I. **Project Title**: Night Birds Returning. Phase 1: Eradiction of Norway Rats from the Bischof Islands (Phase 1)

II. Reporting Period: March 15, 2011 to March 15, 2012

III. Project Narrative (this section is required for the final comprehensive report only)

The project narrative should identify the problems that the project has addressed, describe short- and long-term objectives and goals and how they were met, and explain the relevance of the project to enhancing habitat and/or to benefiting living marine resources, including a description of any threatened or endangered species the project will benefit.

Non-native rats (Norway and black) were introduced in the last century by humans to Haida Gwaii, British Columbia, Canada, and have been attributed to significant declines in native species on the islands including at risk Ancient Murrelets (*Synthliboramphus antiquus)*, (Golumbia 2008). For example, 27 breeding populations of seven seabird species have abandoned breeding sites or been extirpated on 13 islands where rats or raccoons are present. Today Norway and black rats have been documented on at least 20 islands on Haida Gwaii (Bertram and Nagorsen 1995; Burles 2009), and are believed responsible for the almost complete extirpation of several seabird colonies (Kaiser et al. 1997, Golumbia 2008).

In 2010, Parks Canada Agency, the Haida Nation, the Archipelago Management Board, Island Conservation, and Coastal Conservation implemented the Night Birds Returning project. The goal of this program was to restore seabird breeding habitat by eradicating introduced Norway rats from four island groups in Gwaii Haanas National Park Reserve and Haida Heritage Site. In addition to benefiting seabirds, removing Norway rats from these islands will restore ecological balance, reduce pressure on other native wildlife and allow small populations, such as that of the dusky shrews, to recover. The short-term objective of the Night Birds Returning project was to eradicate Norway rats from selected islands in Gwaii Haanas. This objective was initiated with phase I of the project which focused on the removal of rats from the Bischof Islands in Juan Perez Sound. Long-term objectives of this project include active and passive ecosystem restoration. Active restoration involves bait station replenishment and monitoring for two years following phase 1 to determine if rats have been successfully eradicated, as well as installation of decoy birds and call playback devices to attract seabirds to the islands. Passive restoration includes increasing the amount of suitable seabird breeding habitat through invasive rat removal.

The Bischof Islands are comprised of six vegetated islands and a number of non-vegetated islets in upper Juan Perez Sound, totaling approximately 79 hectares. The islands are situated within 300 metres of each other forming a series of bays and lagoons.

The islands originally supported colonies of approximately 500 pairs of Ancient Murrelets and 5,000 pairs of Fork-tailed Storm-petrels (Summers 1974), but recent surveys indicate a demise of Ancient Murrelets and less than 50 pairs of nesting storm-petrels (Parks Canada Agency 2010). Bertram and Nagorsen (1995) suggested the presence of introduced Norway rats may have led to the seabirds' decline. In addition to seabirds, both deer mice (*Peromyscus keeni*) and dusky shrews (*Sorex*

monticolus) occurred on the Bischof Islands in the early 1960's (Foster 1963). However, recent trapping efforts on the island have indicated that deer mice may have been eliminated from the island, likely due to displacement by rats (Bergman 2011). Dusky shrews are still present on the Bischof islands but only at low densities (Bergman 2011, D. Burles, unpub. data).

The restoration of the Bischof Islands through invasive rat removal will encourage the recolonization of the islands by Ancient Murrelets and other seabirds (using both passive and active techniques, such as call playback and decoys) and also provide an opportunity for native rodents, some of which may be endemic to the islands, to recolonize/repopulate the area. Finally, this project also resulted in increased community awareness regarding the negative impacts of invasive species such as rats, not only on seabirds but on island ecosystems.

IV. Methodology

Describe the methodology used to undertake on-the-ground activities during this reporting period to achieve the project goals and objectives, including the specific techniques and materials used.

ERADICATION

The main method used in the Bischof Islands eradication was delivery of a lethal quantity of bait containing the anticoagulant brodifacoum using bait stations. Aegis™ and Protecta™ bait stations were used during the rat eradication. Both stations had locking lids and an internal baffling system to reduce the accessibility of bait to other species. To further prevent tampering, bait stations were anchored to the ground using non-target rebar and zip ties. In situations where this was not possible (e.g. on rock islets) large rocks and branches were used to secure bait stations. The bait stations were installed in a 50 x 50 m grid over the islands to ensure a sufficient quantity of bait was available to every potential rat territory on the islands. This spacing interval has been used previously for successful Black rat eradications. A considerable amount of time and effort was dedicated to logistical planning and preparation for the eradication operation. These events occurred between September 2010 and immediately prior to the on-island implementation on August 2, 2011. The eradication operation was conducted in a stage-wise approach (Table 1).

Table 1. The three main phases of the on-island eradication operation using fixed bait stations.

Stage	Timeline	Activity
Phase 1: Primary baiting period & preliminary efficacy monitoring	0-4 weeks	Stations visited every 24-48 hours to replenish any missing bait.
Phase 2: Secondary baiting period, preliminary efficacy monitoring, & adaptive management if rats present	4 weeks-2 months	When activity at bait stations decreased or ceased, stations visited every 3-5 days to replenish any missing bait.
Phase 3: Tertiary baiting period & efficacy monitoring	2 months-24 months	Stations checked/refilled on a quarterly basis for two years post-implementation to monitor for any rat activity.

Weather conditions on Haida Gwaii in the fall and winter pose a significant safety risk to project personnel with heavy precipitation and gale force winds a common occurrence from October until springtime. Human safety was our primary concern for this project; therefore, the eradication was implemented on August 2, 2011 on the Bischof Islands in order to ensure the primary and secondary baiting phases were completed before the anticipated arrival of regular inclement winter weather and

to provide a contingency in case initial bait uptake was delayed (e.g. if rats took longer than anticipated to overcome neophobia towards the bait).

Bait stations were checked by field personnel on each island within 24 to 48 hours during the primary eradication phase and every three to five days during the secondary phase. The amount of bait added to stations on the Bischof Islands was adjusted as the eradication progressed using an adaptive management process to minimize the bait entering the environment while still maximizing the probability of eradication success. Changes to bait application rates were based on observed bait uptake rates on each island and the influence of adverse weather events that prevented field personnel from accessing particular stations. In addition to replacing missing, chewed, or moldy blocks, the field team also replaced all bait on a weekly basis to maximize bait palatability for rats.

Data Collection and Analyses

Handheld field personal computers (Archer™) were used to record several data parameters during each visit to the bait stations. These parameters included:

- Observer;
- # of blocks remaining;
- # of moldy/damaged blocks;
- # of blocks added;
- Target sign;
- Non-target sign;
- Non-target species (only if there was sign);
- Station condition; and
- Action required (re-arm, deactivate station).

In addition to the use of field computers for data collection, hard copy records of bait uptake were also collected to reconcile any possible human errors or omissions that may have occurred during data entry into the field computers. The bait station data was downloaded to a SQL server database and data analyzed daily both spatially using ArcviewGIS,™ and graphically using Microsoft Excel™. Data analyses included monitoring of bait uptake at each station and for individual islands, carcass search effort, and wildlife sightings. Daily data analyses enabled real time monitoring of the eradication progress and allowed the eradication managers to react to variations in bait uptake rates on an island-by-island basis.

Reconyx PC90HO Covert Pro™ remote cameras were used on the Bischof Islands as a tool to monitor target and non-target activity, including bait uptake, station tampering, and general wildlife observations.

MITIGATIVE MEASURES

In addition to incorporating tamper-resistant bait stations, several other mitigative measures were implemented during the Bischof Islands eradications in order to minimize impacts to non-target species. These measures included:

- eradication timing;
- bait colouration;
- bait application rates;
- carcass searches; and

- supplemental feeding of avian scavengers.

Eradication Timing

Eradication operations began on August 2, 2011 on the Bischof Islands which afforded a safe weather window for field operations while ensuring that the most birds had completed their breeding cycles and/or left the islands in preparation for migration (Coastal Conservation 2011, C. Bergman pers. comm.).

Bait Colouration

In order to reduce the attractiveness of the bait to granivorous birds the bait blocks were dyed green, a color that is thought to be the least visible and appealing to birds (Pank 1976, Tershy and Breese 1994, Buckle 1994; Howald pers. comm.). Bait blocks were large enough in size to prevent small granivorous birds from being able to lift, transport, and wholly consume them if accessed.

Bait Application Rates

During the primary and secondary eradication phases the field team recorded bait uptake on each project island. This information enabled the management team to make informed decisions in regards to bait application rates in order to minimize the amount of rodenticide bait entering the environment while still ensuring eradication success.

Carcass Searches

During the primary and secondary eradication phases on the Bischof Islands, target (rat) and non-target carcass searches were conducted to reduce the probability of secondary poisoning. Two types of carcass searches, formal and non-formal, were performed by field personnel on the Bischof Islands consistently throughout eradication operation. Formal searches were conducted by traversing off-trail areas that were not regularly visited during the bait station checks. The searches were primarily focused on shoreline areas of the islands although observers also searched the interior and looked under logs and vegetation to locate potential carcasses. Formal carcass search effort was tracked and recorded in Archer field computers. Data was uploaded to ArcviewGIS™ software and analyzed using both ArcMap™ and Microsoft Excel™.

Non-formal carcass searches were conducted during bait station checks, remote camera installation/checks, and red squirrel abundance surveys by scanning the surrounding area between and in proximity to bait stations. Non-formal carcass search effort was captured in the Archer™ field PCs as the time taken/distance covered to complete bait station checks or as the time and distance taken to service remote cameras or conduct red squirrel surveys.

