



Department of Toxic Substances Control

# Ecological Risk Assessment Scoping Assessment

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# Risk is Possible When:

1. Chemicals of Potential Ecological Concern (COPECs) are present
2. Receptors are present; and
3. They Come in Contact

**This is a Scoping Assessment**

# Components of Scoping Assessment

1. Site Characterization
2. Biological Characterization
3. Pathway Assessment
4. Scoping Results and Decision Criteria

# 1. Site Characterization

- Location and property lines
- Land use, current and past
- Topography including drainages
- Surrounding land use
- Adjacent areas of significant environmental value
- Identify COPECs





Statewide  
165,000 Mine Features  
47,000 abandoned Mines













# Potential Media for Chemical Analysis

- Surface Soils
- Surface Water
- Sediment
- Groundwater

# Selection of Chemicals of Potential Ecological Concern

- **Site History**
  - What was the site used for?
  - What chemicals were used?
  - What were the waste products?
- **Organic COPECs**
- **Inorganic Background**
  - Selection of Inorganic COPECs (DTSC 1997)









# Summary Data, COPECs

- Chemical name
- Media
- Site Records
- Number of detects
- Reporting limits
- Minimum
- Maximum
- Mean
- Standard Deviation
- 95<sup>th</sup> UCL
- Extent

# 2. Biological Characterization

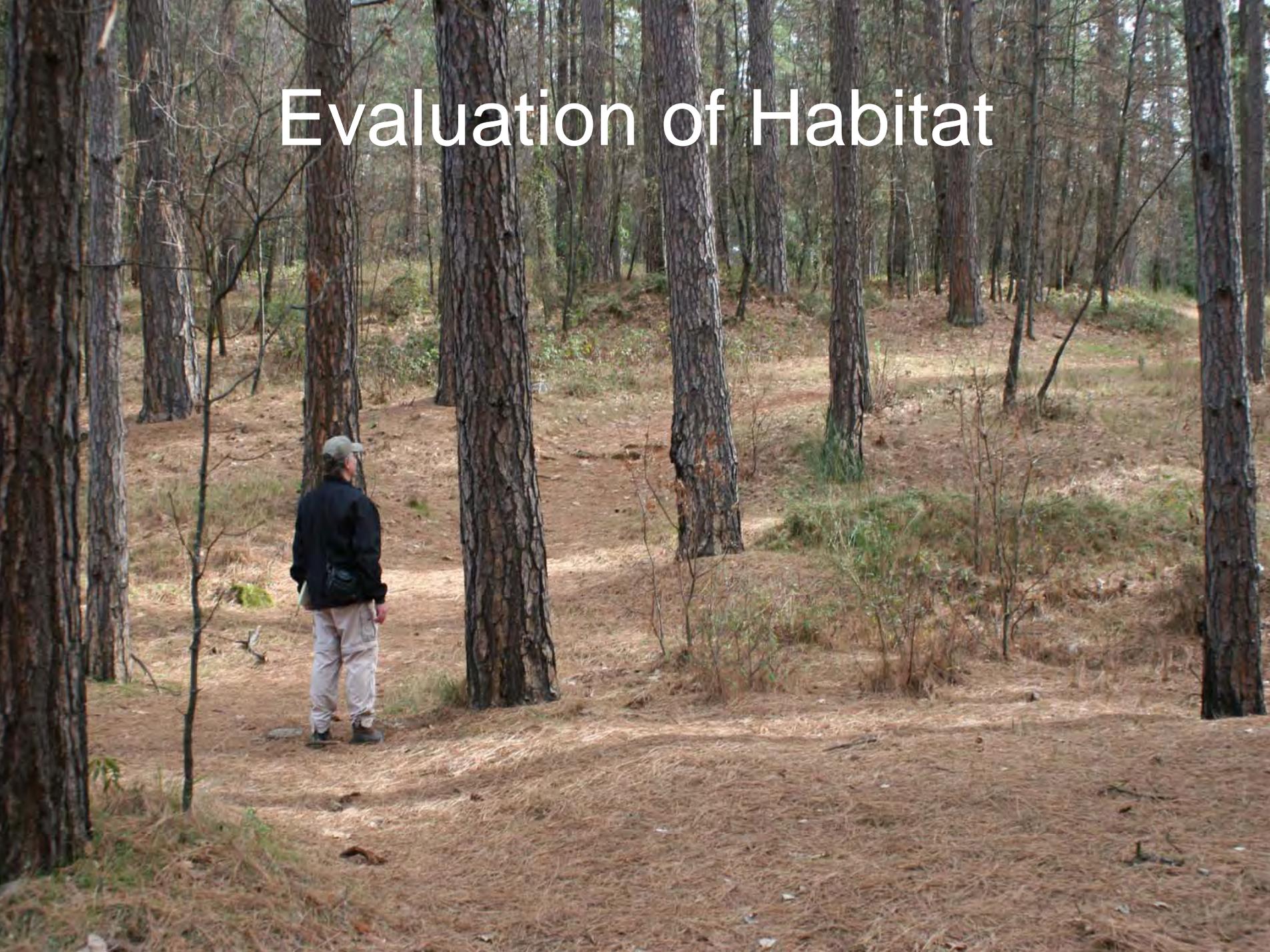
- Identification of each distinct habitat
- Species identification
  - Surveys should be conducted during the optimum time to observe and identify species
- Identification of special status species and their habitats

