



Department
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Development



Darwin Plus: Overseas Territories Environment and Climate Fund Annual Report

Important note *To be completed with reference to the Reporting Guidance Notes for Project Leaders:
it is expected that this report will be about 10 pages in length, excluding annexes*

Submission Deadline: 30th April 2018

Darwin Plus Project Information

Project reference	DPLUS 043
Project title	Consolidating local capacity for sustainable restoration and monitoring of Protected Areas in the Virgin Islands (UK)
Territory(ies)	British Virgin Islands (BVI)
Contract holder institution	National Parks Trust for the Virgin Islands (NPTVI)
Partner institutions	Jost van Dykes Preservation Society (JVDPS)
Grant value	£85,413
Start/end date of project	1 st April 2016 – 31 st March 2019
Reporting period (e.g., Apr 2016-Mar 2017) and number (e.g., AR 1,2)	April 2017 – March 2018, Annual Report 2
Project leader name	Lynda Varlack
Project website/blog/Twitter	Facebook: National Parks Trust of the Virgin Islands Facebook: Jost Van Dykes Preservation Society
Report author(s) and date	Nancy Pascoe, April 30 th 2018

1. Project overview

The BVI has over 60 islands with key areas for biodiversity conservation due to the distribution of endemic and threatened species. Invasive vertebrates, especially feral goats are destroying vegetation and seabird nesting habitats across the BVI. Additionally, rat predation of seabird eggs and chicks is a well-documented threat which combined with the goats, has contributed to the reduction in nesting seabirds at the DPLUS043 six selected locations of Great and Little Tobago National Parks (the Tobagos), Green Cay, East and West Seal Dogs and Prickly Pear National Park.

In the last decade there was a globally-important population of Roseate terns (*Sterna dougallii*) that would nest annually at Green Cay, but they relocated to smaller, less successful colonies due to the threats faced on Green Cay from invasive species.

The National Parks Trust of the Virgin Islands (NPTVI) and the Jost Van Dykes Preservation Society (JVDPS) have collaborated since 2012 on the continued restoration of Great and Little Tobago National Parks, with the former being one of the largest nesting sites for Magnificent frigatebirds (*Fregata magnificens*) in the Eastern Caribbean. Over 969 goats have been removed from the Tobagos National Park since 2013 using a combined approach of live capture and shooting. However this activity must be continuous as it can take years before total removal can be verified and breeding can no longer take place. If there is a pause in the culling effort then

there is the opportunity for breeding and the goat population to surge again, so culling must be continuous and monitoring is essential.

This DPLUS funded project aims to remove goats from four islands and undertake long-term rat control on three islands, using local personnel to consolidate capacity and ensure sustainability.

