**DESECHEO OPERATIONAL PLAN**

**Desecheo Island National Wildlife Refuge:** *Rat Eradication to Promote Ecosystem Restoration*

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THIS DOCUMENT IS A WORKING DOCUMENT, IN DRAFT FORM. IT IS SUBJECT TO CHANGE AND WILLBE UPDATED AS PLANNING PROGRESSES AND MORE INFORMATION BECOMES AVAILABLE. UPDATED VERSIONS MAY BE POSTED ONLINE TO REPLACE EARLIER VERSIONS. THE DOCUMENT IS PROVIDED FOR PUBLIC INFORMATION PURPOSES ONLY.

# INTRODUCTION

## Purpose of the Operational Plan

The purpose of this Operational Plan is to describe in detail the actions necessary to implement a rat eradication on Desecheo NWR. This plan functions through the use of focused appendices which have been designed to function as stand-alone references for staff working on that aspect of the project. The primary role or this document is to provide a brief outline of each project component and direct practitioners to the relevant appendices.

The audience for the plan includes all operational and planning personnel at the U.S. Fish and Wildlife Service, specifically personnel based at Cabo Rojo NWR, Island Conservation and U.S. Department of Agriculture.

## Appendix List

Technical details for the operation are presented as Appendices as follows:

[**APPENDIX A:** Bait Order Process](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20A_Bait%20Order%20Process.docx)

Contains bait details including transport

[**APPENDIX B:** Bait Application Strategy](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20B_Bait%20Application%20Strategy.docx)

How the bait will be applied on the island

[**APPENDIX C:** Bait tracking worksheet](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20C_Bait%20tracking%20worksheet.docx)

For use on the baiting days to monitor bait usage and bait rates

[**APPENDIX D:** Broadcast bait application form](Appendix%20D_Broadcast%20Bait%20application%20form.docx)

Records total amount of bait applied and area treated for each day.

[**APPENDIX E:** Deviation from operational plan form](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20E_Deviation%20from%20Operational%20Plan%20form.pdf)

Required to be completed in the event that any changes from this plan are proposed /made.

[**APPENDIX F:** Desecheo Helicopter Strategy](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20F_Desecheo%20Helicopter%20Strategy.docx)

Details about each staging site and the strategy for conducting external load operations

[**APPENDIX G:** Desecheo Operational Communications Plan](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20G_Desecheo%20Comms%20Plan.docx)

Operational communications – on island and between the island and the mainland for both the4 staging and baiting phases.

[**APPENDIX H:** External Load Operational position descriptions and responsibilities](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20H_External%20Load%20Operational%20roles%20and%20responsibilities.docx)

Personnel roles and responsibilities during the staging operation

[**APPENDIX I:** Bait Application Operational position descriptions and responsibilities](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20I_Bait%20Application%20Operational%20roles%20and%20responsibilities.docx)

Personnel roles and responsibilities during the baiting operations

[**APPENDIX J:** Protocols for monitoring operational efficacy and bait in the environment](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20J_Efficacy%20Nontarget%20Monitoring%20Protocols.docx)

Plan for monitoring operational efficacy and environmental responses to bait application.

[**APPENDIX K:** Helicopter Bait Application Logistics](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20K_%20Helicopter%20Bait%20Application%20Logistics%20Plan.docx)

Loading bait into the bucket

[**APPENDIX L:** Helicopter Safety](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20L_Helicopter%20Safety.docx)

Operating around helicopters

[**APPENDIX M:** Injured persons action plan: on-island](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20M_On-island%20Injured%20Persons%20Action%20Plan_Desecheo.docx)

Managing any injured staff on island

[**APPENDIX N:** Injured persons action plan: off-island](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20N_Off-island%20Injured%20Persons%20Action%20Plan.docx)

Managing any injured staff off-island

[**APPENDIX O:** Desecheoemergency contacts](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20O_Desecheo%20Emergency%20Contacts.docx)

Emergency contacts for all phases of the operation.

[**APPENDIX P:** Action plans and communications for an emergency incident](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20P_IncidentActionPlans-Comms.docx)

Action plan, roles and responsibilities, and communications strategy in the event a significant emergency incident occurs.

[**APPENDIX Q:** Desecheo communications strategy](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20Q_External%20Communications%20Strategy.docx)

Strategy for external project communications.

[**APPENDIX R:** Desecheo NWR Biosecurity Plan](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20R_Desecheo%20NWR%20Biosecurity%20Plan.docx)

Long term biosecurity management plan for Desecheo including protocols for island visitors and overnight stays.

[**APPENDIX S:** Bait Spill Protocols](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20S_Bait%20Spill%20Protocols.docx)

How to manage any spillage of baits.

