

# Problem Formulation and Weight of Evidence for ESA Pesticide Consultations



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## Problem Formulation for Step 2 and Step 3

“Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action...is not likely to jeopardize the continued existence of any endangered species...or result in the destruction or adverse modification of [critical] habitat...”                      16 U.S.C. 1536(a)(2)

What does this mean for each step?

## Problem Formulation for Step 2 and Step 3

- “Each Federal agency shall, **in consultation with and with the assistance of the Secretary**, insure that any action...is not likely to jeopardize the continued existence of any endangered species...or result in the destruction or adverse modification of [critical] habitat...”

USFWS and NMFS must concur with any “Not Likely to Adversely Affect” determination of EPA, and must enter formal consultations on all “Likely to Adversely Affect” determinations based on the requirements of the Endangered Species Act.

## Problem Formulation at Step 2 – Likely to Adversely Affect?

LAA – “if **ANY** adverse effect to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions.”

NLAA – “effects on listed species are expected to be discountable, insignificant, or completely beneficial.”

–Insignificant effects – “relate to the size of the impact and should never reach the scale where take occurs.”

–Discountable effects – “are those extremely unlikely to occur.”

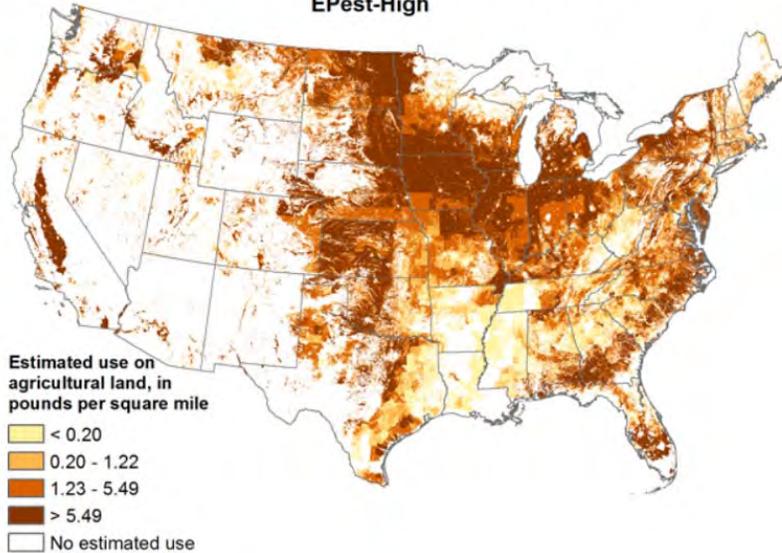
**Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur.**

**WEIGHT OF EVIDENCE CONSIDERATIONS**

# Pilot Chemicals

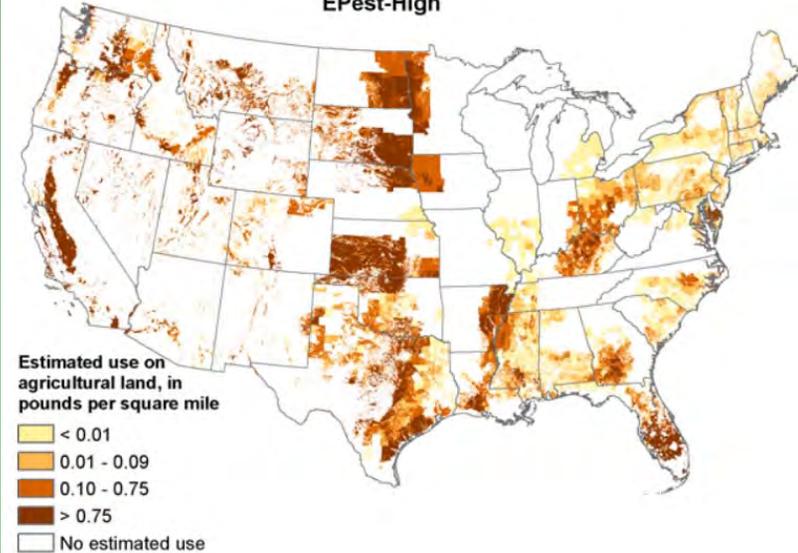
Estimated Agricultural Use for Chlorpyrifos, 2012