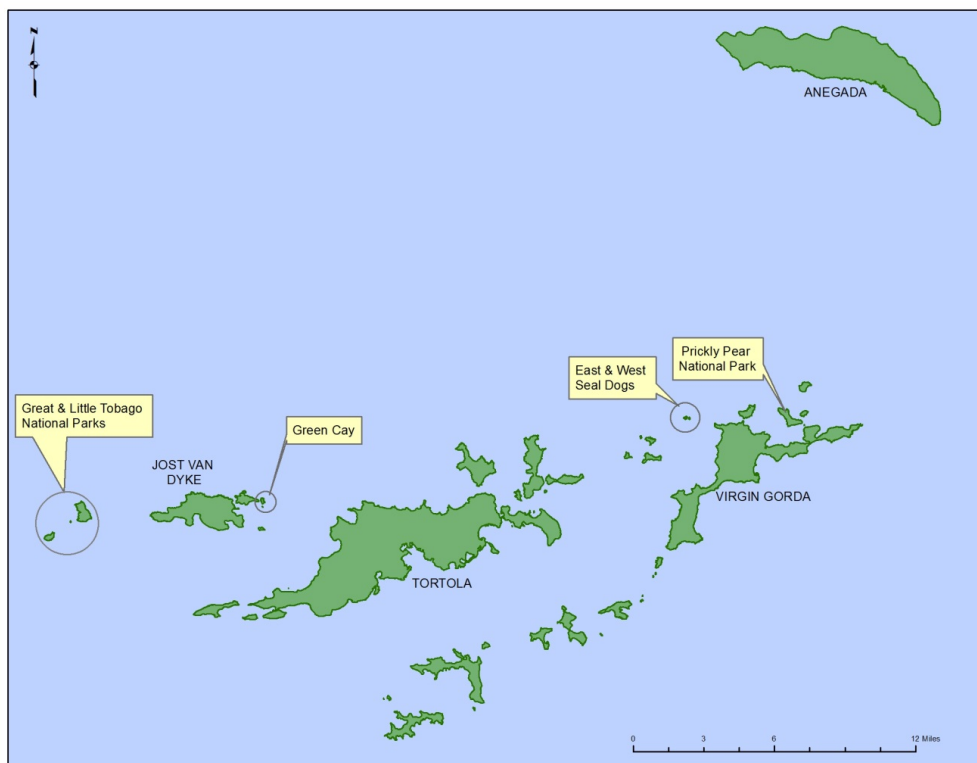


Figure 1. Map of the British Virgin Islands identifying the DPLUS043 project sites

2. Project stakeholders/partners

The key stakeholders in this DPLUS043 project are the NPTVI, JVDPS, and the local communities that benefit from an enriched marine and terrestrial tourism environment. As the project stakeholders are also the project leaders and partners, full involvement through regular planning meetings has taken place. In addition to this, whilst not originally identified in the project application as stakeholders, NPTVI and JVDPS invited the Environmental Health Department (EHD), the Department of Agriculture (DOA), the Conservation and Fisheries Department (CFD) in addition to a representative from a local pest control company who works on several private islands in the BVI to attend a workshop on rat eradication techniques for wildlife conservation.

The EHD is responsible for rat control in urban areas within the BVI. The DOA has the legal remit for liaison with farmers for livestock management, inclusive of goats and is also the agency that issues permission for importation of rat poison. CFD has overall environmental responsibility within the BVI and assists JVDPS and NPTVI in bird monitoring activities.

3. Project Progress

3.1 Progress in carrying out project Activities

Goat removal has been ongoing throughout the project starting in June 2016 and this continued in Year 2 at the Tobagos National Park (265 acres) and Prickly Pear National Park. Due to the geographic location of the Tobagos National Park at the far westerly end of the BVI the visitation schedule must be planned around the weather and sea conditions as these can both prevent access to the islands. Therefore, these islands are easier to access in the summer months, ideally from May through October, so the focus in Year 2 was on these sites during the summer months with 19 visits to the Tobagos between the end of April and the end of August 2017.

There were 24 visits to Prickly Pear National Park (180 acres) between the end of April and the end of August 2017. As this island is in the heart of the North Sound area of Virgin Gorda, which is a popular sailing destination for visitors, safety is a main priority and culling efforts take place in the very early morning to avoid any interaction with visitors to the island as firearms are used. Culling is also focused on the north eastern side of the island away from the main visitor beach and restaurant concession.

There were 18 visits to Prickly Pear National Park in 2018, starting in March. No visits to the Tobagos National Park have occurred in 2018 yet due to the unfavourable sea conditions that make landing on the islands unsafe. Culling activity at the Tobagos will resume in June 2018 and continue throughout the summer when the seas are calmer. This is the normal schedule for visitation to the Tobagos islands.

This represents three of the four islands that are being addressed by NPTVI in the DPLUS043 project. The fourth and smallest island of Green Cay (15 acres) has not been started, but it is not expected to take a long time as the island is small and easily accessible. The culling efforts were focused on the more distant and hard to access sites in Year 2 and all activities were delayed by the impact of the 2017 hurricane season.



Figure 2: Feral goats observed at Prickly Pear National Park, February 2018

Long-term rat control at Green Cay began in Year 2 of this DPLUS043 project. JVDPS conducted 6 trips to Green Cay between the end of April to the end of August 2017 to establish a grid, assess the density of rats and mount a trial number of A24 traps. JVDPS had two people funded by the DPLUS043 project in the field but was also able to get three volunteers to assist, including one PhD student from Louisiana who has been able to assist on a repeat basis.