[**APPENDIX T**: Fuel Spill Protocols](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20T_Fuel%20Spill%20Protocols.docx)

How to manage fuel spills

[**APPENDIX U:** Monitoring Environmental Conditions](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20U_Monitoring%20Environmental%20Conditions.docx)

How conditions on island will be monitored to feed into the final go/no go decision.

[**APPENDIX V:** Desecheo Safety Plan](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20V_%20Desecheo%20Safety%20Plan.docx)

Health and safety concerns, emergency response, and pro-active risk reduction during baiting operations and the field monitoring program

[**APPENDIX W:** Bucket Calibration Standard Operation Procedures](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20W_%20Bucket%20Calibration%20SOP.docx)

How the buckets will be calibrated prior to the operation.

# GENERAL OVERVIEW: OPERATION DETAILS

## External Load Operations

* Bait and equipment will be staged at one of three potential staging sites in north-west Puerto Rico, with the PREPA Power Plant as the preferred site.
* Bait and equipment necessary for each application will be flown as external loads from the staging site to Desecheo.
* Staging of monitoring and camp equipment, bait pods and baiting equipment should take no more than 4 days per application.

## Eradication Operations

* Aerial baiting operations will be carried out from Desecheo.
* Operations will occur in the optimum biological window: March 15 and April 8 2016.
* Two aerial bait applications will be applied to Desecheo, with a desired minimum of 24 days between each application.
* The maximum amount of bait to be applied to Desecheo will not exceed 10,888 kgs (~24,004lbs) split between the 2 drops.
* Each application should require no more than one day estimated at approximately 4 hours flying per drop.
* Bait will be applied in 50% overlapping swaths, and with a deflector used along the coastline.
* Bait will be applied by narrow swath bucket on all offshore islets.
* An anticipated 20 personnel will be based on Desecheo one day prior to and during each of the baiting operation.
* The Bait Loading Site Team will camp on-island during external load operations.
* The Monitoring Team will camp on-island for approximately one week prior to and one week after each bait application.
* Transport to the island will be by helicopter (Air Operations personnel) and boat (Monitoring and Law Enforcement personnel)

# OPERATIONAL PREPARATION

## Permits and other legal authorizations

The following permits, and their status, are required for the operations to proceed.

**Table 1.** The status of legal permits required to complete operations

|  |  |  |  |
| --- | --- | --- | --- |
| **Permit type** | **Purpose** | **Issuing agency** | **Date issued** |
| Finding of No Significant Impact (FONSI) | NEPA compliance | FWS (Atlanta) | 3/1/2016 |
| ESA Sec. 7 consultation (informal) | Higo chumbo cactus, Brown Pelican, Green sea turtle, Hawksbill turtle | FWS (Atlanta ES) | 10/22/2015 |
| CZMA: consistency determination | Coastal zone actions | PR Planning Board | 3/8/2016 |
| NHPA Sec. 106 consultation | Historical resources | FWS/SHPO | 3/17/2010 |
| MBTA Special Purposes Permit | Protection of migratory birds | FWS (Atlanta) | 2/12/2016 |
| NPDES | water quality | EPA | not needed |
| Pesticide Use Permit | Approval of pesticide use | FWS (Atlanta) | 2/25/2016 |
| FAA | helicopter modifications | FAA | with vendor contract |
| FAA - Part 137 | Agricultural aircraft operator certificate | FAA |
| FAA - Part 135 | Aircraft carrier certificate | FAA |
| FAA - Part 133 | External load certificate | FAA |
| Captain's license | Carry paying passengers | US Coastguard | with vendor contract |
| CFR 46 10.426 | Carry paying passengers <100 miles offshore | US Coastguard |
| UXO awareness certification | All personnel on Desecheo | FWS requirement | 3/5/2016 |
| Pesticide registration | PR registration of Brodifacoum-25D | PR Dept of Agriculture | 2/22/2016 |
| Supplemental Label | To apply bait | EPA | 11/24/2015 |
| Pesticide Applicator (basic commercial & forest application) | Supervisors & pilots applying pesticide in PR | PR Dept of Agriculture | 3/1/2016 |
| Scientific Investigation permit | Reptile residue sampling | PR-DNER | 3/1/2016 |
| O-1 Visa | Visa for Baiting Pilot | US Customs | 2/23/2016 |

## Operational Contracts

**Table 2.** Operational contractors

|  |  |  |
| --- | --- | --- |
| **Vendor** | **Role** | **Contract/Agreement Date** |
| Pathfinder Aviation | Helicopter contract | 2/25/2016 |
| Peter Garden | Primary Baiting Pilot | 12/15/2015 |
| Peter McNeil | Backup Pilot | 1/29/2016 |
| PetroWest | Helicopter Fuel | 1/2016 |
| COPECA | Hanger and Jet Center | 2/25/2016 |
| Tourmarine | Boat contract | Completed |
| Terassa Trucking | Trucking Company | 1/2016 |
| DNER | Law Enforcement | 1/2016 |
| USDA | Monitoring | 3/2016 |
| Island Conservation | Operational Planning | 12/2015 - 12/2017 |
| Island Conservation | Temporary hires (6) | 3/2016 |
| PREPA | Rincon primary staging site use | 2/29/2016 |
| Aguadilla Airport | Backup staging site use and calibration site | 2/25/2016 |
| Remote Medical International | Remote medical support | completed |

