



Department
for Environment
Food & Rural Affairs



Foreign &
Commonwealth
Office



Department
for International
Development



DPLUS033

Darwin Plus: Overseas Territories Environment and Climate Fund Project Application Form

Submit by Monday 4 August 2014

Please read the Guidance Notes before completing this form
Information to be extracted to the database is highlighted in blue

Basic Data

1. Project Title (max 10 words)	Enhancing biosecurity and biological control capacity in the Falkland Islands
2. UK OT(s) involved	Falkland Islands (FI)
3. Start Date:	April 2015
4. End Date:	March 2017
5. Duration of project (no longer than 24 months)	24 months

Summary of Costs	2015/16	2016/17	Total
6. Budget requested from Darwin	52,906	55,443	107,539
7. Total value of matched funding	29,542	32,368	61,910
8. Total Project Budget (all funders)	81,638	87,811	169,449
9. Names of Co-funders	CABI, Falkland Islands Government		

10. Lead applicant organisation (responsible for delivering outputs, reporting and managing funds)	CABI
11. Project Leader name	Dave Moore
12. Email address	
13. Postal address	CABI, Bakeham Lane, Egham, Surrey, TW20 9TY
14. Contact details: Phone/Fax/Skype	

* Notification of results will be by email to the Project Leader in Question 11

15. Type of organisation of Lead applicant. Place an x in the relevant box.								
OT GOVT	UK GOVT	UK NGO	Local NGO	International NGO	Commercial Company	Other (e.g. Academic)	X	

16. Principals in project. Please identify and provide a one page CV for each of these named individuals. You may copy and paste this table if you need to provide details of more personnel or more than 2 project partners.

Details	Project Leader	Project Partner 1	Project Partner 2
Surname	Moore	Rendell	Barton
Forename(s)	Dave	Nick	John
Post held	Senior Scientist Arthropod Control	Environmental Officer	Director of Natural Resources
Institution (if different to above)		Falkland Island Government (FIG)	Falkland Island Government (FIG)
Department	International Development	Environmental Planning Department	Directorate of Natural Resources
Telephone/Skype			
Email			

17. Has your organisation been awarded Darwin Initiative funding before (for the purposes of this question, being a partner does not count)? If yes, please provide details of the most recent awards (up to 6 examples).

Reference No	Project Leader	Title
16/008	David Minter	Conservation of Microfungi: a voice for unprotected and vulnerable organisms. 2007-2010
15/004	Dave Moore	Conserving and Using Entomopathogenic Fungi and Nematodes within Chile. 2006-2009
14/030	Paul Cannon	Going for Gold - Cordyceps Conservation in Bhutan. 2005-2008
12/026	Carol Ellison	Towards sustainable management of alien invasive weeds in southern China (classical biological control of <i>Mikania micrantha</i>). 2003-2007

18. If your answer to Q17 was No, provide details of 3 contracts previously held by your institution that demonstrate your credibility as an implementing organisation. These contracts should have been held in the last 5 years and be of a similar size to the grant requested in this application. (If your answer to Q17 was Yes, you may delete these boxes, but please leave Q18)

Project Details

19. Project Outcome Statement: Describe what the project aims to achieve and what will change as a result. (50 words max)

Enhanced capacity to mitigate biosecurity risks in the Falkland Islands (FI), and promotion of biological control (using earwigs, *Forficula auricularia*, as a model system). Earwigs controlled using Classical Biological Control (CBC), resulting in reduced damage to horticulture and human health, and unique heathland habitats protected from disturbed species composition.

