



Submit by Monday 5 December 2016

DARWIN INITIATIVE APPLICATION FOR GRANT FOR ROUND 23: STAGE 2

Please read the [Guidance](#) before completing this form. Where no word limits are given, the size of the box is a guide to the amount of information required.

Information to be extracted to the database is highlighted blue. Blank cells may render your application ineligible
2/3801

ELIGIBILITY

1. Name and address of organisation

(NB: Notification of results will be by email to the Project Leader in Question 6)

Applicant Organisation Name:	BirdLife International
Address:	The David Attenborough Building, 1 st Floor, Pembroke Street
City and Postcode:	Cambridge, CB2 3QZ
Country:	United Kingdom
Email:	
Phone:	

2. Stage 1 reference and Project title

Stage 1 Ref: 3801	Title (max 10 words): Controlling an invasive aquatic plant for improved biodiversity and livelihoods
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3. Project description (not exceeding 50 words)

(max 50 words)

Lukanga Swamp, a Zambian Important Bird and Biodiversity Area, is infested with the invasive waterweed *Salvinia molesta*, leading to impoverished biodiversity and fish stocks. This project will control the weed by introducing *Cyrtobagous salviniae*, a weevil, thereby improving conditions for waterbirds, other biodiversity and the livelihoods of >2500 fishermen households.

4. Country(ies)

Which eligible host country(ies) will your project be working in? You may copy and paste this table if you need to provide details of more than four countries.

Country 1: ZAMBIA	Country 2: N/A
Country 3: N/A	Country 4: N/A

5. Project dates, and budget summary

Start date: 01 APRIL 2017	End date: 31 MARCH 2021			Duration: 4 years	
Darwin funding request (Apr – Mar)	2017/18 £83422	2018/19 £69434	2019/20 £72976	2020/2021 £73184	Total £299016
Proposed (confirmed & unconfirmed) matched funding as % of total Project cost					21%

6. Partners in project. Please provide details of the partners in this project and provide a CV for the individuals listed. You may copy and paste this table if necessary.

Details	Project Leader	Project Partner 1	Project Partner 2	Project Partner 3
Surname	Ndang'ang'a	Phiri	Witt	Shanungu
Forename (s)	Paul Kariuki	Chaona Gertrude	Arne	Griffin
Post held	Conservation Programmes Coordinator	Senior Ecologist	Regional Coordinator	Senior Ecologist/Ramsar Convention National Focal Point
Organisation (if different to above)	As above	BirdWatch Zambia	CABI (Centre for Agriculture and Biosciences International)	Department of National Parks and Wildlife
Department	Africa Division	Research & Conservation	Invasive Alien Species	Research
Telephone				
Email				

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

Reference No	Project Leader	Title
3258	Cath Tayleur	Building resilient landscapes & livelihoods in Burkina Faso Shea Parklands
3118	Jonathan Eames	Implementing a model for sustainable forest management in Cambodia
3231	David Thomas	Yerbe mate- a market driven model for conserving Paraguay's Atlantic Forest
21-2665	David Thomas	Mainstreaming biodiversity and ecosystem services into community forestry in Nepal
20-024	Dr Mark O'Brien	Delivering sustainable forest management for Fiji's people and wildlife
19-022	Melanie Heath	Ecosystem conservation for climate change adaptation in East Africa

8a. If you answered 'NO' to Question 7 please complete Question 8a, b and c.

If you answered 'YES', please go to Question 9 (and delete the boxes for Q8a, 8b and 8c)

8b. DO NOT COMPLETE IF YOU ANSWERED 'YES' TO QUESTION 7.

Provide detail of 3 contracts/awards held by your organisation that demonstrate your credibility as an organisation and provide track record relevant to the project proposed. These contracts/awards should have been held in the last 5 years and be of a similar size to the grant requested in your Darwin application.

8c. DO NOT COMPLETE IF YOU ANSWERED 'YES' TO QUESTION 7.

