

Your team has clarified your Problem Statement for recovering PPAZ:

“The USFWS, in coordination with state and private landholders, will determine actions to recover the 3 Emerald Forest populations of PPAZ over the next 10 to 20 years. Actions will address limiting factors due to predation, habitat loss, and low recruitment. Key uncertainties associated with population growth and effectiveness of recovery actions will be considered. Reduced budgets constrain direct agency funding of recovery actions and highlight the need for partnerships and consideration of partners’ mandates.”

You have been assigned to lead the team (congratulations!) that will identify recovery strategies. You must sort out the concerns and ideas that your team has identified and use them to articulate and organize your team’s Objectives.

Please refer back to the background information on the pinky-purple azax (PPAZ) for additional information.

Instructions:

1. Categorize the concerns and re-word them where needed:
 - For each of the concerns listed on page 2, identify whether it is a fundamental (ends) or means objective, a strategic objective, or a process objective.
 - Identify whether it is an objective that could be expressed as a constraint.
 - Re-express (re-word) the concern if needed for clarity or to separate statements that contain more than one objective
 - Remove any item that is not relevant to this decision.
2. Once you have identified fundamental objectives, indicate their directionality (i.e., minimize or maximize).
3. Draw an objectives hierarchy.
4. Determine a metric you could use to measure success for each fundamental objective (e.g., cost in \$).

Relevant needs expressed by the stakeholders are described in the table below:

Stakeholders	Needs
Timber industry	Needs timber harvest opportunities and is concerned that species recovery will drive them out of business locally.
State agency	Is directed to provide harvest opportunities for SKAT, recover PPAZ to resume harvest of PPAZ, and provide multiple uses of state-owned lands.
Federal agency	Is directed to recover PPAZ.
Local public	Want: access to public lands for recreation (including hunting); to maintain traditional land uses; and for public resources to be used wisely and efficiently.