## Supply and Equipment Logistics

Most non-specialist equipment and supplies can be purchased within Puerto Rico. Existing supplies used for field work on Desecheo are stored in a container on the Cabo Rojo NWR. Specialist supplies purchased online will be shipped directly by the vendor to Cabo Rojo NWR. Specialist supplies not available online, and equipment and supplies already owned by Island Conservation will be shipped by IC staff to Cabo Rojo NWR and stored in the container.

Some materials are subject to Excise Taxes on importation to Puerto Rico. Island Conservation will manage imports and appropriate documentation and payments through a freight-forwarding vendor or by engaging a Customs and Excise Agent in San Juan, PR.

### Storage of Equipment and Supplies

#### Bait Ordering

The bait product selected for this operation is Brodifacoum-25D Conservation (EPA registration number 56228-37; Puerto Rico Depart. of Agriculture registration number 11-1320-3) manufactured by Bell Labs Inc., Madison, Wisconsin; this product is specifically manufactured for use in dry environments. The active ingredient, brodifacoum, is presented at 25 ppm (0.0025%) in a 2.0g pellet with an inert grain matrix; the pellets are colored green. The details of the bait ordering process and manufacturing are described in [**Appendix A: Bait Order Process**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20A_Bait%20Order%20Process.docx).

#### Bait Biosecurity

The following measures have been taken to minimize the biosecurity risk of insects reaching the bait pellets: Each bait container has sticky insect traps in the corners of the container; Each plastic tote contains a sticky insect trap inside on top of the bait which is in a sealed plastic bag; All lids are banded to create a near air-tight seal; Each pod is wrapped entirely in plastic to prevent insects from getting inside.

#### Bait storage: Port

Upon arrival in Puerto Rico the bait container will be picked up by the contract trucking company and stored at their facilities until it has cleared the Puerto Rico Department of Agriculture inspection and is ready to be transported to the staging site. This holding facility will be inspected prior to the bait storage’s arrival, to ensure that there are no biosecurity risks. Biosecurity risks will be managed with commercially available products (ie. insect sprays or bait surrounding the containers), if required. Care will be taken to ensure that the bait is not contaminated by any chemical.

#### Bait storage: Staging Site

The two freight/bait containers will be parked on-site at the staging site. All containers will be locked and remain behind a locked gate to ensure security of equipment. 24 hr security will be provided while the containers are stored at the staging site. All staging sites are located on concrete pads and distanced from vegetation. Storage sites will be inspected weekly to check for insect activity surrounding the bait container. Insect sprays will be available to manage identified biosecurity risks surrounding the containers. Care will be taken to ensure that the bait is not contaminated by any chemical.

### Transfer of Equipment and Supplies

#### Bait freight container

A local contract company has been hired to transfer the two freight containers (containing bait and spreader buckets) from Port to the staging site, where it will be stored for the duration of the bait operations.

#### Other supplies

General supplies are stored in the storage container at Cabo Rojo NWR. The container will be used to assist in maintaining biosecurity of equipment going to the field. The container will be fumigated using products registered for use on FWS refuges 48 hours prior to gear being transported to Desecheo.

## Personnel travel to/from and within Puerto Rico

Personnel not already in Puerto Rico will arrive at the Luis Muñoz International Airport in San Juan, PR, and travel directly to Rincon. For personnel already familiar with Puerto Rico, travel can be by rental car; otherwise personnel will be collected from the airport and transferred to Rincon.

Personnel will use rental cars to travel between locations (Cabo Rojo, Aquadilla, hotel/rental house) for preparation, operations and in between operations; for some purposes Federal vehicles may also be available.

## Accommodations

Most non-Federal operational personnel will stay in a house and an apartment near Aguadilla, rented for the whole of March and April 2015. For additional short-term, non-essential, VIP personnel, or Federal personnel, local hotels and guesthouses will be used.

## Timeline of events

**Figure 1**. Timeline of key events associated with the operation. (X = Activity, C = Contingency Time)





# PROJECT MANAGEMENT

## Planning Organization

Planning for the Desecheo project has been and is being carried out under the direction of the Steering Committee (**Error! Reference source not found.**) and the Project Management Team (**Error! Reference source not found.**).