E Pest-High



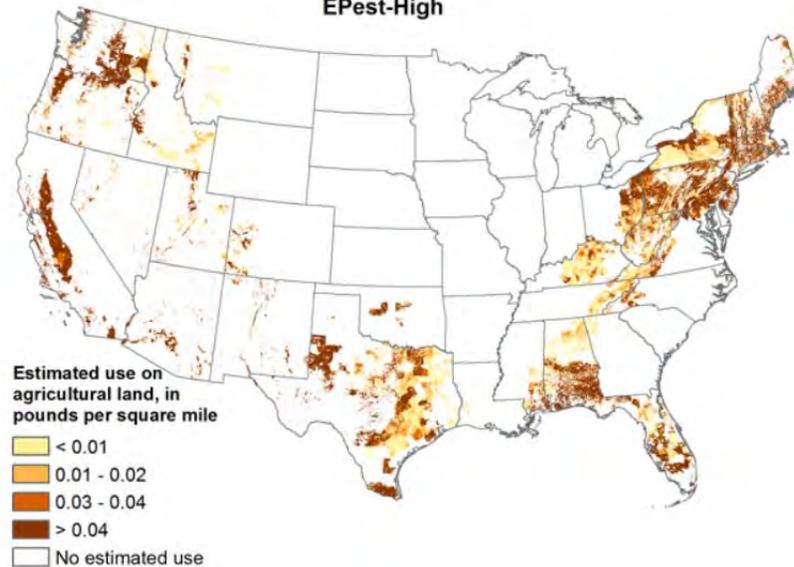
Estimated Agricultural Use for Malathion, 2012

E Pest-High



Estimated Agricultural Use for Diazinon, 2012

E Pest-High



## Problem Formulation at Step 3 – Jeopardy and Adverse Modification of Critical Habitat

Jeopardy – an “action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species.”

### **WEIGHT OF EVIDENCE CONSIDERATIONS**

“A direct or indirect alteration that appreciably diminishes the conservation value of critical habitat for listed species. Such alterations may include, but are not limited to, effects that preclude or significantly delay the development of physical or biological features that support the life-history needs of the species for recovery.”

- PROPOSED Revision – May 2014

### **WEIGHT OF EVIDENCE CONSIDERATIONS**

# Jeopardy Analysis Requirements

Effect of action – “considered along with the environmental baseline and the predicted cumulative effects to determine the overall effects to the species for purposes of preparing a biological opinion on the proposed action.”

- 50 CFR §402.02

An agency may still take action that removes a species from jeopardy entirely, or that lessens the degree of jeopardy.

However, an agency may not take action that will tip a species from a state of precarious survival into a state of likely extinction. Likewise, even where baseline conditions already jeopardize a species, an agency may not take action that deepens the jeopardy by causing additional harm.

- National Wildlife Federation v. NMFS (9<sup>th</sup> Cir. 2008)

## Problem Formulation for Step 2 and Step 3

- “Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action...is not likely to jeopardize the continued existence of **any endangered species**...or result in the destruction or adverse modification of [critical] habitat...”

**Such determinations must be made on a species by species basis**

# Species-specific Analysis



In 1992, Lonesome Larry was the ONLY Idaho Sockeye Salmon individual to return to Redfish Lake, Idaho to spawn.

# Species-specific Analysis



Oregon Coho Salmon  
250,000+ individuals



Idaho Sockeye Salmon  
1900+ individuals

“While it may be true that each of the fourteen ESUs have similar, though not identical, [] requirements, there is no support for the conclusion that the [] criteria will effect the ESUs in similar ways... While the [agency action] may have similar effects on individual fish, it is not clear that they will have similar effects on ESUs as a whole.”

- Northwest Environmental Advocates v. USEPA (D. Oregon 2012)

