

# AMMPS: INFORMING DISCUSSIONS ON AVOIDANCE, MINIMIZATION, AND OTHER MEASURES FOR PESTICIDES AND SPECIES

Leah Duzy<sup>1</sup>, Ashlea Frank<sup>1</sup>, Tony Burd<sup>2</sup>, and Lula Ghebremichael<sup>2</sup>

<sup>1</sup>Compliance Services International

<sup>2</sup>Syngenta Crop Protection LLC

---

**CONCLUSION:** By examining factors that are important to the analysis of risk, as well as imperilment and conservation needs of each ESA-listed species, AMMPS (a tool for informing discussions on avoidance, minimization, and other measures for pesticides and species) sequences species so that registrants, EPA, and the Services can have informed discussions about conservation measures that may be the most appropriate for each species in the FIFRA/ESA assessment and consultation process.



# AMMPS: A TOOL FOR INFORMING DISCUSSIONS ON AVOIDANCE, MINIMIZATION, AND OTHER MEASURES FOR PESTICIDES AND SPECIES

AMMPS is NOT:

a model

a replacement for a risk assessment

a replacement for a biological evaluation

a replacement for a biological opinion



# AMMPS: A TOOL FOR INFORMING DISCUSSIONS ON AVOIDANCE, MINIMIZATION, AND OTHER MEASURES FOR PESTICIDES AND SPECIES

AMMPS is:

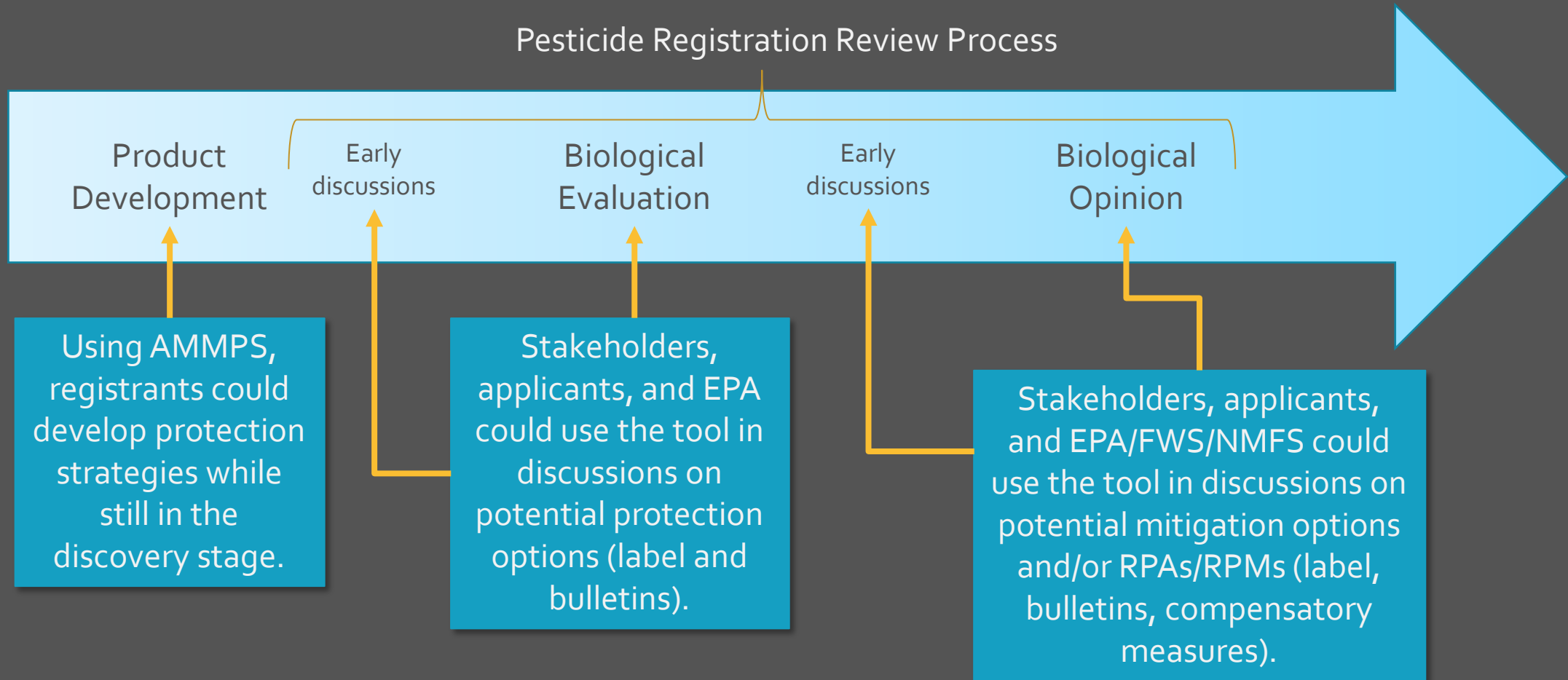
a tool to identify species for which reasonable and prudent avoidance, minimization, and other measures may need to be explored to address potential risk from pesticides

