



# How Additional Data Can Refine Endangered Species Risk Assessments

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23 JANUARY 2025



# Take home messages

- Toxicity, environmental fate, and exposure data is currently generated or modeled under worst-case, conservative conditions.
- Additional toxicity data, field studies, and additional sampling in residues studies can be used to refine the FIFRA/ES risk assessment.

**Refining the risk assessment helps focus agency resources, product mitigations, and conservation efforts on the species that truly need protection.**

# What types of data can be generated to refine endangered species assessments?

## Effects data

- Honey bees are the surrogate laboratory species for toxicity studies used to determine potential risk to all non-target arthropods (NTAs).
- Additional surrogates that better represent species of concern can be tested for use in a species sensitivity distribution or sensitivity argument.



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## Effects data

- OECD guidelines and non-guidelines methods are available for *some* species:
  - bumble bees & parasitic wasps → ~10 listed bees
  - foliar & ground dwelling beetles → ~20 listed beetles
  - predatory mites, lacewings, and springtails → no listed species of these orders
- Novel study designs have been developed like the darkling beetle life-cycle study as a surrogate for American burying beetle larvae.
- Approximately 40% of listed insects are butterflies, moths, and skippers and there are no regulatory testing guidelines for larval or adult butterflies.



# What types of data can be generated to refine endangered species assessments?

## Exposure data for birds, mammals, and terrestrial invertebrates

- Residue data in dietary items:
  - Foliage sampled at the time of the first application, 2-4 hours, 1 day, and shortly thereafter.
  - Pollen and nectar collected by hand or bees.
  - Arthropods with a field study.



# What types of data can be generated to refine endangered species assessments?

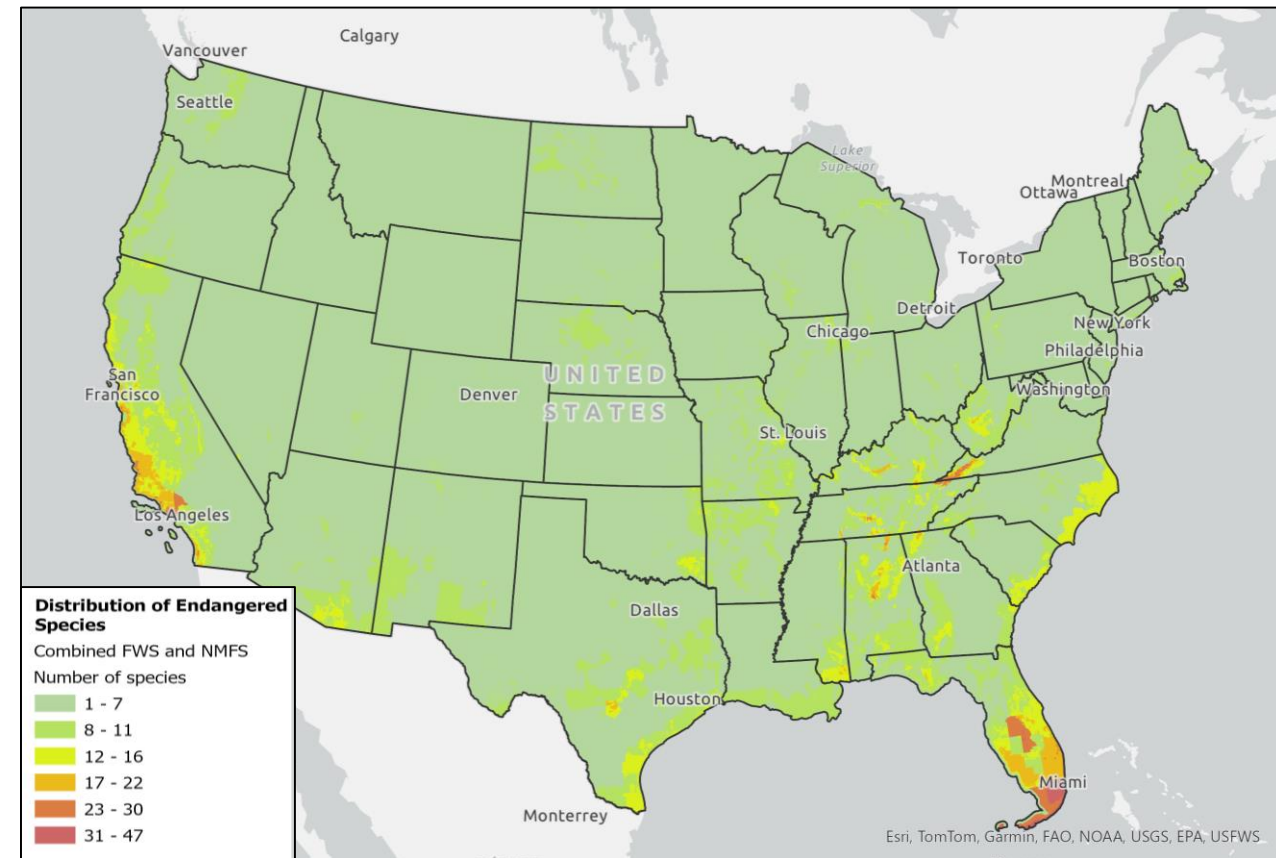
## Exposure/fate studies

- Product drift studies (wind tunnel or field)
- Run-off studies
- Mitigation effectiveness studies (ex. vegetative filter strips)



# Conclusions

- Development of additional toxicity assays with surrogates that are more representative of the species of concern including relevant exposure routes are needed to adequately assess the ~1000 listed species.
- Exposure data that better represents modern agricultural practices is needed to refine the risk assessment.
- Field data is needed on effectiveness of drift reduction technologies and field-level mitigations.



CROs/consultants are poised to generate this data so that we can efficiently and accurately assess potential risk to endangered species and identify effective mitigations where needed.