When a target or non-target carcass was recovered, the observer entered the species name, age class, and sex (if known), field condition of the specimen, and other relevant observations into the Archer™ field PC. Specimen identification numbers and location (latitude/longitude) of the carcass were automatically generated by the field PC. Photos to document the condition and location of the carcass were taken prior to touching or moving the carcass. Prior to handling a carcass, new chemical resistant gloves were worn to prevent contamination of the specimen. Carcasses were placed in a zip lock bag and labelled with date, specimen ID (obtained from the field PC), name of collector and species name. Specimens were then stored in a designated freezer at the field camp and then transferred to Gwaii Haanas headquarters for long term storage. Non-target specimens that are suitable for testing will be assessed for brodifacoum exposure.

Supplemental Feeding of Avian Scavengers

Sitka black-tailed deer carcasses were placed as a supplemental food source at strategic points of land (hereafter referred to as mitigation sites) near the Bischof Islands to draw Bald Eagles, Common Ravens and Northwestern Crows away from the project areas during the eradication operations. Six mitigation sites adjacent to the Bischof Islands were selected based on the proximity to each project island.

Mitigation sites were visited every one to three days (weather dependent) to observe and record: 1) bird species present (primarily Common Ravens, Bald Eagles and Northwestern Crows), 2) number of each species present, and 3) condition of deer carcass (e.g. 50 percent of carcass remaining). The date and time of the site visit was also recorded, as well as any other unusual observations. All data was entered into an Excel™ spreadsheet.

V. Results/Progress to Date (March 2011 to March 2012)

Describe in sufficient detail the status of the project (planning/design, implementation, monitoring, complete) in terms of progress and results achieved during the reporting period. This should include information such as the actual acreage that were restored/enhanced/protected or created to date (cumulative), and how this measurement was determined; projected acreage yet to be restored with CRP funds; miles of stream that were opened or will be opened for fish passage; lessons learned during this reporting period; challenges or potential roadblocks to future progress; and an updated timeline of remaining tasks needed to complete project.

The eradication operation can be separated into four main stages:

Stage 1: Operational planning, regulatory compliance (completed during this reporting period and described below);

Stage 2: Eradication preparation (completed during this reporting period and described below);

Stage 3: Eradication implementation and efficacy monitoring (completed during this reporting period and described below) and;

Stage 4: Non-target species impacts and ecosystem monitoring (in progress during this reporting period, see section *VI Monitoring and Maintenance*).

Stage 1: Operational Planning, Regulatory Compliance & Pre-eradication Biodiversity Surveys

Operational Planning

An operation plan was developed during the interim reporting period. The content of the operational plan includes Stage 2 (eradication preparation) and Stage 3 (eradication implementation), which are summarized below. Considerations are provided in the operational plan for Stage 4 (eradication confirmation) which was in progress during this reporting period.

Regulatory Compliance

Parks Canada Agency submitted an internal Environmental Assessment (EA) Screening Report that outlined the significance of the projects' environmental impacts and recommended mitigative measures to minimize those impacts. The EA was made available to the public on the Canadian Environmental Assessment Registry Internet Site during the planning and preparation phase of the eradication (September 2010 to July 2011). Parks Canada Agency also obtained an animal care permit internally and received project approval from the Archipelago Management Board. A non-regulatory Research Permit was also obtained for the ecosystem monitoring work associated with the eradication.

The main regulatory requirement for this project was the approval of Brodifacoum Conservation Blox™, a brodifacoum-based rodenticide, by the Federal Pest Management Regulatory Agency (PMRA) for use during the eradication. Bell Laboratories submitted a PMRA pesticide registration application for Brodifacoum Conservation Blox™ on September 8, 2010. On May 20, 2011 the PMRA approved the use of Brodifacoum Conservation Blox™ in Canada for conservation purposes.

Following PMRA approval, a total of 2,207 kilograms of bait was ordered on May 27, 2011 to ensure enough bait was available for eradication implementation and monitoring phases. The bait was delivered to Gwaii Haanas headquarters on July 8, 2011 in preparation for staging at the Bischof Islands camp for the August 1, 2011 implementation.

Stage 2: Eradication Preparation

Logistical Preparation

In 2010 crews established temporary trail networks on the Bischof Islands in preparation for eradication operations. Following completion of the trails, Parks Canada installed unbaited Aegis™ and Protecta™ bait stations (manufacturers: Liphatech, Inc. and Bell Labs, Inc. respectively) according to the 50 x 50 m grid spacing to weatherize the stations and allow rats to overcome rat avoidance behaviour to novel objects in their territory (known as neophobia; O'Connor and Eason 2000).

Digitized maps with assigned bait station grids and island access routes were finalized in preparation for eradication implementation; each of the Bischof Islands was assigned a unique identifying letter (A-F) so that the islands could be managed as independent units during the eradication (Figure 1). The location of each station was marked by a unique island-transect-number identifier (e.g. BD2), and geo-referenced so activity at each station could be monitored temporally and spatially.

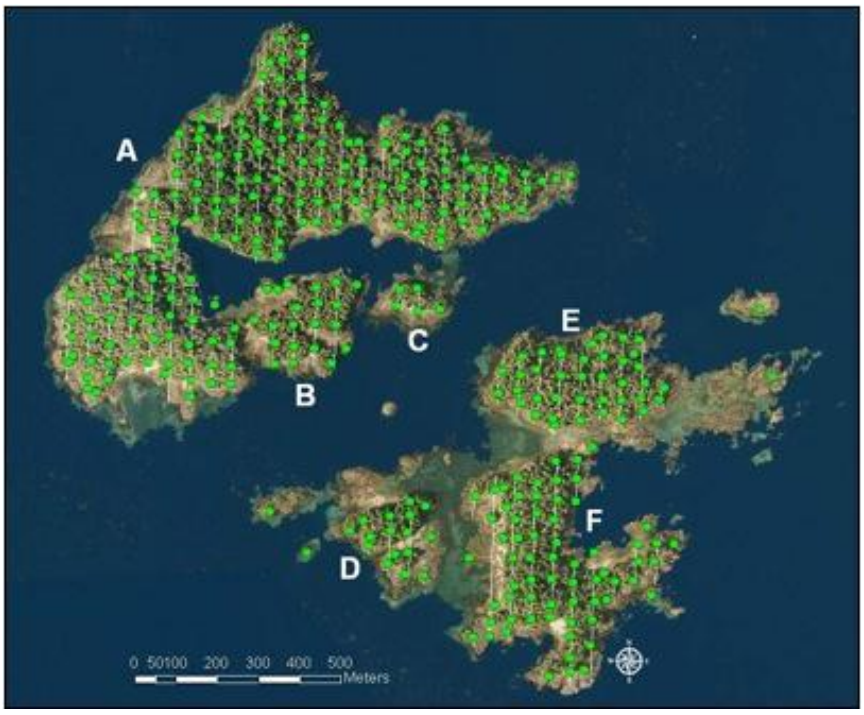

Figure 1. Individual Bischof Islands, approximate bait station locations (green dots) and proposed transect lines.

Field staff were identified and hired during the reporting period and pre-eradication planning duties assigned to current staff. Equipment and supplies required for the eradication were identified, purchased, and staged at Gwaii Haanas headquarters in Skidegate, BC. Equipment was then transported to the Bischof Islands field camp on July 10, 2011 in preparation for eradication implementation.

The field camp on the Bischof Islands was established on July 10, 2011 prior to the on-island implementation phase of the eradication. Several precautions were taken in order to keep both camps rat-free, including setting rat snap traps and arming additional bait stations around the perimeter of the camps, ensuring that doors to food preparation and storage areas were always closed, and managing food/human waste so that it was not available to rats.

Potential boat landing sites were also evaluated for safety and suitability during the eradication operations. Suitable locations were marked with GPS and mapped.

Stage 3: Eradication Implementation & Efficacy Monitoring

Eradication Implementation

During the primary baiting phase (intensive period, approximately August 2 to September 15, 2011) bait stations were armed with six blocks of bait containing the rodenticide. Stations were checked every 24-48 hours to replenish bait until uptake was markedly reduced or ceased. On August 9, 2011, the number of bait blocks was decreased to four per station to reduce the amount of bait entering the environment. Bait in stations was refreshed on a weekly basis to ensure fresh bait of the highest palatability was available to rat populations.

After bait uptake ceased or was markedly reduced (indicating approximately 99% of the rats had been removed), the secondary phase began. Stations were visited at 3-5 day intervals beginning mid September to check activity and replenish removed baits. Bait stations remained armed with four blocks per station during the secondary baiting period. October 1, 2011, marked the beginning of the tertiary phase of eradication (monitoring). For the tertiary phase, each bait station was armed with four bait blocks that were pinned in place inside each station. Two blocks were sealed in a plastic re-sealable bag and two blocks were left open inside each station.

RESULTS OF ERADICATION PHASES 1 & 2

All Bischof Islands experienced bait uptake with the exception of Island C. However, the number of bait stations on each island with bait uptake varied from 45% (rock islets) to 98% (Island A). With the exception of Island C, bait uptake rates on the Bischof Islands ranged from 0.1 kg/hectare (Island F) to 2.6 kg/hectare (Island A).

Overall bait uptake began immediately on the Bischof Islands and peaked on August 9, 2011, 6 days post-implementation with smaller pulses of bait uptake occurring throughout the secondary eradication phase which ended on September 24, 2011 (Figure 2).