The Steering Committees primary functions have been to: make strategic decisions that ensure the Project Management Team are able to accomplish the project’s objectives, monitor and review the status of the project, and provide oversight on project scheduling and funding.

The Project Management Team’s primary function has been to establish and review progress against a project timeline, provide technical advice to the project leads, and allocate project resources. The Project Management team has used SmartSheet, an online tool, to organize and track project tasks to ensure that team members remain accountable for tasks and responsibilities.

The Steering Committee will meet at least once per week starting one month prior to implementation. As chair of the Steering Committee, Gregg Howald is responsible for organizing and facilitating these weekly meetings.

The Project Management Team will meet at least once per week one month prior to implementation. As chair of the Project Management Team, David Will is responsible for organizing and facilitating these weekly meetings.

**Table 3.** Desecheo Steering Committee Members

|  |  |
| --- | --- |
| *Member* | *Organization* |
| Susan Silander | USFWS |
| Ana Roman | USFWS |
| Gregg Howald (Chair) | Island Conservation |
| Brad Keitt | Island Conservation |
| David Will | Island Conservation |
| Kirsty Swinnerton | Island Conservation |
| Aaron Shiels | USDA |

**Table 4.** Project Management Team

|  |  |  |
| --- | --- | --- |
| *Member* | *Organization* | *Responsibility* |
| David Will (Chair) | Island Conservation | Co-Project Lead |
| Kirsty Swinnerton | Island Conservation | Co-Project Lead and Operational Biosecurity |
| Alexandra Galindo | USFWS | Compliance and Ongoing Biosecurity |
| Tommy Hall | Island Conservation | Helicopter Operations |
| Jose Luis Herrera | Island Conservation | Staging Site Logistics |
| Cielo Figuerola | Island Conservation | Monitoring and Camp Logistics |
| Richard Griffiths | Island Conservation | Operational Advisor |

## Go/No-Go Decision

Prior to the implementation the project planning steering committee will evaluate whether proceeding with bait application is appropriate. The ultimate decision to go/no-go will be made by the U.S. Fish and Wildlife Service, however each partner reserves the right to not proceed with the bait application if they have principled objections to the decision. Evaluations will be based on the risks associated with the key factors to the project.

The Steering Committee will meet one day prior to the start of staging bait and supplies to Desecheo to review risks factors and confirm if the project should proceed with the external load operations. The Steering Committee will also meet one day prior to the bait application date to review risks factors and confirm if the project should proceed with bait application.

At these two meetings the Steering Committee Chair will ask for a review of risks facing the project and a go/no-go recommendation from the Project Management Team. Steering Committee members will each be provided the opportunity to ask questions of the Project Management Team or identify additional risks. Each Steering Committee member will be asked if they have any objections to the recommendation from the Project Management Team. If none are tabled the Project Management Team will continue with the recommended course of action. If objections are tabled the Steering Committee Chair will facilitate a discussion to resolve raised concerns.

### Risk Factor Status Report

The status of each factor will be recorded weekly prior to the first bait application (**Error! Reference source not found.**). The Steering Committee will use this status update to discuss the impacts of risks associated with key factors to project implementation and efficacy. Factors and criteria used to record the risks associated with project implementation are described below:

* Legal compliance and approvals
  + *criteria*: number of permits signed (value=% average; signed=100%, not signed=0)
* Contracts and formal agreements
  + *criteria*: number of contracts/ agreements signed (value=% average; signed=100%, not signed=0)
* Funding availability
  + *criteria:* budgets approved (value=% average; approved=100%, not approved=0)
* Planning readiness
  + *criteria:* Operational Plan finalized; readiness check completed; staff availability; partnerships; biosecurity in place (project sustainability) (value=% average)
* Environmental Conditions
  + *criteria*: rat breeding status; alternative rat food (sub-criteria: fruiting, flowering status; rainfall status (past and forecast); canopy cover) (value=% average)

**Figure 2.** Schedule to assess risk to implementing the project on current timeline based on the status of key factors. The level of risk will change over time and will inform a go/no-go decision.



[**Appendix U: Monitoring Environmental Conditions**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20U_Monitoring%20Environmental%20Conditions.docx)describes details for assessing environmental conditions using assessment periods to provide a cumulative picture of conditions on Desecheo and how they are changing. The final evaluation of environmental conditions will be made based on the information from the cumulative environmental condition assessments

## Operational Changes

Significant deviations from the Operational Plan or Bait Application Strategy will be recorded in [**Appendix E: Deviation from operational plan** **form**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20E_Deviation%20from%20Operational%20Plan%20form.pdf). This form will be filled out by the Operations Section Chief and approved by the Incident Commander.

