

Framework for Restoration of Mined Lands



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Presentation outline

- Briefly review key issues in relation to mining impacts
- Discuss restoration goals and objectives
- Consider the importance of scale in restoration planning
- Address the concept of sustainability in relation to restoration
- Discuss the role of models and monitoring in ecological restoration
- Present a general framework to guide the restoration of mined lands

Watershed Restoration and Mined Lands – Key Issues and Challenges

Physical habitat degradation
Subsidence
Landslides, erosion

Chemical contamination

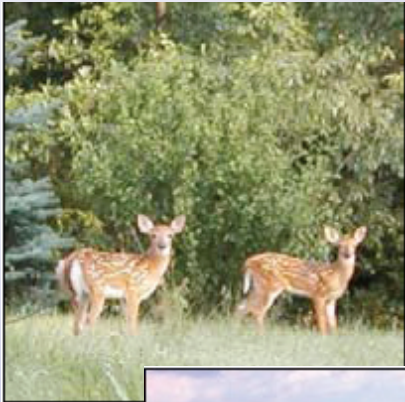
- soils
- sediments
- surface waters
- groundwater

Ecological impacts

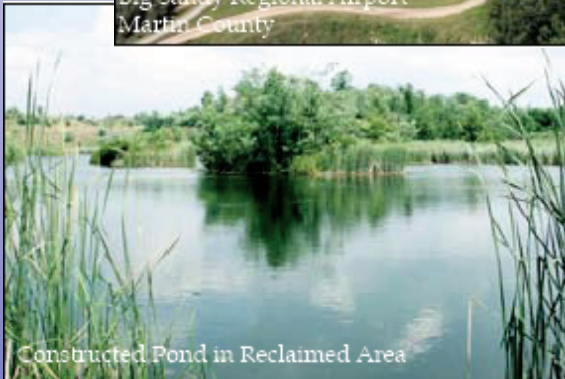
- habitat loss
- vegetation
- fish and wildlife
- diversity, stability

BEFORE

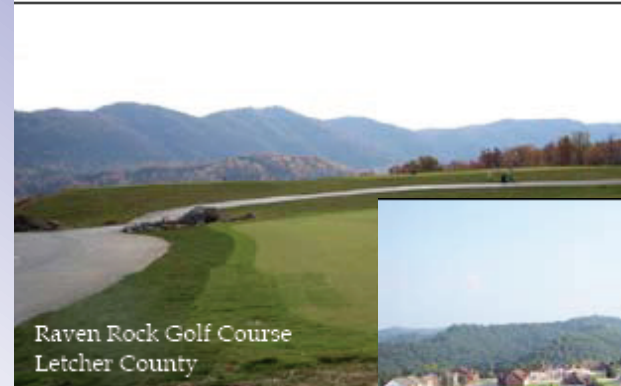
Desired Future Conditions



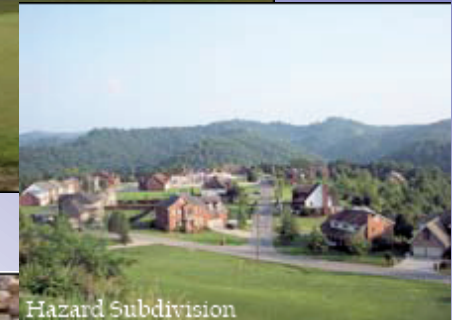
Big Sandy Regional Airport
Martin County