May require surveys during multiple seasons  
During the appropriate time of the year to identify  
Presence.



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# Evaluation of Habitat







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# Wetlands and Streams



# Sensitive Habitat



# Special Status Species



Marguerite Gregory ©2004 California Academy of Sciences



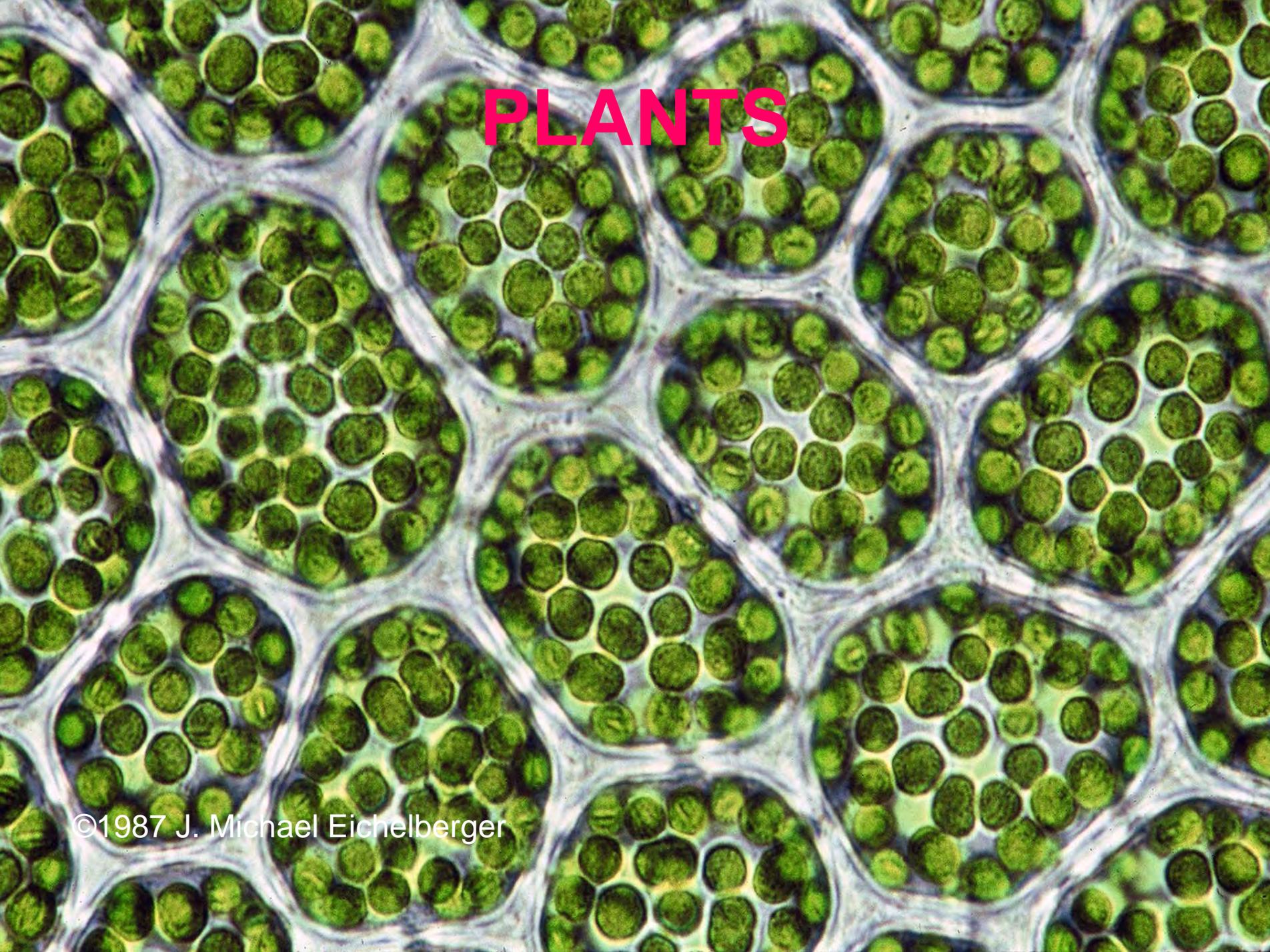
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# Potential Receptors