# ORGANIZATIONAL STRUCTURE

## Operational Organization

Operations conducted on Desecheo will be managed under an Incident Command System (ICS) structure. In order to make the most effective use of ICS, the baiting operation will be considered an “*Incident Organization*”, and any emergency that might occur during the operation will be considered an “*emergency incident*”, or an “*incident within an incident*”. The ICS position descriptions, roles, and responsibilities are identified in:

* External Load Operations: [**Appendix H: External Load Operational position descriptions and responsibilities**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20H_External%20Load%20Operational%20roles%20and%20responsibilities.docx).
* Bait Application Operations: [**Appendix I: Bait Application** **Operational position descriptions and responsibilities**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20I_Bait%20Application%20Operational%20roles%20and%20responsibilities.docx)

The responsibilities described for each position are the primary responsibilities; additional activities may be assigned to any of the positions as needed. The ICS relies on good communications and information flow between all positions and people understanding their roles and responsibilities, therefore all personnel should familiarize themselves with these appendices.

## Role Activation in an Emergency Incident

In the event of a significant Emergency Incident, some roles within the ICS structure will be reassigned to activate new roles (largely roles which are not needed during normal baiting operations). **The *Incident Commander* is responsible for determining if a significant incident has occurred and activating Emergency Incident roles**. Roles will be activated depending on the incident complexity, experience, training and the judgement of the incident – not all roles may be activated in an incident and not all roles may be activated at the same time. Staff positions are activated only as needed; smaller incidents may not require activation. When an incident has been resolved, the Incident Commander consults with the Operations Advisory Group to reactive ICS roles and enable operations to proceed. For a full description of Emergency Incident roles and responsibilities, refer to [**Appendix P: Action Plans and Communications for an Emergency Incident**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20P_IncidentActionPlans-Comms.docx)**.**

## Operational Communications

Communication between project personnel will be structured to reduce the amount of traffic to any one individual. Without a clear communications plan that is strictly followed, communication channels can be easily overwhelmed or personnel may find it difficult to understand important information during operations-based communications. Information should move freely up and down the chain of command and across operational groups. These communications are outlined in [**Appendix G: Desecheo Operational Communications Plan**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20G_Desecheo%20Comms%20Plan.docx)and [**Appendix O: Desecheo emergency contacts**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20O_Desecheo%20Emergency%20Contacts.docx).

# EXTERNAL LOAD OPERATIONS

Monitoring and camp equipment, bait pods and baiting supplies will be transported from a staging site to Desecheo as external loads over a four day period prior to each bait application.

There are three potential staging sites: PREPA Power Plant, FURA Añasco, and Aguadilla Airport. The PREPA Power Plant site is the preferred operational site, however planning and permits are being completed for all three sites in the event that the preferred site becomes unavailable. Materials from the bait application will be demobilized from Desecheo back to the staging site.

The details about each staging site and the strategy for conducting external load operations is detailed in [**Appendix F: Desecheo Helicopter Strategy**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20F_Desecheo%20Helicopter%20Strategy.docx)**.**

## Personnel

Two separate teams will conduct the external load operations, the Staging Team based at the staging site on mainland Puerto Rico and the Bait Loading Site Team based on Desecheo. Their roles and responsibilities are described in: [**Appendix H: External Load Operational position descriptions and responsibilities**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20H_External%20Load%20Operational%20roles%20and%20responsibilities.docx).

The Bait Loading Site Team will be transported by helicopter at the beginning of external load operations and remain on island until aerial operations associated with each bait application are completed.

The Staging Team, including the Helicopter Pilot and the Helicopter Engineer, will be based on mainland Puerto Rico during the external load operations.

### External Load Procedures

Each site will have a Site Controller that has direct communication with the helicopter and oversees the external load operations at that site. The Site Controller will direct the Loading Specialists in preparing and receiving the external loads as described in [**Appendix F: Desecheo Helicopter Strategy**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20F_Desecheo%20Helicopter%20Strategy.docx). Operations will be coordinated by the Operations Section Chief, the two site controllers report to the Operations Section Chief.

# BAITING OPERATIONS

## Pre-operations Tests

### Systems check

Two TracMap units will be fitted and tested on the helicopter at the vendor’s Place of Hire (Louisiana) by the vendor’s mechanic. Once the helicopter is in Puerto Rico, the vendor and Island Conservation personnel will conduct a systems check with the two spreader buckets to ensure that all electrics and mechanical parts are operating and functioning properly.

### Aerial broadcast spreader bucket calibration

Prior to bait operations, two bait buckets will be calibrated for the sowage rates and swath widths described in [**Appendix B: Bait Application Strategy**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20B_Bait%20Application%20Strategy.docx). Calibration will be carried out at a suitable location within Aguadilla Airport, Puerto Rico. Bucket calibration will follow Island Conservation Standard Operating Procedures [**Appendix W: Bucket Calibration Standard Operation Procedures**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20W_%20Bucket%20Calibration%20SOP.docx)**.**

A total of twelve 50-lb bags of non-toxic bait are available for calibration meaning that a total of six calibrations can be completed if two bags are used per calibration.

