

# **EPRI's Pollinator Research Program: Protecting and Promoting Pollinators on Electric Utility Lands**

**John W. Goodrich-Mahoney**  
Principal Technical Leader

**Rights-of-Way as Habitat Working  
Group**  
May 4, 2017



# What is EPRI?

- EPRI is a 501(c3) non-profit charitable organization, which conducts research for the public good
  - EPRI was formed in 1973 and is headquartered in Palo Alto, CA
  - EPRI is funded by the electric utility industry world-wide
    - EPRI also responds to solicitations from DOE and the California Energy Commission
  - EPRI conducts a broad public-private collaborative research program

# Protecting and Promoting Pollinators on Electric Utility Lands

- Why is EPRI Involved in Pollinator Research?
  - Global decline in both native and management pollinator populations
  - Internal and external stakeholders asking electric utilities about pollinators on their lands
  - To bring good science and a coordinated response to a critical environmental issue
  - To address electric utility sustainability goals
  - To fulfill EPRI's charge to conduct research for the public good



# Protecting and Promoting Pollinators on Electric Utility Lands

- When Did EPRI Start a Formal Pollinator Research Program?
  - Initial discussions with members in 2015 concerning a research program, with the research program starting in 2016
    - Research prior to 2016: 7 technical reports and 1 journal paper
- What Is the Content of the Current Research Program?
  - Member survey
  - Two literature reviews
    - Pollinators: Distribution and transmission rights-of-way
    - Herbicides and Pollinators (just started)
    - Multi-year field research projects (3 to 4 years)
      - Observational and manipulative studies
    - Field study protocols to support studies at distant locations
  - Pollinator Initiative
    - Metrics for measuring pollinator wellbeing on electric utility lands



# Protecting and Promoting Pollinators on Electric Utility Lands: EPRI Pollinator Team

- John Acklen
- Paul Chu
- Jessica Fox
- Bob Goldstein
- John Goodrich-Mahoney
- David Hunter
- Becca Madsen
- Nalini Rao
- Mike Silva
- Ximena Vergara



# Past Pollinator Work

- Seven technical reports
- One refereed journal paper
- Two member Success Stories
- One member technical transfer award

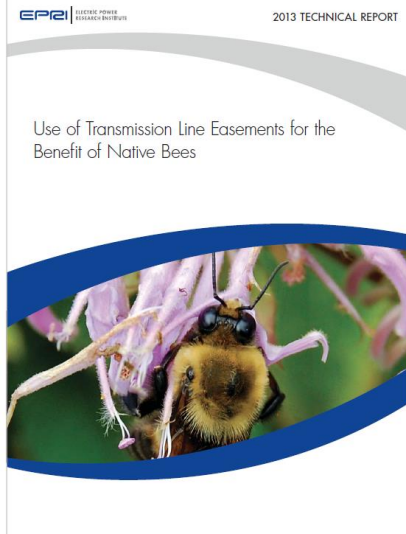


# Use of Transmission Line Easements for the Benefit of Native Bees – EMF & Pollinators



Site in OR:

two additional sites not pictured (MD & WI)



Report  
3002001125  
PIs: Dr. Kimberly  
N. Russell &  
Sarah. Kornbluth  
(Rutgers University)

## Key Questions

- EMF any impact on pollinating bees?
- Integrated Vegetation Management (IVM) promote bee diversity?
- ROW and native bees – supportive source community?

## Insights

- ↑ bees & ↑ species in ROW than control sites.
- ROW value > open areas, due to high connectivity & continuity of maintenance.
- No EMF impacts on bees with respect to foraging, nesting, behavior or development.