20. Background: (What is the current situation and the problem that the project will address? How will it address this problem? What key OT Government priorities and themes will it address? (200 words max)

The lack of adequate biosecurity capacity leaves FI vulnerable to damaging invasive species, which pose a major threat to native biodiversity; and the lack of biological control capacity precludes the use of this cost-effective and sustainable control method. Using the European earwig as a model system the project will tackle both issues. The earwig is estimated to cost FI (3000 inhabitants) at least £30,000 losses and in control measures annually (commercial vegetable growers lose £10,000 per year with additional, and greater, losses of privately-grown vegetables), in addition to being a significant urban problem and threat to natural habitats. CABI is undertaking preliminary CBC work and has two dipteran parasitoids in culture undergoing efficacy and specificity tests (FIG funded). The proposed parasitoid introductions allows the opportunity to develop the physical infrastructure (an appropriate biosecurity/quarantine facility) and the trained personnel to manage and monitor the earwig biocontrol using skills appropriate for other invasive species. Project scientists (CABI) will assist FI personnel in developing CBC policy for FIG as well as practical skills and knowledge. Control of invasive species on FI is prioritised in the Islands Plan (2014-18), FI Biodiversity Strategy (2008-18) and the 2001 Environmental Charter of the UK Government and FIG.

21. Methodology: Describe the methods and approach you will use to achieve your intended outcomes and impact. Provide information on how you will undertake the work (materials and methods) and how you will manage the work (roles and responsibilities, project management tools etc). Give details of any innovative techniques or methods. (500 words max)

The project will improve the capacity on FI to conduct the controlled release of biological control agents, thereby enhancing biosecurity and preventing further introductions of invasives. It will build on FIG funded work covering host range testing of two tachinid parasitoids which attack *F. auricularia*. FIG will provide additional funding to maintain cultures of both agents in the UK required for introduction into FI and to conduct awareness raising activities prior to any release. The project complements these efforts and will:

- enhance capacity for the prevention and control of invasive species by training and through establishing an appropriate biosecurity/quarantine facility,
- develop an improved biosecurity policy for FIG
- implement CBC of earwigs through the controlled introduction and establishment of these parasitoids on FI

To maximise chances for a successful establishment, some rearing activities leading towards a controlled release will be best done in FI and, in combination with capacity building, will lay the foundation for future CBC programmes. FI activities will initially focus on the instalment of a CBC facility providing a safe environment (eg meshed windows, UV insect killing lamps, double-door porch arrangement) for the secure storage, rearing and testing of agents for biological introductions. This first step will be aided by a FIG scientist visiting CABI in April 2015 to observe and practise rearing techniques and biosecurity facilities.

Further training will be given on FI during 2015 on the use of this rearing facility, initially focusing on earwig control but adaptable to further CBC programmes. Monitoring of earwig densities (as a basis for measuring and evaluating the impact of the control agents) will rely on volunteers, and the foundation of a local Invasive Species Network will be encouraged. A simple recording scheme will be developed and activities kick-started during a workshop in 2015. Activities will be coordinated by the new network and will continue throughout the project and at least 3 years post-Darwin by FIG.

In early 2016, parasitoids and infected earwigs will be carried to FI to initiate rearing, with some of the insects forming an initial release, which will be supplemented by a second release phase in late 2016.

During 2016 a second workshop will discuss policies on prevention and biological control of invasive species. CABI will work with the relevant authorities on FI to develop a greater understanding and improved capacity with regards biosecurity on FI, both for earwig CBC and for improved management of

invasive species in general. Discussions on policy suggestions for FIG will continue during the project and the results will build part of the final project report.

CABI manages its projects through PRINCE2. Dave Moore is Project Manager and lead scientist. Norbert Maczey and Steve Edgington will be project scientists. All have worked on the FIG funded work in UK and will be involved with development of training resources, the training of FI personnel. Nick Rendell will supervise from FI – to include organising FIG funded public relations events and raising awareness of the project, gaining political and public support for CBC.

22. How does this project:

- a) Deliver against the priority issues identified in the assessment criteria
- b) Demonstrate technical excellence in its delivery
- c) Demonstrate a clear pathway to impact in the OT(s)
(500 words max)

a) FI has significant environmental problems related to a large number of invasive species which are highlighted as priorities in the Islands Plan (2014-18), the Falkland Islands Biodiversity Strategy (2008-18) and the Environmental Charter signed between the UK Government and FIG in 2001. Additionally, there is significant public demand for control of a number of the invasive species. Although CBC is the most suited technique for the control of some of these, both in efficacy, cost and sustainability, it has not yet been used on FI and there is public wariness regarding the introduction of exotic organisms. The FIG funded public consultations planned for 2014/early 2015 are intended to explain the nature of CBC and the benefits, for both the initial earwig control and for later programmes against invasive insects and plants.