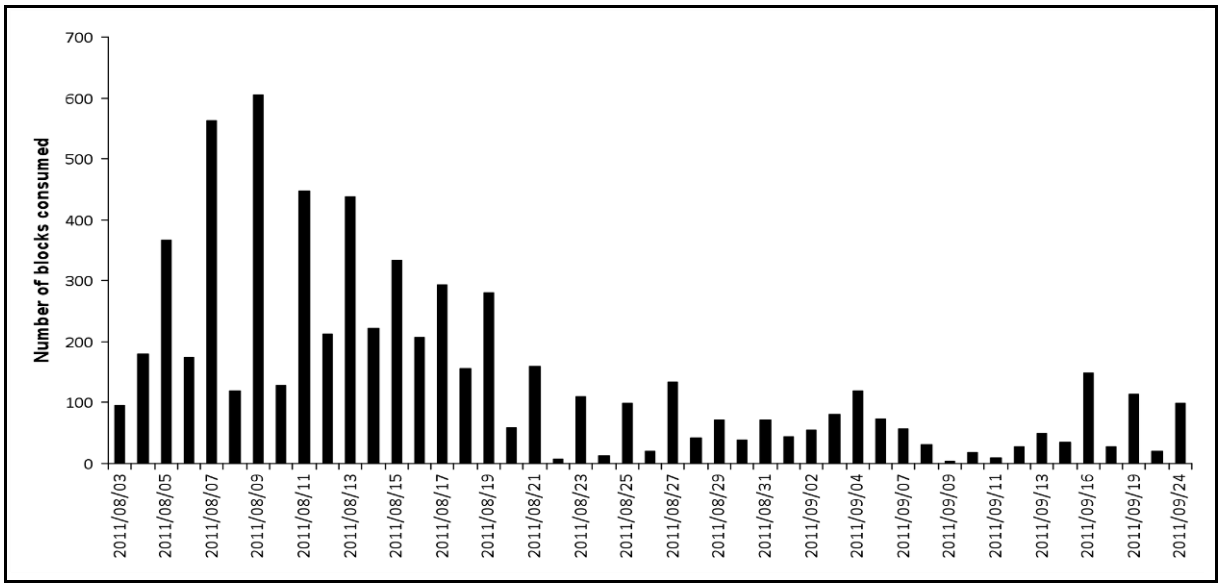

Figure 2. Daily bait uptake for all Bischof Islands during primary and secondary phases of eradication.

Bischof Island A and B, which are connected at low tide, experienced the highest bait uptake during the primary and secondary eradication phases (Figure 3).

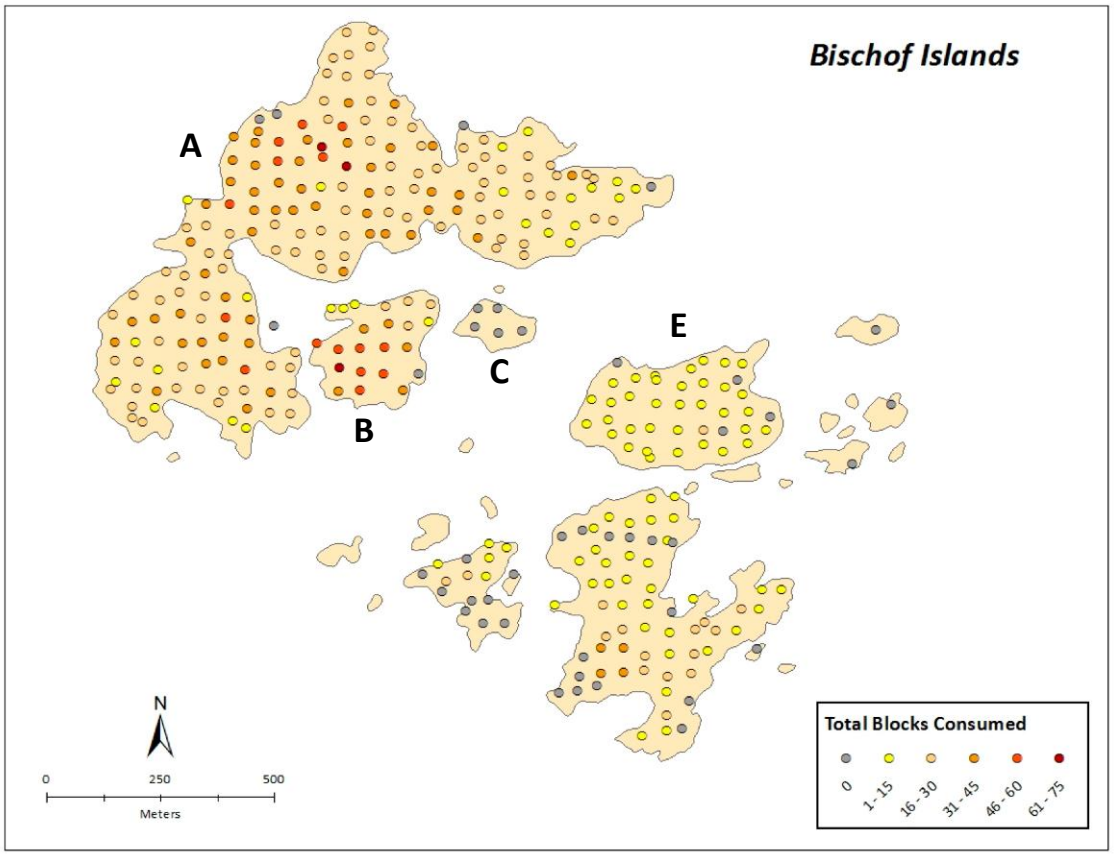

Figure 3. Cumulative bait uptake from all stations on the Bischof Islands from August 4 to September 24, 2011.

Island D

Bischof Island A

Bischof Island A experienced bait uptake immediately after station activation on August 3 and 4, 2011[1]. Peak uptake occurred on August 9, 2011, six days post-eradication implementation (Figure 4). However, the highest number of active stations with uptake (121) occurred on August 13, 2011.

Bait uptake began in the middle of Island A and radiated out in pulses throughout the eastern, western, and southern sections of the island. Bait uptake remained the most consistent in the central, southern and eastern portions of the island, although the highest concentration of bait uptake was reported for interior bait stations, especially in the northern and western sections of the island (Figure 3). Ninety-eight percent (n=170) of bait stations on Bischof Island A experienced bait uptake during the eradication with a total of 4,869 bait blocks removed equaling a bait uptake rate of 2.3 kg/ha. The majority of bait uptake occurred within the first three weeks of eradication implementation (Figure 4).

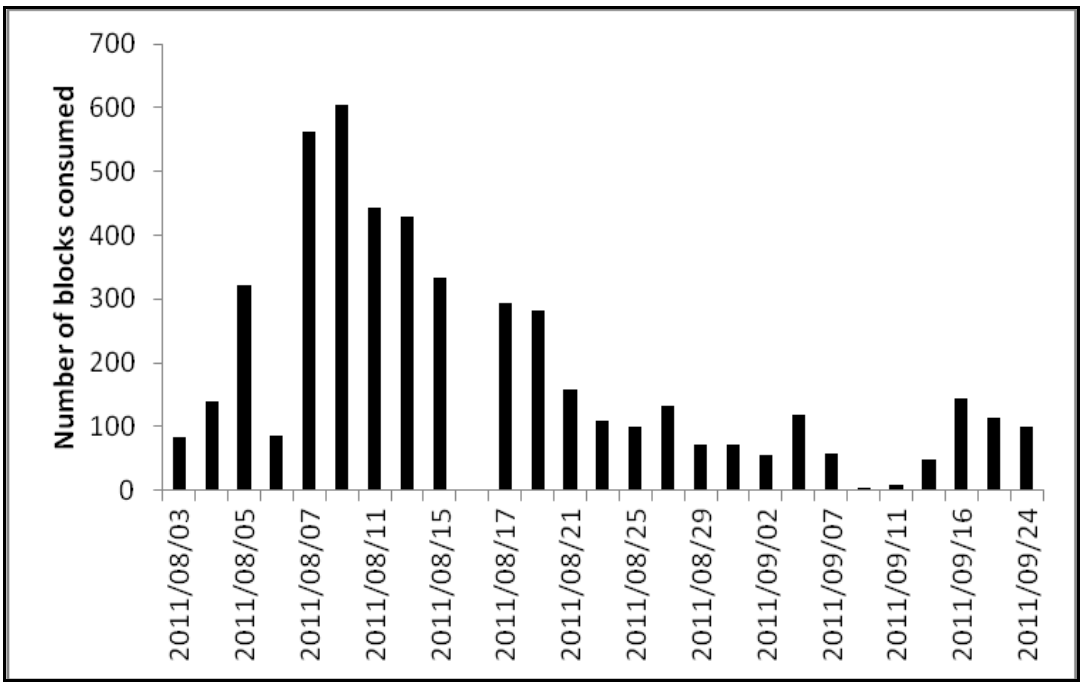

Figure 4. Total daily bait uptake from August 3 to September 24, 2011 on Bischof Island A.

The bait stations found on Bischof Island A, group 2 regularly experienced 100% bait uptake until uptake peaked on August 9, 2011. Bait uptake gradually declined throughout the remainder of August and into the month of September. Remote camera footage confirmed that the majority of bait uptake on Bischof Island A, group 2 was attributed to red squirrel activity. However, remote cameras captured images of rat(s) at bait station AV3 on September 27, 2011 and AQ8 on September 27 and 28, 2011 following over 220 camera nights without any rat photo events on this island.

[1] Bischof Island A was divided into three separate groupings due to its size. Therefore arming all bait stations took two days.

Bischof Island B

Bischof Island B, which is physically connected to Bischof Island A, experienced a major pulse of bait uptake at 16 of the 17 stations from August 5 to August 20, 2011. Uptake began on the southern coastline and spread throughout the island with peak bait uptake occurring on August 12, 2011, nine days post-eradication implementation (Figure 3). Bait uptake peaked on August 12, 2011 but continued primarily at interior stations and in pulses throughout the remainder of the primary eradication phase and into the secondary eradication phase (Figure 5).