Tracks were cut and trials for uptake of bait were carried out on Green Cay to determine rat densities and bait needs and the locations for bait stations were marked. Two missions lasting two days each were carried out in May 2017 and scheduled three weeks apart. Stations were baited daily and bait was broadcast on cliffsides to complete even saturation of the islands. Three A24s were set up as a trial at Green Cay and more will be added in the upcoming fieldwork year. To detect the presence of rats on the Green Cay, JVDPS set up chew blocks and a network of five game cameras, in addition to setting snap traps. Monitoring and use of A24s will continue for at least 24 months. Beyond the DPLUS043 project a monitoring schedule will be established so that reintroduction does not occur.



Figure 3: Volunteers assisting the JVDPS field team to set out the baiting grid at Green Cay

During the summer of 2017, the JVDPS field team made one visit per month to Seal Dog Islands totaling (4) visits were made to monitor for the presence or absence of rats. There were no images of rats recorded during any of the summer visits

JVDPS and NPTVI are very conscious of the safety risks associated with the use of the A24 rat traps as all the islands in the DPLUS043 project are visited by tourists on charter vessels. To address this, warning labels have been purchased and are affixed to each A24 rat trap.

Signage explaining the DPLUS043 project and the dangers associated with people inserting fingers into the A24 rat traps was designed in Year 1 and it had been anticipated that these would have been produced and distributed within the project sites in Year 2 but this not take place and the signs are in production now.

JVDPS carried out surveys for landbirds and reptiles at Green Cay during the field activities to set up and maintain the A24 rat traps. This will continue to be part of the long-term monitoring plan for all the sites in this DPLUS043 project.

3.2 Progress towards project Outputs

DPLUS043 project activities were interrupted when the BVI was hit by the category 5 hurricane Irma on September 6th, 2017 resulting in catastrophic damage to the Territory. This was followed by another category 5 hurricane Maria one week later. The impact to the staff of the NPTVI and the JVDPS who are directly involved in this project included the loss of homes, office space and equipment, including vessels. There was a period from September 2017 until the end of February 2018 where no DPLUS043 activity could take place as basic needs were being addressed personally and at NPTVI and JVDPS to get operational again and this is still an ongoing process. NPTVI is still sharing office space with three other Government Departments at another location as the NPTVI office was damaged and is not functional, with a loss of some files. JVDPS also lost office equipment and files.

The JVDPS field team had to cancel several planned trips during August 2017 when severe rainfall occurred, this was the beginning of a consistently active Atlantic hurricane season. The team had planned to conduct a three week period of field work in October 2017 to carry out rat control but the September hurricanes forced the cancellation of the fall 2017 field schedule.

JVDPS had planned to resume field activities in February 2018 but inclement weather between January and March 2018, resulted in the cancellation of 12 scheduled field days. However the JVDPS field team was able to carry out site visits to both Green Cay and Seal Dog Islands to

assess damage from February to April 2018. All game cameras were lost or damaged and in April 2018, JVDPS re-ordered game cameras to assist with rat monitoring. In April 2018, 2 site visits were made to the Seal Dog Islands. During the first visit field staff deployed 4 baited game cameras. All of the stations marked during 2017 were removed and the team re-gridded the island. However, this was done in the absence of a GPS unit, as JVDPS lost most of its field equipment. On the second visit the JVDPS field team returned to East Seal Dog island to retrieve the game cameras to observe the data, which revealed no images of rats. The JVDPS field team went to West Seal Dog Island and begin laying out a new grid of trap locations and deployed 4 baited game cameras which will be retrieved in May 2018.

The vessel that JVDPS had assigned to DPLUS043 activities was damaged in hurricane Irma and a replacement option is being sought. NPTVI also lost one of the two vessels for DPLUS043 activities so travel to sites to conduct goat culling is limited to one vessel and this is subject to routine maintenance and other NPTVI marine conservation work. A partial assessment of the extent of damage as it pertains to the project was carried out but only two of the four sites have been visited as the winter seasonal sea conditions have not made it possible to access the Tobagos National Park since the hurricanes.