Describe briefly the aims, activities and achievements of your organisation. (Large organisations please note that this should describe your unit or department)

9. Please list all the partners involved (including the Lead Institution) and explain their roles and responsibilities in the project. Describe the extent of their involvement at all stages, including project development. This section should illustrate the capacity of partners to be involved in the project. Please provide written evidence of partnerships. Please copy/delete boxes for more or fewer partnerships.

<p>Lead institution and website:</p> <p>BirdLife International (www.birdlife.org)</p>	<p>Details (including roles and responsibilities and capacity to lead the project): (max 200 words)</p> <p>BirdLife International is a global Partnership of NGOs striving to conserve birds, their habitats and biodiversity, working with people towards the sustainable use of natural resources. In Africa, the partnership is a growing network of 25 NGOs, with a combined total of over 500 staff and 84,000 members. The BirdLife African Partnership Secretariat (BLAPS), based in Kenya, supports and coordinates BirdLife's work in Africa. BLAPS provides Partners with technical, fundraising, capacity building and scientific support whilst raising their profile and connections to deliver effective biodiversity conservation. BLAPS, working with Partners, has extensive experience of empowering local communities to conserve national sites, including in Zambia, by building their confidence, skills, knowledge, resources and rights, and includes helping to improve their livelihoods (http://www.birdlife.org/africa/programmes/local-empowerment-africa). Having provided significant input into developing this project proposal, BirdLife will oversee the overall management of this project, provide technical guidance and training in setting biodiversity baselines and monitoring the impacts of project activity from project inception to completion. BirdLife supports several community based organisations (CBOs) throughout Africa, helping to strengthen these organisations and their conservation impact. This will be replicated with the already established and functional CBO at Lukanga based on experience developed elsewhere in Africa.</p>
<p>Have you included a Letter of Support from this institution?</p>	<p>Yes</p>

<p>Partner Name and website where available:</p> <p>BirdWatch Zambia (BWZ) www.birdwatchzambia.org</p>	<p>Details (including roles and responsibilities): (max 200 words)</p> <p>BWZ is BirdLife's Partner in Zambia and one of Zambia's oldest conservation NGOs. With over 30 years of conservation experience in Zambia undertaken in partnership with organisations including; Isdell Family Foundation, UNDP, Norwegian Ornithological Society, the Civil Society Environmental Fund, the RSPB and the EC.</p> <p>Over the past 15 years BWZ, has strengthened its relationship with communities at IBAs by establishing legally recognised Site Support Groups in IBAs which have benefitted from BWZ's efforts through initiatives linking biodiversity conservation and human livelihoods from sustainable use of ecosystem services.</p> <p>BWZ has actively worked at the Lukanga Swamps IBA for 20 years. Conducting IBA monitoring activities on site, training bird guides, conducting educational talks in schools and villages and providing an entrepreneurship start-up funds for the SSG. During the IBA monitoring activities over the last 5 years proliferation of Kariba weed has been observed and efforts at mechanical control have failed.</p> <p>BWZ has worked closely with BirdLife Africa and CABI and the local communities at Lukanga Swamp in the development of this proposal. BWZ's role will be to work closely with the SSG, CABI and BirdLife on the implementation of the proposed activities at the site as identified in this proposal.</p>
<p>Have you included a Letter of Support from this institution?</p>	<p>Yes</p>

<p>Partner Name and website where available:</p> <p>Centre of Agriculture and Bioscience International (CABI) http://www.cabi.org/about-cabi/</p>	<p>Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)</p> <p>Zambia is a CABI member country. CABI's core business is to improve people's lives worldwide by providing information and applying scientific expertise to solve problems in agriculture and the environment. BWZ has been in contact with CABI since 2015 discussing possible methods to control the invasive species problem in not only the Lukanga Swamps, but several other IBAs including the Kafue Flats.</p> <p>CABI has contributed to this proposal by developing the protocols and methodologies required for the control of Kariba weed. Furthermore, CABI has confirmed participation during project implementation with their major role being to provide oversight and support of the <i>Salvinia molesta</i> biocontrol process having previously worked on the management of this particular weed in others parts of Zambia and elsewhere in Africa and as such they have the best experience with regard to providing advice.</p>
<p>Have you included a Letter of Support from this institution?</p>	<p>Yes</p>