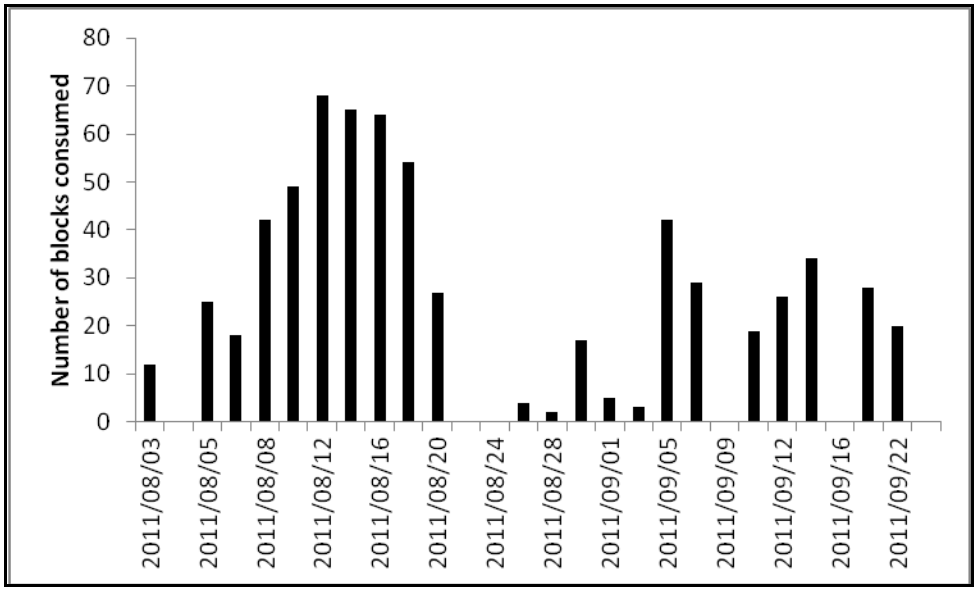

Figure 5. Total daily bait uptake from August 3 to September 24, 2011 on Bischof Island B.

The highest rate of bait uptake was recorded at bait stations located on the western half of the island (Figure 3). Ninety-four percent (n=16*)* of the bait stations on Island B experienced bait uptake during the eradication, with a total of 653 bait blocks removed, and a bait uptake rate of 2.6kg/ha. Remote cameras deployed at six locations for a total of 78 camera nights did not capture any footage of rats in the final weeks of the eradication, however, footage confirmed that bait uptake on Island B during these final weeks was attributed to red squirrels.

Bischof Island C

No bait uptake was recorded at the five stations on Bischof Island C throughout the eradication operation. Remote cameras deployed at seven locations for a total of 74 camera nights did not detect any rat activity or any non-target species activity on Bischof Island C.

Bischof Island D

Three bait blocks were removed from stations on Bischof Island D between August 3 and August 8, 2011. However, bait uptake did not occur again until August 26, 2011, three weeks post eradication implementation. Bait uptake began at interior stations and radiated throughout the island to the coastal stations. Cumulative bait uptake was evenly distributed across the majority of bait stations on the island (Figure 3). Bait uptake peaked on September 3, 2011, 30 days post-eradication implementation, with 25 of the 38 bait stations experiencing bait uptake (Figure 6).

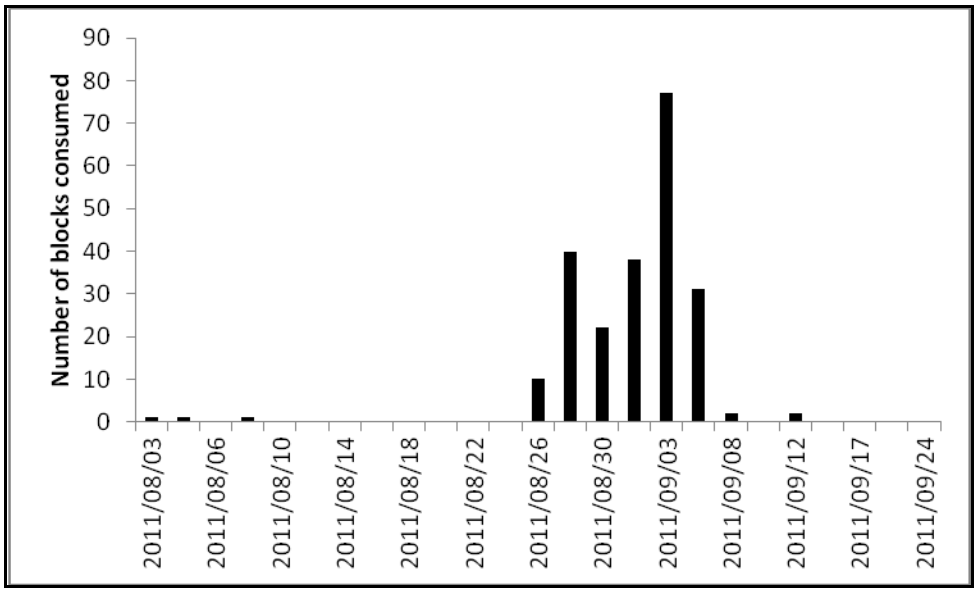

Figure 6. Total daily bait uptake from August 3 to September 24, 2011 on Bischof Island D.

The final bait uptake occurred at stations near the western and eastern coastlines of Island D. Eighty-nine percent (n=34) of stations on Island D had bait uptake during the eradication with a total of 225 bait blocks removed equaling a bait uptake rate of 1.6 kg bait/ha.

Bischof Island E

Bait uptake began gradually on Bischof Island E, peaked on August 14, 2011 (with 26 of 38 stations active on August 16), ten days post-eradication implementation, and then ceased on August 26, 2011 for the remainder of the secondary phase of the eradication (Figure 7).

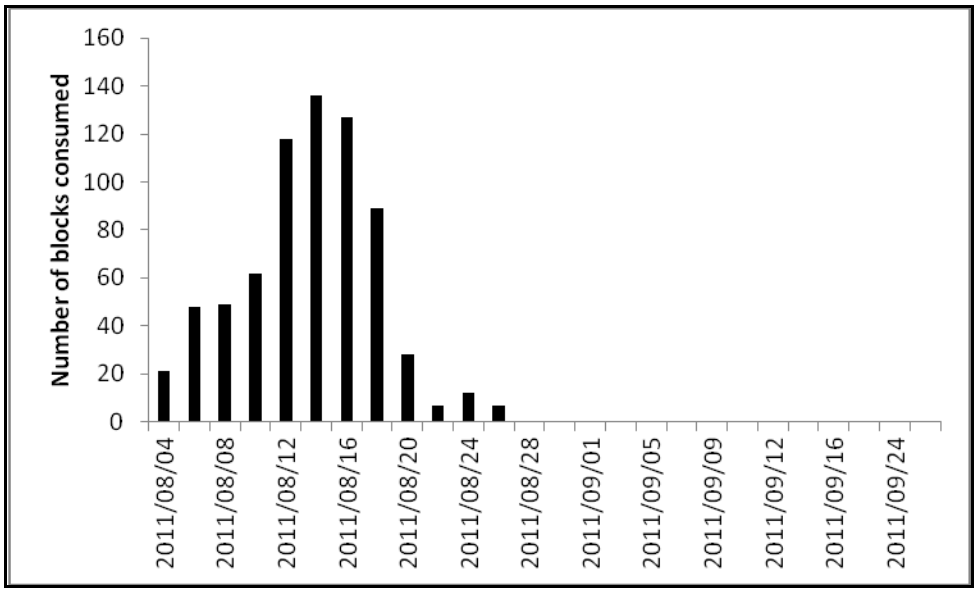

Figure 7. Total daily bait uptake from August 4 to October 1, 2011 on Bischof Island E.

The highest overall concentration of uptake was observed in interior stations throughout the island (Figure 3). Bait uptake began in the southwestern stations radiating to a larger area in the interior of the island before spreading throughout the majority of stations by August 14, 2011. Seventy-nine percent (n=52) of the bait stations on Island E reported bait uptake during the eradication with a total of 704 bait blocks removed (bait uptake rate: 1.5 kg/ha). The final uptake occurred in coastal stations on the northeastern shore of the island on August 26. No further uptake was observed despite the use of attractants and repositioning of the bait blocks.

Bischof Island F

Bait uptake on Bischof Island F began August 4, 2011 and radiated out from the interior bait stations along the northern coastline. Uptake occurred in seven of 15 stations, located along the northern half of the island. No uptake was observed at any bait stations located at the southern end of the island (Figure 3). Peak bait uptake occurred on August 8, 2011, four days post-eradication implementation (Figure 8). After August 12, 2011, Bischof Island F did not experience any additional bait uptake, despite steps taken to encourage bait uptake.

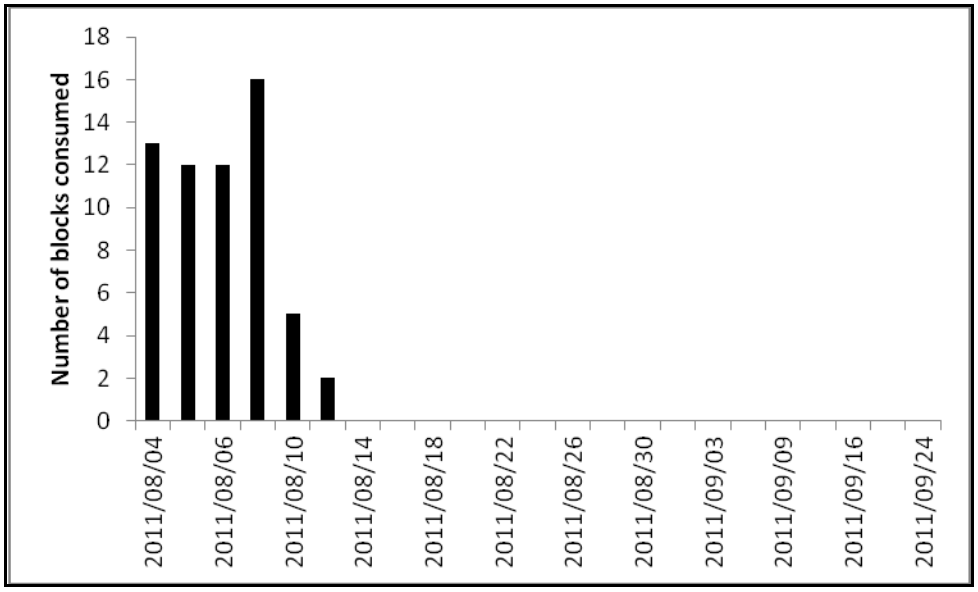

Figure 8. Total daily bait uptake from August 4 to September 24, 2011 on Bischof Island F.