The firearms equipment used by NPTVI was not impacted by the hurricanes as it was secured at the Road Town Police Station and that particular building was not damaged, compared to the main Police Headquarters which was destroyed.

The progress on Output 1: "*Invasive goats eradicated on 4 ecologically important islands in the BVI*" has continued in Year 2, with the NPTVI Warden with firearms training carrying out very early morning trips to Prickly Pear National Park. New trails have been cut through the fallen trees and debris at Prickly Pear National Park since hurricane Irma, in order to easily manoeuvre through the vegetation and track the goats safely. In Year 2 a total of 30 goats have been culled from the Tobagos National Park and 151 goats culled from Prickly Pear National Park.

Since the DPLUS043 project started in 2016 NPTVI has removed 47 goats from Great Tobago National Park, 22 from Little Tobago National Park, and 226 from Prickly Pear National Park. As stated no work has started yet at Green Cay, but this will begin in the summer of 2018. These numbers demonstrate the success of the previous goat removal work at the Tobagos National Park as there are smaller numbers of goats remaining on these islands. In comparison, the higher numbers removed from Prickly Pear National Park reflect the fact that this is the first goat removal effort ever undertaken on the island and the density of the goat population there. Unfortunately, the break in project activities as a result of the hurricanes means that another breeding season was able to take place.

JVDPS has been working towards meeting the activities under Output 2: "*System of long term control of rats implemented on Green Cay and Seal Dogs*" and these are all anticipated to be completed by the DPLUS043 project end.

During summer 2017, JVDPS field team made 1 x per month trips to Seal Dog Islands totaling (4) visits were made to monitor for the presence/absence of rats. 0 images of rats were recorded during any of the summer visits

The JVDPS field team made a total of (6 visits) to Green Cay to grid out the island, and collect baseline data about the presence of rats and other species. Visits to Green Cay yielded useful information and demonstrated that the island has both a high density of rats and of soldier crabs which present a by-catch problem for rat control projects. Interestingly, game cameras also picked up footage of goats tramping through rocky outcroppings where the threatened Roseate terns nest. It was previously thought that rats were the main cause of disturbance to these seabirds, which are highly prone to disturbance; however, fieldwork from DPLUS 043 also demonstrated that other alien invasive species may cause equal disturbance to important breeding populations. Some of the records from this period appear as an appendix in this document; however, much of the field data was left in a second-floor office in Great Harbour, Jost Van Dyke, which was destroyed during Hurricane Irma.

The operational plan was created and is being implemented. During field activities in Year 1 JVDPS field staff observed that hermit crabs appeared to consume substantial amounts of bait at most trap locations, and there is evidence of rat ingestion of bait at 25-35% of bait stations.

Unfortunately, some rat bait was badly degraded by hermit crabs and tracking may have been higher (as hermit crabs chew bait and it is difficult to discern rats chew marks). In Year 2 game cameras were set up at the bait stations on Green Cay so that more information can be collected on what animals visit the bait and how it is being consumed.

3.3 Progress towards the project Outcome

The passage of two category 5 hurricanes did not eradicate the goats as they found shelter and managed to survive, although there may have been some die off due to loss of food source as the vegetation across the BVI was stripped by hurricane Irma, leaving virtually no leaves on trees. The vegetation is recovering and this is being monitored at Great Tobago and Prickly Pear National Parks by NPTVI and the Royal Botanic Gardens Kew, as part of a parallel BEST 2.0 funded project led by the Royal Society for the Protection of Birds (RSPB) entitled, “Securing pockets of paradise in the Caribbean; embedding capacity for invasive alien species management in UKOT based organisations” (2016-2019).

Achieving the DPLUS043 project outcome of habitat restoration must be looked at now as part of the overall recovery of the BVI post hurricane. The landscape of every island in the BVI was drastically altered by these category 5 hurricanes and whilst the vegetation has begun to recover in the last seven months, many trees died and erosion of steep slopes has taken place as there is little ground cover. The impact on bird life in the BVI post hurricane is still being assessed, but observations so far indicate much lower numbers of birds overall due to the loss of habitat and food supply. It is even more essential to remove invasive species as biodiversity tries to recover as the ecosystems are so fragile.