b). The FIG funded work has enabled CABI scientists to develop the necessary expertise to understand the demanding rearing requirements of the parasitoids. Similar technical competence will be carried out with the scientific work in FI. The CBC application in the project is an exercise which, although simple in concept, requires experience to facilitate delivery. However, using simple rearing techniques, plus full description of activities required, interested and motivated individuals or community groups would be capable of carrying out the rearing.

c) The CBC component will, if as successful as hoped, provides a clear path to the objective of controlling an invasive pest. Public and Government acknowledgement of CBC and a willingness to accept the introduction of properly researched natural enemies will enable effective, environmentally benign control of the destructive earwig on FI; it will also enable the FI to plan for the control of other problematic invasive species on the islands; The use of the local FI community (i.e., interested community groups) in the rearing of the biocontrol agents, plus other community presentations, will allay fears of CBC and, encourage future public participation within biological control programmes, and could be a model for other OTs. Dissemination of the impacts of this work will be done by the CABI-UK team, who have a strong track record in this.

d) Beyond the CBC component, both the establishment of an appropriately secure biosecurity unit and general training and policy development will increase awareness and capacity to prevent and manage invasive species. Much of this may well be the importance of early intervention and hence the need for public and official to appreciate the relevant risks. Being part of the Invasive Species Network gives access to a considerable support system which, with the enhanced physical and personnel infrastructure will ensure the benefits will extend beyond the term of the project.

23. Who are the stakeholders for this project and how have they been consulted (include local or host government support/engagement where relevant)? Briefly describe what support they will provide and how the project will engage with them. (250 words max)

Members of FI Legislative Assembly (MLA).

Political support is required to allow release of biological control agents to reduce earwig numbers. MLAs and local scientists involved in the control of invasive species were well-briefed and largely supportive of CBC through CABI's DEFRA funded feasibility study on CBC of invasive species in the SAUKOT in 2012. Subsequently they approved funding of preliminary efforts to develop biological control agents for use on FI. Further lobbying and education is required.

FI General Public.

FI inhabitants are seriously inconvenienced and there are examples of harmed livelihoods where earwigs are present and spread across FI is a matter of time, so the problems will worsen. A cross-government and private sector working group was established in 2010 to consider the earwig problem. This group undertook a public awareness campaign and provided input into the Defra funded 2012 BC Scoping project.

Scepticism exists in some areas of the public regarding the introduction of biological control, although there appears to be increasing support, especially as the earwig problem worsens. Further education and awareness-raising by FIG will be carried out to alleviate concerns and increase support amongst the wider public for the initiative. Those members of the public who welcome CBC will be encouraged to contribute to the project in areas such as rearing and monitoring.

Biocontrol Community.

Successful biocontrol of earwigs and an enhanced enabling environment for further programmes against invasive plants will be of general benefit to the biocontrol community beyond the FI.

Public consultation has indicated a strong willingness exists for members of the public to be involved in on-going and post project control work.

24. Institutional Capacity: Describe the implementing organisation's capacity (and that of partner organisations where relevant) to deliver the project.

(500 words max)

CABI has an extensive infrastructure that has delivered biocontrol programmes and management of agricultural pests since its foundation in 1912. Attachments submitted with this application include the Annual Review (and accounts) of CABI which give details of our information and management capacities plus activities worldwide. In addition, the latest Annual Report of CABI-UK shows the wide range of biocontrol activities carried out, specialising in the control of invasive species. CABI also produced influential policy statements and papers related to the use of biocontrol agents and their movement, quarantine etc.

CABI has already undertaken work for the FI, producing a report on the impact of invasive species on OTs in the South Atlantic (attached to application).

