Final report to Birds Caribbean on Betty Petersen Conservation Fund
Durrell Wildlife Conservation Trust – March 2022

# Engaging local communities in reversing the decline of the Endangered white breasted thrasher by restoring key nesting sites and reducing the impacts of invasive species

## Summary

The white-breasted thrasher *(Ramphocinclus brachyurus*) is an endangered songbird endemic to the Eastern Caribbean islands of Saint Lucia and Martinique. It's extremely small and increasingly fragmented range justifies the IUCN status of Endangered. Over 80% of the global white-breasted thrasher population is found in Saint Lucia, with the Mandelé range on the central-east coast accounting for approximately 90% of the Saint Lucian population. This project focuses on the Mandelé range, which is considered the stronghold for the species. The project goal is to reverse the decline of the Endangered white-breasted thrasher found in Saint Lucia, by reducing invasive predator numbers to increase thrasher nesting success and raise awareness among the Saint Lucia public on conservation of the species dry forest habitat.

Project activities are delivered to achieve three main outcomes established in the grant proposal: Outcome 1: Participatory habitat management plan for key white-breasted thrasher sites in the Mandelé range in place; Outcome 2: Predator control programme reduces number of predators increasing white-breasted thrasher nesting success; Outcome 3: Awareness on conservation of white-breasted thrasher and dry forest communicated to wider Saint Lucian public.

Here we report the overall project's progress during Year 3 (Mar 21 – Mar 22), summarising the achievements for each outcome and describing the impacts of COVID-19 on project development. Future plans are provided for each activity. Finally, we present a detailed budget with expenditures for the reported period and delivered activities.


White-breasted thrasher in the Mandelé range. Photo © H. Tseng and A. Toussaint.

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## COVID-19 updates and impact on project development

The impacts of COVID-19 on Saint Lucia during 2021 were less severe than in previous years but still had some impact on the project. Most notably all schools remained closed for the duration of the year and for frequent periods large public events not allowed. This has meant we have been unable to progress with the outreach activities as originally planned (see Output 3 section for more detail). Aside from this the principal impacts were due to team members contracting COVID-19 on occasion (all have fully recovered) causing plans to be altered or amended accordingly. These impacts however were only short term.

The major boost for the project was Durrell's new Caribbean Programme Manager, Luke Jones, arriving on island in April 2021 just a few weeks before implementation of the predator control trial was due to start. In addition, Saphira Hunt continued to support operations through her secondment to Durrell from Saint Lucia National Trust for 2-days per week. In December 2022, Saphira resigned from SLNT and has now become a full-time Durrell staff member from February 2022. To lead development of the technical aspects of the project (including nest monitoring and predator control) Jennifer Mortensen, who undertook her PhD on the white-breasted was recruited on a consultancy contract from May 2019.

## Outcome 1 overview

Outcome 1 aimed to increase the area of suitable habitat by developing a cooperative land management system that promotes the protection of key nesting sites and sustainable land use practices. There are four activities to achieve this outcome of which one was successfully delivered (activity 1.1) and one was withdrawn (activity 1.3). The remaining two activities have been affected by COVID-19 restrictions that had an impact on our in-country capacity in 2020 and early 2021. The complications around identifying land ownership in the area was underestimated when compiling the proposal. This combined with COVID-19 and the intensive nature of the predator control trials during 2021 meant these activities taking a back seat to Outcome 2 work. Activity 1.2 is now underway and is expected to be completed in 2022 but as a result activity 1.4 has not been undertaken.

### *Activity 1.1: Develop a Habitat Suitability Model for white-breasted thrasher in the Mandelé range*

This activity was successfully completed, and results were given in Year 1 report. By mapping thrasher abundance within the Mandelé range, we produced a Habitat Suitability Model that mapped potential areas for connectivity (Figure 1). Based on this analysis we identified priority parcels for the white-breasted thrasher and proposed extension to nature reserve (18.3 ha additional to original reserve). Results are being used to guide Activity 1.2