When NPTVI and JVDPS staff are able to access Great Tobago National Park in June 2018 a bird count will take place at the frigatebird colony in order to compare to previous years. This will provide an insight into the extent to which the colony was impacted by the hurricanes of 2017.



Figure 4: The landscape of Prickly Pear National Park was dramatically altered by the passage of two category 5 hurricanes in September 2017

JVDPS will continue to monitor seabirds at the three sites being targeted for rat eradication in this DPLUS043 project. Beginning in May it is anticipated that terns will begin nesting and JVDPS will monitor whether the previously observed birdlife patterns have been altered post hurricane.

3.4 Project support to environmental and/or climate outcomes in the UKOTs

The long term outcome of this DPLUS043 project is to restore the island ecosystems of four islands through the removal of feral goats and rats, that have either been already designated as National Parks or are proposed National Parks due to their importance for biodiversity, particularly plants and seabirds. The intended outcome would be recovery of native vegetation, removal of invasive plants and increased seabird nesting.

The DPLUS043 project outcome of increasing local capacity is even more relevant now as using resident field workers at NPTVI and JVDPS is essential as there are fewer hotel rooms post hurricane due to the destruction of so many properties and there has been a reduction of flights to the Territory due to a reduced tourism season. There was a period of time post hurricane for at least a month when only aid workers were allowed into the Territory and so field assessments, wherever logistically possible, could only be carried out by local staff. Since January 2018 NPTVI has still experienced difficulties in finding hotel accommodation for visiting scientists for other projects and this is expected to continue until businesses are able to reconstruct their premises.

NPTVI and JVDPS field teams have had to prioritise recovery of basic operating procedures first, which meant getting vessels repaired, finding access to fuel and renting vessels where needed to be able to continue project activities but the field team are very committed to this project and its intended outcome of seeing an increase in nesting seabirds and habitat recovery once feral grazing goats have been removed.

NPTVI purchased a drone and this has been an extremely useful piece of equipment to quickly assess large areas after the hurricane. The drone, which is operated by a NPTVI staff member can access hard to get to locations and produces very high resolution imagery that can be used to plan project activities, such as locating new trails for goat culling. In the future it will be trialled to monitor seabird populations and will assist with collecting aerial imagery of habitat recovery.

3.5 Monitoring of assumptions

The risks identified at the project design phase underestimated the impact of hurricanes as the BVI had not received a direct hurricane strike in decades. The 2017 hurricane season was historic with two category 5 hurricanes that were ranked as the strongest ever in the Caribbean. The potential for another active Atlantic hurricane season is high in 2018, based upon current predictions so NPTVI and JVDPS are taking steps to conduct as much field work prior to the peak period of September through October.

The main risk to rat control effort by JVDPS has been the threat of inclement weather, which was well-anticipated. However a large enough schedule of project visits had been built into the project design, in order to ensure that DPLUS043 project outcomes are achieved. The secondary threat is malfunctioning of equipment and accidental bycatch of local hermit crabs.

4. Monitoring and evaluation

As discussed in Section 3.3 NPTVI and JVDPS will be able to demonstrate that the DPLUS043 project activities actually contribute to the project outcome as it seeks to remove two of the most harmful invasive mammal species from the six sites in the project and the impact of this can be monitored using visual observations of field workers and game camera recordings of goat or rat presence. The long term indicators will be either the return of seabird nesting to islands, such as Green Cay that was formerly a major roseate tern nesting site (the nesting population of roseate terns was recorded at a peak of approximately 1,700 in the mid-1990s), the increase in existing nesting seabird sites, such as the Tobagos National Park or the regeneration of vegetation once high numbers of grazing animals are removed.

The monitoring is shared by both NPTVI and JVDPS as observations of goats or rats whilst conducting field work are reported to the partners for subsequent follow up action. JVDPS will monitor breeding success of roseate terns in partnership with PhD Student Paige Byerly and will continue bi-annual seabird counts following plans developed during DPLUS035. Reptile,

landbird and other vegetation monitoring will also be tracked to monitor rebounds of flora and fauna before the intervention (rat control).

NPTVI will continue to monitor the vegetation regeneration at sample plots on Great Tobago National Park and Prickly Pear National Park as part of the activities under the parallel BEST 2.0 project described in Section 3.3.