Forty-seven percent (n=7) of stations on Bischof Island F experienced bait uptake during the eradication with a total of 60 bait blocks removed (uptake rate: 0.1kg bait/ha). Remote cameras deployed at 14 locations on Island F (total camera nights: 161) did not capture any footage of Norway rats but did record red squirrels near the bait stations. However, no squirrels were photographed removing the bait from the bait stations.

Rocky Islets

Bait stations were placed on any vegetated rocks and rocky islets adjacent to the main Bischof Islands that were potential rat habitat. Although it is not appropriate to group the bait uptake from these stations based on their spatial distribution around the Bischof Islands, it is important to note that bait uptake on rocks and islets occurred consistently until August 20, 2011, after which time there was no uptake with the exception of September 1 and September 16, 2011. Forty-five percent (n=10) of

stations on vegetated rocks and rocky islets reported bait uptake during the eradication with a total of 143 bait blocks removed (bait uptake rate: 1.6 kg/ha).

Efficacy Monitoring

Remote cameras were deployed to detect and monitor the presence and behaviour of rats and non-target species in and around the bait stations on the Bischof Islands.

Remote cameras recorded 16 rat events in 268 camera nights on Bischof Island A, of which 11 events[2] were captured between September 27 and 28, 2011 (5 events were captured at station AF5 on August 9, 2011). The last recorded rat event(s) on Bischof Island A occurred on September 28, 2011 at station AQ8 just prior to camp demobilization. On Bischof Island B, 21 rat events were recorded in 97 camera nights all occurring at stations BB4, BB5 and BC4 between August 4 and 9, 2011. Remote camera monitoring ended after September 25, 2011 on Bischof Island B.

On Bischof Island C zero rat events occurred in 74 camera nights between August 11 and September 11, 2011 after which time remote camera monitoring ended. Cameras on Bischof Island D recorded 302 rat events in 107 camera nights, most of between August 22 and 27, 2011. The last recorded rat event(s) on Bischof Island D were at stations DD4, DH2, DH3, DG3 and DG4 on September 1, 2011. Remote camera monitoring ended after September 1, 2011 on Bischof Island D.

Forty-nine rat events were recorded on Bischof Island E during 11 camera nights. All events were recorded at station EF1 between August 9 and 11, 2011. Cameras were deployed on July 31, 2011 and removed on August 11, 2011, at which time remote camera monitoring on Bischof Island E ended. Seven rat events were recorded in 169 camera nights on Bischof Island F between August 8 and 9, 2011. All events were recorded at station FC2. Remote camera monitoring ended after September 10, 2011 on Bischof Island F.

DISCUSSION

Remote camera footage indicated that rats were likely never present on Bischof Island C and eradicated from Bischof Island D, E, and F. It is interesting to note that the detection of two rats on Bischof Island A on the same night after over 220 camera nights without rat detection occurred after an intense storm event where winds exceeded 55 knots and deposited significant debris on the beaches of the island. It is possible that the rats were displaced from habitats by the high waves or were transported to the Bischof Islands via floating debris. The detection of rats at the end of the secondary eradication phase is not entirely unexpected and is the reason for keeping the bait stations armed for up to two years post eradication implementation. However, the presence of red squirrels on the Bischof Islands will complicate the interpretation of any bait uptake during the tertiary (monitoring) phase and only extensive monitoring over the next two years will determine the success of the eradication.

On islands where red squirrels did not access the bait (Bischof Island D, E and F) bait uptake generally peaked 9 to 16 days following bait station arming, with the exception of Bischof Island D. Bait uptake usually declined quickly after this peak with the exception of Bischof Island A where red squirrels continued to influence bait uptake rates by consuming and likely caching the bait. The short duration of the primary eradication phase on Bischof Island D and F may suggest a small rat population that was

[2] The number of events does not equate into the number of rats present. Often one rat would be photographed multiple times during a single foray near a particular bait station.

quickly eliminated once bait uptake began. However, the successful elimination of rats on these islands, as well as the other Bischof Islands cannot be confirmed until the end of the tertiary (monitoring) phase.

Red Squirrel Presence on Bischof Islands A and B

Remote cameras and field personnel observations confirmed that red squirrels on Bischof Island A and B were consuming and/or caching bait blocks, which complicated the assessment of eradication progress for these islands[3]. Between September 8 and 30, 2011, remote cameras were installed at 24 stations on Bischof Island A and B (Figure 9) where bait uptake continued to occur in order to determine which species (rats or squirrels) was responsible for the bait uptake. A total of 249 camera nights resulted in 11 rat events and roughly 100 squirrel events at bait stations on these islands. Six of the rat events were recorded at station AV3 on September 27, 2011 and the remaining five rat events were recorded at station AQ8 on September 27 and 28, 2011 (Figure 9). All other cameras deployed throughout the month of September detected only red squirrel activity.

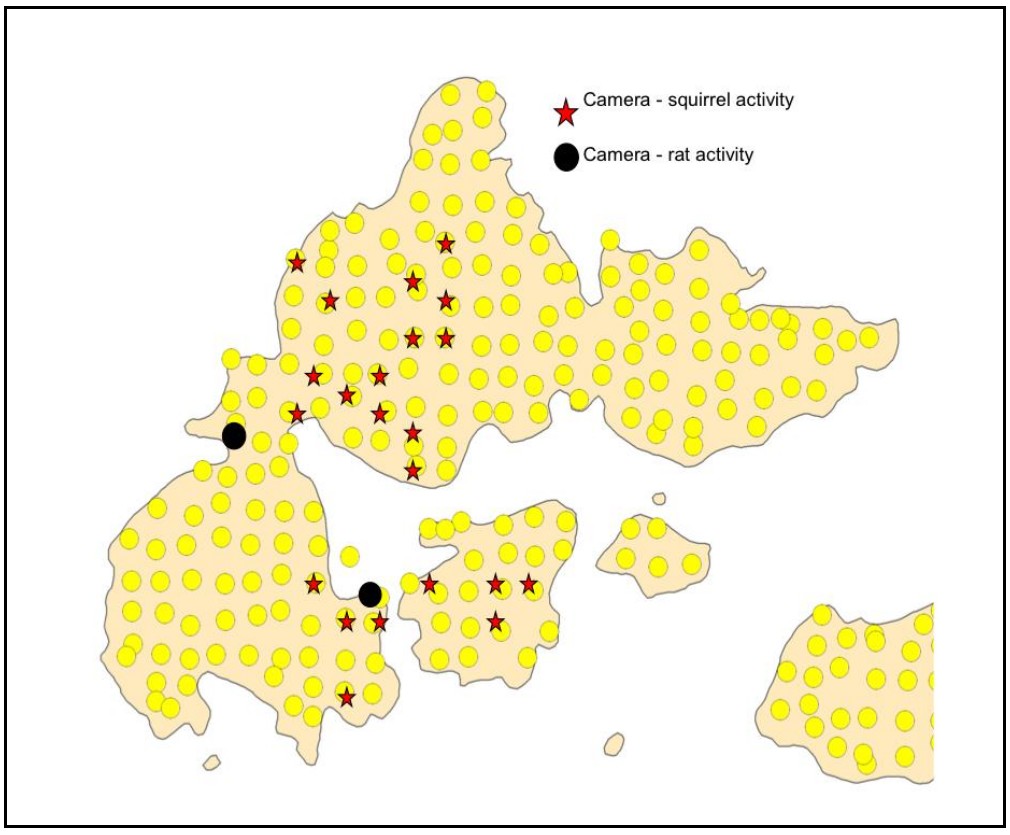

Figure 9. Remote camera locations on Bischof Islands A and B deployed during September 2011 to monitor ongoing bait uptake.

Squirrels are present on all Bischof Islands. However, this species only actively removed bait blocks from bait stations on Bischof Island A and B, which demonstrates the potential for variations in squirrel

[3] Although squirrels were present on the other Bischof islands there was no evidence of this species consuming or caching the bait (based on remote camera footage, personal observations, and lack of bait piles indicating squirrel feeding).

behaviour, even on adjacent islands. As expected, the number of squirrels observed during the abundance surveys on Bischof Island A decreased as the eradication operations progressed. It is likely that the decrease in squirrel abundance was a result of primary poisoning mortalities although it is important to consider the influence of deteriorating weather conditions in September affecting squirrel activity.

Remote cameras installed at bait stations on Bischof Island A and B between September 1 and September 27, 2011 did not record any rat presence which suggests that bait uptake during this time may have been primarily attributed to squirrels[4]. This assumption is supported by the increase in the number of bait piles (evidence of squirrels feeding on the bait blocks) observed during this time period. The influence of squirrels thus posed a challenge in terms of interpreting bait uptake data, and consequently assessing eradication progress on these islands because it is likely that this species may have accounted for a significant amount of bait uptake during both the primary and secondary eradication phases. This theory is supported by the bait uptake rate for Bischof Island A and B, which was two to three times greater than the islands where squirrels ignored the bait (Bischof Island D, E, and F).

Mitigative Measures

A total of 906 camera nights were completed on the Bischof Islands during the primary and secondary eradication phases with cameras primarily focused on bait stations to assess target and non-target activity. Although remote cameras recorded some species showing passive interest in stations (e.g. deer, river otter), there was no evidence of non-target species physically tampering with bait stations with the exception of the black bear that arrived on island during the late secondary eradication phase. Remote cameras also captured granivorous birds such as Song Sparrow, Fox Sparrow, Hermit Thrush, Varied Thrush, and Pacific Wren expressing interest in bait stations (moving on and around stations and entering stations). However, none of these species were observed feeding directly on the bait blocks. On the Bischof Islands, red squirrels were the only non-target species captured on remote cameras in the act of removing bait blocks from the stations.