a way to sequence species by their degree of potential risk and vulnerability to assist EPA, the Services, and applicants in discussions about suitable mitigation measures and options.





# Where does AMMPS fit into the FIFRA/ESA process?



# OVERALL CONCEPT AND APPROACH



Photos by FWS

Compile

Compile Data Factors



Group and Index

Group and Index Data Factors by Species



Identify and Sort

Identify and Sort Factors Relevant to Question



Assign

Assign Sequence Number to Species



Group by

Group by Mitigation Strategy Buckets and Apply Sequencing

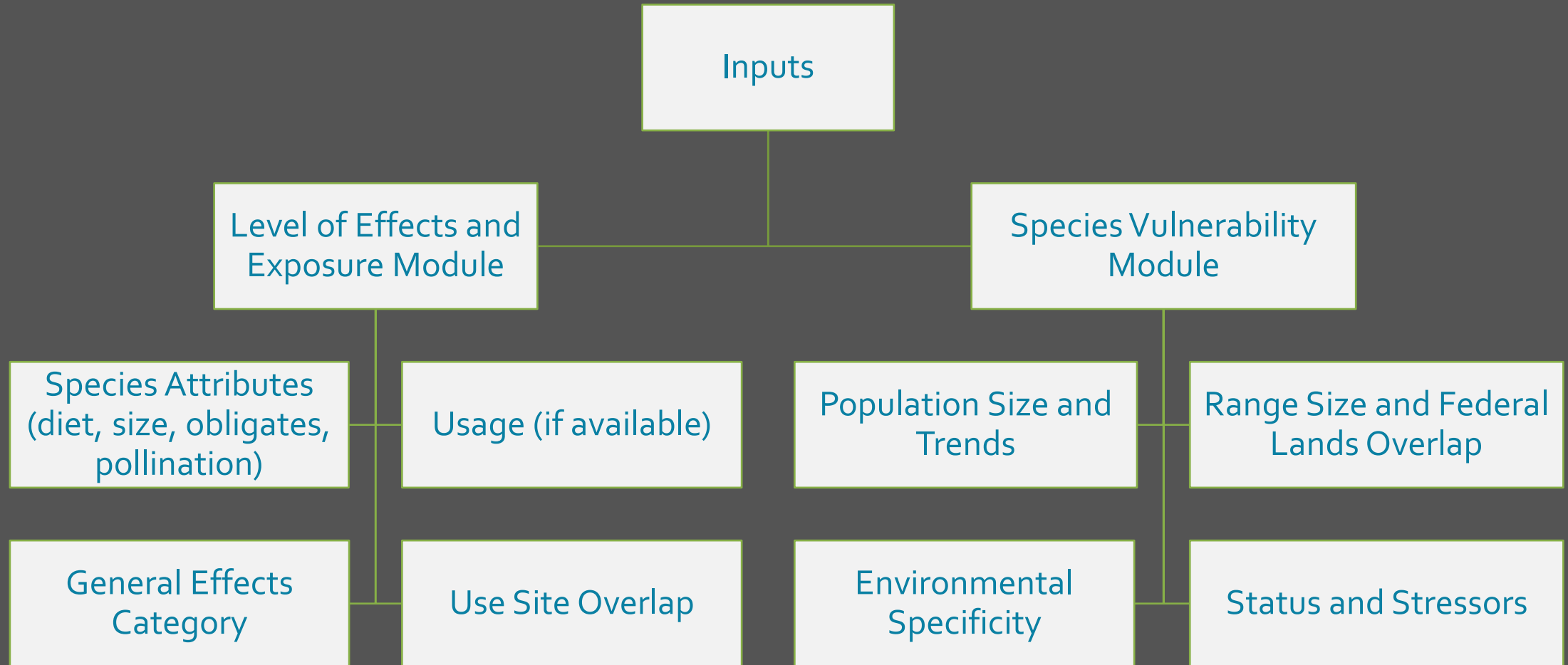


Initiate

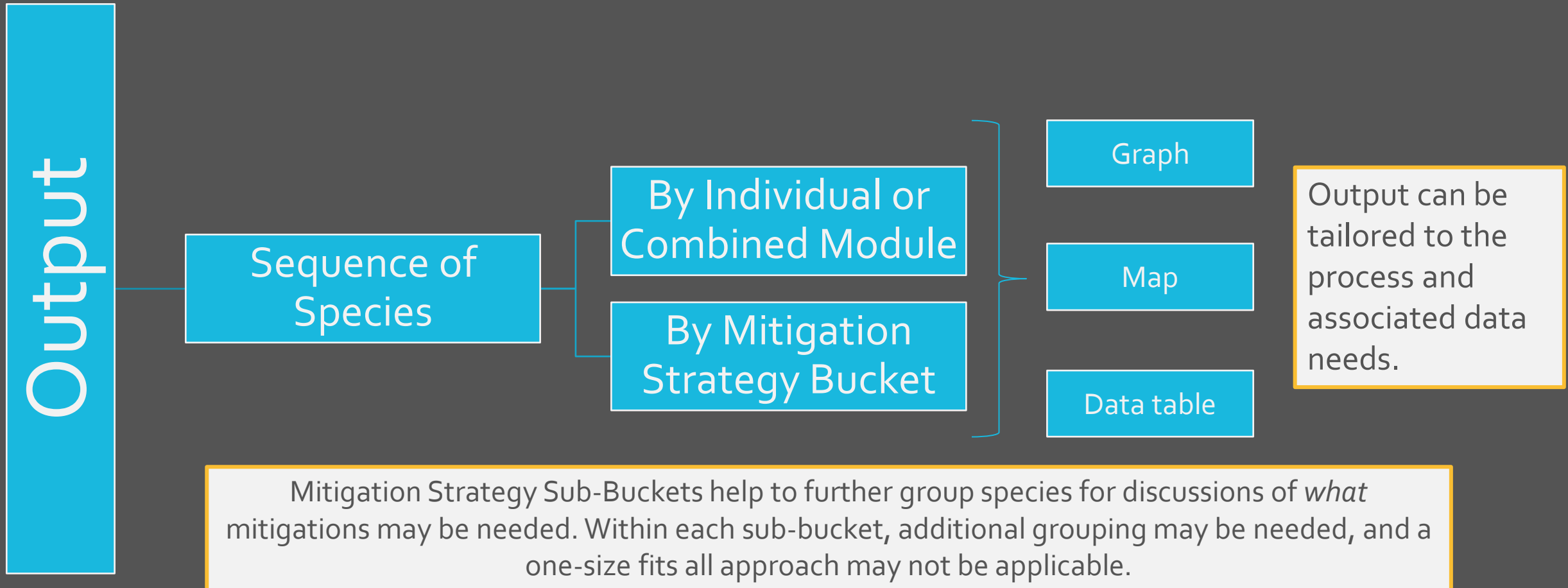
Initiate Discussions








- Flexible and adaptable multi-factored tool that allows the user to select elements important to the sequencing question being considered.
- Advance through tool by applying factors in modules.
  - Level of Effects and Exposure
  - Species Vulnerability
- Address species by grouping them in mitigation strategy buckets that help guide discussions

# AMMPS: A Tool for Informing Discussions on Avoidance, Minimization, and Other Measures for Pesticides and Species



# AMMPS: A Tool for Informing Discussions on Avoidance, Minimization, and Other Measures for Pesticides and Species



 Home FAQ ESA-Listed Species Data Table Species Scatterplot and Data Species Density Map and Data Draft or Final Biological Evaluation Results Species Report

# AMMPS

## Background and Purpose

Under the US Federal Insecticide, Fungicide, and Rodenticide Act, the registration of a pesticide requires compliance with the Endangered Species Act which includes evaluating the potential risk of the use of pesticides on ESA-listed species and designated critical habitats.