5. Lessons learnt

A second order of A24 rat traps was acquired in Year 2 which will be securely stored to replace any lost traps in the field in anticipation of another hurricane season. The time it took to order these and have them delivered to the BVI was extremely long, taking up to six months and only just arrived last week as the supplier GoodNature in New Zealand tried using a new distributor in the USA believing that it would be quicker than shipping from New Zealand. However there were issues at the New York FedEx office with the required EPA paperwork and the order was returned to the US distributor. Going forward any future orders should be planned well in advance to allow for incidents such as this.

JVDPS has also been able to secure a donation of replacement game cameras to replace what was lost in Year 2. If possible extra cameras should be sourced and stored in a location that was been proven to be secure in the September hurricane season.

Other important lessons learnt include storing electronic data in the Cloud as there was no electricity or internet for up to six months in certain parts of the BVI and physical computers and servers were either damaged or inaccessible due to mould filled offices. Having project information available remotely is important to be able to work remotely if evacuating the island.

JVDPS and NPTVI will be able to produce a technical report in the upcoming project year that documents the challenges faced after experiencing two record breaking hurricanes and how to overcome this to continue field work to achieve project goals.

6. Actions taken in response to previous reviews (if applicable)

Not applicable.

7. Other comments on progress not covered elsewhere

NPTVI and JVDPS requested and was granted a one year extension to this DPLUS043 project due to the extraordinary circumstances that delayed field activities. This was approved in December 2017. The underspend from Year 2 will be carried over to Year 3. The staff, equipment and travel costs for JVDPS in Year 2 are not reflected in this report due to an inability to access their 2017 records. It is anticipated that this will be possible by the time the half year report is due. Any specific questions can be addressed by either NPTVI or JVDPS.

8. Sustainability and legacy

The exit strategy will be continued goat and rat removal, as the equipment is all reusable and only the A24 rat traps require replacement bait cartridges which can be ordered from the USA, noting the lessons learnt in section 5. NPTVI will ensure that goat monitoring is embedded in the recurrent activities of field staff with culling missions taking place as soon as observations have been reported. Monitoring for rats will also follow the protocol designed in this DPLUS043 project and will be ongoing as part of park management activities and Territory wide seabird survey activities.

9. Darwin identity

The Darwin identity has been promoted on all posts on social media.

The Darwin Identity has been included in the public signage "Conservation in Action!" being placed at Seal Dog Islands and Green Cay.

The Darwin Initiative fund is well known in the BVI as NPTVI and JVDPS have been successful in receiving grants over the years and all of the projects are referred to as the 'Darwin Project for x,y,z'.

10. Project Expenditure

Table 1: Project expenditure during the reporting period (1 April 2017 – 31 March 2018)

Project spend (indicative) in this financial year	2017/18 D+ Grant (£)	2017/18 Total actual D+ Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items				
Others (Please specify)				
TOTAL				

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2016-2017 – if appropriate

Project summary	Measurable Indicators	Progress and Achievements April 2016 - March 2017	Actions required/planned for next period
Outcome			
Output 1.			
Activity 1.1			
Activity 1.2,			
Output 2.			
Activity 2.1.			
Activity 2.2.			
Output 3.			

Annex 2: Project’s full current logframe as presented in the application form (unless changes have been agreed) - – if appropriate

N.B. if your application’s logframe is presented in a different format in your application, please transpose into the below template. Please feel free to contact Darwin-Projects@ltsi.co.uk if you have any questions regarding this.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: .			
Outcome:			
Output 1	1.1 1.2 1.3. etc.	1.1 1.2 1.3. etc.	
Output 2	2.1 2.2	2.1 2.2	
Output 3	3.1	3.1	
Activities (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)			

Annex 3 Onwards – supplementary material (optional but encouraged as evidence of project achievement)

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	x
Is your report more than 10MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	n/a
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	x
Do you have hard copies of material you want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number.	n/a
Have you involved your partners in preparation of the report and named the main contributors	x
Have you completed the Project Expenditure table fully?	x
Do not include claim forms or other communications with this report.	