Skill Check Week 4: Alternatives & Consequences Step of PrOACT
Course: NAT_R 8001 Decision Analysis for Research and Management of Natural Resources
Instructor: Brielle Thompson

Instructions:
Consider the following decision problem:

- **Decision maker**: Refuge manager who is also interested in stakeholder's perspectives & appeasing the royal crown
- **Trigger**: Eagle population is nearly extinct in Genovia
- **Actions**: Reintroduction and habitat management
- **Constraints**: Budget
- **Consideration**: Nearby sport anglers (whose license sales fund conservation) like to fish on eagle prey
- **Frequency and Timing**: One time decision
- **Scope**: In two potential refuges in the kingdom (Refuge A or B)
- **Problem class**: Multiple objective with uncertainty

Your fundamental objectives are:

- Maximize eagle persistence
- Minimize cost
- Maximize angler satisfaction

Using this information you will complete the following tasks:

<u>TASK 1:</u>
Create alternatives for this decision problem using the following tables. Table 1 = helps you brainstorm a 'menu' of potential management actions, grouped by thematic category
Table 2 = helps you create the complete strategy table (create 4 strategies)

Table 1. Brainstorming a menu of management actions

Themes:	*Reintroduction*			
	Status Quo (No reintroduction)			
	Reintroduce 20 birds in Refuge A			
	Reintroduce 20 birds in Refuge B			
	Reintroduce 10 in Refuge A & 10 in B			

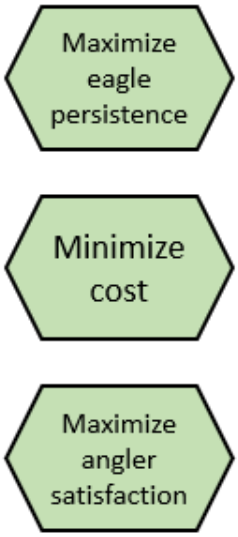
Table 2. Create strategy table

Themes→ ↓ Strategies	Reintroduction			

TASK 2:

Create an influence diagram for this management problem

- Actions (rectangles)
- Stochastic factors (ovals)
- Intermediate factors (rounded rectangles)
- Objectives (hexagons)



TASK 3:

A. Fill in the consequence table and score each outcome of each objective on a simple numeric scale by evaluating the likely outcomes (it's okay to make up these numbers)

		Alternative Strategies			
Objective	**Measurable attribute**	**Strategy 1:**	**Strategy 2:**	**Strategy 3:**	**Strategy 4:**
Maximize eagle persistence	# of eagles after 1 year				
Minimize cost	$				
Maximize angler satisfaction	Constructed scale				

B. What type of models would you use to calculate each of the objectives. Is there another objective that comes to mind for this problem? How would you calculate that one?