The project leader has been involved with the successful management of parasitoids for biocontrol of insect pests (e.g., the successful control of *Rastrococcus invadens* in West Africa and coffee berry borer control programmes in South America) as well as biocontrol using insect pathogens. He has over 30 years of biocontrol expertise and has successfully managed projects in many countries, including Darwin Initiative project 15/004. The latter was done with Steve Edgington, who also has over fifteen years of biocontrol experience, project management and has also worked in communication of science to farming communities. Norbert Maczey is a biocontrol ecologist with previous experience working on the FI and responsible for current FIG funded host range testing activities.

The FIG is responsible for the community awareness programme to promote the use of biological control and is well placed to carry out this activity through building on continuing awareness raising and enhancing this with input from CABI scientists.

FIG and CABI will work together to develop capacity and plans for further CBC activities of invasive species.

25. Expected Outputs			
Output (<i>what will be achieved e.g. capacity building, action plan produced, alien species controlled</i>)	Indicators of success (<i>how we will know if its been achieved e.g. number of people trained/ trees planted</i>)	Status before project/baseline data (<i>what is the situation before the project starts?</i>)	Source of information (<i>where will you obtain the information to demonstrate if the indicator has been achieved?</i>)
1. Significant control of earwigs achieved	Reduced costs attributed to earwig infestations; fewer control treatments applied to homes, less public nuisance reported. Fewer earwigs and significant parasitism recorded.	Economic costs, treatment data and public concern obtained from FIG surveys. Earwig data to be formalised early 2015 and baseline data recorded	Surveys to be repeated Monitoring carried out for a minimum of five years.
2. Improved capacity to manage invasive species and other biosecurity risks.	Enhanced biosecurity laboratory/containment area. People trained in pest management activities. Up to 5 from FIG and 6 citizen scientists	Limited level of biosecurity containment exists No individuals with CBC experience Limited biosecurity experience	Project reports. FIG report Project reports. FIG reports
3. Greater acceptance of CBC on FI at Government and population levels.	FIG surveys of views at commencement of CBC activities	A proportion of the population have negative views of CBC	FIG surveys FIG policy statements

26. Expected Outcomes: How will each of the outputs contribute to the overall outcome of the project? (100 words max)

- CBC carried out with no adverse effects, as anticipated with this project where the natural enemies are highly specific, will remove much of the unfounded concern regarding CBC present amongst some people of FI. Significant control would demonstrate the potential efficacy of CBC.
- The capacity to manage some biosecurity and CBC issues in FI will increase professional capacity and further promote acceptance of CBC, to control some of the more environmentally damaging invasive plants.
- Greater acceptance of CBC for use in subsequent control programmes will provide FIG with a mandate for control of more damaging invasive species.

27. Main Activities	
Output 1	Significant control of earwigs achieved
1.1	Bring parasitoids of both species, of wide (UK) geographical origins, to FI to establish cultures on FI.

1.2	Initiate monitoring programme to obtain baseline data and determine establishment and efficacy of parasitoids.
1.3	Make systematic releases of appropriate numbers, location and frequency to achieve establishment of both species of parasitoid.
1.4	Report and disseminate results. All information will be open-access, on FI and CABI web-sites. Scientific publications from the project will be as open access.
Output 2	Improved capacity to manage invasive species and other biosecurity risks.
2.1	Improvements to FIG facility for enhanced biosecurity and containment (UV lamps, double-door arrangement, meshed windows etc)
2.2	Trained FIG personnel and interested citizens.
2.3	Project reports and information documents regarding invasive species management and biosecurity for FIG use.
Output 3	Greater acceptance of CBC on FI.
3.1	FIG/CABI Working group established on biosecurity and invasive species management.
3.2	FIG policy statements on biosecurity and invasive species management
3.3	FIG maintains public awareness programme to address concerns and supply information.

28. Risks			
Description of the risk	Likelihood the event will happen (H/M/L)	Impact of the event on the project (H/M/L)	Steps the project will take to reduce or manage the risk
Parasitoids do not adapt to southern hemisphere biological cycle of earwigs	L	H	Frequent exposure of parasitoids to hosts. Rearing of parasitoids under laboratory conditions. Initial releases conducted where continuous earwig populations occur.
Parasitoid establish but do not exercise desired degree of control	M	H	Develop back up plan for supplementary BC activities such as the use of entomopathogenic fungi

29. Sustainability: How will the project ensure benefits are sustained after the project has come to a close? If the project requires ongoing maintenance or monitoring, who will do this? (200 words max)

As a CBC programme, the natural agents will maintain their own populations, continuing control and so will be completely self-sustained. This will be checked as part of the on-going monitoring programme. More importantly, the community will decide if control has been satisfactory from their own experience.

