Module 6: Landscape Considerations
Objectives

- Understand the components of Tier 1 site assessments
- Understand the components of Tier 2 site characterizations
- Apply adaptive management in the tiered approach
- Describe how Tier 1 works for distributed wind
Landscape Considerations

The tiered approach embodies adaptive management by:

- Collecting increasingly detailed information
- Used to make decisions about project design, siting, construction and operations
- As the developer progresses through the tiers.
Tier 1: Preliminary Site Evaluation

Developer/Operator Role

Landscape level assessment of habitat for species of concern

Request data sources for existing information and literature

USFWS Role

Provide lists of data sources and references, if requested

WEG page 5
Tier 1: Preliminary Site Evaluation

Tier 1 may be used to:

- Identify larger geographic regions where wind development poses significant risks to species of concern or their habitats
- “Screen” a landscape for high value habitats
- Determine if a single identified site poses a serious risk to species of concern or their habitats
Tiers 1 and 2 for Distributed and Community Scale Wind

- Distributed or community scale wind developers are not likely to consider broad geographic areas.

- Still should consider the presence of habitats or species of concern before siting projects.
Tier 1: Preliminary Site Evaluation

- Some areas may be inappropriate for large scale development because they have high wildlife value, based solely on their ecological rarity and intactness.
Tier 1: Preliminary Site Evaluation

1. Are there species of special concern present or is habitat present for these species?
2. Does the landscape include areas where development is precluded by law, or otherwise sensitive to development?
Tier 1: Preliminary Site Evaluation

3. Are there known critical areas of wildlife congregation?

4. Are there large areas of intact habitat with the potential for fragmentation?
Tier 1: Preliminary Site Evaluation

- Use existing public or other readily available information.

- Examples: federal, state or tribal wildlife or natural heritage programs; academic community; conservation organizations.
Tier 1: Decision Points

Possible outcomes:

- Low probability of significant adverse impact to wildlife; proceed to Tier 2 to confirm validity of preliminary assessment.
- Probability of significant adverse impact; proceed to Tier 2 to further assess the probability. Site may be abandoned or modified.
- Insufficient data; proceed to Tier 2 to collect additional data.
Tier 2: Site Characterization

- Additional data may be necessary to characterize a potential site in terms of risk the project would pose to species of concern and their habitats.

- Tier 2 studies focus on site-specific information and should include at least one visit to the prospective site by a knowledgeable biologist.
Tier 2: Site Characterization

- Begin identifying actions that will avoid or compensate for potential impacts to species of concern.
- If likely to result in take of bald or golden eagles, prepare an ECP, and apply for a take permit.
- If likely to result in take of listed species, explore incidental take options.
Tier 2: Site Characterization

Methods and Metrics

Tier 2 site characterizations generally contain three elements:

1. Review of existing information (maps, NWI, species distribution, habitats, etc.)

2. Contact with agencies and conservation organizations

WEG page 14
Reconnaissance site visits – evaluation of habitat at the site for species of concern and their habitats.
Tier 2: Site Characterization

Questions:

1. Are species of concern present on or near the proposed site?
   - Use publicly available information and agency contact

2. Does the landscape include areas where development is precluded by law?
   - Critical habitat, National Monument, etc.
   - High priority conservation areas for NGOs, etc.

WEG pages 14 - 15
Tier 2: Site Characterization

Questions:

3. Are there plant communities of concern present?
   - Natural Heritage data

4. Does the project area contain known critical areas of wildlife congregation?
   - State Wildlife Action Plan
   - Important Bird Areas

WEG page 16
Tier 2: Site Characterization

Questions:

5. Has the relevant agency determined the potential presence of a population of a species of habitat fragmentation concern?

- If no, developer does not need to assess impacts of the proposed project on habitat fragmentation.
- If yes, developers should use the general framework for evaluating habitat fragmentation at a project site.

WEG pages 16 and 17
General Framework for Evaluating Habitat Fragmentation

- Define study area
- Analyze the current habitat quality and spatial configuration
  - Aerial and remote imagery
  - Assess level of existing fragmentation
    - High quality
    - Medium quality
    - Low quality
General Framework for Evaluating Habitat Fragmentation

- Determine potential changes in quality and spatial configuration of the habitat.

- Should provide the collective information to the Service for use in assessing whether the habitat impacts, are likely to affect population viability of the species of habitat fragmentation concern.

WEG page 17
Tier 2: Site Characterization

Questions:

6. Which species of birds and bats are likely to use the proposed site?
   - Existing published information
   - Agency databases

7. Is there the potential for significant adverse impacts to species of concern?
   - Use answers from previous questions
   - Consider project design
Tier 2: Site Characterization

*Decision Points:*

- Some of the Tier 2 questions may remain unanswered, or the answers may be inconclusive and unable to support a decision.

- Proceed to Tier 3, formulating questions, methods and assessment of potential mitigation measures based on issues raised in Tier 2.
Tier 2: Decision Points

- Sufficient information is available and the answer indicates a **low probability** of significant adverse impact to wildlife.

- Developer may then proceed to obtain state and local permits, design, and construction using BMPs.
Tier 2: Decision Points

- Sufficient information is available to answer questions
- Answers indicate a moderate probability of significant adverse impacts to species of concern or their habitats
- Proceed to Tier 3 and identify mitigation opportunities
The answers indicate a high probability of significant adverse impacts that:

- Cannot be adequately mitigated
- Can be adequately mitigated - proceed to Tier 3 and identify mitigation measures
## Tier 2: Site Characterization

### Decision Points:

<table>
<thead>
<tr>
<th>Low probability of significant adverse impacts to wildlife</th>
<th>Moderate risk to wildlife, potential significant adverse impacts</th>
<th>High risk to wildlife, high probability of significant adverse impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proceed through local, state and federal permitting processes as necessary or required</td>
<td>Proceed to Tier 3</td>
<td>Cannot be adequately mitigated: abandon project? Can be adequately mitigated: Proceed to Tier 3</td>
</tr>
</tbody>
</table>
Summary

- Understand and apply the components of Tier 1 site assessments
- Understand and apply the components of Tier 2 site characterizations
- Apply adaptive management in the tiered approach
- Describe how Tier 1 works for distributed wind
Eagle Conservation Plan Guidance
ECPG Stage 1

Stage 1 corresponds to Tiers 1 and 2 of the Guidelines

Stage 1 and Stage 2 (Tier 3 in Guidelines) comprise pre-construction data collection process
ECPG Stage 1

Stage 1 goal – determine prospective sites within areas known or likely to be used by eagles exhibit any obvious substantial risk for eagles

Proper siting – most important opportunity to reduce risk to eagles
ECPG Stage 1

Stage 1 assessment
- evaluate wind energy potential within the ecological context of eagles
- includes considerations for the eagle’s annual life-cycle
  - breeding,
  - dispersal,
  - migration, and
  - wintering.
ECPG Stage 1

process ensure relevant information is considered

encompasses physiographic and biological factors that affect eagle risk
ECPG Stage 1 Process Questions

(1) recent or historical nesting and seasonal occurrence data for eagles at the prospective area;

(2) migration or other regular movement by eagles through the area or surrounding landscape;
ECPG Stage 1 Process Questions

(3) seasonal concentration areas such as a communal roost site in a mature riparian woodland or a prairie dog (*Cynomys* spp.) town serving as a major forage base; and

(4) physical features of the landscape, especially topography, that may attract or concentrate eagles
ECPG Stage 1 Resources

NatureServe:
(http://www.natureserve.org/)

American Wind Wildlife Institute’s Landscape Assessment Tool – LAT:
(http://www.awwi.org/initiatives/landscape.aspx)