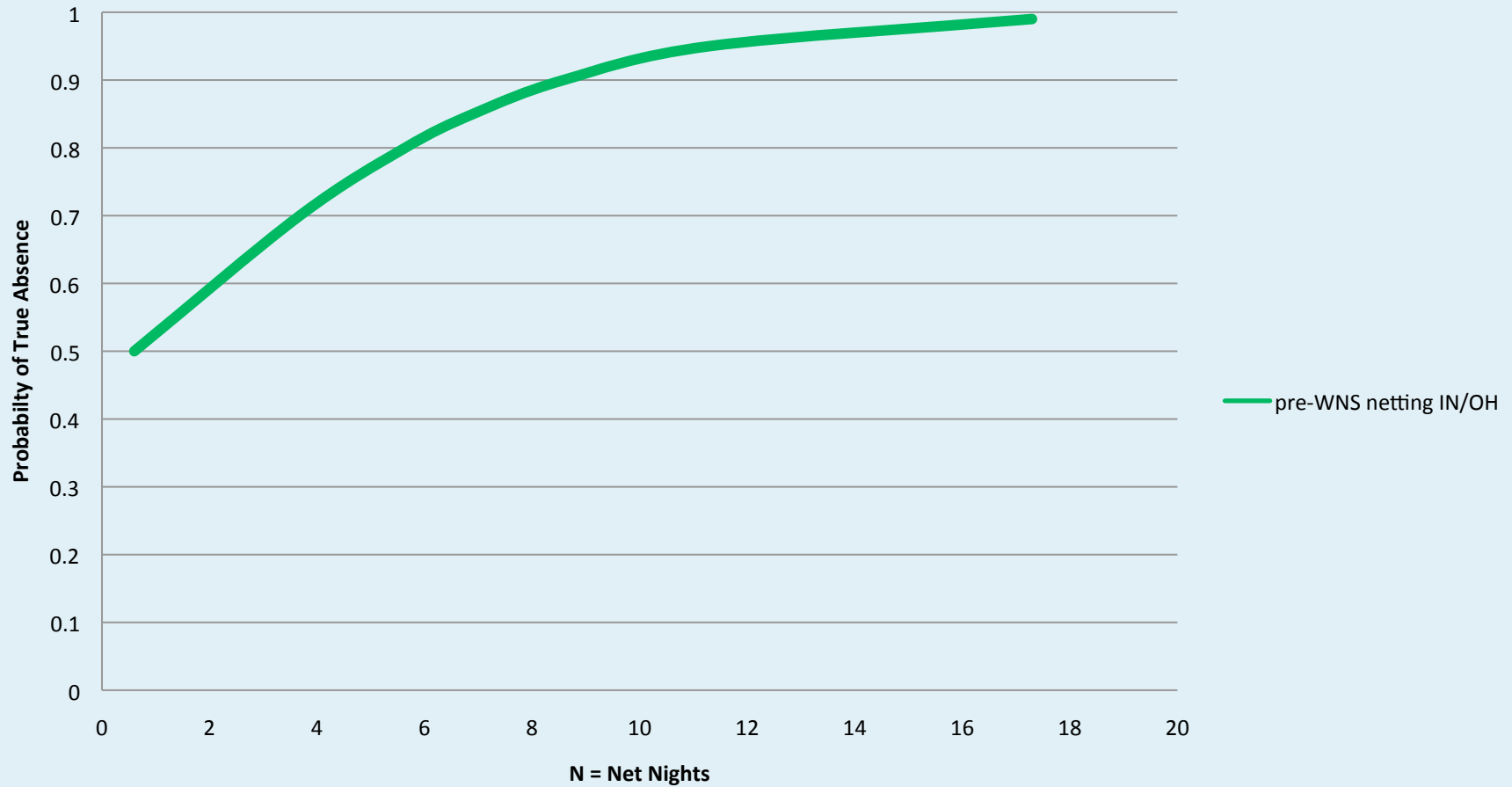
- Sent requests for peer review to 10 individuals
- Received positive responses (interest) from 5 individuals
 - Pat Zollner, Purdue University
 - Matthew Clement, USGS Patuxent
 - James Nichols, USGS Patuxent
 - Laura Ellison, USGS, Fort Collins Science Center
 - Steve Sheriff, SLS Ventures

White Paper – Methods

- Use of detection probabilities (how likely are you to detect a species when present) and occupancy estimates (how likely is a species to be present at any given moment at a given location) to develop LOE
- Reviewed literature for existing information – very limited
- Requested help in 2012 for field studies to develop parameters or for survey reports to estimate them
- NY, KY, MO, WV, OH, IN information
- Estimated detection probabilities and occupancy rates
- Calculated level of effort