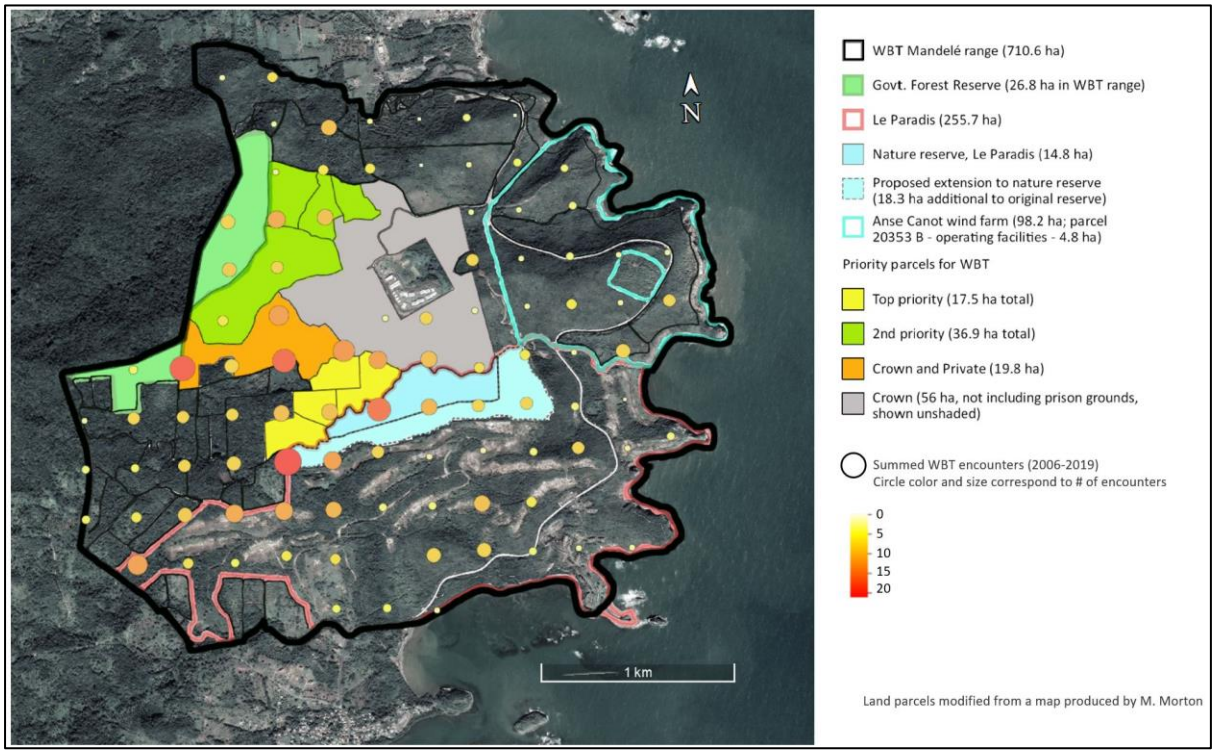


**Figure 1:** Habitat suitability map with priority land parcels for white-breasted thrasher in the Mandelé range.

## *Activity 1.2: Assess feasibility of land purchase and/or lease for the conservation of key white breasted thrasher habitat*

This activity was postponed due to COVID-19 restrictions that limited our in-country capacity. Once Luke was in post and the bulk of the predator control trial completed, liaison with partners at Forestry on a potential consultant to look at this was undertaken. Unfortunately, few suitable options were available. In February 2022 Saphira Hunt joined Durrell on a permanent basis as our Caribbean Programme Officer (Saphira was previously employed by our partners Saint Lucia National Trust and seconded to Durrell for 2-days/week). This has provided us with the additional capacity to now undertake this work which Saphira is leading. To date, working with the Department of Forestry's Mapping Unit we have identified the Block and Parcel numbers of the key parcels of lands as identified in Activity 1.1 (Figure 1 and 2). A total of nine individual land blocks comprise the three priority parcels identified for white-breasted thrasher conservation. Of these, three currently have known owners. Next steps are to engage with the Department of Land Registry in identifying the landowners, then to approach and discuss with them their willingness for active engagement in conservation measures for white-breasted thrasher, land purchase or lease. This process will go beyond the end of the current grant.