# Species-specific Analysis



Dusky Gopher Frog  
Two Populations



Red-legged Frog  
250+ drainage in 18+ counties

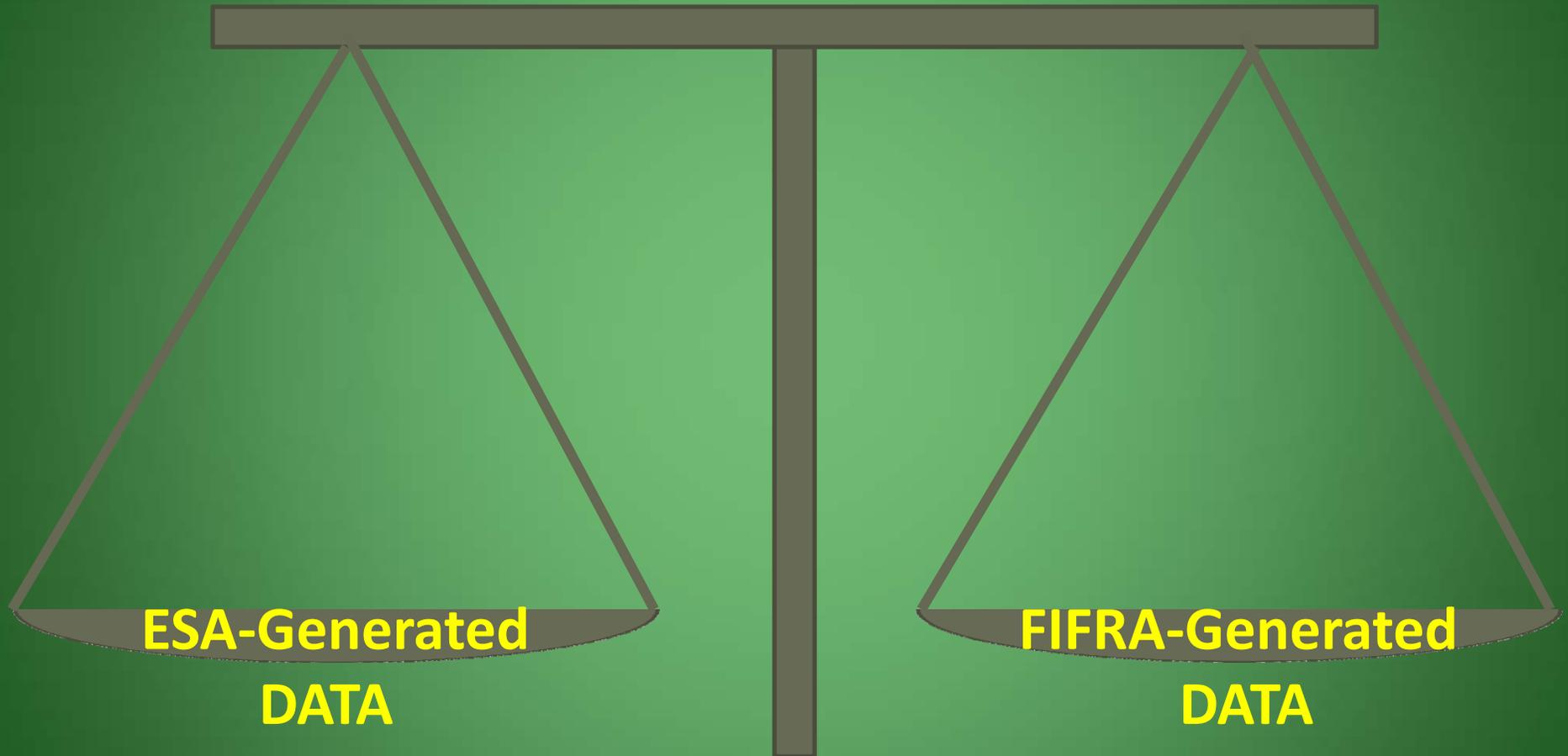


Orangefoot Pimpleback  
1-2 Populations in one river  
Most endangered, extant mussel



Dwarf Wedgemussel  
Present in 15-20 river drainages  
Endangered, declining

# Weight of Evidence – Pilot Chemicals



How should different lines of evidence be considered under the ESA's standards when assessing risk?

# How should evidence be weighed?

Interim Approaches – “deference will be given to robust quantitative analyses of relevant data”

“Deference” may be problematic under the ESA.

– Endangered species data is often qualitative and incomplete given the inherent rarity and sensitivity of such species.