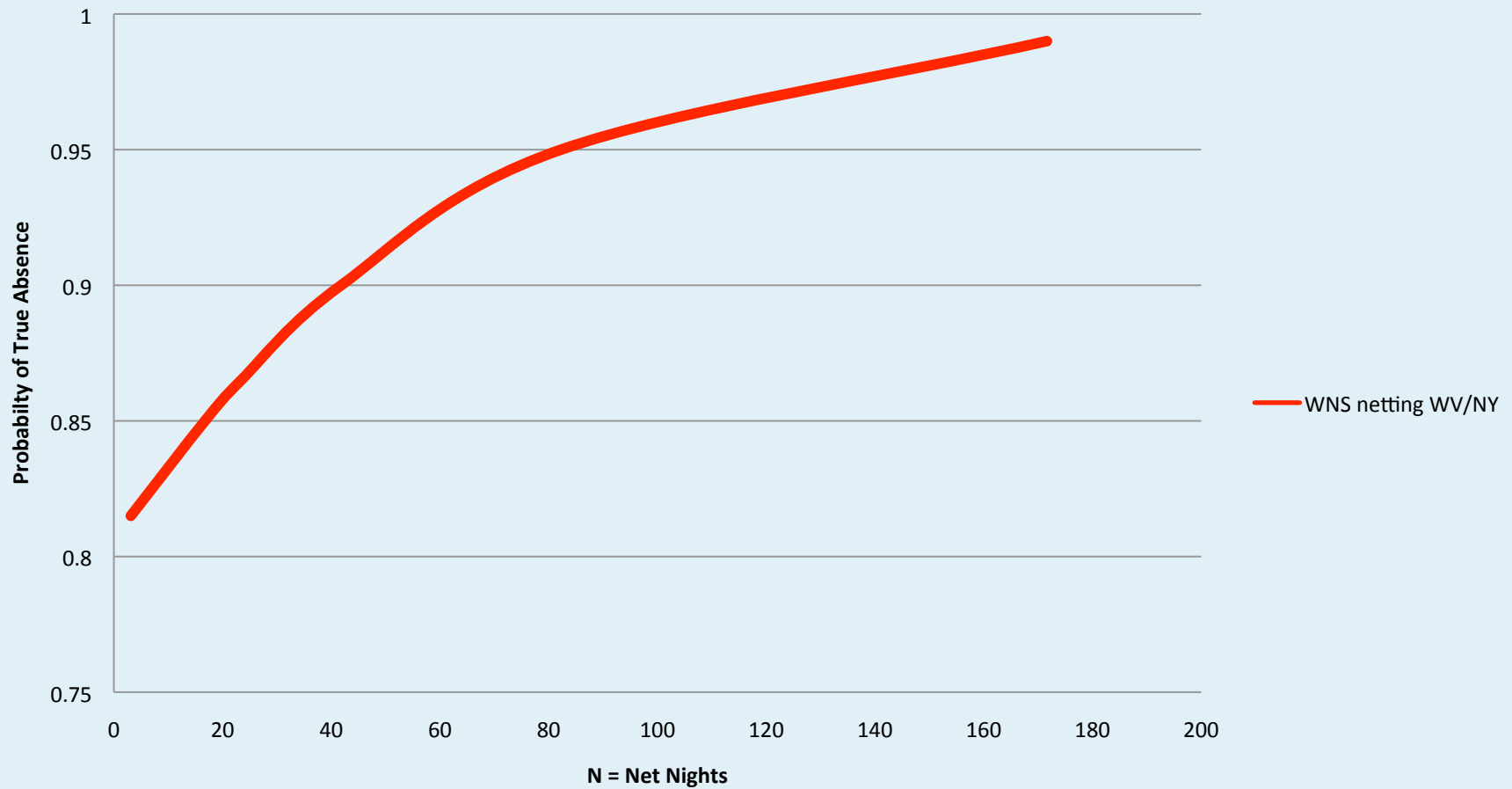
White Paper – Results

Number of surveys to achieve varying confidence rates



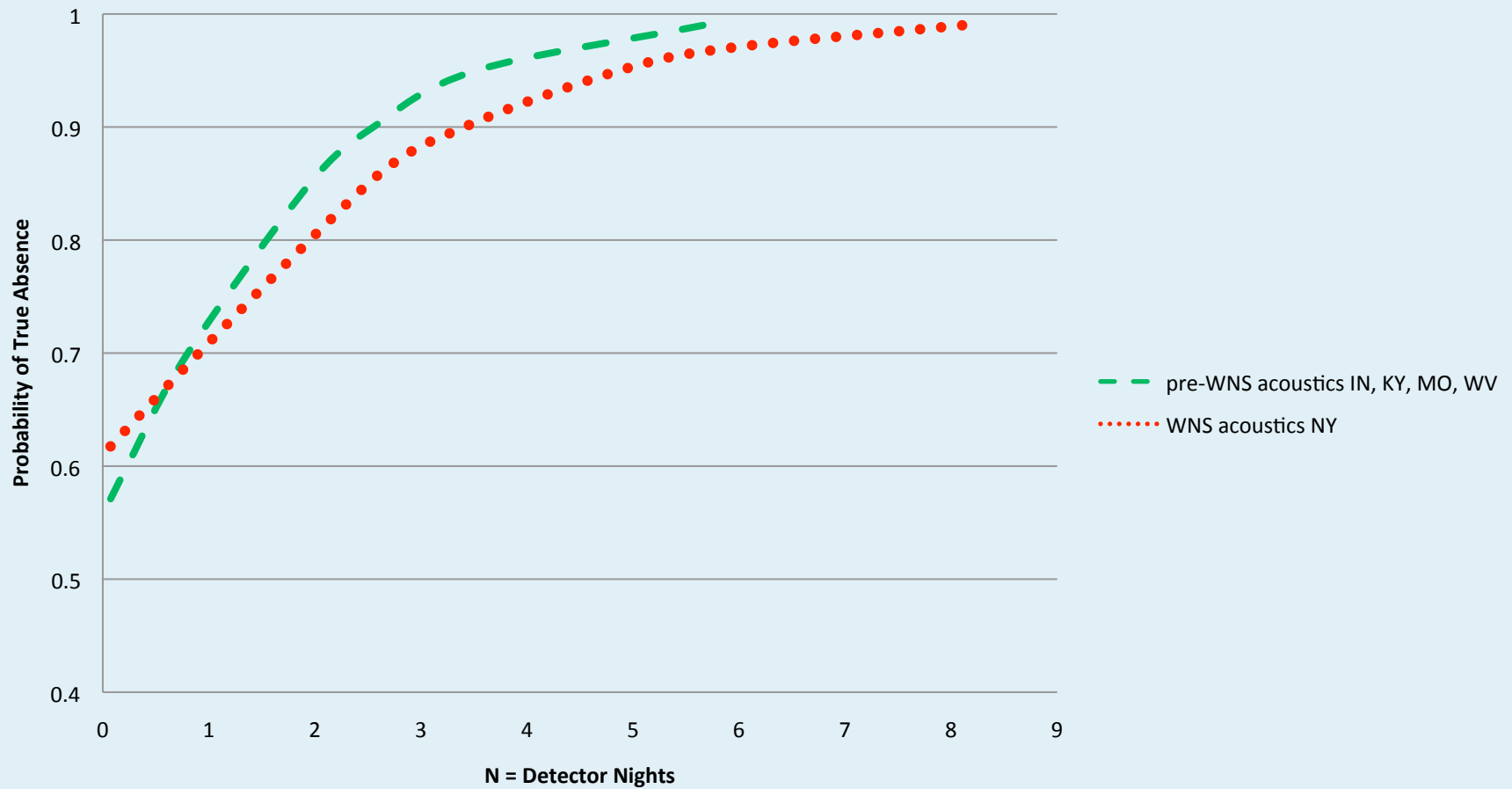
White Paper – Results

Number of surveys to achieve varying confidence rates



White Paper – Results

Number of surveys to achieve varying confidence rates



White Paper – Recommendations

1) 90% confidence rates to develop LOE

- Netting pre-WNS - 9
- Netting post-WNS or “WNS-impacted” - 42
- Acoustics pre-WNS - 3
- Acoustics post-WNS - 4

2) Range-wide acoustics LOE - 4 detector nights/123 acres

3) Varying netting LOE based on WNS status in RU

White Paper – Recommendations

Varying netting LOE based on WNS status in RU

Definition of “WNS-impacted” RU for survey protocols:

- If winter counts document $\geq 50\%$ of Priority 1 and 2 Ibat hibernacula within a RU decline by $\geq 30\%$ from their most recent pre-WNS population estimates

OR

- the total RU population declines by $\geq 30\%$ from their most recent pre-WNS population estimates, then that RU should be considered WNS-impacted.