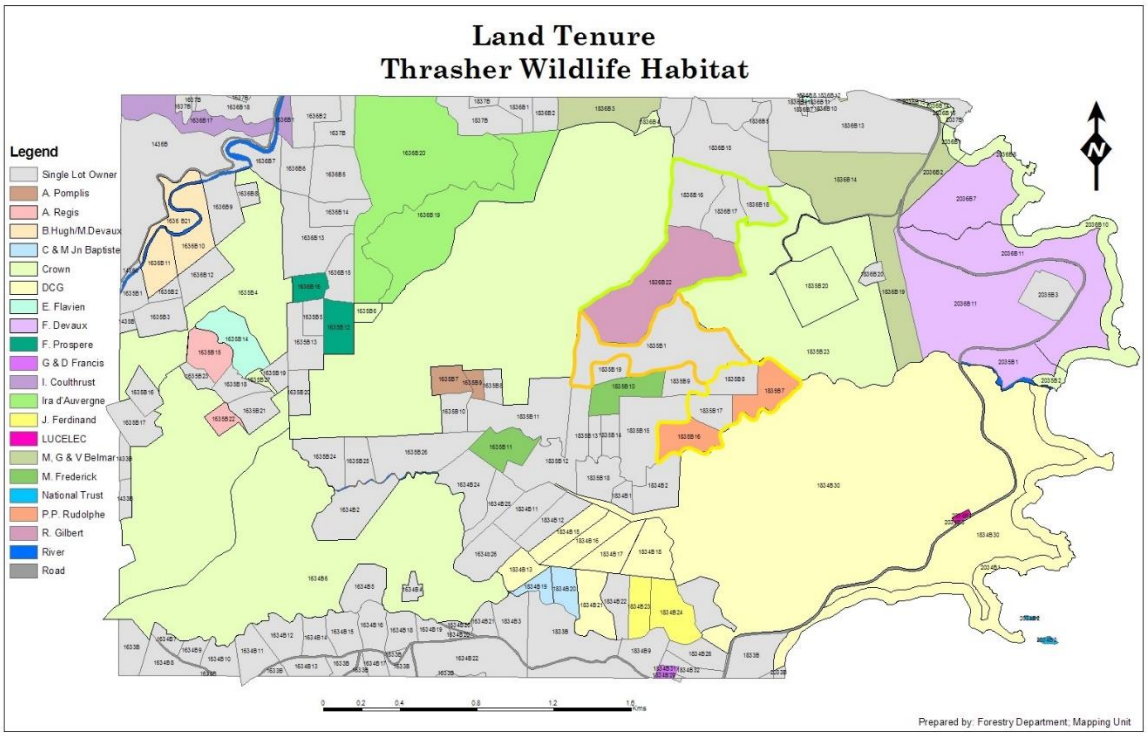


**Figure 2:** Land tenure map for Mandelé range with priority parcels from Figure 1 highlighted. Le Paradis holdings are pale yellow 'DCG'.

### *Activity 1.3: Establish two school-based community nurseries and demonstration plots for restoration*

As communicated to Birds Caribbean via email and our in our Year 1 report, we considered the risks (lack of long-term security for restoration) and costs of implementing a nursery and restoration programme, too great at this current time and decided to withdraw activity 1.3. Funds related to this activity were partially allocated to other activities ($5,000) and the remaining balance was returned to Birds Caribbean ($10,650).

### *Activity 1.4: Develop a restoration planting plan*

Any restoration plan depends on identification of land parcels where this is to be undertaken. Priority land parcels have been identified in Activity 1.1 but those on which restoration can be undertaken is not (Activity 1.2). This activity has been postponed until the landscape and scale of potential restoration is fully understood.

## Outcome 2 overview

Outcome 2 aimed to reduce the predation pressure on white-breasted thrasher and improve the nesting success in the Mandelé Range. There are two activities proposed to achieve this outcome and we have initiated both. The invasive species control plan (activity 2.1) was completed in Year 2 along with a year of nest monitoring (activity 2.1) and monitoring of predator abundance (activity 2.2). After delaying the implementation of the predator control trial to 2021 due to COVID-19 this was successfully implemented during Year 3 of the project.

### *Activity 2.1: Implement an invasive predator control programme*

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An intensive predator control programme was conducted between 17 May and 17 September 2021. This was a highly coordinated effort that involved two full time members of Durrell staff, a full-time technician and 14 members of the Forestry Department. In total 360 person-days of fieldwork were conducted across an initial 9-week period. This work included deployment and monitoring of bait stations, live traps, tracking tunnels, and camera traps. In addition to this we undertook monitoring of white-breasted thrasher nesting success across four experimental sites during the same period.