### Coastline shape-file

The coastline was flown in 2012, the same perimeter shapefile will be used on TracMap as the baiting basemap.

## Bait Application

### Operational Window

Three days have been allocated for each bait application to prioritize for optimal conditions. One week prior to each bait application, the optimal day will be picked based on weather and swell conditions within the scheduled 3 day time window to conduct the bait application. Picking the optimal day a week in advance will ensure all personnel are transported to Desecheo on time.

### Personnel Transport

One day prior to the baiting application day all operational personnel will camp on island to facilitate operational briefing and ensure that the baiting operation can start promptly the following day.

* The monitoring team and members of the Air Ops Team serving as part of the Bait Loading Site Team during external operations will already be on island.
* The remainder of the Air Ops Team, including the Helicopter Pilot and Helicopter Engineer, will be transported as crew by helicopter to the island. The helicopter will be secured on island and stay overnight.
* The Incident Commander and the additional bait loader will be transported by boat to the island.

This transportation schedule ensures that the minimum number of people required to complete the baiting operation are on island prior to the baiting operation independent of boat transportation. The Incident Commander and additional bait loader may need to adjust their departure date to ensure they are on island prior to the baiting operation because they cannot be transported by helicopter. The Incident Commander, in consultation with the Operations Advisory Group, will decide if the baiting operation should continue without their presence on island if conditions make it prohibitive.

### Aerial broadcast techniques

Bait broadcast by helicopter will be the primary application technique used. Aerial broadcast was chosen as the preferred option because of high proven efficacy, rugged terrain, and personnel safety including the presence of UXOs. Bait will be broadcast from a bait spreader bucket slung below a helicopter. Bait spread is tracked using GPS and GIS analysis tools to ensure even coverage.

Bait will be applied to the island in parallel flight swaths with 50% overlap to minimise the risk of gaps – the final swath width will be determined at pre-operational spreader bucket calibration. For the 2nd bait application, bait will be applied using the same sequence of events and at the same rate that was sowed during Application #1 with an adjustment to the flight line direction being made to minimize the potential of overlapping gaps in coverage.

For complete details of the bait application strategy, see [**Appendix B: Bait Application Strategy**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20B_Bait%20Application%20Strategy.docx)**.**

### Monitoring bait sow rates

Paper-based and electronic bait tracking worksheets will be used to track and document the bait sow rates for aerial broadcast, hand-broadcast, and bait stations (see [**Appendix C: Bait Tracking Worksheet**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20C_Bait%20tracking%20worksheet.docx)). The bait tracking worksheets will be managed by the Air Ops Supervisor based on the area covered as reported by the Baiting Pilot. The helicopter will shut down after every 5 loads to allow for download and review of the GPS data and to discuss bait application progress. Operations will be halted as described in [**Appendix K: Desecheo Bait Application Logistics**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20K_%20Helicopter%20Bait%20Application%20Logistics%20Plan.docx) if the sow rates recorded on the bait tracking worksheet deviate more than 5 kg/ha to allow the Operations Advisory Group to review and recommend corrections before resuming.

### Loading the bait spreader bucket

Bait loading will be done manually for full details of the bait loading strategy, refer to [**Appendix K: Desecheo Bait Application Logistics**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20K_%20Helicopter%20Bait%20Application%20Logistics%20Plan.docx)**.**

### Application Reporting

At the end of each day the Operations Section Chief and Incident Commander will complete [**Appendix D: Broadcast bait application form**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20D_Broadcast%20Bait%20application%20form.pdf) as a record of the amount of bait that was applied.

# CAMP MANAGEMENT

## Field Camps

Field camps will be established on Desecheo prior to operations to accommodate the monitoring team, the external loads team, and the baiting operations team. Field camps will be established at two separate sites: in the West Valley (traditional site used for field trips to Desecheo) and on the beach between Puerto de los Bôtes and the helipad (Figure 3).

Drinking water will be provided in 55 gallon barrels (via external load) and 5 gallon water containers. These will be replenished once per week at L.E. changeovers and at appropriate times during external loads. No freshwater showers will be provided (except to remove bait contamination after baiting operations). Personnel can swim in Puerto de los Bôtes but not outside of the bay.

*Field Camp Supervisor:* The camp supervisor will oversee all aspects of camp management, they will oversee the Camp Manager & Cook, and delegate camp management tasks to all project personnel as needed.

*Camp Manager:* a contract camp manager will be available for the entire project duration and will be responsible for purchasing and planning meals, cooking, cleaning, and managing camp resupplies. At least two managers will rotate on 7-14 day schedules on and off-island. The Monitoring Team and L.E. Team will share cooking and kitchen facilities.

