NatureServe’s Federally Listed Species Location Data Play an Important Role in EPA’s FIFRA Risk Assessments
Overview

- The FIFRA Endangered Species Task Force (FESTF) as a data supplier to EPA

- EPA’s assessment of potential pesticide risk to species listed under the Endangered Species Act (“listed species”)

- NatureServe’s data as a source on species range maps developed by FESTF

- Challenges and the future
An Introduction to FESTF

The FIFRA Endangered Species Task Force (FESTF) is a pesticide registrant data development task force, comprised of 20 companies.

FESTF has been providing data to the EPA for their evaluation of the effects of pesticides on listed species for almost 20 years.
Assessing Risk to Listed Species

Many types of data can inform EPA’s evaluation of potential risk of a pesticide on listed species

Pesticide Properties and Toxicity

Pesticide Application Information

Pesticide Potential Use Distribution

Listed Species Attributes

Listed Species Distribution

http://evolution.berkeley.edu/evolibrary/article/agriculture_04

The FIFRA/ESA “Interim Process” no assess pesticide risk to listed species co-occurrence analysis.

Species Range data is a key element!

Photo Credits: Karner Blue Photo by Kathy O’Brien, New York State Department of Environmental Conservation; Crop NPS photo by Vincent DiFrenna; Adult Hine’s emerald dragonfly in Wisconsin. USFWS photo; Critical Habitat map for Hine’s Emerald Dragonfly: http://www.fws.gov/midwest/greenbay/endangered/hedrCriticalHabitatMaps.html
USFWS and NMFS are responsible for providing range data to EPA for FIFRA actions for >1,400 listed species.
Defining Species Range Data (cont.)

USFWS and NMFS are responsible for providing listed species range data to EPA.

There are more than 8,900 locations of ESA-listed species in Hawaii and limited resources in USFWS for data management.
FESTF’s aggregated species location is currently being utilized in the “Interim Process” to assist USFWS in the development of species range maps which will be provided to the EPA for use in their assessments.

Paired with use site location data, provides potential co-occurrences as a starting point for examining relationships.

Image of Karner Blue distribution taken from http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=I00F. Overlap with crop locations is shown with hash marks and was added to this map for illustration purposes only.
FESTF’s Aggregated Species Location Dataset

37,979 total species/county records + 3,069 Critical Habitat locations

Total Supported by NatureServe = 12,590 incl.:
• 10,889 reported
• 11,825 spatial
• 11,917 NatureServe county records

Total Supported by the Services = 35,093 including
• 4,252 from overlay of NMFS shapefiles

Total Supported by LOCATES = 14,147

2014 Update
History of FESTF and Access to NatureServe MJD

**Formative Years**
- 1996: Industry work group forms and submits an ES proximity feasibility study
- 1997: FESTF forms and with OPP input, began to research species location data sources
- 1998: FESTF begins working on an IMS to store and manage data

**Development Years**
- PRN 2000-2 published
- 2003: Discussions begin with NatureServe
- 2004: FESTF receives pilot of 5 states from NatureServe
- 2005: FESTF begins 1-yr license and submits documentation on IMS and access to NatureServe data

**Application Years**
- 2006: 2,4-D Task Force conducts ES assessment
- 2007: Routine annual licensing begins
- 2013: NatureServe develops annual test to validate the integrity of licensed dataset; FESTF provides results to EPA
- 2014: FWS and EPA review with FESTF aggregated data on species locations and decide it is “best available” at the national level
Element Occurrences in FESTF MJD

NatureServe and its natural heritage member programs, under license to the FIFRA Endangered Species Task Force (FESTF, dataset received by FESTF in July, 2014)

Some EOs are too small to be seen at this scale
Number of Listed Species Lacking Element Occurrences in FESTF MJD – By USFWS Region

NatureServe and its natural heritage member programs, under license to the FIFRA Endangered Species Task Force (FESTF, dataset received by FESTF in July, 2014)

- Region 1: 7 species
- Region 2: 7 species
- Region 3: 1 species
- Region 4: 15 species (PR, VI species not included)
- Region 5: 4 species
- Region 6: 3 species
- Region 8: 1 species
- Region 7 (Alaska): 1 species

*Counts are not intended to suggest that all EOs for a given species have been defined

Element Occurrence (EO) - Some EOs are too small to be seen at this scale
FESTF Aggregated Data . . .

. . . To FWS regional offices . . .

. . . To EPA for use in pesticide risk assessment
Request for Regional and Field Office Assistance in Reviewing FESTF Species Range Maps for Use in National Pesticide Consultations – Who is Involved and Why?