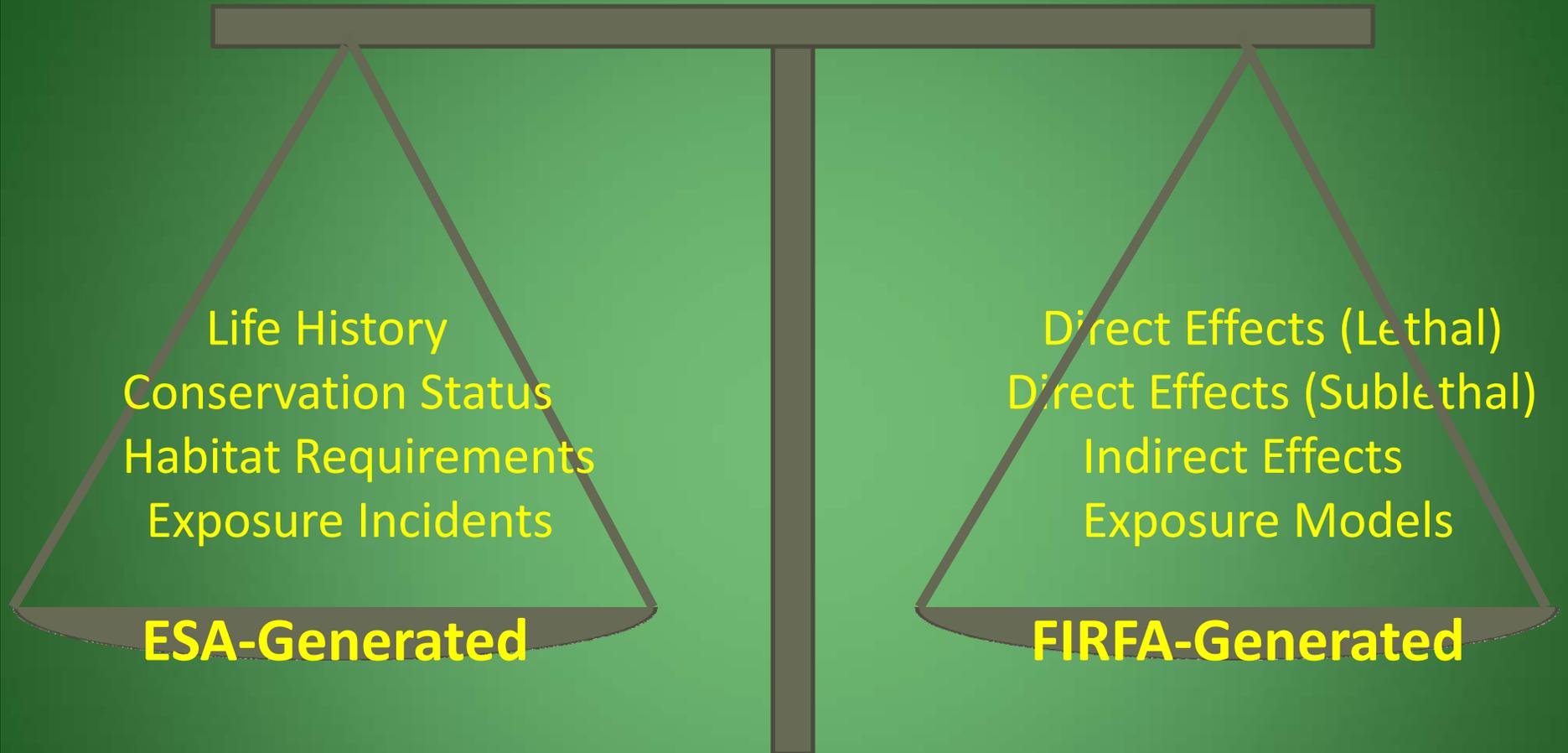
**Nevertheless, consultations must “give the benefit of the doubt to the species.” - Conner v. Burford (9<sup>th</sup> Cir. 1988).**

– The weight given to a particular line of qualitative or quantitative data or analysis should not be pre-determined.

– The relative relevance or robustness of data is best evaluated with at least some consideration of the specific species or critical habitat being assessed.

– Services should be transparent and provide detail to the public in how they have weighed all evidence.