**Suggests ROW provide quality habitat for native pollinators**

# Protecting and Promoting Pollinators on Electric Utility Lands: Integrated Vegetation Management (IVM)

- EPRI brings over 20 years of IVM research to support its pollinator research program
- Blends ecosystem values with cost-effective vegetation management
- Active management seeks to develop and enhance persistent low-growing vegetation that inhibits the growth of tall trees
- EPRI's research focused developing information to assist utilities in implementing IVM on their transmission systems
  - IVM standards (10 principles and 42 criteria)
  - EPRI IVM assessments
  - ROW Stewardship Council Accreditation
  - IVM training manual
  - Manipulative studies, as part of the pollinator research program



**Discussing Integrated Vegetation  
Management  
for Transmission Line Corridors**



# 2016 EPRI Member Survey

# Pollinator Survey: Key Research Questions

- What is the number, extent, location, catalyst, objectives, and characteristics of pollinator research projects?
- Can we identify potential opportunities to inform and provide additional value to the research you are funding?



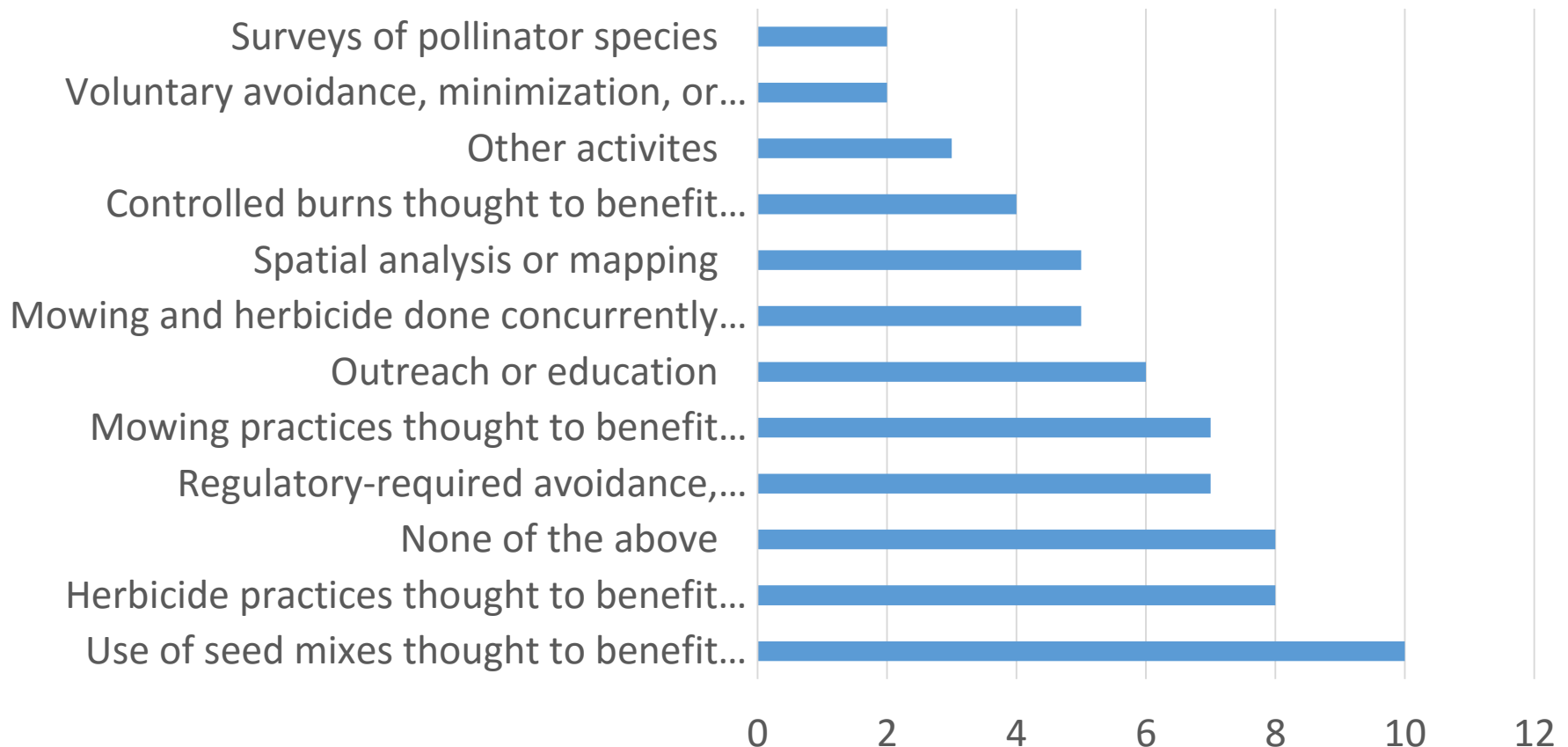
- **25 companies responded (92.5% response rate)!**