The predator control experiment ran concurrently with a nest monitoring programme, which was essential to evaluate the success of the intervention. The initial plan for both activities was to start in early April 2021, but we were delayed for several reasons, one of which was that some of our major equipment, including a vehicle, was stuck in customs for several months. Because of this, we ended up starting in mid-May 2021.

The predator control programme consisted of an 8-week period (extended to 9 to account for a week lost due to the impacts of Hurricane Elsa) of invasive alien predator control (rats, mongoose, opossum, feral cats) at two intervention sites (Driving Range, Bordelais). Based on our peer-reviewed control plan, we targeted rats with poison (Bromadiolone) in a ground-based bait station operation design (widely used across eradication programmes in the Caribbean). Bait stations were placed every 35 m within the two intervention sites, resulting in 60 bait stations per site, covering an approximate area of 73,500m$^2$ at each site respectively (Figures 3 and 4). Bait stations were checked every Monday, Wednesday, and Friday for 8 weeks. They were weighed every visit, mass recorded, and then topped up if below 80g or if moldy. This resulted in 120 bait stations being checked every other day. By project end a total of 4028g of bait had been consumed at Driving Range and 5176.26g at Bordelais. According to manufacturer guidelines this level of consumption equates to 230 and 296 large adult rats controlled at both Driving Range and Bordelais respectively. During the entire poisoning period only one corpse was found, a juvenile rat, near bait station 6 at driving range, which following an autopsy revealed the cause of death as internal hemorrhaging from consumption of poison. Several observations were made of secondary poisoning to mice, several of which were found sluggishly consuming bait inside the stations upon visiting.

**Figure 4**: Department of Forestry worker, Terrance Eugene, installing one of 60 poison baiting stations at Driving Range.

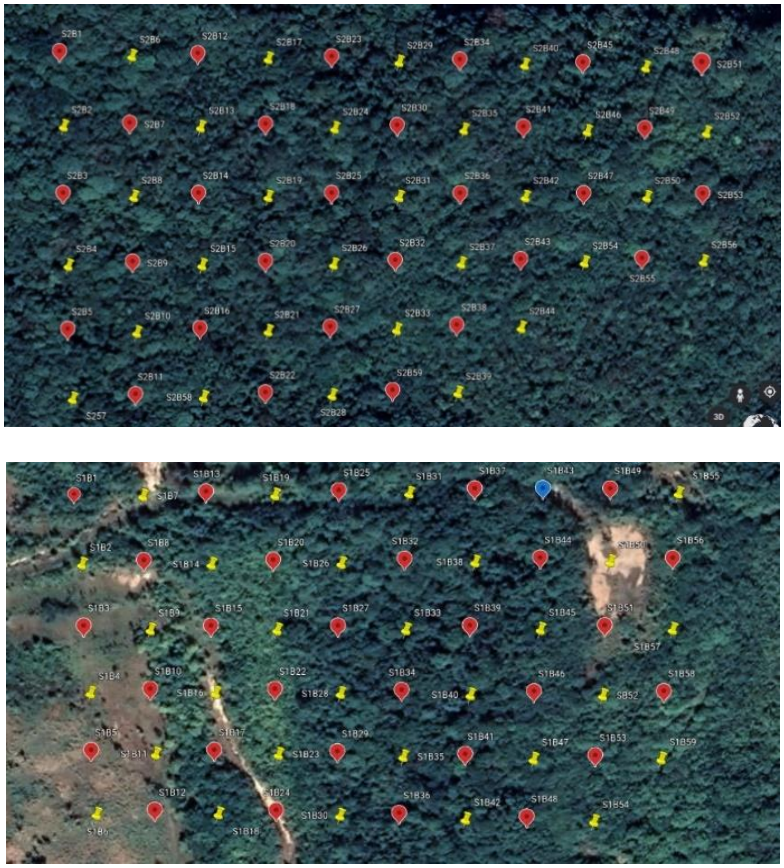

**Figure 4:** Maps detailing the density and distribution of Poison Baiting and Live Trapping stations at Bordelais (top) and Driving Range (bottom). Each point represents a poison bait station with the yellow pins having both a poison bait station and a live trap.