Zambia Environmental Management Agency (ZEMA)	The Government agency mandated by the Environmental Management Act No 12 of 2011 as the advisor on all aspects of sustainable management of the environment. BWZ has been in discussions with ZEMA with regards to implementing a biocontrol activity on the Lukanga Swamp during which ZEMA requested BWZ to undertake a full Environmental Impact Assessment (scheduled for the first half year of the project). This will then be submitted to ZEMA for approval.
Have you included a Letter of Support from this institution?	Yes

10. Key Project personnel

Please identify the key project personnel on this project, their role and what % of their time they will be working on the project. Please provide 1 page CVs for these staff, or a 1 page job description or Terms of Reference for roles yet to be filled. Please include more rows where necessary.

Name (First name, surname)	Role	Organisation	% time on project	1 page CV or job description attached?
Paul Kariuki Ndang'ang'a	Project Coordinator	BirdLife International	10	Yes
Chaona Phiri	Project Leader (Senior ecologist)	BWZ	60	Yes
Clara Nanja	Junior Ecologist	BWZ	60	Yes
Chinga Lufwino	Research Assistant	BWZ	60	Yes
Kelvin Mkandawire	Research Assistant	BWZ	60	Yes
Dalphine Adre	Finance Officer	BirdLife International	5	

11. Problem the project is trying to address

Please describe the problem your project is trying to address in terms of biodiversity and its relationship with poverty. For example, what are the drivers of loss of biodiversity that the project will attempt to address? Why are they relevant, for whom? How did you identify these problems? If your project is working on an area of biodiversity or biodiversity-development linkages that has had limited attention (both in the Darwin Initiative portfolio and in conservation in general) please give details.

The Lukanga Swamp, recognised as an Important Bird and Biodiversity Area (IBA) covers approximately 3300 km². It hosts over 350 resident and migratory bird species including some globally threatened species e.g. the Wattled Crane (*Bugeranus carunculatus*). In addition to avian species this site also holds a good population of semi-aquatic antelopes such as Sitatunga (*Tragelaphus spekei*), Oribi (*Ourebia ourebi*) and a few Red Lechwe (*Kobus leche*). Reptiles such as the Nile crocodile, Rock Python and Monitor Lizard are also common in isolated portions of the swamp.

The Swamp is also important for the fishing local community, with its small islands, and the surrounding mainland, hosting approximately 2500 and 22500 fishing community members, respectively as per the 2012 records. This translates to at least 2500 households whose livelihoods are supported by fishing from the swamp.

Unfortunately, since 2009 the swamp has been infested by the invasive Kariba weed (*Salvinia molesta*) which currently covers about 2000 km² (>60% surface area) of the swamp. Since then, records from the Department of Fisheries, local councils and interviews with local resident fishermen have indicated reduced catch per effort (from ca. 35kg/hr to >20kg/hr) and most of the fish has moved further into the swamps, in areas not infested by the Kariba weed. This has led fishermen to use more gear and in some cases use incorrect fishing gear such as Mosquito nets and poisons to catch more fish. Also the weed forms a mat on water, reducing both sunlight and oxygen underneath which ultimately may lead to death of fish.

Based on success of the use of *Cyrtobagous salviniae* as a biocontrol agent for the weed in other parts of Zambia, CABI recommended the same approach for Lukanga. Controlling the weed will benefit not only biodiversity but also increase fish stock and access to them for the fishing community.

12. Biodiversity Conventions, Treaties and Agreements

Your project must support the objectives of one or more of the agreements listed below. Please indicate which agreement(s) will be supported and describe which objectives your project will address and how. Note: projects supporting more than one will not achieve a higher score.