While evaluating potential risk of pesticides to species is highly complex and requires processing and analysis of many datasets, it also presents an opportunity for the Environmental Protection Agency (EPA), Fish and Wildlife Service (FWS), National Marine Fisheries Service (NMFS; collectively referred to as “Services”) and pesticide stakeholders to explore innovative ways to further advance ecological risk assessment and the FIFRA/ESA process.

With these considerations, AMMPS is a tool for informing discussions on Avoidance, Minimization, and other Measures for Pesticides and Species.

**Choose a dataset for ESA-listed Species Data Table and Scatterplots**

herbicide ▼

**Choose a draft or final Biological Evaluation**

none ▼

**Choose a dataset for County Distribution Map**

herbicide\_cty ▼

Update View

- Shiny web application created in RStudio.
- Includes contiguous US
- Species ranges and critical habitat are current as of July 2021.



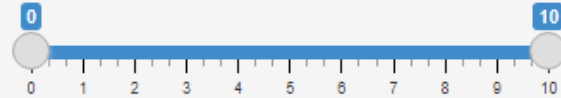
# SPECIES VULNERABILITY BY RANGE (ACRES): FLOWERING PLANTS



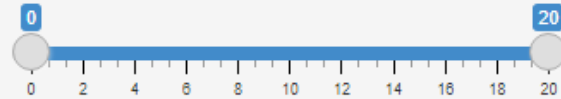
## Species Scatterplot

### Filter

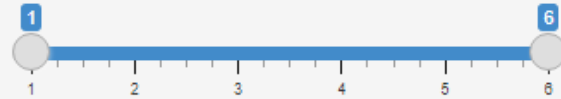
Range of Level of Effects and Exposure



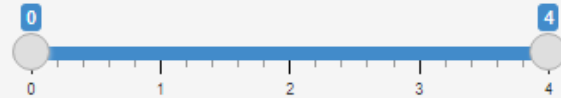
Range of Species Vulnerability



Mitigation Strategy Buckets



Mitigation Strategy Sub-Buckets

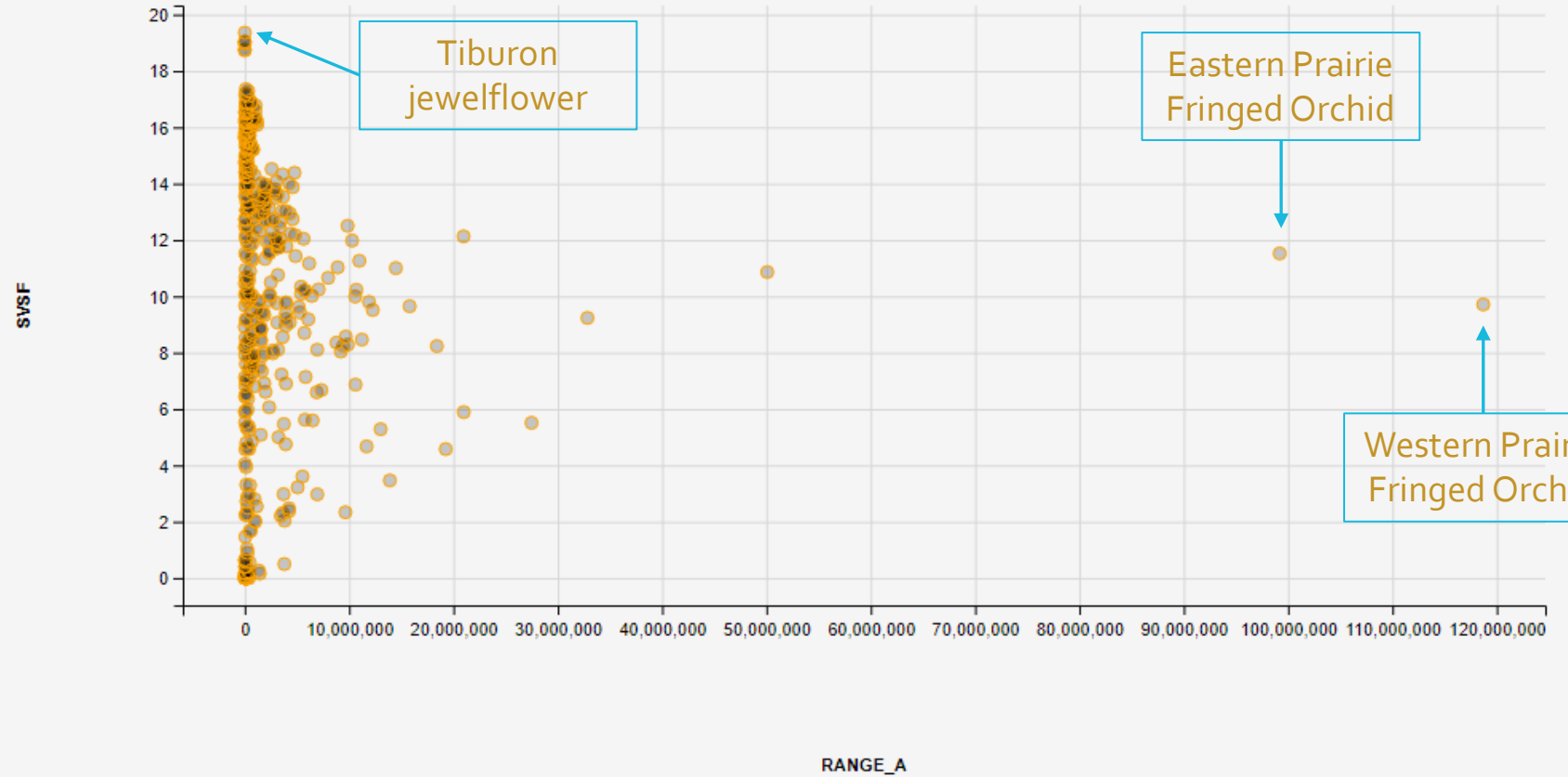


Taxon

Flowering Plants

FWS or NMFS

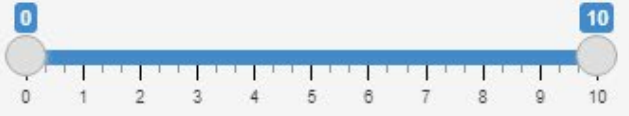
All



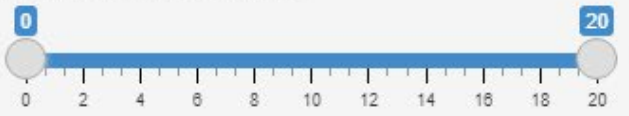
# Species Density Map

## Filter

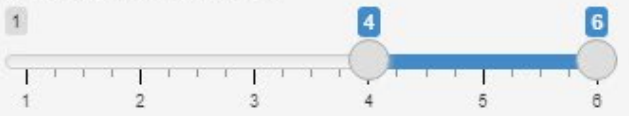
Range of Level of Effects and Exposure



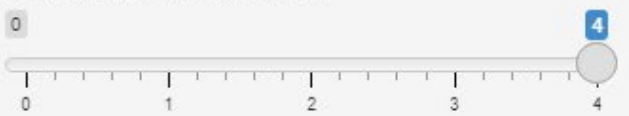
Range of Species Vulnerability



Mitigation Strategy Buckets