For the other target species (mongoose, feral cats, and opossum) we used Tomahawk live traps. Traps were placed at every other poison bait station, so at 70 m intervals for a total of 30 live traps across each of the two intervention sites (60 in total, see Figure 4). We held trapping sessions every other week, i.e., 4 sessions over the 8-week intervention period. During trapping weeks, traps were set on Monday and checked and re-set if needed each day until Friday, when they were closed until the next session. Over the course of the trapping sessions, we captured a total of 32 invasive predators across the two implementation sites (16 Driving Range, 16 Bordelaise)


**Figure 5:** Forestry staff unloading live traps at Bordelais for deployment.

**Figure 6:** Small Indian mongoose (*Herpestes auropunctatus*) caught in live trapping grid

**Figure 7:** Common opossum (*Didelphis marsupialis*) caught in live trapping grid

**Figure 8:** Feral cat (*Felis catus*) caught in live trapping grid

**Figure 9:** Feral dog (*Canis familiaris*) caught in live trapping grid, rehomed by Pius Haynes (left)

Tracking Tunnels (Figure 10) were also deployed across all 4 sites, during which time they were baited and monitored at 4-week intervals. These proved to be largely ineffective due to snails predating on the paper (see pictures below).

**Figure 10:** Tracking tunnels; freshly set baited Tracking tunnel (left), (right) tracking paper destroyed following wet, humid conditions and predation by snails.

White-breasted thrasher nesting was also monitored across all four sites between 19 June and 21 September. Monitoring occurred via cameras for the first month and then via in-person nest checks for the next 10 weeks, totaling 14 weeks of nest monitoring activities. We monitored a total of 59 nests across the four sites during, more than triple (19 nests observed for 2020) those observed in the previous breeding year in 2020.

A summary timeline of the described activities is below. Data analysis for all activities is ongoing.

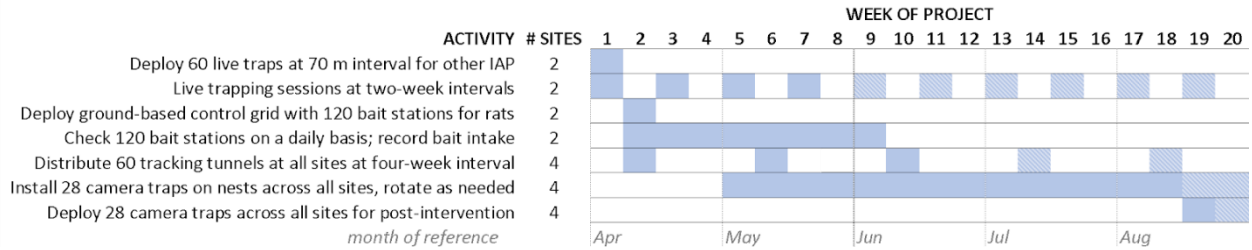


**Figure 11:** A summary timeline of the described activities is below. Data analysis for all activities is ongoing.

While these activities began later than planned, they were otherwise delivered as expected. Other challenges faced by the field team included bait becoming moldy (see photo below), covid infections and subsequent quarantines reducing team numbers, and Hurricane Elsa in the first week July, which kept us out of the field for about a week.

## *Activity 2.2: Monitor abundance of invasive predators at white-breasted thrasher sites using camera trap network*

We followed the sampling design used in 2019-2020, where we deployed a camera trap network across our four study sites (Substation, Driving Range, Bordelais, and Dr Little) for three months from December 2021 to February 2022. The collected data gives us a third year of information on relative abundance, intensity of habitat use, and activity pattern of target species. Importantly, these data will be used to estimate average and interannual variation in pre-intervention predator numbers across each of the sites. We collected 27,692 images during this last period and data analysis is ongoing.


**Figure 12:** camera trap records from the ongoing predator abundance monitoring: A) an opossum, one of the targeted predators captured in Bordelais, and B) the white-breasted thrasher (2 individuals) recorded at Substation.

This activity was delivered as expected. We had issues with camera tampering at the Dr Little site, which we somewhat expected due to higher human activity there. This required moving camera locations (Figure 13).

