

# Chapter 1: Management, Research and Experimental Design

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## Introduction

### What is wildlife science and management?

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### Seeking truth

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### Uncertainty

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### Environmental variation

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### Linguistic uncertainty

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**Partial observability**

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**Partial controllability**

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**Structural uncertainty**

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## **Opening the Gates of Management and Science**

**Openness to diversity of knowledge**

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**Open engagement of social actors**

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**Open data**

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**Open source software**

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**Open hardware**

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**Open evaluation**

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**Open science infrastructures**

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**Open educational resources**

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## **Basics of Management/Decision Science**

**Value of Information**

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**Evidence**

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**PrOACT**

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**Management Strategy Evaluation**

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**Adaptive Resource Management**

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## **Causation and Inference**

**Asking the right questions in the right way**

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**Estimation questions**

**Hypothesis driven research**

**Exploratory research**

**Causation and correlation**

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**Sufficient causation**

**Necessary causation**

**Manipulative Experiments**

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**Observational Studies**

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**Directed Acyclic Graphs (DAGs)**

**Confounding variables**

**Mediator and moderating variables**

## **Basics of Robust Experimental Design**

**Repetition**

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**Replication**

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**Randomization**

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**Controls**

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**Blocking**

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**Response variables (i.e., performance measures in a decision context)**

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## **Basics of Sampling**

**Probability vs. Non-probability sampling**

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**Defining the population, sampling frame, sampling unit, etc.**

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**Simple random sampling**

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**Stratified random sampling**

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**Systematic sampling**

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## **The Publication and Peer Review Process**

**Determining coauthorship**

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**Choosing the best outlet**

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**Who should review your manuscript?**

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**How to constructively provide feedback as a reviewer?**

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**Responding to reviews**

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**Marketing your manuscript after acceptance**

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# References

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