Convention On Biological Diversity (CBD)	Yes
Nagoya Protocol on Access and Benefit Sharing (ABS)	No
International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)	No
Convention on International Trade in Endangered Species (CITES)	No
Global Goals for Sustainable Development	Yes

12b. Biodiversity Conventions

Please detail how your project will contribute to the objectives of the agreement(s) your project is targeting and how your project will help to achieve the Global Goals for Sustainable Development (SDGs). You should refer to Articles or Programmes of Work here. Note: No additional significance will be ascribed for projects that report contributions to more than one agreement

(Max 500 words)

National Biodiversity Strategies and Action Plans (NBSAPs) are the principal instruments for implementing the Convention on Biodiversity (CBD) at the national level. Zambia has recently revised its NBSAP to include a strategy aimed at controlling or preventing the spread of key invasive species in support of Aichi Target 9 which states: "By 2020, invasive species and their spreading pathways are identified and prioritized, controlled or eradicated, and measures are in place to manage pathways to prevent their spread and establishment." The project has not only identified and prioritised Kariba weed (*Salvinia molesta*) as a problematic species but also proposed a measures for its control on the Lukanga ecosystem. In addition to that, the project also aims to design possible measures to manage pathways by which the species is being spread, thereby reducing the risks of re-establishment of this or similar species in the future.

Target 7 of Strategic Goal B in Zambia NBSAP 2 states: "By 2025, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity." Kariba weed is one of the key invasive species threatening at least three of Zambia's major wetland ecosystems including the Lukanga Swamp. The presence of Kariba weed on the Lukanga Swamps threatens the aquaculture industry as the Lukanga is one of Zambia's major fisheries supplying protein to at least four large cities in the country.

In addition to threatening wetland ecosystems, Kariba weed reduces water quality increasing the prevalence of diseases such as cholera and forms suitable breeding grounds for mosquitoes, the insect vector responsible for the transmission of malaria. By clearing this weed from the Swamps, this project will make strides in achieving Sustainable Development Goals number 3 (Good health and well-being) and 6 (clean water and sanitation). The fact that the Lukanga is mostly a wetland area with a single water source utilised in many different ways by community members makes it one of the areas in Zambia with a very high cholera prevalence. However, the local clinic and district health office has recorded an increase in the number of cases in the last five years and this has been attributed to several factors including the proliferation of the Kariba weed as water quality is reduced and more waste is retained.

12c. Is any liaison proposed with the CBD / ABS / ITPGRFA / CITES / SDG focal point in the host country?

Yes No if yes, please give details: BWZ already has an established relationship with the CBD focal point in Zambia. Discussion specific to this activity of

biological control have been initiated but there is need for further engaged to improve participation and contributions of the focal point to this process.

13. 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.).

(Max 500 words – this may be a repeat from Stage 1, but you may update or refine as necessary. Tracked changes are **not** required.)

To deliver the intended outcome of this project, BirdWatch Zambia (BWZ) in collaboration with project partners will implement this project through undertaking activities outlined under each of the following respective outputs:

(1) Environmental impact and risk assessment for Kariba weed bio-control agent

During the first quarter of the project, before the proposed release of the agent an environmental expert will be engaged to undertake an Environmental Impact Assessment (EIA) on the expected impact of the biological control process. This will be done in consultation with multi-disciplinary stakeholders from the local community, Government institutions and NGOs and other relevant experts. This will determine likely mitigation measures that need to be put in place. The EIA report will be submitted to ZEMA for approval.

(2) Capacity building and awareness for local community

Using an already established Community-based organisation, also known as the Site Support Group (SSG), as the entry point community members will be sensitised on the weed bio-control project with at least 50 individuals trained on how to participate in the various stages of the project, including techniques for maintaining the biocontrol agents, biosecurity and monitoring of impacts. This will be done in the second quarter of the project.

(3) *Salvinia molesta* control

The weed control efforts will follow procedures already developed and tested in Zambia by CABI. The agent is host specific and has been released in a number of African countries with no recorded non-target impacts.

The weevil *Cyrtobagous salviniae*, will be collected, introduced and then mass reared prior to release in the Lukanga Swamps. This weevil is currently present on a fish farm in Zambia where it has reduced the Kariba invasion by more than 95%. Adult beetles will be collected at this site and mass reared in at least four ponds on the banks of the Swamp. About 75% of plants within the ponds, infested with adults and larvae, will be collected and distributed at selected sites within the Swamps with the remaining 25% of plants used to initiate subsequent populations. . Plants will be collected using nets. Infested plants are placed within existing mats of *S. molesta* because it (a) provides a larger number of weevils since infested plants contain all weevil life stages (eggs, larvae, pupae, adults), and (b) Increases weevil survival during transport..

