Module 7
Field Studies

Studies to document site wildlife and habitat and predict project impacts.
Objectives

- Describe how Tier 3 follows from Tiers 1 and 2
- Explain the questions in Tier 3
- Understand study design considerations
- Discuss where to find methods and protocols
- Discuss decision points and outcomes
Tier 3 Studies

- Tier 3 studies attempt to quantify the distribution, relative abundance, behavior, and site use of species of concern.
- Also attempt to estimate the extent of risk to these species.

WEG Page 19
Tier 3 Field Studies

- Developer should:
  - Communicate with the Service on the pre-construction studies
  - Share the results with the Service
  - Consider the comments and recommendations prior to completing the Tier 3 decision process

WEG Page 19 & Communication Protocol (Page 5 Table 1)
Tier 3 Questions

- Evaluation of data gaps identified in Tier 2 and:
  - Design a project to avoid or minimize predicted risk
  - Evaluate predictions of impact and risk through post-construction comparisons of estimated impacts
  - Identify compensatory mitigation measures, if appropriate

WEG Page 19
Tier 3 – Field Studies Questions

Overview

• Questions 1-3: collect data sufficient to analyze and answer Questions 4-6

• High risk sites may warrant additional years of pre-construction studies

• Duration and intensity of studies should be determined through communication with the Service
Tier 3 Questions

- Additional field studies may be appropriate when:
  - The habitat is suitable for a species needing further study
    - and -
  - Occurs within the historical range of the species;
    - or -
  - Is near the existing range but presence has not been documented

WEG Page 20
Tier 3 Questions

- Encourage use of common methods and metrics in assessments.
  - Provide benefit by allowing comparisons among projects
  - Greater certainty regarding expectations

- Deviation from commonly used methods and metrics should be carefully considered and scientifically justifiable.

WEG Page 20
Tier 3 Studies

- The Guidelines do not make specific recommendations on protocols for studies.
  - Need for flexibility in application
  - May need multiple methods to assess potential risk
  - Technical Resource section (page 26) is not all inclusive, but may assist with an initial compilation of methods and metrics

WEG Page 20
Question 1: Do field studies indicate that species of concern are present on or likely to use the proposed site?

- Tier 2 may adequately address this question.
- May require additional studies if there is little information available.
- Survey methods should use if available agency-required protocols.
Question 1

• Most presence/absence surveys should be done following a probabilistic sampling protocol to allow statistical extrapolation to the area and time of interest.

• Recommendations may include following agency-required protocols.

WEG Page 21
Question 2: Is there a potential for significant adverse impacts to species of habitat fragmentation concern?

- Species of habitat fragmentation are present.
- May need the following studies:
  - Block size of habitat, lifecycle requirements, and alteration of habitat from project.

WEG Page 21
Question 2

- To assess habitat fragmentation in the project vicinity:
  - Evaluate landscape characteristics and determine the degree to which habitat will be significantly altered by the presence of a facility
  - Can use the general framework on page 27

WEG Page 21
Question 3: What is the distribution, relative abundance, behavior, and site use of species. Do these factors expose species to risk?

- Where are they likely to occur?
- When they might occur?
- In what abundance?
Question 4: What are the potential risks to individuals and local populations of species and their habitats?

- Models can be used to determine exposure risks.
- What are the behaviors that either put the species at risk or help avoid impacts?
- Indirect risk also requires an understanding of species behavior.
Question 5: How can developers mitigate identified significant adverse impacts?

- Studies on wildlife use of the proposed area should provide a basis for identifying measures to mitigate impacts.
- When significant adverse impacts cannot be fully avoided or minimized, compensatory mitigation may be appropriate.

WEG Page 23
Question 6: Are there studies that should be initiated at this stage that would be continued in post-construction?

- Consideration of post construction studies to address Tier 3 questions.
- Studies are designed to provide data that evaluate predictions of adverse direct and indirect impacts.
Tier 3 Study Design Considerations

- Assessing Presence
  - Database
  - Specific survey (ensure they follow standards)
  - Seek local wildlife expertise

WEG Page 24
Study Design

• Assessing Site Use/Behavior
  • Types of species use (i.e. ecological function)
    • Migratory
    • Stopover
    • Staging area
    • Movement between forage and shelter
    • Daily or time of movements (morning/night)
Study Design

- **Duration/Intensity of Studies**
  - Sufficient duration and intensity to ensure adequate data are collected to accurately characterize wildlife presence and use
  - Depends on level of risk and uncertainty
  - Site-specific and use information from experts

WEG Page 25
Study Design

- Assessing Risk to Species
  - Collision
  - Habitat Loss and Degradation
  - Habitat Fragmentation
  - Displacement and Behavioral Changes
  - Indirect Effect

WEG Page 25
Technical Resources Examples

- Pages 26-32 provide examples of studies that would assist answering Tier 3 questions
- Species and habitats vary, so do protocols
- Some activities may require permits

WEG Page 26
Decision Points: Outcome 1

- Site has low probability of significant adverse impacts based on existing and new information.
- Developer proceeds to project development and Tier 4.

WEG Page 33
Decision Points: Outcome 2

- Site has moderate to high probability of significant adverse impacts without mitigation.
  - Certainty regarding adequate mitigation
  - Uncertainty regarding adequate mitigation or permit process requires additional information
- Developer based decision adopting proper mitigation and appropriate post-construction monitoring and Tier 4.
Decision Points: Outcome 3

- Site has high probability of significant adverse impacts that:
  - Cannot be adequately mitigated
    - Recommend site developed delayed/abandoned in favor of known sites with less impact
  - Can be adequately mitigated
    - Developer should implement mitigation measures and proceed to Tier 4
Summary

• Tier 3 follows from Tiers 1 and 2.
• Reviewed the 6 questions in Tier 3.
• Study design considerations.
• Study methods and protocols.
• Decision points and outcomes.