- Terrestrial Plants
- Aquatic Plants
- Terrestrial Invertebrates
- Freshwater Invertebrates
- Fish
- Amphibians
- Reptiles
- Birds
- Mammals

# PLANTS

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# Terrestrial Plants



# Aquatic Plants & Invertebrates



# Terrestrial Invertebrates





# Amphibians

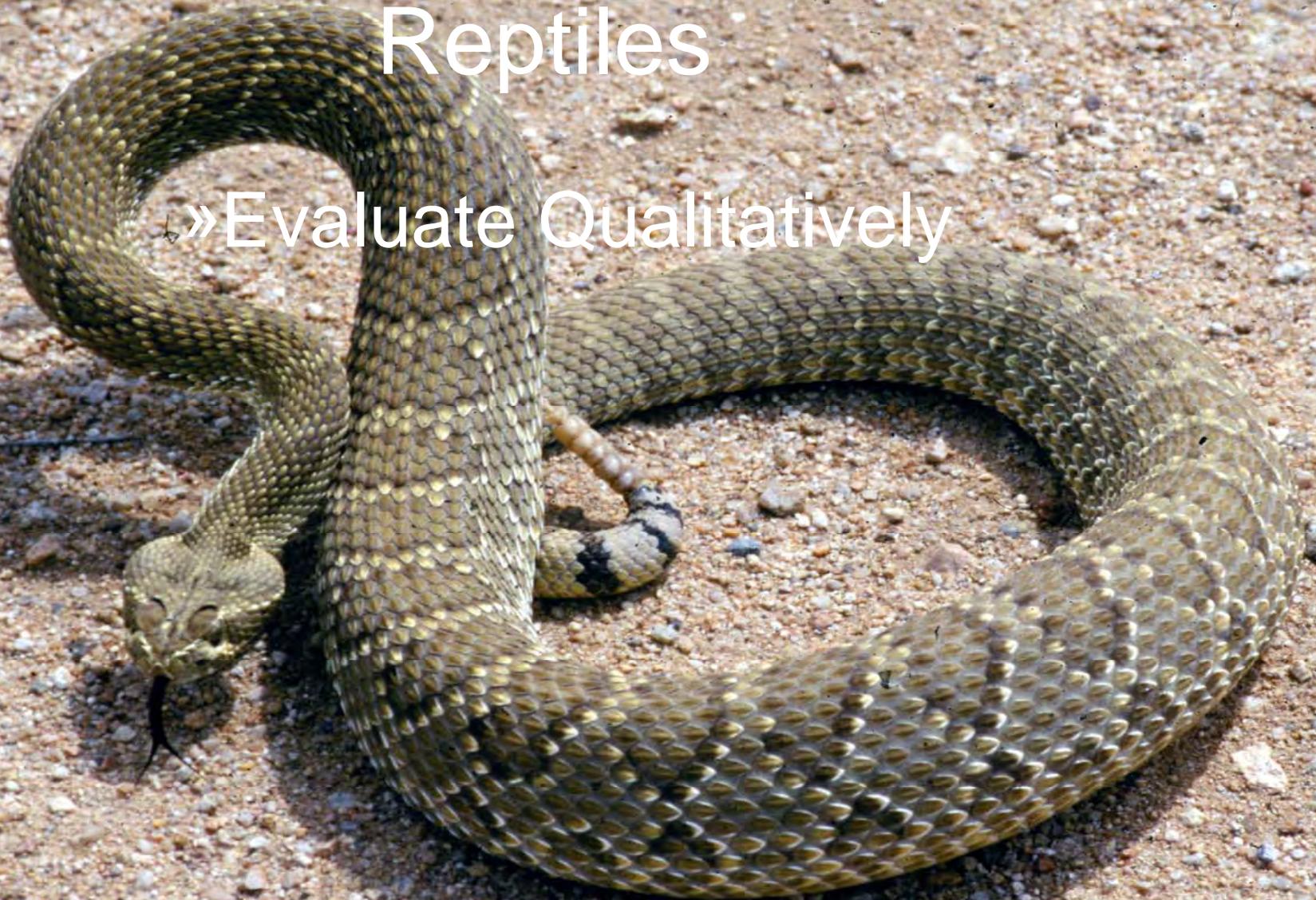


Jens V. Vindum ©1999 California Academy of Sciences

Salamanders and Frogs

# Reptiles

» Evaluate Qualitatively



A close-up photograph of a white-throated sparrow perched on a light-colored rock. The bird has a distinctive black and white striped pattern on its forehead and crown, a bright yellow beak, and a brown eye. Its body is primarily grey with subtle streaking on the wings and back. The background is a soft-focus natural setting with brown and green tones.

# Herbivorous Birds

# Invertivorous Birds

Select those species that preferentially forage  
On the ground



# Carnivorous Birds



# Herbivorous Mammals



# Invertivorous Mammals



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Dr. Loyd Glenn Ingles © California Academy of Science

# Carnivorous Mammals



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# 3. Pathway Assessment

Barn Owl: Feeding on rodents



Ringneck snake:  
Feeding on prey associated with the scat  
From the nest.

# Potential Exposure Pathways

- 1) Direct Contact
  - a) Soil/Sediment
  - b) Surface Water
  - c) Air
- 2) Diet
  - a) Food
  - b) Water