The other project benefit, a greater knowledge of CBC and its benefits amongst the community, should facilitate the further use of CBC against other invasive pests.

Simple tools will be developed during the project to determine earwig populations. Community consultation has demonstrated a desire for voluntary on-going population monitoring and control work post project. FIG activity, post project will support/coordinate this volunteer effort.

FIG are committed to maintain monitoring for a minimum of three years after the end of the DI project. Once the parasitoids are established there will be no need for maintenance (although continued releases may increase the speed of spread of the parasitoids) but individuals may wish to carry on rearing and/or monitoring.

30. Monitoring & Evaluation: How will the project be monitored and who will be responsible? Will there be any independent assessment of progress and impact? When will this take place, and by whom? (250 words max)

The on-going project with FI does not include a component for detailed monitoring of the release programme, which the Darwin Plus project will deliver. This will use both experienced CABI scientists and locally trained FIG personnel, citizen scientists and students as appropriate and the data will enable evaluation as to the extent of the success of the release programme. There will be baseline studies carried out before the first releases of parasitoids, repeated when CABI scientists re-visit FI and at least 6 monthly by FIG personnel.

Overall community involvement will monitor the effect of the biocontrol project on earwig populations and also the occurrence and level of parasitoid activity. Exercise to assess public opinion of control will be instigated by FIG. CABI scientists will advise on monitoring processes and participate.

Internal project monitoring will be conducted by CABI and FIG during the course of the project. Achievement of milestones will be planned and checked against the Implementation Timetable. There will also be regular Darwin Plus reporting (six-monthly progress reports and the Final Report/Project Completion Report.).

The project completion report is after the project is over and is linked to the final payment.

31. Financial controls: Please demonstrate your capacity to manage the level of funds you are requesting. (Who is responsible for managing the funds? What experience do they have? What arrangements are in place for auditing expenditure?)

CABI's accounting is compliant with International Accounting Standards, and all project participants are experienced in budgetary management of projects. CABI projects are run under the PRINCE2 project management principles. Auditing expenditure has been included in the budget.

Please complete the separate Excel spreadsheet which provides the Budget for this application. Some of the questions earlier and below refer to the information in this spreadsheet.

NB: Please state all costs by financial year (1 April to 31 March) and in GBP. **Budgets submitted in other currencies will not be accepted.** Use current prices – and include anticipated inflation, as appropriate, up to 3% per annum. The Darwin Initiative cannot agree any increase in grants once awarded.

33. Value for Money

Please explain how you worked out your budget and how you will provide value for money through managing a cost effective and efficient project. You should also discuss any significant assumptions you have made when working out your budget. (200 words max)

Although the cost implications of earwig damage are relatively small, these are significant in relation to the population of the FI. Furthermore, successfully introducing biocontrol agents will reveal the potential for using this safe and cost effective method for controlling invasive species to the population, giving long term value for money. We assume that both species of parasitoid may not establish at the first attempt so multiple importations and releases are planned and budgeted.

Major costs are CABI staff time (101 days), overheads at 40% (reduced from CABI's standard 120% for full cost recovery, with the difference representing co-funding), four flights (~£1600 each). We will develop training materials for parasitoid rearing, biosecurity requirements, and for project management.

Major FI costs are improvement of biosecurity/containment facilities, maintenance of cultures, releases and monitoring (£75,000 per annum), using a part-time paid employee. FI make significant co-funding contributions through provision of staff, resources and facilities for public awareness campaigns (≈ £10,000) and transport costs for release and monitoring. The additional major co-funding by FI with research work in UK results in a low budget requested.

Value for money is provided by significant CABI and FI contributions in addition to effective project management.