“Although we currently do not have any pollinator projects, we are certainly interested to hear about others. Specifically any benefits from a pollinator project that we may use to help prod a project along.”

Anonymous response, from final open-ended question

## With regards to pollinator species, does your company conduct any of the following activities?

- 19 out of 25 companies (76%) reporting doing at least one type of pollinator activity (including “other”)



# Key Conclusions

- Concern about pollinators is widespread
- Most companies (64%) are not conducting research
- Stakeholders are the primary catalyst for pollinator research
- Research is primarily happening in the Northeast

**Feedback survey could widen to include more companies as part of the EPRI National Initiative.**

# **Two Literature Reviews**

## **One completed**

## **Second one just started**



# Protecting and Promoting Pollinators on Electric Utility Lands: Literature Review

## ■ Literature Review

- World-wide search of peer-reviewed and refereed publications on pollinator research on transmission line rights-of-way
  - Citations indices (papers listed in search engines as citing of interest) were used to develop an exhaustive, interconnected list of published work
  - Journal of Arboriculture and Urban Forestry were hand searched, as they usually are not included in search engines
- A total of 17 publications were found
- 12 papers on butterflies and 5 papers on bees
  - Only 4 papers were based on manipulative field experiments, with the rest observational field studies; 7 papers from Europe



# **Multi-Year Field Studies Observational and Manipulative Studies**

**State University of New York  
College of Environmental Science and  
Forestry  
Syracuse, NY**

# Protecting and Promoting Pollinators on Electric Utility Lands: Field Studies

- Multi-year field research projects to address two basic questions
  - What is the baseline diversity of pollinators on transmission line corridors?
  - What can be done to manage for pollinator habitat in a cost effective manner?



# Protecting and Promoting Pollinators on Electric Utility Lands: Field Studies (continued)

- Manipulative studies to begin in 2018
- Seeking additional field sites
- Developing a field study protocol to support these studies