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July 4, 1996

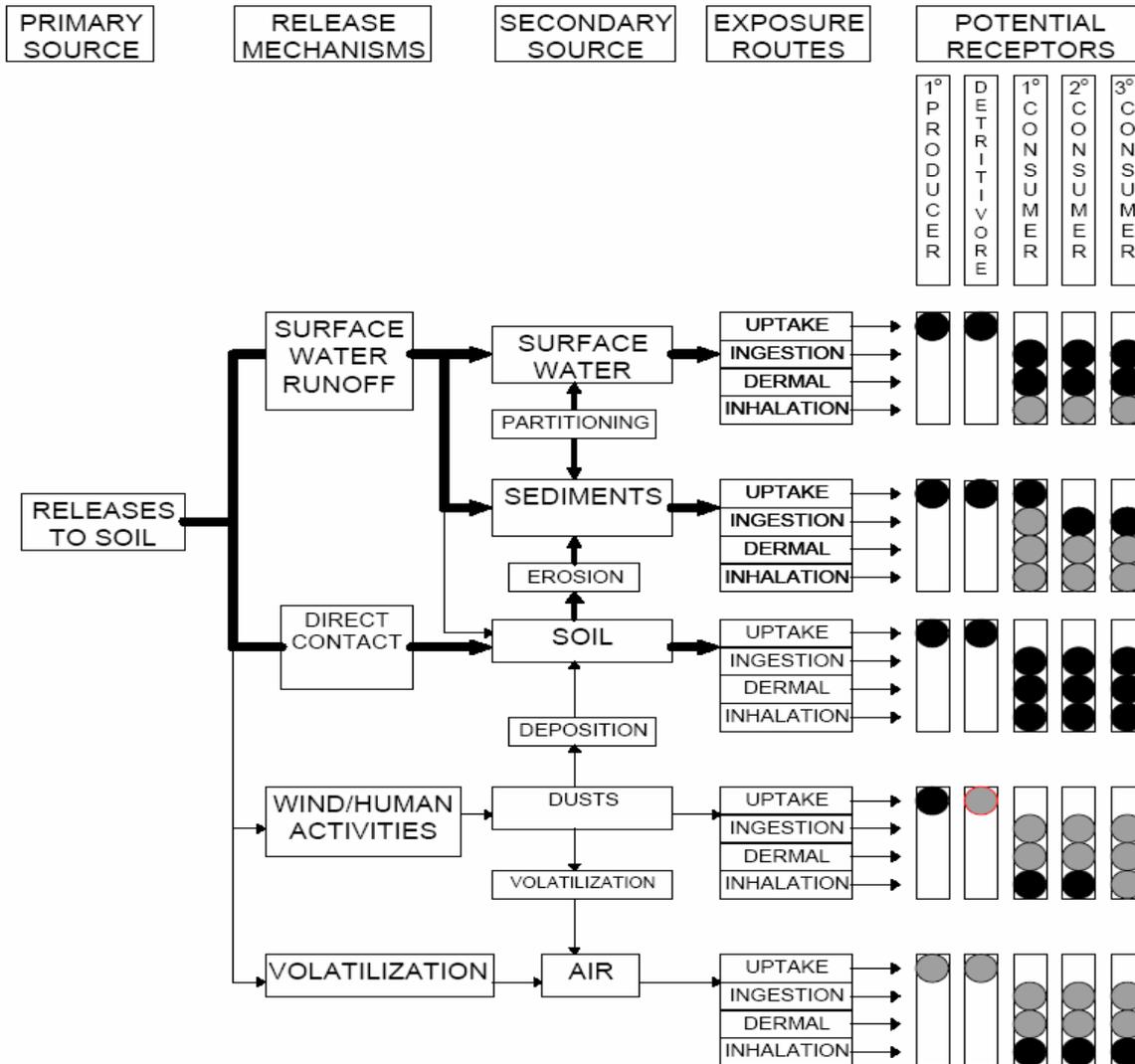


FIGURE 1. EXPOSURE PATHWAY ANALYSIS  
 ● = POTENTIALLY COMPLETE EXPOSURE PATHWAY  
 ○ = POSSIBLY COMPLETE EXPOSURE PATHWAYS (INSUFFICIENT DATA)  
 CLEAR = INCOMPLETE EXPOSURE PATHWAY

# 4. Scoping Results and Decision Criteria

## Two Possible Outcomes of Scoping Assessment

- Concentrations of Chemicals and Receptors Do not Come in Contact;
  - If this is the conclusion of the Scoping Assessment, there is no further investigation
- Toxic Concentrations of Chemicals and Receptors Do Come in Contact;
  - Prepare a Phase I Work Plan and proceed to a PERA

# Future Land Use

- If future land is not going to include habitat, and special status species are not present, the project need not proceed to a PERA and the project can exit the risk assessment process.
- However, if the project will not proceed directly to development and the project will provide habitat in the interim, then at a minimum, risk to birds and mammals should be evaluated.

# Reports

- Condense the results of the investigation.
- Present the report in sections according to the steps outlined in the Scoping Assessment Guidance.
- Include maps, figures and tables.
- Summarize the findings of the scoping assessment.

# DTSC Guidance for Scoping Assessments

- Guidance for Ecological Risk Assessment at Hazardous Waste Sites and permitted Facilities (1996)
  - Part A: Overview
  - Part B: Scoping
- Selecting Inorganic Constituents as Chemicals of Potential Concern at Risk Assessments at Hazardous Waste Sites and Permitted Facilities (1997)