Provide a project implementation timetable that shows the key milestones in project activities. Complete the following table as appropriate to describe the intended workplan for your project (Q1 starting April 2015)

Activity	No of Months	Year 1				Year 2			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 1 Significant control of earwigs achieved									
1.1 Carry parasitoids to FI and establish rearing cultures				X		X		X?	
1.2 Initiate monitoring programme		X	x	x		x		x	
1.3 Make releases of both parasitoid species				X	x	x	x	x	
1.4 Report and disseminate work			X		X		X		X
Output 2 Improved FIG biosecurity and containment capacity									
2.1 Improved biosecurity and containment facility		X							
2.2 Trained FIG personnel and interested citizens		x	x	x	x	x	x	x	x
2.3 Project reports and information documents prepared			X		X		X		X
Output 3 Greater acceptance of CBC on FI									
3.1 FIG/CABI working group to discuss biosecurity and containment		X		x		x		x	
3.2 FIG policy statements on biosecurity and invasive species control					X				X
3.3 FIG public awareness programme		x	x	x	x	x	x	x	x
3.4									
Output 4									
4.1									
4.2									
4.3									
4.4									
4.5									

CERTIFICATION

On behalf of the trustees/company* of CABI

(*delete as appropriate)

I apply for a grant of £107,539 in respect of **all expenditure** to be incurred during the lifetime of this project based on the activities and dates specified in the above application.

I certify that, to the best of our knowledge and belief, the statements made by us in this application are true and the information provided is correct. I am aware that this application form will form the basis of the project schedule should this application be successful. *(This form should be signed by an individual authorised by the lead institution to submit applications and sign contracts on their behalf.)*

I enclose CVs for project principals and letters of support.

Our most recent audited/independently verified accounts and annual report are also enclosed/can be found at (delete as appropriate):

Name (block capitals)	Sean T Murphy
Position in the organisation	Director, CABI UK

Signed



Date:

23rd July 2014

Application Checklist for submission

	Check
Have you read the Guidance Notes ?	X
Have you checked the Darwin Plus website immediately prior to submission to ensure there are no late updates?	X
Have you provided actual start and end dates for your project?	X
Have you provided your budget based on UK government financial years ie 1 April – 31 March and in GBP?	X
Have you checked that your budget is complete , correctly adds up and that you have included the correct final total on the top page of the application?	X
Has your application been signed by a suitably authorised individual ? (clear electronic or scanned signatures are acceptable in the email)	X
Have you included a 1 page CV for all the principals ?	X
Have you included a letter of support from the <u>main</u> partner(s) organisations ?	X
Have you included a copy of the last 2 years' annual report and accounts for the lead organisation? An electronic link to a website is acceptable.	X

Once you have answered the questions above, please submit the application, not later than midnight GMT Monday 4 August 2014 to Darwin-Applications@ltsi.co.uk using the first few words of the project title **as the subject of your email**. If you are e-mailing supporting documentation separately please include in the subject line an indication of the number of e-mails you are sending (e.g. whether the e-mail is 1 of 2, 2 of 3 etc). You are not required to send a hard copy.

DATA PROTECTION ACT 1998: Applicants for grant funding must agree to any disclosure or exchange of information supplied on the application form (including the content of a declaration or undertaking) which the Department considers necessary for the administration, evaluation, monitoring and publicising of Darwin Plus. Application form data will also be held by contractors dealing with Darwin Plus monitoring and evaluation. It is the responsibility of applicants to ensure that personal data can be supplied to the Department for the uses described in this paragraph. A completed application form will be taken as an agreement by the applicant and the grant/award recipient also to the following:- putting certain details (i.e. name, contact details and location of project work) on the Darwin Initiative and Defra/FCO/DFID websites (details relating to financial awards will not be put on the websites if requested in writing by the grant/award recipient); using personal data for the Darwin Initiative postal circulation list; and sending data to Governor's Offices outside the UK, including posts outside the European Economic Area. Confidential information relating to the project or its results and any personal data may be released on request, including under the Environmental Information Regulations, the code of Practice on Access to Government Information and the Freedom of Information Act 2000.