Consistent non-target wildlife observations and apparent low non-target mortalities (reflected in the small number of carcasses recovered – refer to *Carcass Searches* section below for additional information) suggest that mitigative measures that were undertaken during the primary and secondary eradication phases effectively minimized the probability of primary, secondary, and tertiary poisoning risk. Informal wildlife sightings suggest that there was no detectable population decline of non-target species found on the project islands with the exception of non-native red squirrels on Bischof Island A. The mitigative measures employed during the primary and secondary eradication phases appeared to have minimized impacts to the local Common Raven population (one carcass recovered during the eradication operation) as well as other native species found on the islands.

Bait Station Design and Placement

The bait station design and anchoring system was one of the main issues that led to the Common Raven mortalities during the 1995 Langara Island rat eradication on Haida Gwaii (Kaiser et. al. 1997). Although unfortunate, this discovery was useful during the planning and implementation of the Bischof Islands eradication. The modified bait station design (locking and internal baffling) decreased tampering and accessibility to the bait by non-target species with the exception of red squirrels and

[4] Remote cameras captured images of rat(s) at bait station AV3 on September 27, 2011 and AQ8 on September 27 and 28, 2011 following over 220 camera nights without any rat photo events.

possibly small granivorous birds. Although Common Ravens and river otters did not show any interest in bait stations during primary and secondary phases of eradication, the use of rebar to anchor stations to the ground acted as a safeguard to prevent possible tampering by these species.

Bait Application Rate & Colouration

During the primary eradication phase on the Bischof Islands the number of bait blocks added to each station was reduced from six to four in order to minimize the amount of bait entering the environment while still maximizing the probability of success. This decision was partially based on the observation of red squirrels accessing bait in the stations on Bischof Island A and B. Bait remains (crumbs), indicative of squirrels accessing the bait, were found near several stations on Bischof Island A. Field personnel removed all bait remains and any bait blocks found outside the bait stations during station checks and during formal carcass searches in order to minimize exposure and primary poisoning of granivorous birds or any other susceptible non-target species.

Although bait remains and whole bait blocks were occasionally found outside of the bait stations (primarily indicative of squirrel activity) the small number of non-target carcasses recovered during the primary and secondary eradication phases suggests that granivorous birds (e.g. Song Sparrows) were not interested in the bait. This may be a result of the bait colouration reducing visibility of the exposed bait to granivorous birds and the low application rate limiting the availability of bait outside of bait stations to non-target species.

Carcass Searches

Formal carcass searching began three to five days after bait uptake began on each individual island and continued on a regular basis until the end of primary and secondary eradication phases.

Between August 6 and October 1, 2011, a total of 1481.5 kilometers (836.5 hours) on the Bischof Islands (Island F data includes all rocks stations; Table 2) of formal and non-formal carcass searches were undertaken.

Table 2. Formal and non-formal carcass search effort in distance and time for the Bischof Islands.

ISLAND	CARCASS SEARCH TYPE	DISTANCE (km)	TIME (hrs)
A	Formal	146.8	91.2
	Non-formal	860.6	462.3
B	Formal	5.5	5.3
	Non-formal	6.0	3.0
C	Formal	0.8	0.6
	Non-formal	1.5	1.1
D	Formal	30.1	17.4
	Non-formal	137.7	92.8
E	Formal	15.8	13.1
	Non-formal	253.5	134.2
F	Formal	16.4	11.5
	Non-formal	6.8	4.0

ISLAND	CARCASS SEARCH TYPE	DISTANCE (km)	TIME (hrs)
TOTAL	Formal	**215.4**	**139.1**
	Non-formal	**1266.1**	**697.4**

The formal and non-formal carcass searches resulted in the recovery of seventeen carcasses (seven Norway rats, one red squirrel, two Pigeon Guillemots (prey remains from a Northern Goshawk or Peregrine Falcon kill), two Bald Eagles (old skeletons), one Common Raven, one Sitka Black-tailed deer (old skeleton), one California Gull, and two Fox Sparrows). It is important to note that the two Bald Eagle carcasses and deer remains consisted of bleached bones and mossy feathers indicating that mortality occurred many months prior to the eradication.

Approximately half of the carcasses recovered were not a direct result of primary, secondary, or tertiary exposure based on when the carcass was recovered, the condition of the carcass, and the species. The remaining non-target carcasses recovered during the eradication operation will be tested for brodifacoum exposure if they are in suitable condition for testing.

Although it is likely that some carcasses were not recovered during the primary and eradication phases, formal and non-formal carcass searches were still considered an important mitigative measure to reduce the potential for secondary and tertiary poisoning of non-target species such as Common Raven.

Supplemental Feeding of Non-target Species

Deer were culled and placed at six mitigation sites between August 4 and September 16, 2011. The mitigation site MIT1 is the closest point of land to the Bischof Islands and because of this proximity the field team placed the most carcasses at this location. Consequently the highest number of bird sightings was also observed at MIT1 with 77 adult Bald Eagles, 20 juvenile Bald Eagles, 15 Common Ravens and 291 Northwestern Crows recorded on or near the deer carcasses during 34 days of observations[5].

In addition to personnel observations, remote cameras were placed at several of the mitigation sites and showed Bald Eagles, Common Ravens, and Northwestern Crows feeding on carcasses, often immediately after placement, until only bones remained. The remote cameras also captured rats feeding on deer carcasses at MIT1 after dusk when bird activity ceased.

The large numbers of Common Ravens, Bald Eagles, and Northwestern Crows observed at the deer mitigation sites suggests that supplemental food sources are an effective means of drawing scavenging birds away from an eradication operation, thereby reducing the potential for primary, secondary, or tertiary poisonings. Although it is unlikely that all of the birds observed at the mitigation sites were residents of the Bischof Islands, field personnel observed Bald Eagles and Common Ravens flying

[5] It is important to note, however, that observational data collected from mitigation sites may not be an accurate representation of bird activity because observation effort was inconsistent among sites.

directly from the Bischof Islands to the mitigation sites on several occasions confirming that this is a useful mitigative measure for eradication operations.

Based on preliminary results, it appears that rats have been eradicated from the Bischof Islands (79 hectares in size). However, eradication success will not be confirmed until 2 years of post-eradication monitoring have been completed with no rats observed.

VI. Monitoring and Maintenance Activities

Describe any monitoring and maintenance that has taken place during the reporting period and/or procedures that are being used to evaluate the relative success of the project in achieving its goals and objectives. When will monitoring results become available?

Several remote cameras were left in place on the Bischof Islands following completion of the secondary eradication phase on October 1, 2011 to monitor for presence/absence of rats. In November, 2011 field crews revisited the islands to conduct bait station inspections, replenish/refresh bait as necessary, and check the remote cameras for rat sign. The majority of bait stations had no bait uptake and no rats were recorded on the remote cameras. However, a small number of stations experienced some bait uptake on Island A, although only squirrels were recorded on the remote cameras. Therefore, it is likely that the bait uptake was due to squirrel activity which was also seen throughout the eradication operation on this island.

The stations will continue to be checked and replenished with fresh bait at three months intervals (weather dependent) for 24 months after the start of eradication to safeguard against rats that might have escaped exposure. During the monitoring stage the field teams will continue to record the activity per station during each visit, including numbers of bait blocks removed, incisor marks on blocks, insect or slug activity inside station, other evidence of non-target activity or station tampering, and condition of bait blocks.

Stage 4: Non-target Species Impacts & Ecosystem Monitoring

Parks Canada conducted biodiversity and non-target surveys prior to and during eradication operations to obtain baseline data that can help evaluate the success of the management action (eradication of rats) and understand the nature of the impacts on the island ecosystems. Non-target species abundance was measured for small mammals, songbirds, shorebirds, Bald Eagles, Common Ravens, Northwestern Crows, gulls, seals, and river otter to measure baseline population levels of these native species. These surveys will continue for at least 2 years or longer post-eradication to assess potential impacts to non-target native species. The results of the monitoring activities will be made available two years post-eradication implementation.

Pre-eradication (2010-2011) native species monitoring by Parks Canada Agency indicated that the number of native avian species observed remained relatively consistent prior to the eradication, with an actual increase in species diversity between 2010 and 2011 (Bergman 2012). Please refer to Bergman (2012) for more information.

In addition to the formal Parks Canada Agency ecological monitoring surveys summarized by Bergman (2011, 2012) and remote camera monitoring, the presence of non-target wildlife species was also passively monitored by field team members while performing bait station checks, carcass searches, and deploying remote cameras. Visual observations made by field personnel were recorded in Archer™

field PCs and included native species that were at risk of secondary poisoning such as Common Ravens, Bald Eagles, and Northwestern Crows, as well as other species found on the islands. Detections were recorded, along with any relevant notes regarding location or behaviour of individual animals. Vocalizations of species were not recorded unless the observer could confirm the species identification with visual observations. Wildlife data was downloaded and analyzed using ArcGIS™ and Microsoft Excel™. During primary and secondary eradication phases remote cameras were extensively used to monitor the progress of the eradication. A total of approximately 850 camera nights were also completed during the primary and secondary phases of the eradication. Passive wildlife monitoring and remote camera footage were used as an adaptive management tool during primary and secondary eradication operations and will continue to complement data collected during formal biodiversity and non-target surveys conducted by Parks Canada.

During the passive wildlife monitoring by field personnel during the eradication operations Northwestern Crows exhibited the highest number of sightings (489) for avian scavengers followed by Common Ravens (120 sightings) and Bald Eagles (94 sightings; Figures 10, 11, and 12). These species were observed throughout the primary and secondary eradication phases with no noticeable changes in species abundance. Other species, such as Sooty Grouse and Sitka black-tailed deer were also observed throughout the primary and secondary eradication phases with no observable change in sighting frequency as the eradication progressed.