# Species-specific Analysis & W.o.E.

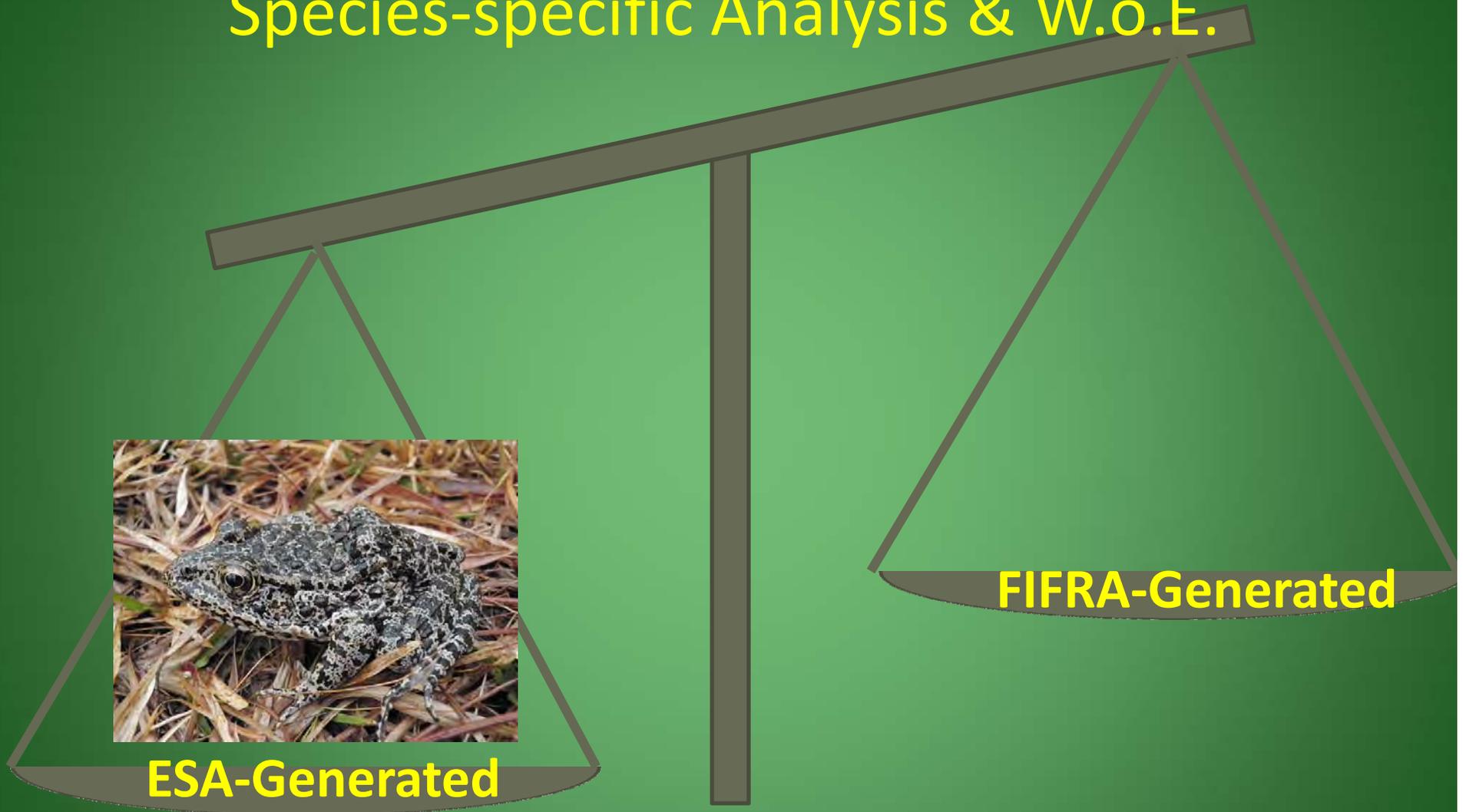


Step Two – Insignificant or Discountable?

Do effects rise to the level of take?

Take includes “harm” → Injury, Behavioral Changes, Habitat

# Species-specific Analysis & W.o.E.



Step Two – Insignificant or Discountable?