### Monitoring team - West Valley Camp Upper

This site has been typically used for field monitoring and some macaque survey trips since 2012. The site can accommodate a field team of at least 8 personnel each in 1.5-man tents, kitchen area (food preparation, cooking, eating), equipment and storage, and a toilet tent (Figure 4). Additional single-person tents can be placed in other adjacent areas of the valley. This camp will be for the monitoring team (6-8 persons). A gasoline generator will provide power for recharging electrical equipment, and a large cooler will provide cold storage with ice replenished at least once per week at the shift changeover of law enforcement officers.

**Figure 3.** West Valley Camp - Upper

|  |  |
| --- | --- |
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| C:\Users\kirsty\Documents\ISLAND CONSERVATION\IC PHOTOS\CARIBBEAN\Desecheo\2012_Mar18-19_Desecheo\IMG_0122.JPG |  |

### Law Enforcement Officers - West Valley Camp Lower

This site will be used for the two Law Enforcement (L.E.) officers (USFWS and DNER). L.E. officers will provide all their own equipment, including a gasoline generator, except for drinking water and a toilet tent. The site is separate from the monitoring camp because L.E. staff also operate at night which will disturb the monitoring team. Also, the site enables the L.E. officers to monitor the coastline for boat activity.

### All other personnel - Beach Camp (Temporary)

The Beach Camp site will support the on-island external loads team (3-4 persons) for 3-4 nights, and the Operational Team (8-9 persons) for 1-2 nights for each bait application (Figure 4). The Beach Camp will be established by the external load team prior to the Operational Team arriving on-island. This site will have two large communal sleeping tents, 2-3 toilets, and a kitchen area.

**Figure 4.** Approximate location of field camps and the helipad (bait operations site) 

**Figure 5.** Estimated number of personnel staying on island throughout the operation. L.E. officers are the first to arrive on March 08, 2016.





## On Island Biosecurity Management

The success of the Desecheo rat eradication relies on every individual rat eating a sufficient quantity of bait pellets. If additional food sources such as garbage, food scraps, human faecal waste, and perishable food items are available to rats during the eradication, there is a risk that rats will not eat the bait pellets. For this reason, all perishable waste including food and food containers must be collected in garbage bags, sealed in a rodent proof container, and removed from the island. In addition, the campsites, especially the kitchen areas, must be kept clean and **all** food scraps removed from the ground and the stove. Also, remains of any food eaten in the field, in tents, at the operations base, and elsewhere, must be removed and disposed of in sealed containers.

All staff are responsible for policing each other and sites where food is prepared and/or consumed to ensure that alternative food sources for rodents are not available.

Biosecurity protocols for staff on island will follow those in [**Appendix R: Desecheo NWR Biosecurity Plan**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20R_Desecheo%20NWR%20Biosecurity%20Plan.docx)**.**

# ENVIRONMENTAL MONITORING & MITIGATION

The Monitoring Team will implement protocols to monitor the efficacy of the bait application, and several environmental responses to the bait application. Surveys and sampling will be conducted before baiting operations to establish baseline data, and after aerial baiting operations are completed in order to monitor environmental responses. Monitoring unintentional environmental impacts on Desecheo will focus on the analysis of brodifacoum residue in rats, lizards, and insects to assess both primary and secondary (as potential prey items) impacts. Refer to [**Appendix J: Protocols for Monitoring Efficacy and Non-target species**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20J_Efficacy%20Nontarget%20Monitoring%20Protocols.docx) for full details.

# MEETINGS, BRIEFINGS, AND TRAINING

## Meetings and Briefings

## Introductory Project Briefing

Once all project personnel have arrived in Puerto Rico, an introductory project meeting will be held by the Incident Commander across 1 or 2 days to inform all personnel about the schedule, activities, and ensure all personnel are notified of policies and procedures (see Table 5). It is important to include all Island Conservation, USFWS, and USDA personnel in this meeting. The exact dates detailed in Table 5 may change during the operations depending on personnel availability to attend.

## General debriefs

General debriefs will be held with the entire operations crew and led by the Operations Section Chief. Specific debriefs will be held with the Operations Supervisors and selected crew, and will be led by the Operations Section Chief. Debriefs will happen each evening of the operation, including during activities to stage supplies and equipment, bait application, and demobilization. The purpose of the general debriefs is to summarize the day’s events, and provide a forum for questions and answers.

## Hot debriefs

Hot debriefs are on-site meetings held by the Incident Commander with relevant personnel in response to an unscheduled or unplanned activity or incident in need of immediate attention.

