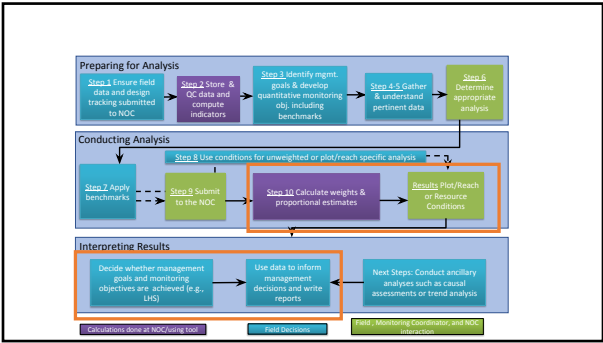


Objectives

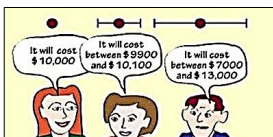
- Define confidence intervals
- Describe relevance of confidence intervals to management
- Discuss how to use and interpret confidence intervals in figures

BLM - AWM



What are confidence intervals?

• The range of values that we are confident, to a certain degree of probability, contains the indicator value of interest



Example of a Confidence Interval

With 80% degree of confidence, 75% ($\pm 12\%$) of the landscape is meeting the sagebrush cover objective.

DEGREE OF PROBABILITY

CONFIDENCE INTERVAL

Bringing confidence intervals to a decision

- Define decision space
- When to have confidence in decision vs. when to exercise caution
 - Is more data realistic?
 - Do you need multiple lines of evidence?
- How much caution?



Confidence Intervals In English....

To calculate the confidence interval you need:

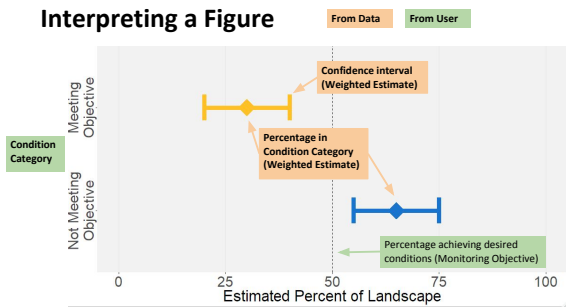
- 1) Indicator estimate
- 2) Sample size
- 3) Degree of probability
- 4) The standard deviation of the data used to calculate your indicator estimate

Confidence Intervals In English....

To calculate the confidence interval you need:

- 1) **Indicator estimate**
Closer to 50%→Larger CI
- 2) **Sample size**
Fewer points→ Larger CI
- 3) **Degree of probability**
Management decision
- 4) **The standard deviation of the data used to calculate your indicator estimate**
Calculated from data
Larger standard deviation→Larger CI

Interpreting a Figure



Interpreting a Confidence Interval

1. As a group, write a definition of a confidence interval
2. Based on the figure, what is the monitoring objective?
3. What conclusion would you draw from this figure?
4. Is your monitoring objective met?

Figure 1

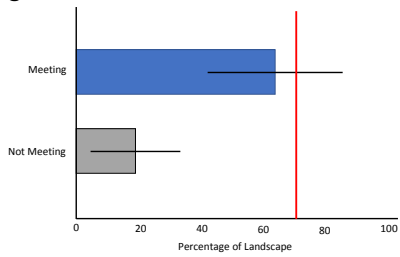


Figure 2

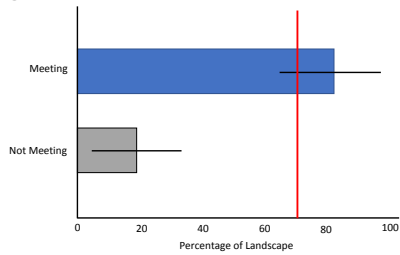


Figure 3

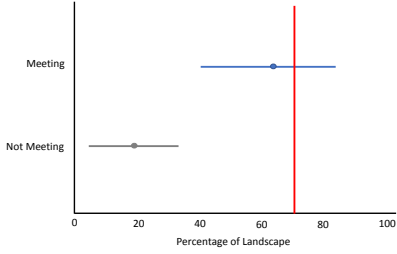
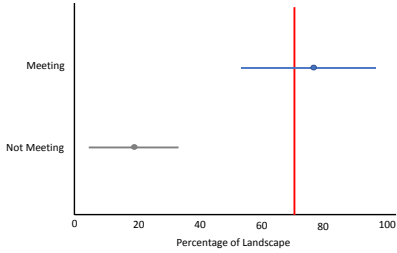


Figure 4



What do confidence intervals mean for management?

- Provides plausible estimate of the range of quantitative uncertainty
- Tells us about the certainty of the estimate
 - Wider CI—relative uncertainty
 - Narrow CI—relative certainty
- Helps us understand chances of a false positive or false negative
 - Too low (lower degree of probability, narrow CI) = potential false alarms
 - Too high (higher degree of probability, wide CI) = potential to miss change/effect