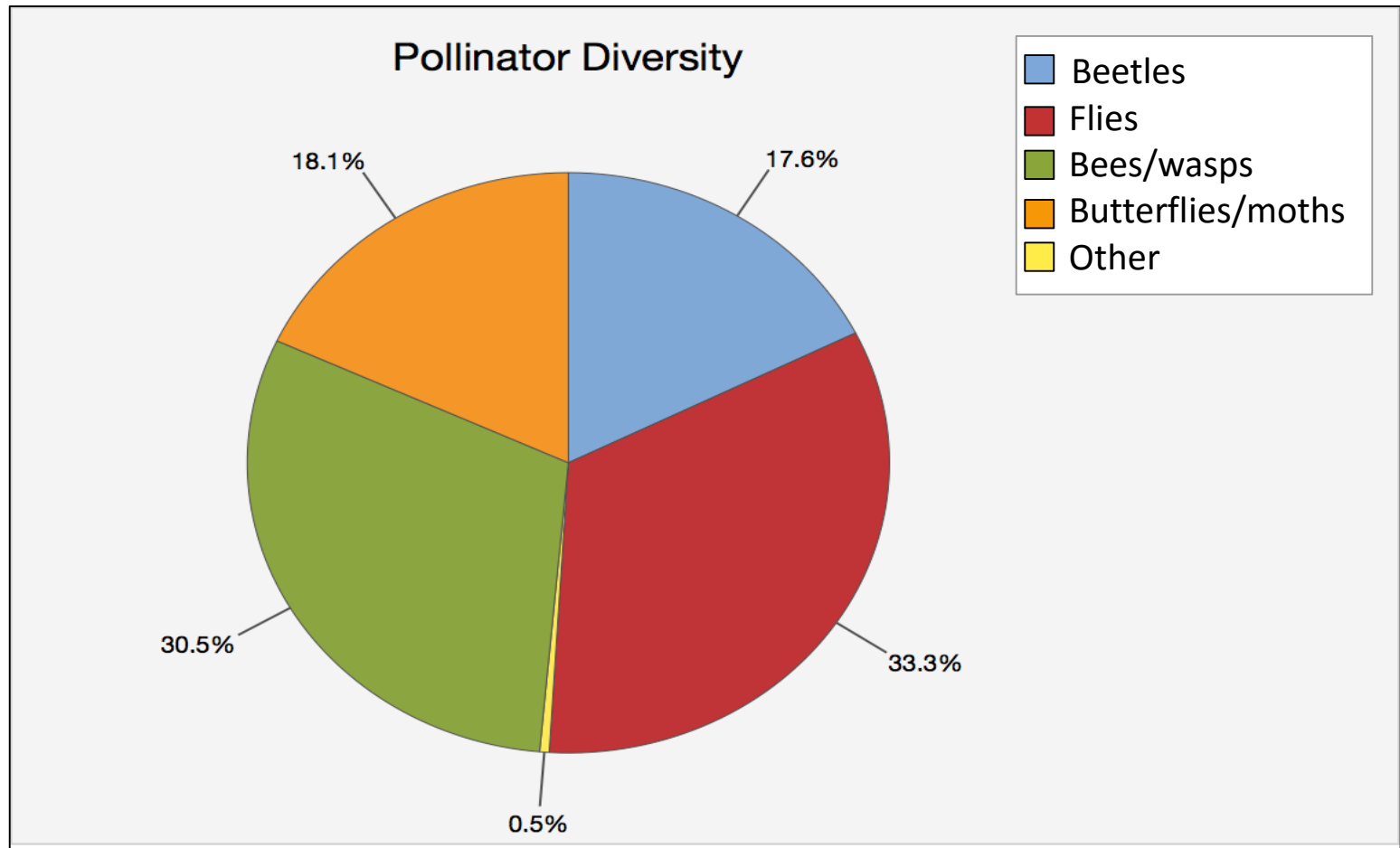


# Protecting and Promoting Pollinators on Electric Utility Lands: Initial Results - Observation Study 2016

- Pollinator assemblage patterns on transmission rights-of-way in the New York and the Ohio managed for the long-term with mechanical or chemical treatment schemes
  - Methods are producing discernible spatial and temporal patterns in flowering plants and pollinators
  - First study to document importance of flies and beetles as pollinators on transmission rights-of-way
  - Investigators collected over 3,200 specimens representing 201 species and 42 families

