

# Recommended Process for Alternatives Development Farallon Islands Restoration Project – July 29, 2011

## Objectives

1. Identify a set of reasonable alternatives that meet the Purpose & Need for action based on input from internal/external scoping (*and in conformance with 40 CFR 1502.14 and 43 CFR 46.415*)
2. Systematically justify each alternative to be considered, according to a set of agreed-upon environmental and operational issues, and criteria/parameters for success
3. Systematically justify the dismissal of additional alternatives from further consideration
4. Set the groundwork for any future decisions with respect to alternatives to be considered
5. Fully document the alternatives development process and rationale using established methods

## Process Summary

### 1. Purpose and Need Statement

- A. The Purpose Statement serves to focus the scope of alternatives to be considered. The Purpose Statement has been defined by core project partners, with USFWS Refuge staff responsible for its approval
- B. Receive input on the justification for the Purpose and Need Statement from cooperating agencies. USFWS will consider whether to incorporate these into the selection process.

### 2. Identify the important General Environmental Issues on Farallones identified during Scoping

- A. Review Environmental Issues (*independent of operational tools*) from EIS scoping
- B. Synthesize results of recent EIS scoping with environmental issues identified and analyzed during previous EA development and scoping process
- C. Add suggestions for additional issues brought forward by cooperating agencies
- D. Identify the Environmental Issues that should “drive” the alternatives development; Record these as general column headings in matrix (eg. Physical, Biological – **Product 1**)

### 3. Identify a Complete List of Operational Tools

- A. Brainstorm all available or potentially available eradication tools, and record each tool as a row heading in the matrix (**Product 2**). *Tool examples include:*
  - Trapping
  - Disease
  - Sterilization
  - Predator introduction
  - Rodenticides – sub-elements including:
    - Rodenticide types available
    - Bait formulation (*inert ingredients, physical characteristics*)
    - Bait delivery methods (*aerial, hand broadcast, or bait station*)
  - Features common to all alternatives, (e.g. biosecurity –preventing introductions)
  - Incorporate comments & suggestions from recent EIS scoping process and from workshop participants into operational tool list

4. Identify the important general Operational Considerations for the project (Product 3) and record these considerations as column headings in the matrix (Product 4)

Operational Considerations may include:

- A. Efficacy (*of mouse eradication, risk reduction, etc.*)
- B. Availability/Demonstrated success of technique
- Regulatory Status (*Registered in US? For conservation use? Aerial use?*)
  - Criteria for considering unregistered compounds (*# of months/years FWS can afford to wait for additional research on a potentially promising product = ?*)
- C. Cost (*Reasonable to expect that funds are available/likely available to conduct*)
- D. Operational Safety
5. Identify specific environmental issues that may arise from each operational tool, and record these issues as column subheadings in the matrix under general topic - (Product 4)
- e.g. under General Environmental Issue of "Seabird breeding habitat", list the Specific Environmental Issue: "Trampling seabird burrows"
6. Analyze operational tools for effects on environmental and operational considerations, and record the analysis in matrix -Product 4 (*Decide on qualitative ranking system: low hi - + etc.*)

A. Environmental Issues:

- I. To what extent is the tool likely to lead to negative impacts?
- II. To what extent is the tool likely to reduce negative impacts relative to other tools and/or other project elements?
- III. Can these impacts be addressed through mitigation actions?  
(*If so, record these mitigations as additional "operational tools" in the matrix*)

B. Critical Operational Issues:

- I. Efficacy
- II. Availability of technique
- III. Cost
- IV. Safety
- V. *Other issues identified*

C. Review/discuss necessary parameters for operational tools to warrant consideration

- I. Meets the Purpose & Need
  - II. Meets Criteria for Eradication Success
    - a. Reasonably high likelihood for 100% removal of all mice
    - b. Are acceptable risks to rare species and ecological community
    - c. Can be implemented within next 1-2 years with likely available funds
    - d. Long-term benefits of project outweigh any short-term impacts
- **NOTE:** The analysis process above should be iterative, *i.e.* the basic parameters for full consideration of the operational tools should arise from discussion of each operational tool in turn, but even early discussion of each operational tool will likely include initial assumptions about the basic parameters. Regardless of the order, it is important that operational tools *not* be dismissed until the basic parameters have been agreed upon.