(4) Building capacity and creating awareness as to the safety and efficacy of biological control of Invasive Alien Species for potential use at other threatened sites across Zambia

Other wetland sites that are important for biodiversity and fishing and are also facing threats from invasive plant species. These will be identified and prioritised for action. Stakeholders for these sites will be identified and information on best management practices shared at workshops or similar to facilitate management elsewhere.

(5) Project management and impact monitoring

The project will be managed by BWZ who will in turn delegate community management tasks to the Site support group on the group which is more familiar with the entire community. Monitoring of the impact on both livelihoods and biodiversity will be done in partnership with 'expert partners' in the various components. In addition to that, BWZ in partnership with CABI and BLAPs, will undertake pre and post release socio-economic surveys to quantify the impacts as well as subsequent benefits of the biocontrol initiative.

14. Change Expected

Detail the expected changes this work will deliver. You should identify what will change and who will benefit a) in the short-term and b) in the long-term.

(Max 300 words)

- (1) Improved fish catch per unit effort (CPUE) by 50% in the 10th quarter of the project benefiting at least 1,000 households. At present CPUE is estimated to be less than 20kg/hr applying the maximum allowable gear on site (netting, hooking and baskets). Fishermen are currently applying more effort both in terms of time spent fishing as well as gear used to fish. We anticipate that both time and gear will reduce by 50% once *Salvinia* is brought under control.
- (2) 2000km² of restored habitat for wetland biodiversity and provision of ecosystem services created through removal of the invasive weed. At least 2000km² of the 3300km² swamp is known to be infested by *Salvinia*. This has reduced the suitable habitat for most open-water loving birds and also opportunity for fishermen to fish from open water with reduced effort.
- (3) Dissolved oxygen (DO) increased - being a swamp with very slow moving water, the Lukanga naturally has a low DO ranging from 3-5mg/L depending on the portion of the swamp sampled. However rates as low as 2mg/L have been recorded in *Salvinia* infested areas by the Fisheries Department as well as the Department of Water Affairs. It is anticipated that the infested sites will have a DO rate ranging from 3-5mg/L once the weed is controlled.
- (4) Increased population of the globally threatened Wattled Crane and other waterbirds as determined from baseline and bi-annual counts. Baselines counts from 2007 and 2009 recorded at least 50 Wattled Cranes breeding on the Lukanga and well over 27,800 individual waterbirds of varying species. Counts in the same areas in 2012 and 2013 recorded 4 adult Wattled Cranes but no juveniles or nests and slightly over 13,500 birds. It is anticipated that 50% of the lost bird population will return to their habitat once *Salvinia* is controlled.

15. Pathway to poverty alleviation

Please describe how your project will benefit poor people living in low-income countries. Give details of who will benefit and the number of beneficiaries expected to be impacted by your project. The number of communities is insufficient detail – number of households should be the largest unit used. If possible, indicate the number of women who will be impacted.

(Max 300 words)

The Lukanga swamp is one of Zambia's major fisheries supplying protein to at least four large cities. Fishermen, most of whom live in the Swamp, sell their fish to traders who then sell it in the cities. Despite increased efforts by the fisherman catches have declined significantly as a result of the presence of *Salvinia*. This has had a negative impact on household income driving people residing in the Swamp to poverty. Control of the weed on the Swamp will improve livelihoods by increasing income with considerable benefits for individual families and the community at large. It is expected that at least 2500 community members are expected to benefit from the bio-control initiative to control *Salvinia molesta*. An additional 100 households involved in the water transportation business will also benefit from the project. Infestations currently inhibit and in some cases prevent the movement of boats on the Swamp. Water weeds such as *Salvinia* also provide habitats for disease vectors such as mosquitoes and bilharzia snails. A reduction in the cover of the weed will have many health benefits for the community.

16. Exit strategy

State whether or not the project will reach a stable and sustainable end point. If the project is not discrete, but is part of a progressive approach, give details of the exit strategy and show how relevant activities will be continued to secure the benefits from the project. Where individuals receive advanced training, for example, what will happen should that individual leave?