Mitigation Strategy Sub-Buckets

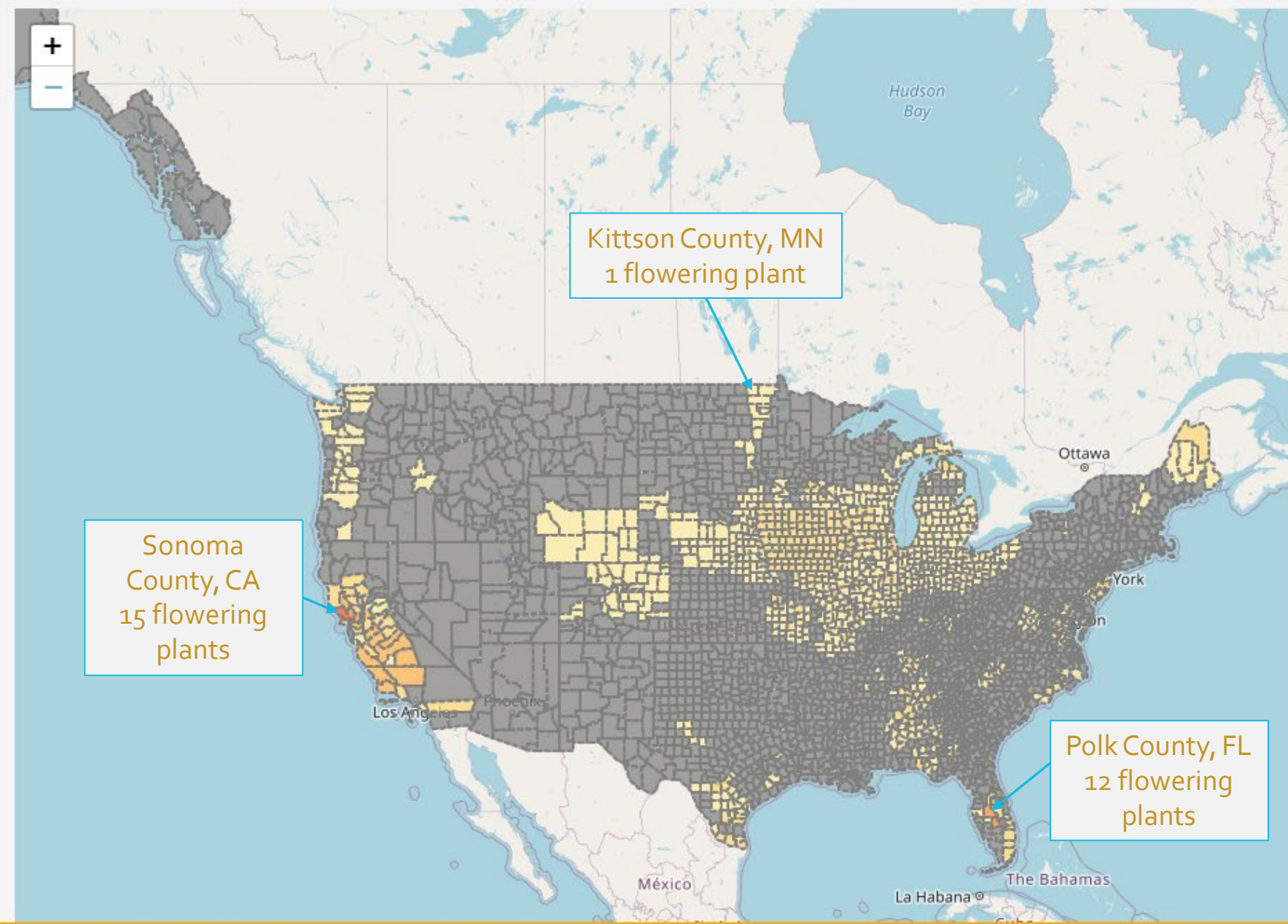


Taxon

Flowering Plants

FWS or NMFS

All



# FUTURE STEPS



Intensity of use within the range for a general herbicide and insecticide.



Explore how geographic, taxonomic, lifeform, and other ways to group data can be helpful to guide discussions.



Explore how the mitigation sequence (avoid, minimize, compensatory actions) can be implemented and how data can be sequenced to inform when mitigations across species vs. species-specific mitigations are appropriate.



Explore pesticide mode of action, route of exposure, formulation, and application factors.



Incorporate new and updated data and information as it becomes available.



THANK YOU FOR  
THIS OPPORTUNITY!

Leah M. Duzy

7501 Bridgeport Way West

Lakewood, WA 98499

[lduzy@complianceservices.com](mailto:lduzy@complianceservices.com)

(706) 980-0999