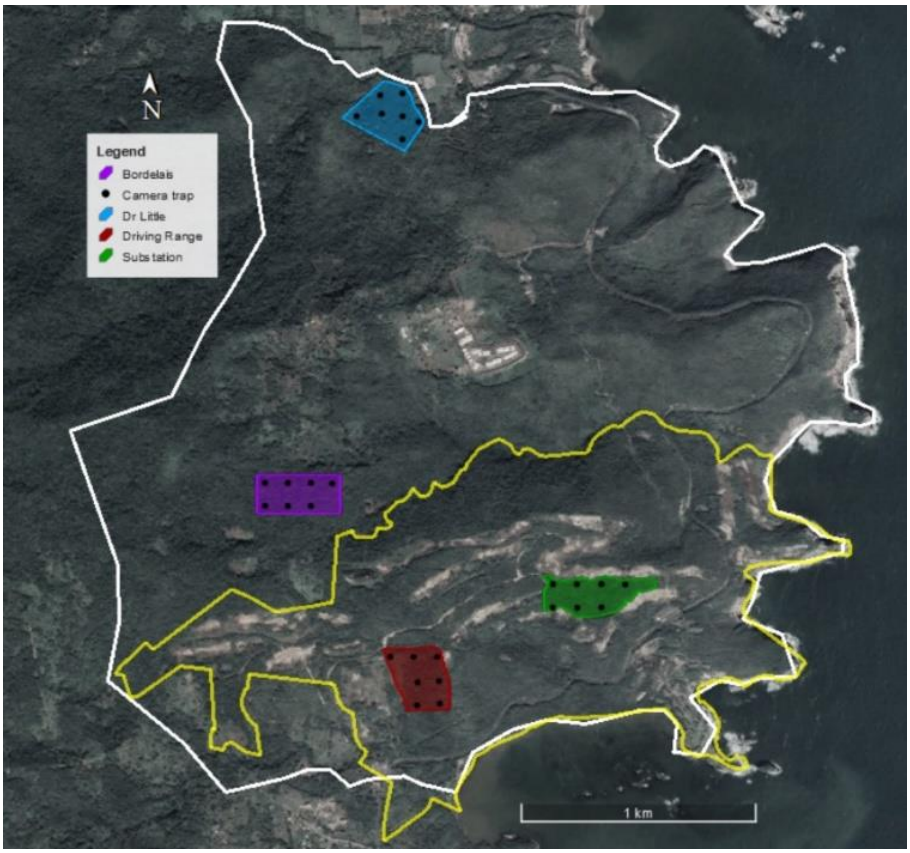


**Figure 13:** Field sites and camera trap design for collecting data on predator relative abundance and activity. The white polygon denotes the extent of the Mandelé range and the yellow polygon the extent of the Le Paradis resort development, where clearing for the golf course fairways can still be seen. Shaded polygons are approximate site boundaries and black dots are approximate camera trap locations. Map imagery: Google, © 2020 CNES/Airbus (image captured, December 2017).

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## Outcome 3 overview

Outcome 3 aims to raise awareness on the conservation of white-breasted thrasher and dry forest habitat to the wider Saint Lucian public for which we have one activity. We initially planned to deliver this through talks and visits in local schools, however, this has not been possible due to the government's COVID-19 measures and schools being closed most of 2020 and throughout 2021.

This activity was the one most affected by the global pandemic. We selected schools and prepared the materials needed to deliver the talks (presented in Year 1 report) but schools were closed in April 2020 and reopened in September with very restricted measures in place. However, schools remained open for only 2 months before closing again in November 2020, as the virus started to resurge in the community. They remained closed throughout 2021. We considered delivering online activities, but most school children have very limited access to internet.

We stated in our Year 2 report several alternative activities should schools remain closed: redo a revised knowledge, attitude, and perception (KAP) the questionnaire undertaken by Saint Lucia National Trust in 2016 and doing regular media inserts to circulate in Saint Lucia National Trust social media channels. We were unable to do these due to a lack of capacity across the partners most crucially within Saint Lucia National Trust (SLNT) with whom this work was to be done. SLNT were badly impacted by the COVID-19 pandemic resulting in staff cutbacks and having to prioritise existing work commitments into which the Mandelé range does not fall. In addition, both Forestry and Durrell staff have had to catch up on other project work delayed from 2021 and from predator control trial.

Luke has been engaging with both SLNT and Forestry with the intention to develop a combined outreach strategy for the dry forest and white-breasted thrasher. Planned for January 2022 this unfortunately had to be postponed. This is a priority to do in the upcoming year.

With Covid-19 protocols changing to bring life back to some normalcy we intend to undertake school visits for white-breasted thrasher during Term 3 (May to July) of the school year. Some schools have reached out to Durrell's Programme Officer Saphira Hunt to set up presentations and field activities.