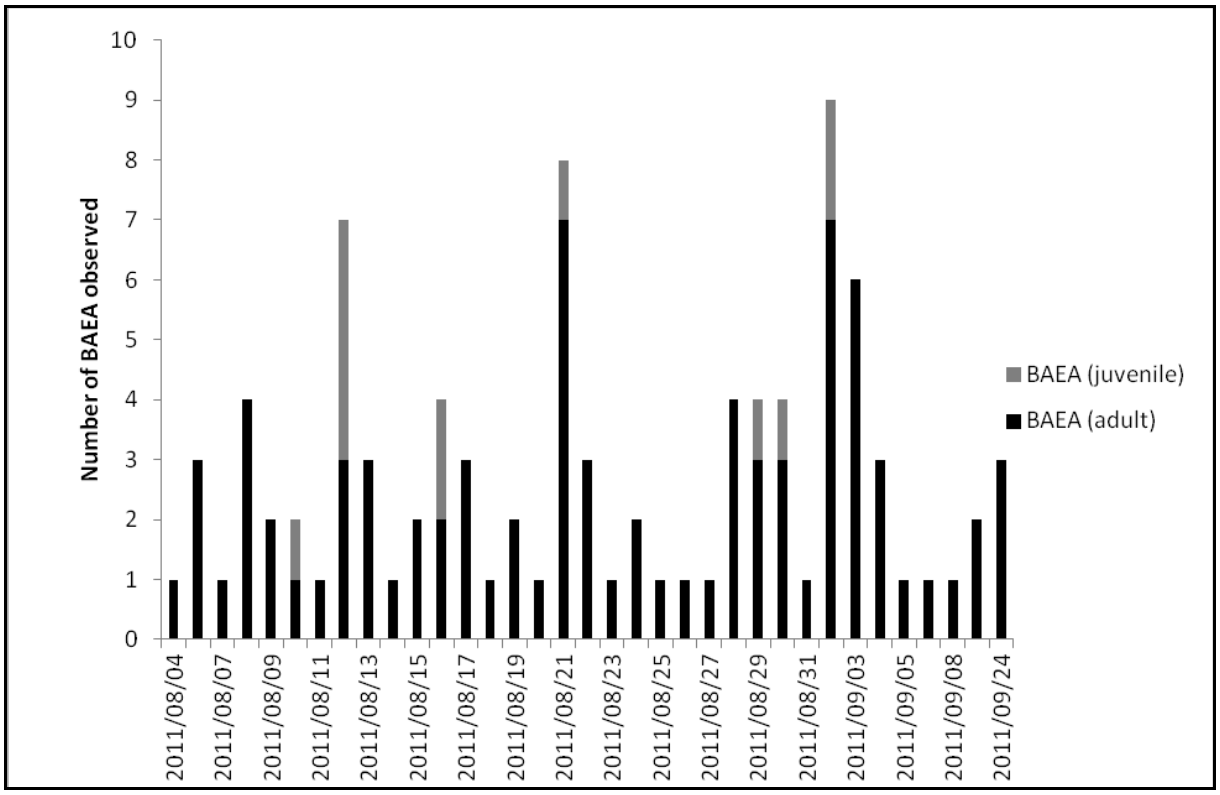

Figure 10. Number of Bald Eagle sightings on the Bischof Islands from August 4 to September 24, 2011.

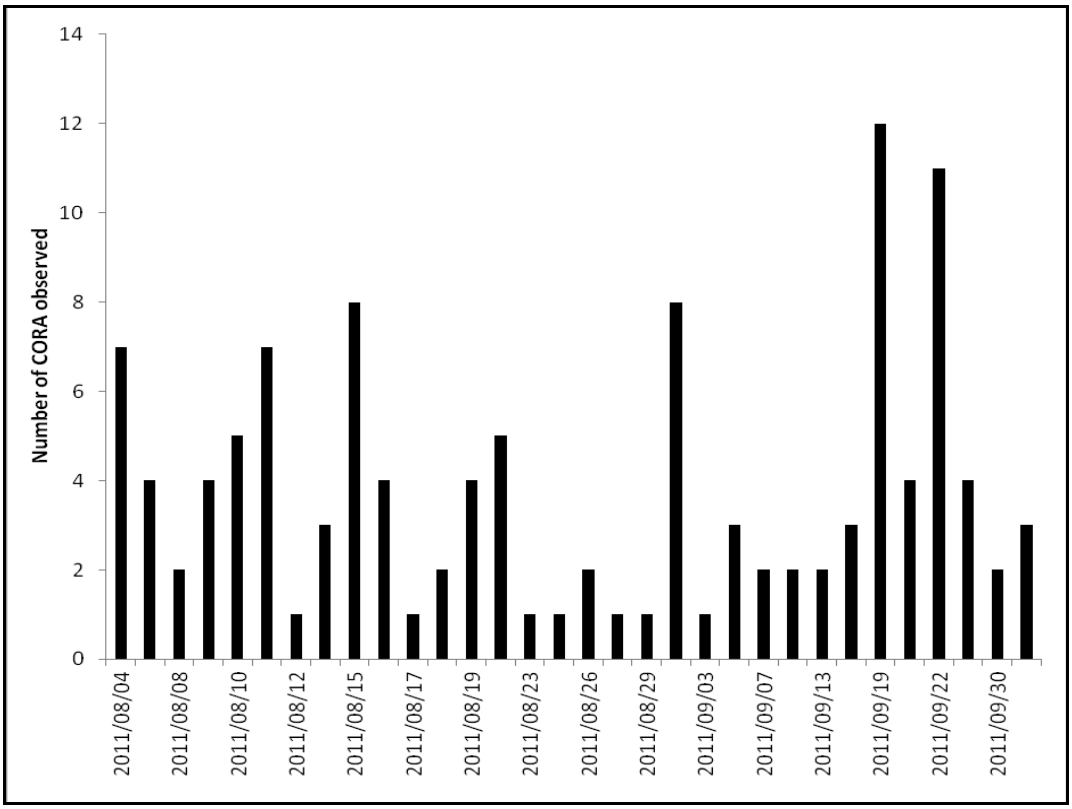

Figure 11. Number of Common Raven sightings on the Bischof Islands from August 4 to October 1, 2011.

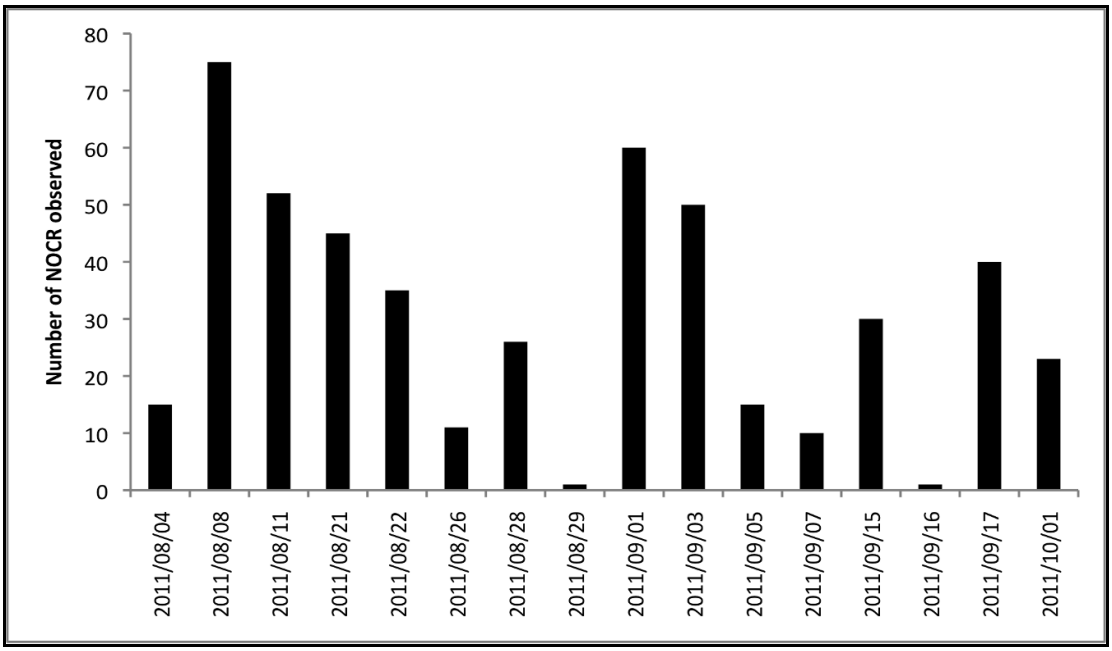

Figure 12. Number of Northwestern Crow sightings on the Bischof Islands from August 4 to October 1, 2011.

Based on field observations and remote camera footage, preliminary results indicate that the number of local, native wildlife sighted remained relatively constant throughout primary and secondary eradication phases on the Bischof Islands. Minor daily/weekly fluctuations in observations are likely attributed to observer efficiency as well as the frequency of time spent on each island[6] and weather conditions, which can affect the level of wildlife activity (e.g. rainfall). Although anecdotal, these observations suggest that the eradication operations did not cause any significant impact to local native wildlife populations as evidenced by on-going sightings of high risk species such as Bald Eagles, Common Ravens, Northwestern Crows, and Northern Saw-whet Owl(*brooksi* subspecies).[7]

The consistency of anecdotal wildlife observations throughout the primary and secondary eradication phases also suggests that the mitigative measures implemented to minimize impacts to non-target species during the eradication operations (i.e., carcass searching, supplemental feeding, and remote camera monitoring) were effective. However, the long term ecosystem monitoring conducted by Parks Canada Agency (e.g. Bergman 2012) will provide more concrete data to assess ecosystem response to the eradication operations (both positive and negative).

The monitoring phase of the eradication will continue for two years (October 2014) post implementation. The project will be considered successful if rats are not present on the island after this time period. Continued monitoring of the island ecosystem to assess recovery or changes to populations of native species will take place regularly after the eradication campaign is completed by Parks Canada.

VII. Community Involvement

Describe community support and any public involvement in the project that has occurred during the reporting period, including the specific roles of volunteers in project activities.