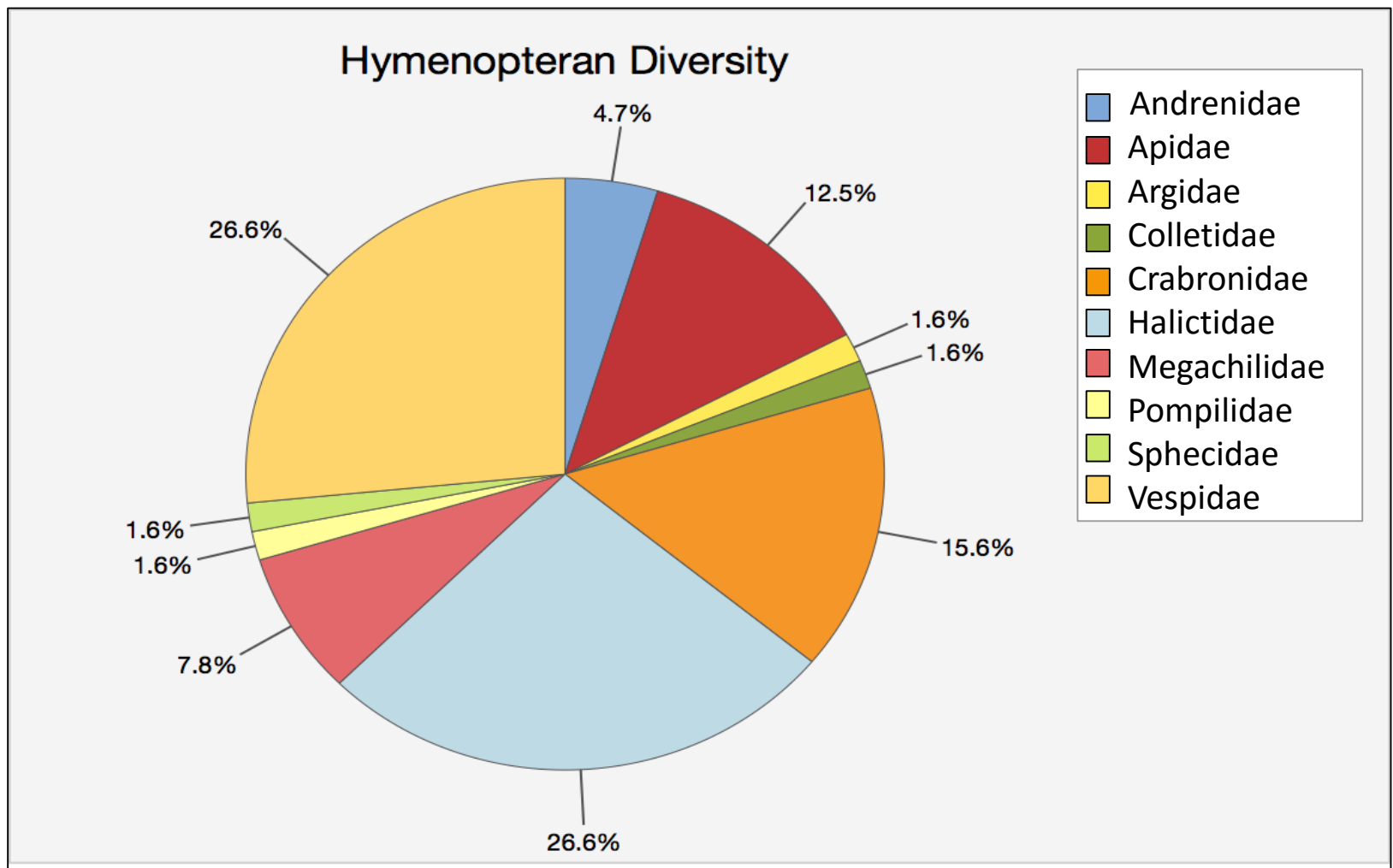






E. McPhail

**Pollinators from five orders were present on two study sites in the NE and Mid-west**



**The next largest group was bees/wasps (Hymenoptera).**

# Pollinator Initiative

## **EPRI Pollinator Initiative:**

**Accelerate the pace, scale, and effectiveness of pollinator projects on electric power company land.**

- Establish national forum for collaborative research
- Advance tools for determining the best place, reasonable action, and appropriate cost for conservation.
- Consider the business case
- Engage agencies & stakeholders.
- Metrics for assessing investments and outcomes
- National Electric Utility Database of Pollinator Conservation Efforts.

## ***Participation & Funding:***

Leverage EPRI member funding, Foundation Funding, and Government Funding.

# Questions/Comments







# Together...Shaping the Future of Electricity