White Paper – Recommendations

2014 (based on pre-WNS and 2013 pop. #s)

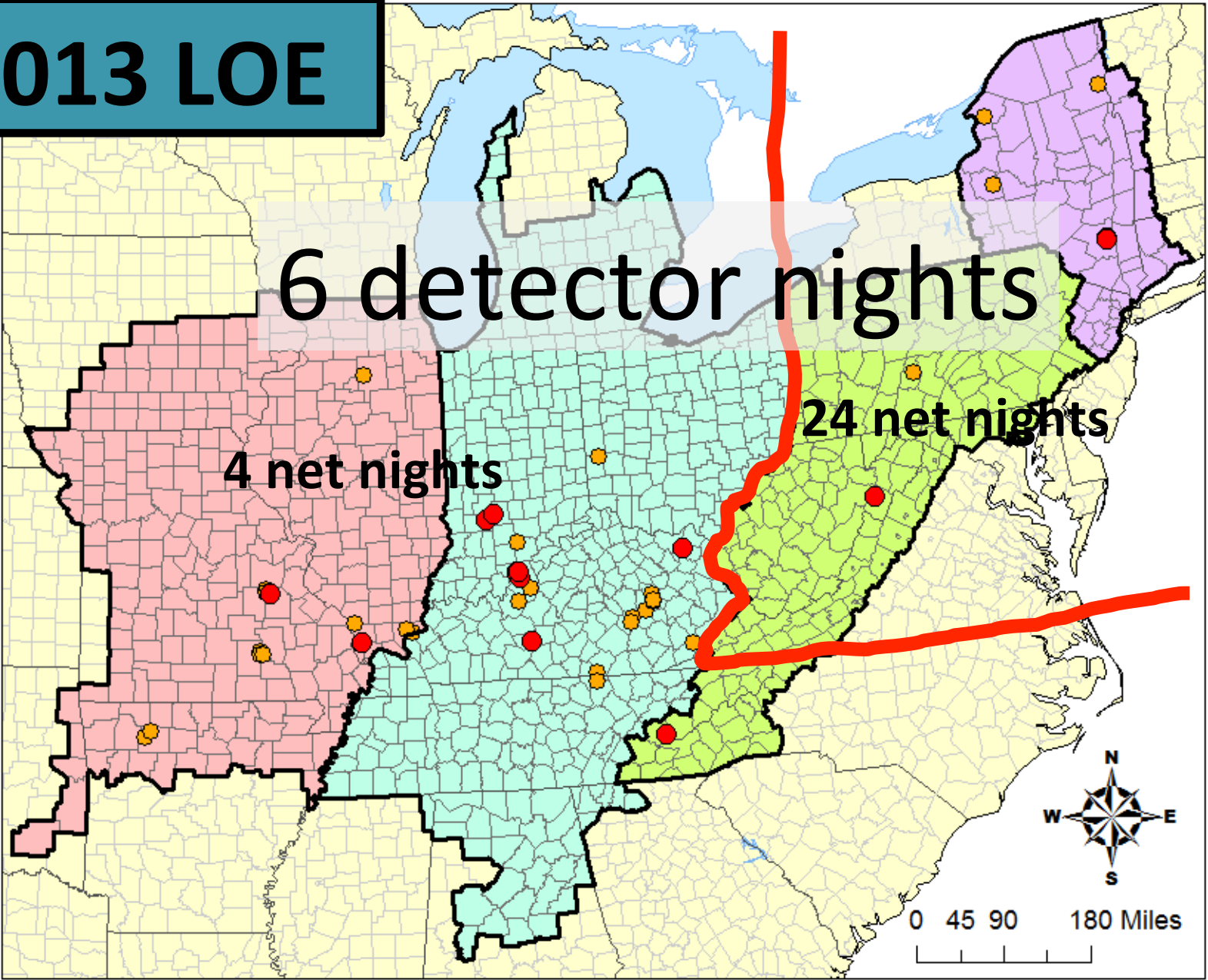
WNS-impacted RUs:

Northeast (70% decline) and Appalachian (45.8% decline)