This project employed a large number of local individuals (85% were from Haida Gwaii) and as a result there was a significant sense of 'ownership' of this project both by individuals directly involved in the planning, coordination, and implementation of it, as well as members of the community with indirect connections to the project. Project staff became well known in the small community of Queen Charlotte City, near Parks Canada's headquarters and kept the public updated on the progress of the eradication. The project was very well received at the community level.

VIII. Outreach Activities

Describe any outreach or educational activities (e.g. training, brochures, videos, press releases or public events) related to the project that has occurred during the reporting period.

To date this project has attracted significant press coverage. Several newspaper and magazine articles were published (Globe and Mail, MacLean's Magazine, Epoch Times, Queen Charlotte Observer) and at least four radio interviews by the Canadian Broadcast Corporation (CBC) were completed. Furthermore several other articles are currently being written by reporters for Explore Magazine, Canadian

[6] During the primary eradication phase field team members were on each island everyday, whereas during the secondary eradication phase, islands were visited every three to five days.

[7] This species is known to prey on rodents including rats. One adult was observed on the Bischof Islands during the secondary eradication phase and re-sighted during the tertiary phase.

Geographic and other online magazines. In addition to the media coverage, the results of the project were presented at the 2012 Pacific Seabird Group meeting in Hawaii and also at the February 26, 2012 National Invasive Species Conference in Ottawa, Ontario, Canada. A third presentation is planned for the North American Ornithological Conference in Vancouver, British Columbia in August 2012.

Links to news stories regarding the project:

International League of Conservation Photographers (http://www.ilcp.com/projects/haida-gwaii-tim?tab=2&subtab=0)

National Geographic Daily News (http://newswatch.nationalgeographic.com/2011/11/22/restoring-the-balance%E2%80%93-restoration-of-hope_)

NOAA Restoration Centre (http://usresponserestoration.wordpress.com/2011/11/08/gwaii-luckenbach-galapagos-of-the-north)

CBC news (http://www.cbc.ca/news/canada/british-columbia/story/2011/08/24/bc-rat-eradication-haida-gwaii.html)

CBC Daybreak North* (http://www.cbc.ca/daybreaknorth/interviews/2011/08/23/rats-being-eradicated-from-haida-gwaii-to-preserve-rare-sea-bird)

*Note: there were two CBC interviews given. One by Laurie Wein of Parks Canada and one by Gregg Howald of Island Conservation.

Invasive Plant Council of BC (http://www.invasiveplantcouncilbc.ca/invasive-species-in-the-news/rats-threatening-haida-gwaii-targeted-for-eradication)

The Tyee (http://thetyee.ca/Life/2011/11/24/Rat-Hunters)

Macleans Magazine (http://www2.macleans.ca/2011/09/13/rat-race)

The Epoch Times (http://www.theepochtimes.com/n2/canada/rat-eradication-underway-on-bc-islands-61020.html)

Huffington post (http://www.huffingtonpost.com/2011/11/27/haida-gwaii-islands-conservation_n_1113597.html?ref=canada#s498728)

IX. Supporting Materials

Please include any supporting materials relating to the project, such as articles/news clippings, project photographs (before, during, and after--high resolution images on CD ROM are appreciated), project maps, related web sites, and evidence of NOAA Community-based Restoration Program support (e.g. photographs of signs at project sites, funding credit on outreach materials, press releases with complete program name, etc.)

X. Funding Information (Cash and In-kind)

1. Itemized Budget table (similar to example below) showing expenses incurred during the reporting period, for both NOAA funds and matching contributions, as follows. Budget categories should correspond to those described in the approved proposal.

Budget Category (e.g. personnel, supplies, contractual, etc.)	NOAA Funds	Matching Contributions	Total Expense	Nature (cash or in-kind) and Source of Match
Expenses				
Project Services	$6229.51		$6229.51	
Field Work	$36360.67	$11506.35	$36360.67	In-kind (bait), Bell Laboratories
Travel	$22398.43		$22398.43	
Role Equipment Usage	$14494.80		$14494.80	
Personnel Costs	$44774.58		$44774.58	
Professional Services	$11114.86		$11114.86	
Occupancy Expense	$8887.02		$8887.02	
Total Expense	$144,259.87		$144,259.87	
Allocated G&A	$18,017.81		$18,017.81	
Total Expenses	$162,277.68		$162,277.68	

2. Budget Narrative: Briefly describe expenditures by category and explain any differences between actual and scheduled expenditures. Include documentation of volunteer hours and in-kind donations.

Budget categories match those in the proposed budget. Amounts per category varied with higher amounts than anticipated in Travel due to extra required field site visits.

CONTACT INFORMATION

Contact Name: Gregg Howald
Contact Title: North American Regional Director
Organization (Grantee): Island Conservation
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Phone: (831) 359-4787 Fax:
E-mail: Gregg.howald@islandconservarion.org
Organization website (if applicable): www.islandconservation.org

PROJECT INFORMATION

Project Title: Phase 1: Eradiction of Norway Rats from the Bischof Islands

Project Award Number: 2008-0073-051 Project Reporting Period: March 15, 2011-March 15, 2012

Project Location

City: Skidegate

County: Canada State: British Columbia Zip Code: V0T1S0

Congressional District(s):

Landmark (e.g. road intersection, beach): Gwaii Haanas National Park Reserve and Haida Heritage Site

Land Ownership (check one): Public: ✓ Private: Both:

Geographic Coordinates (in decimal degrees, if readily available)

Longitude (X-coord): 52° 34' 34"
Latitude (Y-coord): 131°33'34"

Are there multiple project sites for this award?* Yes ✓ No

River Basin:

Geographic Identifier (e.g. Chesapeake Bay): Bischof islands

Project Start Date: June 2010 Project End Date: December 2014

Project Volunteers

Number of Volunteers: 0 Volunteer Hours: 0

* If multiple project sites are part of the same award, please duplicate this form and submit required information for each site

Brief Project Description (1-2 sentences) describing project and what it hopes to accomplish:

The project will address the demise of seabird colonies on the Bischof Islands, in particular Ancient Murrelet nesting colonies, which are of international ecological significance. The ultimate goal is the restoration of ecological processes, including seabird nesting colonies, through the removal of rats from the islands (Phase 1).

List of Project Partners and their contributions (e.g. cash, in-kind, goods and services, etc.)

Parks Canada: $1 million in cash (primarily), in-kind support, and equipment/supplies
Coastal Conservation: $10,000 in-kind support

If permits are required, please list the permits pending and those acquired to date:

No permits were required because the project was carried out by a Federal organization on federal lands.

RESTORATION INFORMATION- Please complete this section to the best of your ability. Information below will be confirmed via site visit or phone call by NOAA staff before the close-out of an award.

List the habitat type(s) and acres restored/enhanced/protected or created to date (cumulative) and remainder to be restored/enhanced/protected or created (projected) with CRP funds by the end date of the award. If the project restores fish passage, list the stream miles opened upstream and downstream for fish access. Actual and Projected columns should add up to the total(s) for acreage to be restored with CRP funds indicated in the approved proposal.

Habitat Type (e.g. tidal wetland, oyster reef, mangrove)	**Actual Acres Restored** (To date-cumulative)	**Projected Acres** (i.e. Remainder to be restored with CRP funds by award end date)	**Actual Stream Miles Opened for Fish Access**	**Projected Stream Miles Opened for Fish Access** (i.e. Remainder to be restored with CRP funds by award end date)
Island ecosystem	0	79	0	0

What indirect benefits resulted from this project? (e.g. improved water quality, increased awareness/stewardship):

The restoration of seabird colonies on the islands will help to reverse the indirect negative impacts on the entire island ecosystem by restoring the nutrient exchange cycle between marine and terrestrial environments (seabirds depositing guano and prey remains at nesting areas on an island). Furthermore, the eradication of rats will allow native rodents, some of which may be endemic to the islands, to recolonize/repopulate the area. Finally, this project also resulted in an increased community awareness regarding the negative impacts of invasive species, such as rats, not only on seabirds but on island ecosystems.

List of species (fish, shellfish, invertebrates) benefiting from project (common name and/or genus and species):

1. Ancient murrelet
2. Fork-tailed storm-petrel
3. Leach's storm petrel
4. Cassin's auklet
5. Black Oystercatcher
6. Dusky grouse
7. Song sparrow
8. Fox sparrow
9. Deer mouse
10. Dusky shrew

MONITORING ACTIVITIES

List of monitoring techniques used (e.g. salinity, fish counts, vegetation presence/absence):

1. Population surveys for small mammals, shorebirds, songbirds, bald eagles, ravens, crows, gulls, seals, and river otters to measure changes in population size pre- and post-eradication.
2. Remote camera monitoring of target and non-target species activity.
3.
4.
5.
6.
7.
8.
9.
10.

Report Prepared By: _____ **March 14, 2012**

Signature Date

Be sure to save a copy of each report for your records; subsequent submissions of the Project Data Form need only add outstanding information, so that the form is completed in its entirety as part of the final comprehensive progress report.

NOTICE

Responses to this collection are required of grant recipients to support the NOAA Community-based Restoration Program. The information provided will be used to evaluate the progress of the work proposed under the grant/cooperative agreement and determine whether the project conducted under the grant/cooperative agreement was successfully completed. Public reporting burden for completing the progress report narrative and project data form is estimated to average fifteen hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the information needed and completing and reviewing the collection of information. Responses to this information collection are required to retain funding provided by the NOAA Community-based Restoration Program. Confidentiality will not be maintained – the information will be available to the public. Send comments regarding this burden estimate or any other aspects of this collection of information, including suggestions for reducing this burden, to the NOAA Fisheries Office of Habitat Conservation, Restoration Division, F/HC3, 1315 East West Highway, Silver Spring, MD 20910.

Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

The information collected will be reviewed for compliance with the NOAA Section 515 Guidelines established in response to the Treasury and General Government Appropriations Act, and certified before dissemination.