An ideal and stable endpoint for this project is a significant reduction in the Kariba weed infestation on the Lukanga Swamp. This is the long term goal which can only be achieved once all pathways through which the weed initially established are identified and managed. However, it should be noted that biological control is not eradication, and as such a population of the weevils will be sustained within the Swamps into perpetuity. If conditions arise whereby the target weed, *S. molesta*, were to proliferate, the weevils will merely build-up populations and bring the target weed population below an economic threshold or where it has little impact on fisheries or biodiversity. The introduction and establishment of the weevils will result in a stable end-point which will ensure that *Salvinia* is maintained at a level where it does not have a negative impact – this is a cost-effective and sustainable management option which will benefit the community into perpetuity.

This project will not only introduce the biological control agent into the Swamps to facilitate control but also increase awareness as to the safety and efficacy of biocontrol agents. This will ensure that there is support for future biological control projects.

17a. Harmonisation

Is this a new initiative or a development of existing work (funded through any source)? Please give details (Max 200 words)

The bio-control initiative by itself is essentially a new part of an older program – the IBA monitoring program under which BWZ attempted to control this weed using mechanical methods but this has not been successful. As such, this is a renewed attempted in which we hope to use biocontrol to provide a long-term solution to the infestation problem. As mentioned earlier in this proposal, one of BWZ's action point is 'acting to protect threatened habitats'. The Kariba weed is a threat to a key wetland habitat and Ramsar site. Work on this project thus falls within the IBA monitoring program which has been funded by several other agencies.

17b. Are you aware of any other individuals/organisations/projects carrying out or applying for funding for similar work? **NO**

If yes, please give details explaining similarities and differences explaining how your work will be additional to tis work and what attempts have been/will be made to co-operate with and learn lessons from such work for mutual benefits.

18. Ethics

Outline your approach to meeting the Darwin Initiative's key principles for research ethics as outlined in the [Guidance](#).

(Max 300 words)

BWZ as a BirdLife International partner meets all legal and ethical obligations in both Zambia and the UK. In addition to that, Zambia is one of the signatories to the Nagoye protocol on Access and Benefit sharing and BWZ is well acquitted with the guidelines in the protocol. Furthermore, the establishment of SSGs as legally recognised entities independent of the BWZ registration ensures that any traditional knowledge received from the members is properly acknowledged and any benefits received from it shared equitably.

Most of the participants on the proposed project are Zambians based in Zambia, this will not only strengthen local capacity but also increase the sense of ownership of the initiative and the results attained.

Historically, the Lukanga Swamps has rich traditional and cultural stories, explanations as well as significance. As a result of this, all the work done has been with the approval of local chiefs and headmen and headwomen and all this work has been under the guidance of a selected representative of the local authority (Chief). This has ensured that all work done recognises traditional values and customs as well as the traditional understanding on activities on the swamp.

BWZ will inform any people interviewed and caught on video of the open access and public data sharing prior to airing of any footage from the swamp. This will facilitate proper editing of footage in order to maintain privacy of individuals not wishing to be seen.

BWZ takes full responsibility of all health and safety of its employees as well as people directly engaged in doing work for the organisation. As such as safety gear will be provided for people involved in the field work and the long term habitat monitoring. In addition to that, field work will be undertaken cautiously so as to minimise accidents in the field.

Having been in existence for over 30 years, BWZ has not only strengthened its research capacity but also build a credible name for itself by providing scientifically standardised datasets and results.

19. Raising awareness of the potential worth of biodiversity

If your project contains an element of communications, knowledge sharing and/or dissemination please provide a description of your intended audience, how you intend to engage them, what the expected products/materials will be and what you expect to achieve as a result. For example, are you expecting to directly influence policy in your host country or is your project a community advocacy project to support better management of biodiversity?

(Max 300 words)

A unique opportunity about the proposed project is that the community at the project site are aware of the threat to their major source of income. As such, this project will not focus on improving knowledge of the threat but rather, the proposed control methods as well as pathways through which the weed has been spread and how re-establishment can be prevented once the weed has been controlled.