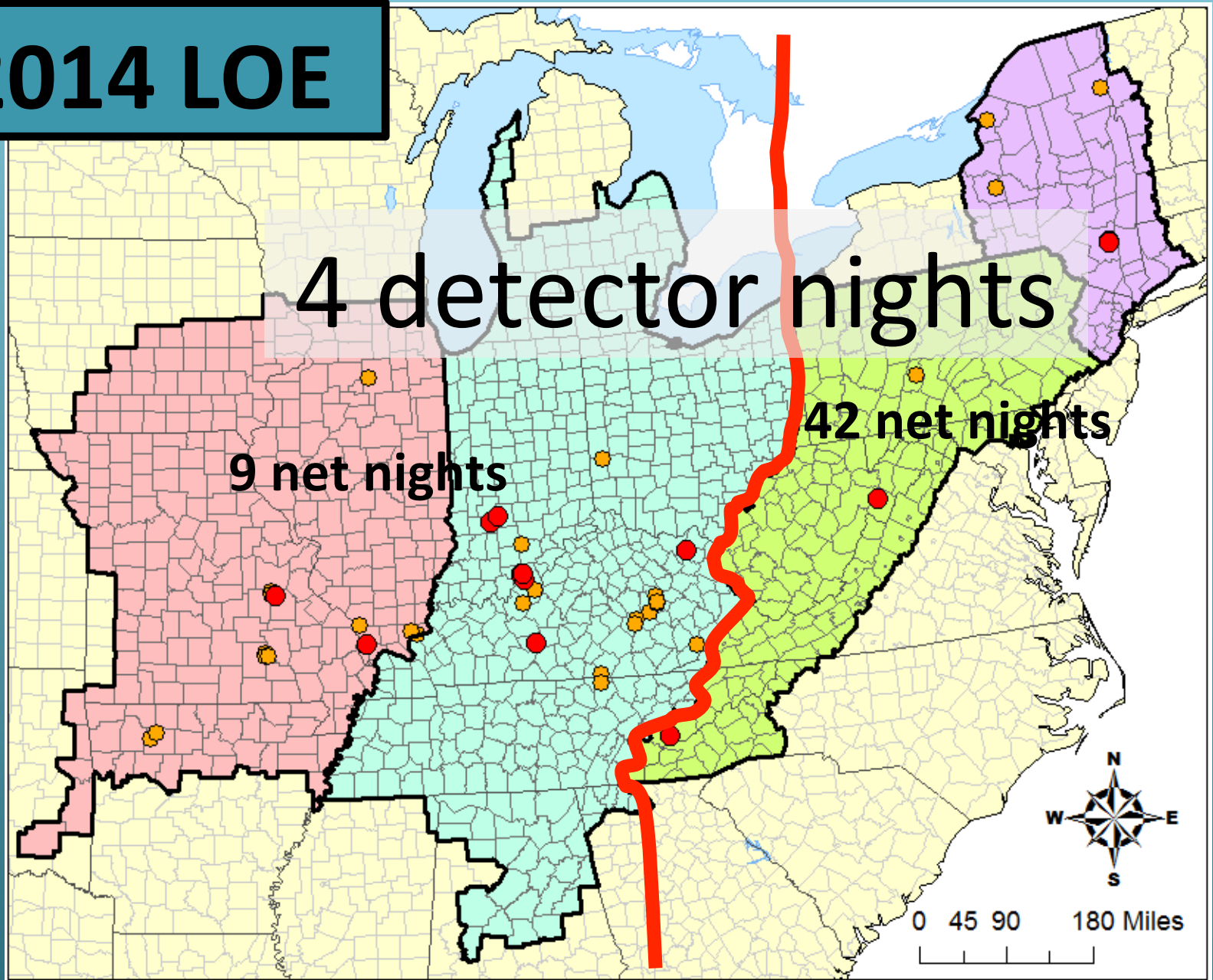
NOT WNS-impacted RUs:

Midwest (2.5% decline) and Ozark-Central (no decline)

2013 LOE



2014 LOE



Linear LOE

- No change in LOE from 2013
- Only change is use of RU instead of USFWS Regional boundary
- NERU/ARU – 6 net nights/km or 2 detector nights/km
- OCRU/MRU – 4 net nights/km or 2 detector nights/km
- Limited data to consider changing linear LOE
- Multiple “capture” opportunities (sites) throughout a potential home range

2014 Revised Guidelines: Same Phased Approach

1. **Initial Project Screening**
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Acoustic Software Program Testing

- USGS/USFWS development of standardized 3rd party test (Dr. Mark Ford-lead)
- 3 formal requests to acoustic experts for calls - little response
- Total of 4 programs anticipated to be ready for testing this winter
- Plan Forward:
 - Continue developing test call library with those call files that have been submitted and supplement with USGS/USFWS call files
 - Develop test call libraries from “real world sampling” files
 - Use of 2013 analysis process (i.e., a minimum of two programs) will continue until the test call library(ies) are completed and at least one program successfully passes the USGS/USFWS testing

Northern Long-Eared Bat

- 2014
 - Use Indiana bat summer protocols based on initial data
- 2015 and beyond
 - Gather additional data (acoustic/netting)
 - Request and analyze survey reports
 - Estimate detection/occupancy rates
- Develop level of effort and determine if NLEB Survey Guidance Team is needed based on results (i.e., are there significant differences in results from Indiana bat).

Thank You!



<http://www.fws.gov/midwest/Endangered/mammals/inba/inbasummersurveyguidance.html>