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## Financial report

The amount requested was $60,900 over a two-year project timeframe of April 2019 – March 2021. Of this a maximum Year 1 spend of $34,000 was agreed with $27,200 dispersed to Durrell upon signing of the grant agreement.

The total budget spend for Year 1 was $20,954.80**.** With our Year 1 report we requested and were granted a change to the budget. The new total budget is **$50,250** and a second tranche of $19,800 was received in April 2020 following approval of the Year 1 report (Total funds received to date $47,000). It is against the revised budget that Year 3 and final project spend is reported below.

| **Item** | **Purpose** | **Amount requested** | **Year 1 Spend** | **Year 2 spend** | **Year 3 spend** | **Budget remaining** |
|---|---|---|---|---|---|---|
| Personnel | Full time project implementer for two years | $26,900 | $14,064 | $2,500 | $12,510 | -$2,174 |
| | 10% contribution to Saint Lucia National Trust staff time for educational activities | **$2,500** | | | $0 | $2,500 |
| | | | | | | |
| Travel / Meetings | Local vehicle travel and maintenance (approx. 2,000 insurance and maintenance, fuel at 1.25/litre x 1,600 l) | $1,000 **+ $500** | $535.44 | | $1,976.39 | -$1,011.83 |
| | Meeting costs (inc. room hire, refreshments, printing costs) | $500 | $35.37 | | $445.54 | $19.09 |
| | | | | | | |
| Equipment & Supplies | Trap cameras and accessories | $6,000 | $4,798.88 | $591.58 | $594.96 | $14.58 |
| | Other monitoring equipment - invasive species and plant growth | $850 | $21.11 | $559.97 | $1,562.84 | -$1,293.92 |
| | Traps, bait stations and poison | $2,000 + **$1,000** | | | $2,249.58 | $750.42 |
| | Educational and awareness raising materials | **$1,000** | | | | $1,000 |
| | | | | | | |
| Other | Surveys and land value assessments to assess feasibility of developing a conservation management agreement (4 month contract) | $5,000 | 0 | | $1,555.56 | $3,444.44 |
| Sub-total | | | | | | |
| In-Direct (Overhead) | | $3,000 | $1,500 | $750 | $750 | $0 |
| **TOTAL** | | **$50,250** | **$20,954.80** | **$4,401.55** | **$21,644.87** | **$3,248.78** |

### *Financial narrative*

**Personnel:** $2,500 was the final 50% paid to Jen Mortensen as part of her consultancy contract in the project. Durrell's Caribbean Programme Manager's salary led implementation of the project (50% time) of which 25% was paid through this grant - $10,010.

**Travel/meetings:** Vehicle costs were for vehicle fuel and car rental which was required for the start of the predator control programme whilst the Durrell vehicle was out of action. Meeting costs were for the post-predator control implementation, review meeting and thank-you BBQ. Due to the intensity of the predator control fuel costs were higher than anticipated.

**Equipment and supplies:** Replacement trail cameras for monitoring nests and predators and batteries; poison bait stations, poison bait and bait for live traps; tracking tunnels, gloves, snake guards, tools for placing out traps (e.g., hammers, pliers)

**Other:** In February, Saphira Hunt joined Durrell and was given the task of surveys and land value assessments. The expenditure is the equivalent of 1 month's salary for that month.

### Year 3 in-kind funding spend

In-kind funding spent on the project in the last year is indicated in the table below.

| **Item** | | **Role** | **In-kind funds** |
|---|---|---|---|
| Personnel | Jeff Dawson 10% time (12 months) | Field Programmes Manager, Durrell | $5,000 |
| | Izabela Barata 25% time (5 months) | Field Programmes Officer, Durrell | $3,255 |
| | Luke Jones 25% time (12 months) | Caribbean Programme Manager, Durrell | $10,400 |
| | Saphira Hunt 50% time (10 months) | SLNT Project Officer | $5,000 |
| | Forestry staff equivalent of 7 staff at 50% time (4 months) | Forestry Officers | $14,000 |
| *Sub-total* | | | $37,655 |
| In-Direct (Overhead) | | | $1,750 |
| **TOTAL** | | | **$24,571** |

## *Summary*

Over the course of the project we have spent **$47,001.22.** This leaves a remainder of $3,248.78. As explained in the report this underspend has been primarily due to delays associated with Covid-19 in particular delaying any outreach and educational activities planned.