## Operations Advisory Group meetings

The OAG will meet to discuss the outcome of the day’s operations, and to plan the following day’s activities. OAG members will be responsible for disseminating the outcome of the OAG meeting to personnel under their charge. They will also meet as requested by the *Operations Section Chief* or *Incident Commander* to discuss operational issues. If the OAG is not able to resolve these issues the *Operations Section Chief* will pass the issue up to the *Incident Commander.*

**Table 5.** Project Briefings required.



# HEALTH AND SAFETY

An over view of health and safety concerns, emergency response, and pro-active risk reduction during baiting operations and the field monitoring program are addressed in [**Appendix V: Desecheo Project Safety Plan**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20V_%20Desecheo%20Safety%20Plan.docx). Protocols for emergency response are outlined in the following appendices:

* [**Appendix L: Helicopter Safety**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20L_Helicopter%20Safety.docx)
* [**Appendix M: On-island Injured Persons Action Plan**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20M_On-island%20Injured%20Persons%20Action%20Plan_Desecheo.docx)
* [**Appendix N: Off-island Injured Persons Action Plan**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20N_Off-island%20Injured%20Persons%20Action%20Plan.docx)
* [**Appendix O: Desecheo Emergency Contacts**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20O_Desecheo%20Emergency%20Contacts.docx)
* [**Appendix P: Incident Action Plan**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20P_IncidentActionPlans-Comms.docx)
* [**Appendix S: Bait Spill Protocols**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20S_Bait%20Spill%20Protocols.docx)
* [**Appendix T: Fuel Spill Protocols**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20T_Fuel%20Spill%20Protocols.docx)

# EXTERNAL COMMUNICATIONS

External communications are described in [**Appendix Q: Desecheo communications strategy**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20Q_External%20Communications%20Strategy.docx)

# BIOSECURITY

## Operational Biosecurity

A Biosecurity Coordinator has been appointed and is responsible for ensuring that all project personnel receive biosecurity training, biosecurity protocols are followed for all operations refer Section 2 of [**Appendix R: Desecheo NWR Biosecurity Plan**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20R_Desecheo%20NWR%20Biosecurity%20Plan.docx), and Biosecurity Officers are appointed to complete biosecurity management tasks for all trips to and from the island.

Biosecurity Officers will be tasked with following biosecurity protocols in [**Appendix R: Desecheo NWR Biosecurity Plan**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20R_Desecheo%20NWR%20Biosecurity%20Plan.docx) (Section 2), and filing a copy of the biosecurity management checklist with the Biosecurity Coordinator prior to all trips going to the island.

### Biosecurity scenarios

The following are the scenarios that present the greatest operational biosecurity risk and where Officers will be assigned to complete biosecurity tasks:

* External loads (departure and arrival)
* Contract Boat (departure)
* DNER/FURA Boat (departure)

### Briefings

The following briefings will be conducted to ensure that all project personnel understand the importance of biosecurity and the protocols that will be followed to minimize biosecurity risk.

* Prior to entire operation (all project team briefing including DNER/FURA rangers)
* Verbal Prior to each biosecurity scenario
* Handouts (Section 2 of [**Appendix R: Desecheo NWR Biosecurity Plan**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20R_Desecheo%20NWR%20Biosecurity%20Plan.docx)**)**

### Response

If a biosecurity risk is identified that cannot be dealt with immediately personnel will follow the communication pathway identified in the ICS to report the risk to the Biosecurity Coordinator. The Biosecurity Coordinator will work through the ICS to notify the Operations Section Chief and Incident Commander if the risk poses a significant risk and requires a halt in operations or coordinated incursion response.

## Ongoing Biosecurity

The FWS is responsible for long term biosecurity management and project sustainability. The plan and protocols for these management actions are described in [**Appendix R: Desecheo NWR Biosecurity Plan**](https://islandconservationorg.sharepoint.com/conops/na/desecheorat/Shared%20Documents/09%20operational%20planning/Operational%20Plan/Appendix%20R_Desecheo%20NWR%20Biosecurity%20Plan.docx)**.**

# DEMOBLIZATION OF ALL OPERATIONS

Once all operations have been complete the Project Management Team will be responsible for demobilizing equipment and staff. Including, but not limited to the following:

* Shipping container - sell or donate to the shipping company.
* Spoiled/unused bait, tote bags, bait pails, paper bait bags and associated baiting materials. If a small amount of bait is remaining, bait will be disposed of in an approved landfill. However, if a large amount of bait is remaining the recommendation is to incinerate. However, there is no incineration plant in PR. Incineration can be managed by PSC Environmental Services, Guaynabo, Puerto Rico, who will export the materials to the mainland US, approximate cost is about $4,500.
* Bait buckets – both bait buckets and associated equipment will be shipped by ground freight to Santa Cruz, CA.
* Some equipment will remain stored at Cabo Rojo NWR. Role equipment (such as radios, GPS units, etc.) will be returned to Santa Cruz, California.