Dissemination of this information will not be towards a single audience but various groups within the community at different levels – leaders (headmen and the chief, local district council), business men and women (traders visiting the swamp, boat transport operators and fishermen), Schools (teachers and school children).

Several materials will be printed for display at key gathering sites such as the harbour as well as district council check points in both English and the local language explaining pathways of spread and ways through which re-establishment can be prevented. Furthermore, information of the mode of action of the bio-control agent will be shared with community to avoid any speculation and anxiety within the community.

In addition to that, BWZ will in partnership with CABI and BLAPS undertake a pre and post release socio-economic assessment to better document the impact of the biocontrol process on the communities in and around the Lukanga Swamps.

20. Capacity building

If your project will support capacity building at institutional or individual levels, please provide details of what form this will take and how this capacity will be secured for the future.

(Max 300 words)

BirdLife International will work with BWZ at the start of the project to establish an appropriate project and financial management framework, help establish project monitoring baselines, and identify any training needs amongst key staff to ensure effective project delivery. Throughout the project, although expecting that the need for this will decline as the project progresses and as capacity is absorbed by BWZ, BirdLife International will continue to provide capacity support to BWZ in both the technical and financial management aspects of the project.

BWZ as an institution will have its capacity strengthened with regards to invasive species control by CABI. Although BWZ has worked on conservation work in Zambia, this bio-control effort is a first for BWZ, past control efforts have been mechanical. With oversight from CABI, capacity will be improved and strengthened within BWZ as an institution as well as in all the members of staff and staff from partner institutions that will be involved in project implementation.

In addition to that, BWZ staff will in turn build and strengthen capacity with the community at the Lukanga Swamps IBA in partnership with BLAPS and CABI so as to enhance community participation in the project as well as long term sustainability of project efforts.

21. Access to project information

Please describe the project's open access plan and detail any specific costs you are seeking from Darwin to fund this.

BWZ will avail Project information to the general public through;

1). Online media – much of the project activity progress will be available on social media, BWZ has a very interactive Facebook page. In addition, the Project leader will also share progress with BirdLife Partners through 'extranet' – social media for BirdLife Partners. In addition to that, project information such as reports and photographs will also be uploaded to the BWZ website for wider public access, furthermore, articles will be written to for the BirdLife International and CABI website and Facebook page which have a much wider audience.

2). Print media – articles will be written for local newspapers and magazines as well as a technical paper on the scientific work done, data on methods as well as impacts for publication in a peer-reviewed journal.

BWZ will seek website updating and maintenance costs from the Darwin fund to enable the organisation share updated information on the progress with this initiative. The aim is to update the website at least quarterly with videos, statements, quotes and photographs of work being done and progress.

22. Match funding (co-finance)

a) Secured

Provide details of all funding successfully levered (and identified in the Budget) towards the costs of the project, including any income from other public bodies, private sponsorship, donations, trusts, fees or trading activity.

Confirmed:

BirdLife International

Training/capacity building staff time to BWZ by BirdLife Africa Secretariat - £2,500

Through BirdWatch Zambia:

TNC (socio economic survey)-£50,000

CABI (technical backstopping)-£3,000

BWZ staff time and office overhead £7,500

BWZ vehicles £2,280

Total Matched funding: BirdLife International and Birdwatch Zambia: £65,280

22b) Unsecured

Provide details of any matched funding where an application has been submitted, or that you intend applying for during the course of the project. This could include matched funding from the private sector, charitable organisations or other public sector schemes.

Date applied for	Donor organisation	Amount	Comments
1 st October 2016	JRS	£20,000	Pending
20 th September 2016	Jephcott Charitable Trust	£9,500	Pending

22c) None

If you are not intending to seek matched funding for this project, please explain why.

(max 100 words)

As the Lukanga Swamps are an Important Bird Area in Danger and have been identified as a high conservation priority by the BLI Partnership, BLI **will** continue to work with Birdwatch Zambia to secure additional funding and support for any additional work required beyond the lifetime of this proposed project. The work and methods being proposed at this IBA, have the additional benefit of their likelihood of being transferrable to other IBAs in Africa which are under pressure from *Salvinia molesta*.