7. **First-pass Dismissal of Operational Tools that don't meet Alternative Parameter Requirements**
  - A. Determine if the tool meets the **Purpose & Need** of the proposed action and addresses one or more significant issues?
  - B. Determine if the tool meets all of the **Criteria for Eradication Success**
  - C. **Assign relative importance** of operational tool to determine if alternative is reasonable
  - D. **Dismiss operational tools** that do not meet the necessary parameters for alternatives to be considered, and record these decisions in the matrix (**Product 5**)
  
8. **Create & Record Remaining Alternatives**
  - A. **Create a full list of all reasonable permutations of the remaining operational tools**
    - Include mitigation actions identified for specific tools where appropriate
  - B. **Identify Environmental & Operational "trade-offs" for each alternative**
  - C. **Choose a reasonable subset of alternatives that *best addresses* these trade-offs**
    - Alternatives should have easily identifiable differences
    - Where trade-offs occur (*e.g. a higher likelihood of success, but also a higher risk of non-target impacts*), alternatives should explore ways to approach trade-off
  - D. **Create a matrix, based on the matrix of operational tools, that illustrates the effects of each alternative on the environmental and operational considerations (Product #6)**
  
9. **USFWS reviews products of Alternatives Development Process, and makes decision on the set of action alternatives (#?) to be considered and developed in the Draft EIS**

## Products:

1. A. **List of important General *and* Tool-specific Environmental Issues**  
B. **List of identified "Driving Environmental Issues"**
  
2. **List of all known Operational Tools for meeting the Purpose & Need**
  
3. **List of Important Operational Considerations in Matrices showing:**
  - a. Possible impact of each Operational Tool on driving Environmental Issues
  - b. Impact of each Operational Tool with respect to Operational Considerations
  
4. **List of all realistic permutations of project elements into full alternatives**
  
5. **Working list of Alternatives that best address the trade-offs identified**
  
6. **Matrix showing:**
  - a. Possible impact of each alternative on driving environmental issues (*trade-offs*)
  - b. Impact of each alternative with respect to operational considerations (*trade-offs*)

## Alternative Development Selection Products: Example Lists and Matrices

### **(Product 1) - Draft List of General Environmental Issues on the Farallones**

(\* Issues in **bold**: Suggestions for “driving” issues)

#### Physical Resources

- Water
- Soil
- **Wilderness**

#### Biological Resources

- **Seabirds**
- Shorebirds
- Raptors
- Migratory birds
- Salamanders
- Vegetation
- **Invertebrates**
- **Marine mammals**
- Other marine organisms
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#### Social Issues

- Historical resources
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### **Draft List of Operational Issues (Product 2)**

- Efficacy of eradication tool
- Regulatory status of tool
- Personnel safety
- Cost
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## **Example List of Specific Environmental Issues for Operational Alternatives** **(Product 4)**

### **Physical issues**

- Risk of water contamination
- Risks to “wilderness character”
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### **Biological issues**

- Non-target Risks from toxicants
- Risks from helicopter or human disturbance
- Risks from habitat alteration/destruction due to personnel activities
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## **Principles of Rodenticide Eradications for Mice (BMPs)**

- Use a bait product that mice find palatable, and which is toxic to mice
- Deliver the bait into every POTENTIAL mouse territory (aerial, bait stations, hand broadcast)
- Deliver enough bait for a period sufficient to ensure all mice will have access to a lethal dose
- Minimize disturbance by conducting with least impactful methods at time when least # of birds/MM present
- Minimize the risk of non-target take and bait drift into the marine environment

**Next page: SAMPLE MATRIX for ALTERNATIVE DESIGN - DRAFT – IN PROGRESS (Products 3 & 4 & 5)**



**Rodenticide Efficacy on Mice, Registration Status and Non-target Risks (In Development)**

Type of Rodenticide	Rodenticide	Efficacy on Mice	Reasons for Efficacy	EPA Registered	Risk of Non-Target Hazard (HAZARD = Toxicity + Exposure)				
					Human Safety	Birds	Marine Mammals	Inverts	Herps
Acute	Zinc phosphide	Low	Low acceptance/rejected	No					
	Bromethalin	Low	Low acceptance/rejected	No					
Sub-acute	Cholecalciferol	Low	Moderate acceptance/rejected	No					
	Warfarin	Moderate	Multi-Feed	No					
First Generation Anticoagulants	Diphacinone	Low-Mod	Multi-Feed	Yes					
	Chlorophacinone	Moderate	Multi-Feed	No					
Second Generation Anticoagulants	Brodifacoum	High	Single-Feed	Yes					
	Bromadiolone	High	Single-Feed	No					
	Difethialone	High	Single-Feed	No					



**SAMPLE SCORED MATRIX for PALMYRA ERADICATION PROCESS – Example for a Product 6**

	Priority: High*				Priority: Medium			Unweighted		Weighted*	
	Shorebirds	Plant invasion	UXO	Sooty terns	Env. contamination	WWII artifacts	Total "+"	Total "-"	Total "+"	Total "-"	
Aerial + diphacinone	+	++	++	-	+	++	8	1	13	1	
Aerial + brodifacoum + captive holding	+	++	++	-	--	++	7	3	12	3	
Aerial + brodifacoum	--	++	++	-	--	++	6	5	10	7	
Bait stations + diphacinone	++	--	--	--	++	--	4	8	4	8	
Bait stations + brodifacoum	+	--	--	--	++	--	3	8	4	12	

\*High-priority issues double-weighted