Needs species range information at national level for assessment of FIFRA actions

Supplier of aggregated data, delivered as maps for agency use

Authoritative source for verification of range data

Assembles and delivers to EPA national-level range data

Contracted project management and operational support arm of FESTF
Species Range Maps

- Using a phased approached, FESTF developed and delivered species range maps to USFWS for 1,108 species in the contiguous US
  - Phase 1: fish, amphibians, mussels, invertebrates and birds
  - Phase 2: plants, mammals, and reptiles
- An additional 500+ maps are in process for Hawaiian and Pacific Island Species
  - Phase 3
- Range data for species under NMFS’ jurisdiction (~100 spp.) were not a part of this effort
  - Have already been provided to EPA by NMFS
- USFWS Regional and Field Office staff attended an instructional webinar by FESTF on map development and delivery
Species Range Maps

- Once received from FESTF by USFWS Field Offices, the maps are reviewed and revised, appropriately.
- Range maps are then sent from USFWS to EPA for use in their assessments.
- Goal of the species mapping project, as communicated to USFWS Field Offices, is to obtain species range data at the most relevant (county, or sub-county, as appropriate) for use in initial assessments.

\(^1\)As reported by Keith Paul (USFWS) at Assessing Risks to Endangered and Threatened Species from Pesticides – 4th Interagency Workshop on Joint Interim Approaches to NAS Recommendations; presentation found online at http://www.epa.gov/espp/2015/3-species%20ranges-4-16.pdf
Species Range Refinements

- Current, accurate, and refined species range data improves understanding of exposure and effects and ensures that EPA’s decisions
  - Afford adequate protection for the species
  - Provide application instructions that can be reasonably implemented by pesticide applicators

Endangered Species Protection Bulletin

Valid For: April 2015

Area where pesticide use must be limited are identified on the map. A legend is located below the map to help pinpoint these locations.

Element Occurrences from FESTF’s licensed dataset from NatureServe
Element Occurrences on Species Range Maps

- Constituted the majority of sub-county locations on the range maps
- Key to informing and refining range definition
- EOs were displayed on maps at the resolution permitted by each member program
- Metadata accompanying species range maps provided additional information about EOs and specific data gaps
- Both EOs and county-level data provided by NatureServe as part of FESTF’s licensed dataset were portrayed on the species maps
Delivery of Species Range Maps

FESTF delivered range maps as PDFs and spatial data files.

PDFs by Taxa:
- Amphibians
- Birds
- Crustaceans
- Fish
- Insects
- Molluscs

Spatial Data Files:
- MXDs by Taxa
- Geodatabases per Region

EO data not included in spatial data files.
As of April 15, 2015 ESA workshop\(^1\), USFWS reported that:

- Phase 1: Nearing completion
- Phase 2: Field Offices currently reviewing and revising species range maps
- Phase 3: In process

FWS has said this project is “precedent-setting” and appreciates the help. This process has pointed out for them some other things they can do to improve the delivery of their data.

\(^1\)As reported by Keith Paul (USFWS) at Assessing Risks to Endangered and Threatened Species from Pesticides – 4th Interagency Workshop on Joint Interim Approaches to NAS Recommendations; presentation found online at [http://www.epa.gov/espp/2015/3-species%20ranges-4-16.pdf](http://www.epa.gov/espp/2015/3-species%20ranges-4-16.pdf)
Challenges – USFWS

- Different levels of detail
  - Ranges span >1 field office’s service area and maps need to be combined
  - Scale of maps is variable – points/line data to county-level
  - Approaches vary

- Refinement of range information
  - Majority of maps are more refined than county but could be refined further
  - USFWS will continue to further refine these

- Review and delivery time
  - More than 1,600 individual maps were returned from field offices for Phase 1 species
  - Phase 1 maps were delivered Sept. 2014; still in process of being returned to EPA from FWS

---

As reported by Keith Paul (USFWS) at Assessing Risks to Endangered and Threatened Species from Pesticides – 4th Interagency Workshop on Joint Interim Approaches to NAS Recommendations; presentation found online at [http://www.epa.gov/espp/2015/3-species%20ranges-4-16.pdf](http://www.epa.gov/espp/2015/3-species%20ranges-4-16.pdf)
Challenges - FESTF

- Unrefined data can lead to incorrect assumptions about potential exposure and effects on listed species
- Using historical species locations in determining species range can lead to misinterpretation of the extent of the range/observation
  - Historical species locations often have a large amount of uncertainty added to the spatial extent
  - Could have an impact on deciding whether all observed species locations are on federal lands or overlap with a fraction of potential pesticide use area
Next steps...

- FESTF is exploring
  - Using this data compilation and exchange method as a template for other types of data needed for EPA’s assessments (such as land cover)
  - Ways to help Natural Heritage Programs and other species location data collectors keep up to date with data entry
Thank you for this opportunity and please contact me with any questions!

Ashlea Frank
Principal Consultant, Compliance Services International
Technical Consultant, FIFRA Endangered Species Task Force

7501 Bridgeport Way West – Lakewood, WA 98499
253-473-9007
AFrank@ComplianceServices.com