

## **NEPA: Analyzing Impacts**



Course #1620-10

### **Course Goal**

Improve the analysis and documentation of your environmental impacts.

### **Course Objectives**

Map out a cause/effect strategy before you start analyzing impacts.

Write an impact analysis that is more complete and systematic and therefore more defensible.

## Route

Lesson 1: Cause and Effect Analysis  
(prepare for the analysis)

Lesson 2: Impact Analysis  
(conduct the analysis)

Bonus Lesson: Determining Significance  
(determine if impacts are significant)

## Remember...

- There is a post-test
- Successful course completion is 80% or better
- Lesson 3 will not be on the post-test
- Video and exercises help to focus your learning experiences
- Your instructor will review the exercises



# NEPA: Analyzing Impacts

(Course #1620-10)



## Lesson 1

### Cause and Effect Analysis

## Lesson 1: Objectives

- Identify potential direct and indirect effects to a given resource or program.
- Identify resource indicators to measure each impact.
- Determine the methodology to measure the impacts.
- Identify potential data needs to complete the analysis.

## Cause and Effect Analysis

### What is a cause and effect analysis?

- Determine impact analysis method
- Meet “hard look” doctrine (scientifically defensible and interdisciplinary)\*
- Map rationale for impact analysis
- Increase quality of communication among specialists
- Identify potential problems or data gaps early in the process

\* According to the BLM Handbook (2008) “a *hard look*” is a reasoned analysis containing quantitative or detailed qualitative information. (section 6.8.1.2)

## Cause and Effect Analysis

### What are the steps?

1. Identify potential impact-causing elements and the impacts (direct and indirect) for each resource or program\*.
2. Identify resource indicators to measure each impact and help explain cause-effect relationship.
3. Determine the methodology to measure relative impacts among alternatives.
4. Identify potential data needs to complete the analysis.

\* The BLM Handbook directs that impacts be addressed based on issues, not resources or programs. When going through these steps for your project, be sure the impact-causing elements, impacts, and resource indicators are focused by and responsive to the issues.

## Cause and Effect Analysis

### Benefits:

- Maps analysis methodology.
- Uses the same indicators for both the affected environment (Chapter 3) and environmental consequences (Chapter 4).
- Ensures Chapter 3 and Chapter 4 match in scope and detail.

## Cause and Effect Analysis

### Benefits (cont.):

- Establishes context of impacts.
- Compares impacts among alternatives consistently.
- Reviews and agrees on methodology and potential impacts early in the process.

## Cause and Effect Analysis

### Example:

**Proposed Action:**

Using a prescribed fire to control decadent sagebrush stands and areas infested by cheatgrass and other noxious weeds.

**Areas Affected:**

Sagebrush habitat, and consequently, sage grouse.

**Type of Potential Effect:**

1. Loss of critical sagebrush habitat, including sage grouse leks.
2. Direct mortality to sage grouse inhabiting treated habitat.

**Resource Impact Indicator:**

1. Acres of critical sagebrush habitat lost;
2. Number of sage grouse individuals killed by fire.

## Cause and Effect Analysis

### Things to remember:

- Use indicators that you can predict into the future.
- Use indicators that you can measure.
- Use indicator values that will vary among alternatives based on the impacts.
- Use indicators that help explain the cause-effect relationship.
- Resource indicators must be responsive to the issues.

## Exercise 1: Impact Indicators

### Resources and Programs

Transportation Social and Economic Air Resources Noise	Cultural Resources Visual Resources Land Use and Realty Geology and Soils	Water Resources Fisheries Vegetation Wetlands	Livestock Grazing Wildfire Biodiversity Recreation
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**Exercise Instructions**

1. Type three resources or programs (from the list above) on the lines below.
2. Type the impact indicators for each resource or program in the boxes.
3. Compare your answers with the instructor's.

**Did You Know?** When you are doing this for an actual project, the impact indicators would be for the issues, not for resources or programs. That will help you focus on what's a relevant indicator.

Resource or Program

Impact Indicators

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

## Exercise 1: Review

Resource/Program	Impact Indicator ( <i>examples</i> )
Transportation	
Social & Economic	
Air Resources	
Noise	
Cultural Resources	

### Exercise 1: Review

Resource/Program	Impact Indicator
Visual Resources	
Land Use & Realty	
Geology & Soils	
Water Resources	
Fisheries	
Vegetation	
Wetlands	

### Exercise 1: Review

Resource/Program	Impact Indicator
Livestock Grazing	
Wildlife	
Biodiversity	
Recreation	

## Cause and Effect Example

Resource/ Program	Potential Impact	Impact Indicator	Data Needs	Methodology
<b>Cultural</b>	1) Physical disturbance to sites	1) Number of sites in disturbance footprint	1) Survey of sites in disturbance footprint	1) Pedestrian survey
<b>Wildlife</b>	1) Loss of habitat 2) Noise disturbance	1) Acres of habitat 2) Acres of habitat w/in noise buffer	1) Mapping of habitat 2) Info on noise thresholds for wildlife	1) GIS or habitat survey 2) GIS noise overlay on habitat
<b>Water</b>	1) Sedimentation impacts to water quality	1) Tons of sediment delivered to water body	1) Soil erodability, slope, vegetation cover, disturbance acreage	1) Revised Universal Soil Loss Model

## Exercise 2: Cause and Effect Analysis

### Bicknell's Thrush Habitat

**Proposed Action:**

Designate a Special Recreation Management Area for high density winter recreation as part of a programmatic land use plan. Part of the SRMA overlaps with the habitat for the Bicknell's Thrush, an endangered species.

**Assumption:**

High density winter recreation activities may adversely affect thrush habitat.

**Exercise Instructions**

1. Read the Proposed Action for the Bicknell's Thrush.
2. Fill in the boxes below.
3. Select the review button to compare answers.

**Review**

Note: Be sure to print your answers because you will be using them in Exercise 4B in Lesson 2

**Resource**

**Bicknell's Thrush Habitat**

Potential Impacts

Impact Indicators

Data Needs

Methodology

## Exercise 2: Review

### Potential Impacts

SRMA or Special Recreation Management Area designation for high density winter recreation would likely increase the level of recreation activities in the area, which has been documented to affect Bicknell's Thrush Habitat (XYZ Study, 2004).

### Impact Indicators

Acres of Bicknell's Thrush habitat within the SRMA boundary.

### Data Needs

Total acres of Bicknell's Thrush, SRMA boundary, types of winter recreation activities (to assess relative impact on habitat)

### Methodology

Overlay the SRMA boundary with the Bicknell's Thrush habitat using existing GIS layers. Calculate the acres overlap. Compare the numbers of acres overlap with total acreage of Thrush habitat (to provide context of impact). If possible, extrapolate the number of individuals or nesting pairs that would be affected based on the number of acres affected.

## Summary

- Potential effects and causes
- Resource indicators
- Potential data needs
- Methodology

The CEQ Regulations for Implementing NEPA remind us that NEPA documents must *concentrate on the issues that are truly significant to the action* in question, rather than amassing needless details (40 CFR 1500-1 (b)). When conducting your own cause and effect analysis, be sure to focus your analysis by concentrating on the issues.