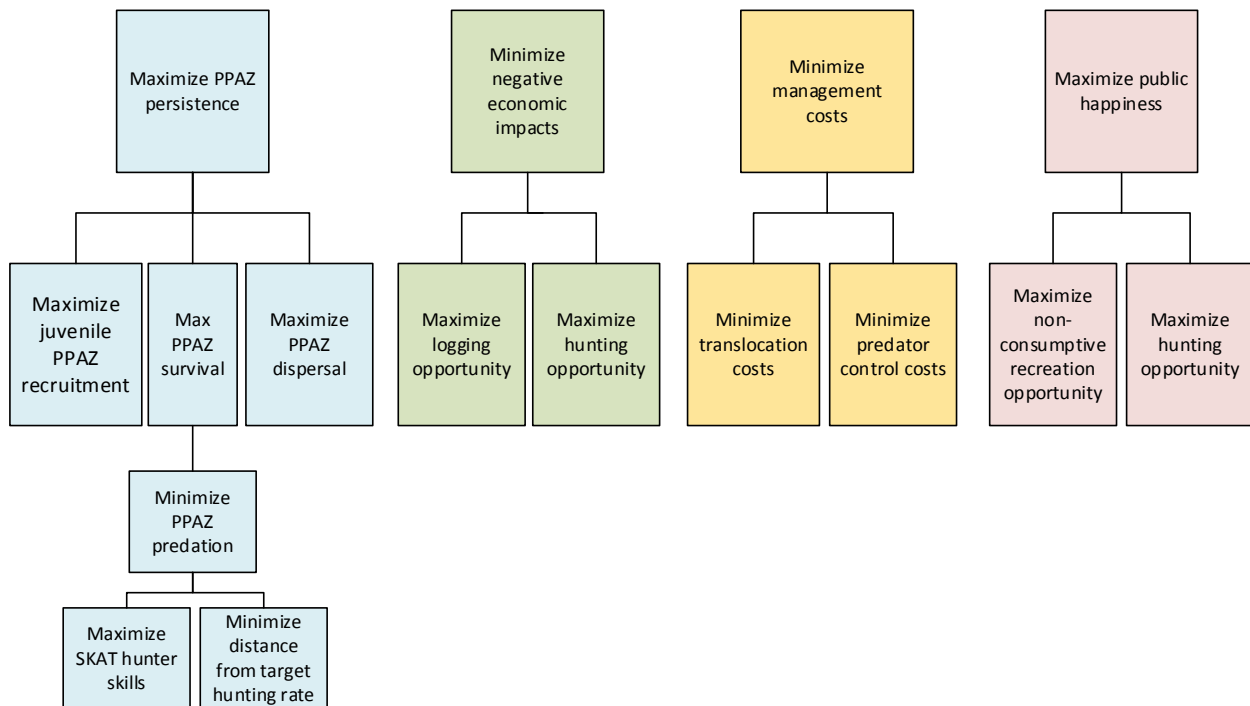
List of Concerns: Example Solution

- Ensure PPAZ persistence -> *Maximize P(PPAZ persistence) - Fundamental*
- Conduct predator control -> *Minimize predation - Means*
- Maintain ecosystem function with-in available budget -> *Maximize ecosystem function – Strategic; Minimize management costs - Fundamental*
- Encourage recruitment of juvenile PPAZ-> *Maximize juvenile PPAZ recruitment - Means*
- Limit impacts to local economy -> *Minimize negative impacts to local economy - Fundamental*
- Create SKAT hunter training program -> *Action; maximize hunter skill - Means*
- Maintain rural character through wilderness economic activity -> *Maximize economic activity in the community - Strategic*
- Limit cost of predation control -> *Minimize predation control cost – Means; could also be expressed as a constraint by setting a limit on costs*
- Transparency in decision process -> *Maximize transparency - Process*
- Consider translocation cost -> *Minimize translocation costs – Means; could also be expressed as a constraint by setting a limit on costs*
- Allow hunting opportunity -> *Maximize hunting opportunities - Means*
- Limit management cost -> *Minimize management cost – Fundamental; could also be expressed as a constraint by setting a limit on costs*
- Allow logging opportunities -> *Maximize logging – Means*
- Cooperate with partners -> *Action; Maximize partner inclusion - Process*
- Increase survival of PPAZ -> *Maximize PPAZ survival - Means*
- Meet regularly with USFWS director -> *Action; Maximize coordination with USFWS director - Process*
- Board feet of harvested timber -> *Metric; Maximize logging - Means*
- Retain revenue from leased hunting lands -> *Maximize hunting leases - Means*
- Improve dispersal of PPAZ -> *Maximize PPAZ dispersal - Means*
- Establish reintroduction program -> *Action; Maximize PPAZ dispersal - Means*
- Satisfy the USFWS director -> *Strategic/Process*
- Achieve target SKAT harvest rate -> *Means*

Example Hierarchy1

1. Maximize PPAZ persistence **Fundamental objective**
 - a. Maximize Juvenile PPAZ recruitment **Means objective**
 - b. Maximize PPAZ survival
 1. Minimize PPAZ Predation
 - i. Achieve SKAT hunting target
 - ii. Maximize SKAT hunter skills
 - c. Maximize PPAZ dispersal
2. Minimize negative impacts to economic opportunity
 - a. Maximize logging opportunity
 - b. Maximize hunting opportunity
3. Minimize management cost
 - a. Minimize predation control costs
 - b. Minimize translocation costs
4. Maximize public happiness
 - a. Maximize non-consumptive recreation opportunity
 - b. Maximize hunting opportunity

Example Hierarchy2



Metrics:

1. Maximize PPAZ persistence **Fundamental objective**
 - a. Probability of PPAZ persistence **metric**
2. Minimize negative impacts to economic opportunity - **Fundamental objective**
 - a. Maximize logging opportunity
 - i. Annual board feet harvest - **metric**
 - b. Maximize hunting opportunity
 - i. Annual hunting leases - **metric**
3. Minimize management cost - **Fundamental objective**
 - a. Annual management expenditures - **metric**
4. Maximize public happiness - **Fundamental objective**
 - a. Maximize non-consumptive recreation opportunity
 - i. Annual campsite usage - **metric**
 - b. Maximize hunting opportunity
 - i. % of hunting permit applications approved - **metric**