Constructed Pond in Reclaimed Area



Raven Rock Golf Course
Letcher County

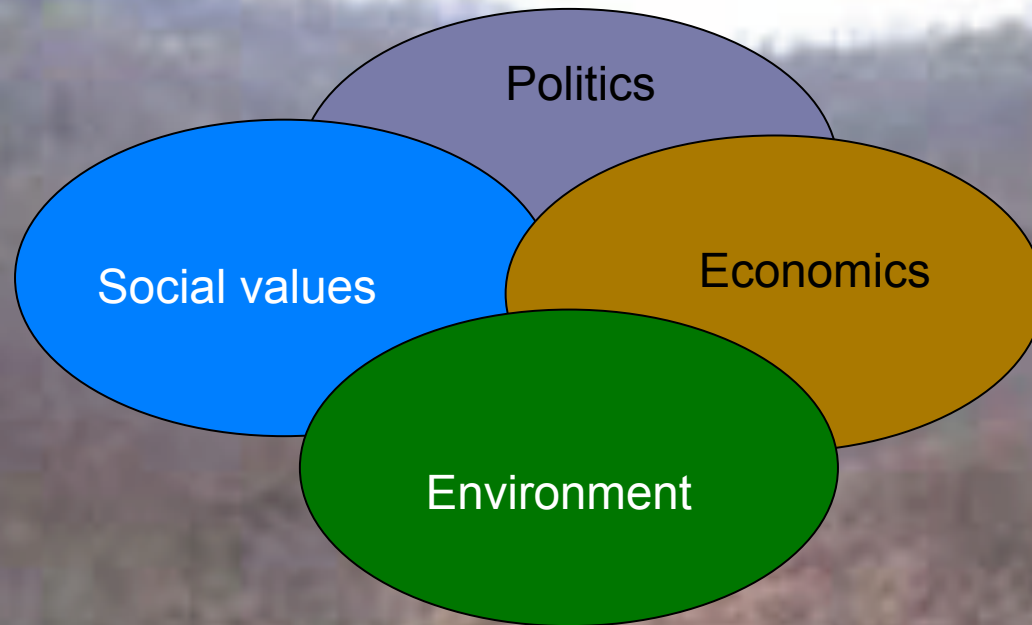


Hazard Subdivision



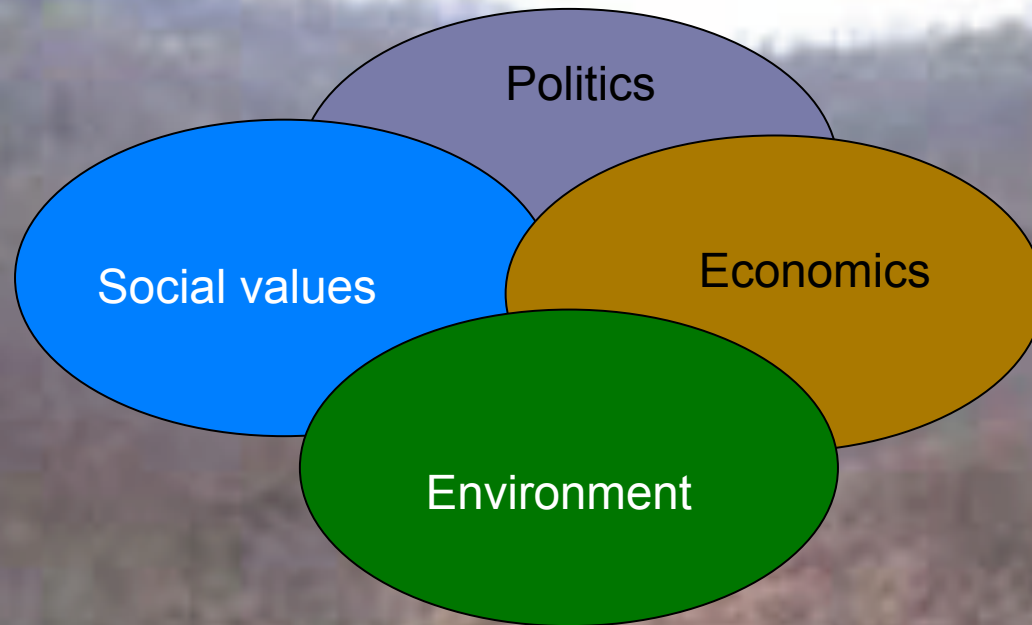
Emphasis on multiple-use in ecological restoration...

Defining Restoration Goals and Objectives



1. Politics – existing legislation, institutions, legal process
3. Environment – historical conditions, ecological feasibility
5. Economics – restoration costs and benefits
7. Social values – desired future conditions, intergenerational considerations

Evaluation of Alternative Restoration Plans



1. Politics – existing legislation, institutions, legal process
3. Environment – residual risk, ecosystem goods and services
5. Economics – risk:benefit analysis
7. Social values – acceptance of residual risk, valuation

