

**PACIFIC COOPERATIVE STUDIES UNIT  
UNIVERSITY OF HAWAII AT MĀNOA**

Dr. David C. Duffy, Unit Leader  
Department of Botany  
3190 Maile Way, St. John #408  
Honolulu, Hawaii 96822



Technical Report 158

**SMALL, NON-NATIVE MAMMAL INVENTORY IN  
KALAUPAPA NATIONAL HISTORICAL PARK**

June 2008

SUSAN MARSHALL<sup>1</sup>, GUY D. HUGHES<sup>2</sup>, AND KELLY KOZAR<sup>1</sup>

<sup>1</sup> Pacific Cooperative Studies Unit (University of Hawaii at Manoa), NPS Inventory and Monitoring Program, Pacific Island Network, PO Box 52, Hawaii National Park, HI 96718

<sup>2</sup> Kalaupapa National Historical Park, PO Box 2222, Kalaupapa, HI 96742

## TABLE OF CONTENTS

<b>List of Tables</b> .....	<b>i</b>
<b>List of Figures</b> .....	<b>ii</b>
<b>Abstract</b> .....	<b>ii</b>
<b>Introduction</b> .....	<b>1</b>
Habitat Description .....	3
<b>Methods</b> .....	<b>4</b>
Transect Establishment .....	4
Small Mammal Inventory .....	7
<b>Results</b> .....	<b>10</b>
<b>Discussion</b> .....	<b>13</b>
<b>Recommendations</b> .....	<b>17</b>
<b>Acknowledgements</b> .....	<b>18</b>
<b>Literature Cited</b> .....	<b>18</b>

### LIST OF TABLES

<b>Table 1.</b> Transect descriptions of the small mammal inventory, Kalaupapa National Historical Park, March–May 2005.....	5
<b>Table 2.</b> Summary of black rat captures (large snap traps) and tracks at Kalaupapa National Historical Park, March–May 2005.....	10
<b>Table 3.</b> Summary of house mouse captures and tracks at Kalaupapa National Historical Park, March–May 2005. ....	11
<b>Table 4.</b> Summary of mongoose captures and tracks at Kalaupapa National Historical Park, March–May 2005.....	11
<b>Table 5.</b> Summary of cat captures and tracks at Kalaupapa National Historical Park, March–May 2005.....	12

## LIST OF FIGURES

<b>Figure 1.</b> Aerial photo of Kalaupapa Peninsula looking eastward, Kalaupapa National Historical Park, 2005.....	3
<b>Figure 2.</b> Map of non-native mammal survey transects at Kalaupapa National Historical Park, March–May 2005. ....	4
<b>Figure 3.</b> Photo of Kauhakō Crater and Kalaupapa Peninsula from upper Waihānau, Kalaupapa National Historical Park, 2005. ....	5
<b>Figure 4.</b> Aerial photo of Kauhakō Crater and Waihānau Valley, Kalaupapa National Historical Park, 2005.....	6
<b>Figure 5.</b> View of lower Waikolu Valley and `Ōkala Islet from Waikolu Overlook, Moloka`i, 2005. ....	7
<b>Figure 6.</b> Aerial view of Kūka`iwa`a Peninsula, Kalaupapa National Historical Park, Moloka`i, 2005.....	7
<b>Figure 7.</b> Small mammal tracking tunnel, Pu`u Ali`i Natural Area Reserve, Moloka`i, 2005. ....	9
<b>Figure 8.</b> Mongoose and feral cat tracks, lower Waihānau transect, Kalaupapa National Historical Park, 16 March 2005.....	9
<b>Figure 9.</b> Small glue trap placement, Pu`u Ali`i Natural Area Reserve, Moloka`i, 22 March 2005.....	9
<b>Figure 10.</b> <i>Rattus</i> spp. hair and scat on small glue board, Kalaupapa National Historical Park, 2005.....	13

## ABSTRACT

A presence/absence survey for small non-native mammals was conducted in Kalaupapa National Historical Park March–May 2005. The survey consisted of seven 500-m transects, each with 11 stations, except for one transect which had nine stations (75 stations total). One large and two small snap traps, a Tomahawk® live trap, a tracking tunnel, and a glue board were set at each station. Small mammal trapping was conducted for three nights in the spring of 2005 along each transect for a total of 215.5 corrected trap nights for cats and mongooses, 430 for rats, and 830 for mice. Results indicate the presence of black rats (*Rattus rattus*), house mice (*Mus musculus*), mongooses (*Herpestes javanicus*), and feral cats (*Felis catus*) in the park. Trapping indicated average capture rates per 100 trap nights of 3.48 for black rat and 1.2 for mouse. Forty-two mongooses and two feral cats were captured. No evidence of Polynesian rats (*Rattus exulans*) or Norway rats (*Rattus norvegicus*) was detected in our sample. For mice and rats, the number of tracking tunnel signs was low even on transects where the capture rate by snap or glue traps was high. However, for mongooses and cats the number of tracking tunnel signs was proportionally higher than the overall capture rate.