# Species-specific Analysis & W.o.E.



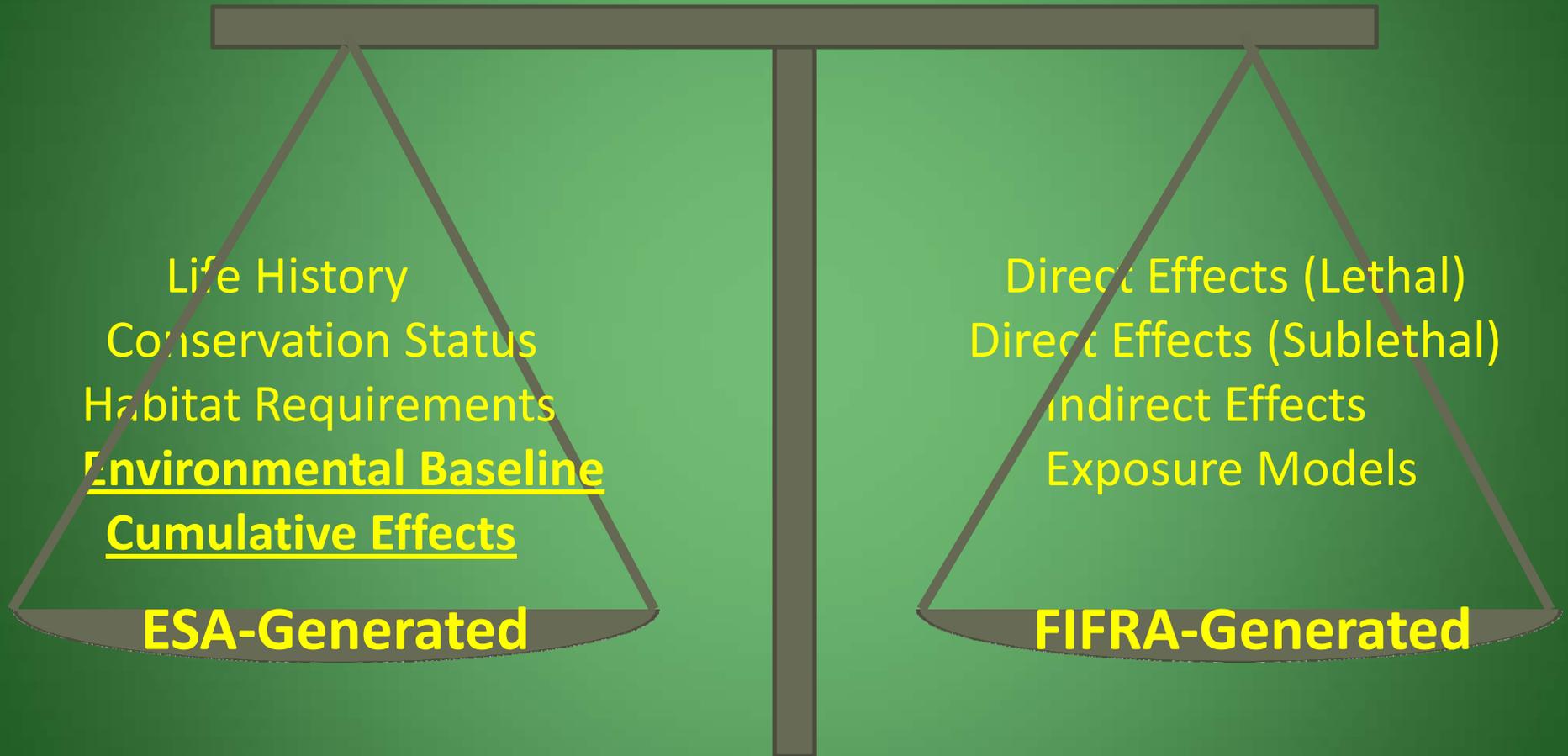
Step Two – Insignificant or Discountable?

## Species-specific Analysis & W.o.E. Why should more weight be accorded to pesticide data for Lesser Prairie Chicken?



- Taxonomically similar to surrogate species used in FIFRA-based analysis (same Family as Bobwhite Quail).
- Range, population, threats well-understood.
- “Threatened” status
- Decent understanding of pesticide use patterns and how they affect habitats (e.g. not aquatic).

# Species-specific Analysis & W.o.E.



Step Three –Jeopardy or Adverse Mod?

# Species-specific Analysis & W.o.E.



FIFRA-Generated

Step Three - Jeopardy

# Species-specific Analysis & W.o.E.



Step Two – Insignificant or Discountable?

# Species-specific Analysis & W.o.E.



**ESA-Generated**

**FIFRA-Generated**

**Step Three – Critical Habitat**

# Species-specific Analysis & W.o.E.



Step Three – Critical Habitat



## W.o.E and *Interim Approaches*

- Blanket “deference” to quantitative data is potentially problematic. Agencies should consider developing some informal criteria or sideboards for when it is appropriate to place greater weight on quantitative data.
- At the NLAA stage – question focuses on whether effects are adverse/rise to level of take (low threshold). Both FIFRA-generated and ESA-generated data on individuals are relevant. FIFRA-generated data will be very important, but so will (usually) qualitative data on the general sensitivity/vulnerability of listed species.
- At the Jeopardy stage – question focuses on whether adverse impacts have population level effects or appreciably modify critical habitat.
- Determining how to incorporate quantitative (and sometimes qualitative) individual-level effects data to qualitative population-level assessments will require consideration of each individual species’ conservation status in order to properly give “the benefit of the doubt” as the ESA requires.