Scale Considerations

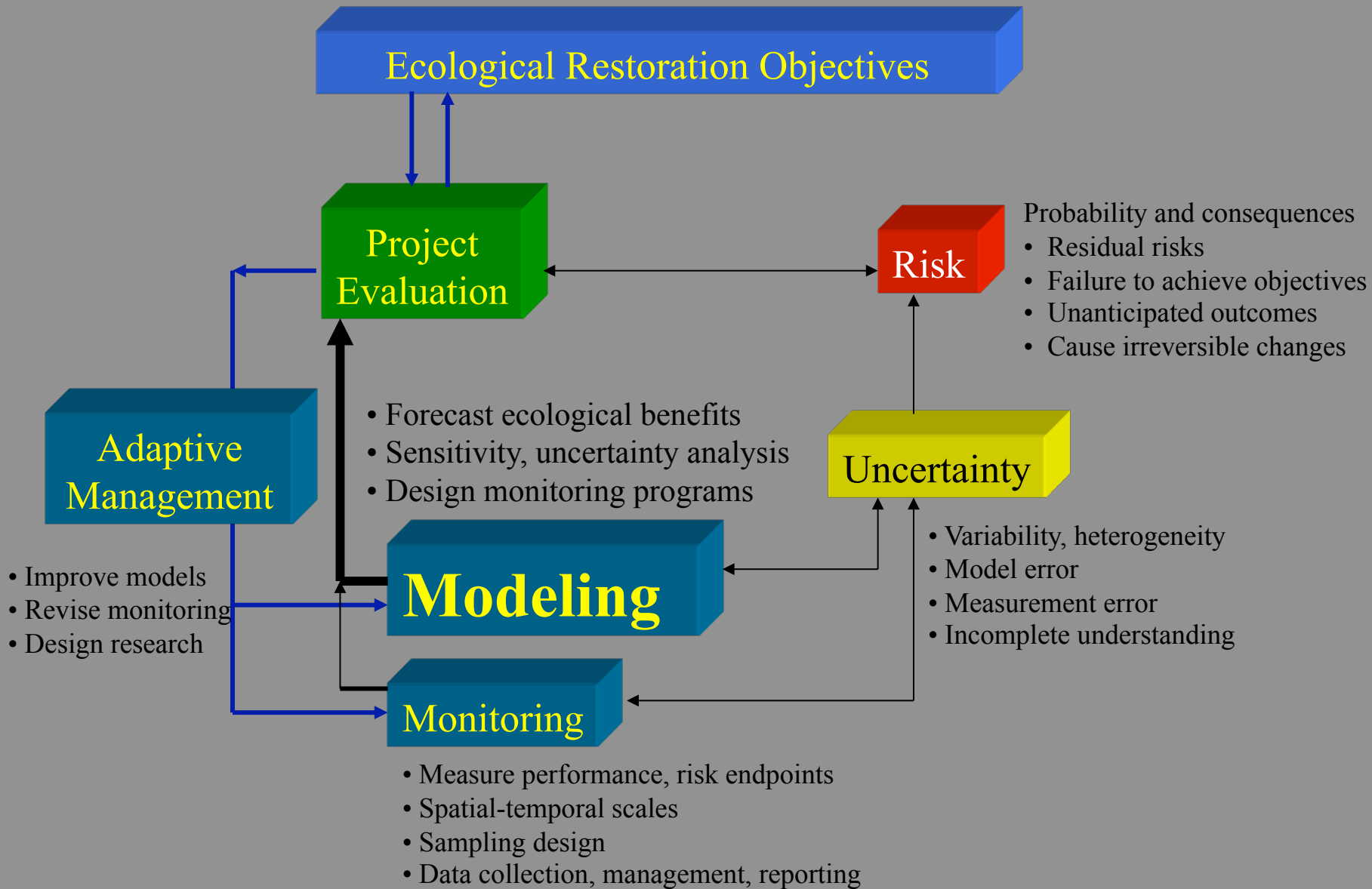


1. Ecological/environmental
2. Measurement
3. Restoration
4. Evaluation, decision-making

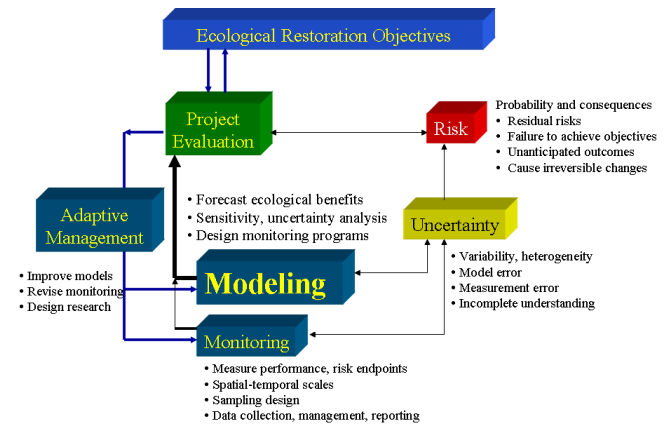
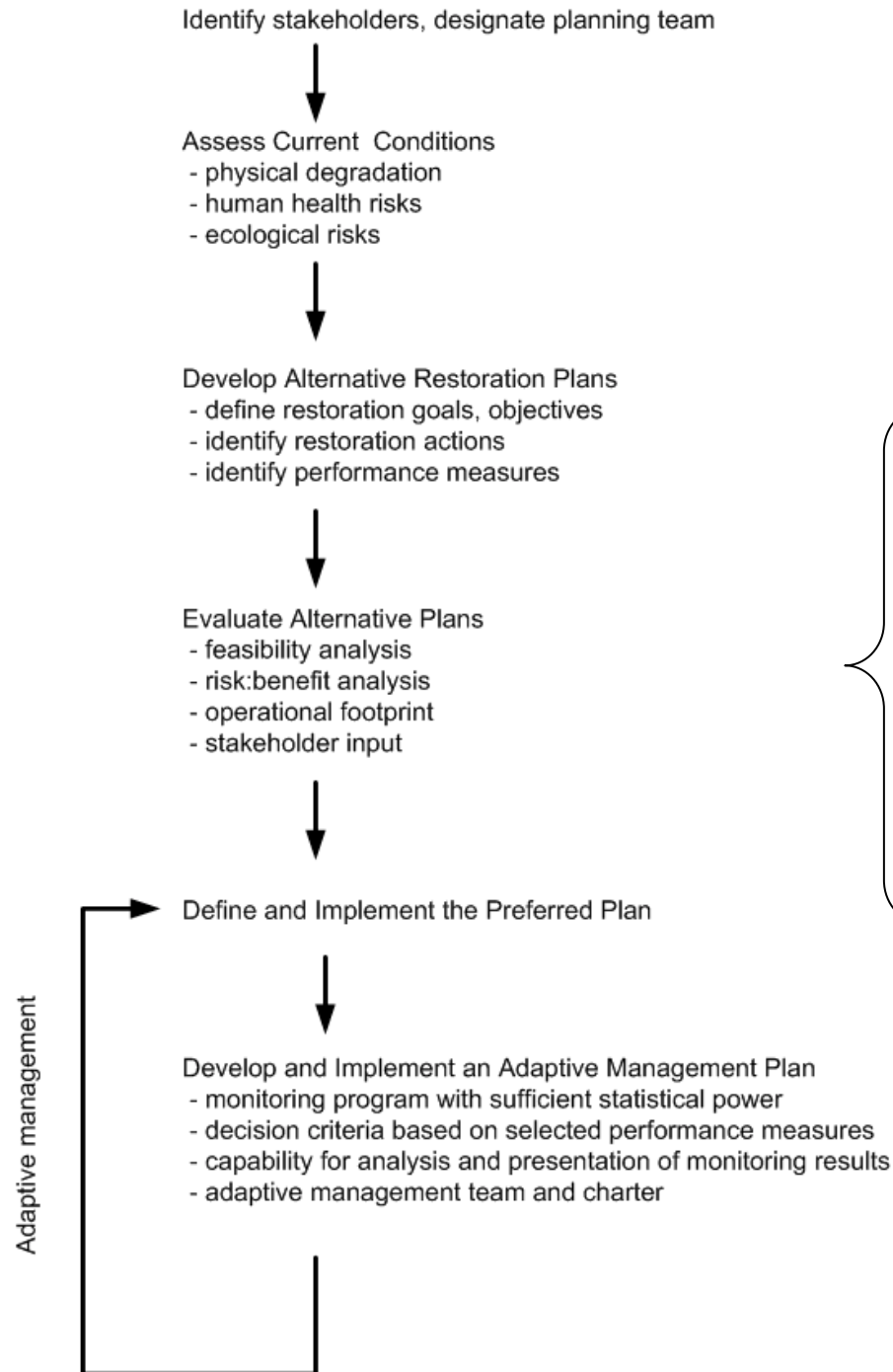


Sustainability

- Definition: persistence, stability
- Degree of continued management or “operational footprint”
- Make use of natural processes
- Design with sustainability in mind
- Strange attractors



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Thank you.