23) Risk

Explain how you have considered the risks and threats that may be relevant to the success of this project, including the risks of fraud or bribery.

(max 200 words)

The biggest risk to the proposed project is a rejection of the EIA by the Zambian Environmental Management Agency. However, BWZ has been in touch with ZEMA and has been receiving backstopping from ZEMA for the past 3 years. In addition to that, the proposed biocontrol agent has been released within Zambia in at least 5 areas with supervision from ZEMA.

Possibility of Overfishing once weed is controlled. The Lukanga swamps being a major fishery in the country has a very strong presence of the Department of Fisheries who are custodians of Zambia's fish stocks as well as responsible for enforcing legislation with regards to fishing gear, peak fishing period (fish ban) as well as issuing of fishing licenses. As a result of their regular patrols on the swamp, the threat of overfishing or utilisation of unsustainable fishing methods will be reduced. In addition, the department works with a local group known as the fisheries management committee (some of these members belong to the SSG) who help with enforcement of fisheries regulations.

PROJECT MONITORING AND EVALUATION

MEASURING IMPACT

24. LOGICAL FRAMEWORK

Darwin projects will be required to report against their progress towards their expected outputs and outcomes if funded. This section sets out the expected outputs and outcomes of your project, how you expect to measure progress against these and how we can verify this.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Impact: Control of invasive alien species from areas under aquaculture in Zambia increases the resilience of 2500 fishing households and conserve wetland biodiversity (Max 30 words)</p>			
<p>Outcome: (Max 30 words) Biological control of <i>Salvinia molesta</i> in Lukanga Swamp enhances livelihoods and food security for 2500 fishing households, and restores 2000km² of suitable habitat for biodiversity and provision of ecosystems services</p>	<p>0.1 From a baseline of >20kg/hr at the start of the project, fish catch effort increased to <30kg/hr by the end of the project, benefiting 2,500 fishing households (consisting of 21,000 people in total)</p> <p>0.2 By the end of project <i>Salvinia molesta</i> cover reduced by 2000km² with increased (from baseline) numbers of Wattled Crane and other water birds</p> <p>0.3 Capacity building in project management for the Site Support Group-SSG (a farmer's group with whom BWZ has worked doing IBA monitoring for 8 years)</p>	<p>0.1 Reports from baseline and end of project participatory fishing community assessment surveys</p> <p>0.2 Reports based on baseline and end of project mapping and biological surveys</p> <p>0.3 Capacity surveys of CBO/SSG</p>	<p>Successful introduction and activity progress of the biocontrol agent once present on site.</p>
<p>Outputs: 1. Environmental Impact and Risk Assessment guiding mitigation measures for biologically controlling <i>Salvinia molesta</i>.</p>	<p>1.1 Approval by Zambia Environment Management Authority (ZEMA) for <i>Salvinia</i> control work to start by mid of year 1</p>	<p>1.1 EIA report 1.2 Approval letter from ZEMA.</p>	<p>1.1 No major risks observed that may hinder control program 1.2 ZEMA approves the EIA report in a timely manner</p>

<p>2. Fishing community members have increased the capacity and interest to participate in <i>Salvinia</i> control.</p>	<p>2.1 By end of Year 1 >100 community members sensitised and trained in the biocontrol process. 2.2 By end of Year 3 at least 50% of sensitized fishing community members voluntarily participating in monitoring of <i>Salvinia molesta</i>, fish stocks and birds</p>	<p>2.1 Capacity assessment reports 2.2 Monitoring datasheets and reports</p>	<p>2.1 Traditional leaders give their full support and endorsement of the initiative 2.2 Community members appreciate the initiative as a solution</p>
<p>3. <i>Salvinia molesta</i> control in Lukanga Swamp improves habitat for wetland biodiversity including increased fish stock leading to increased food security for fishing community households.</p>	<p>3.1 From a baseline of >20kg/hr at the start of the project, fish catch effort increased to <25kg/hr and <30kg/hr by project mid-term and project end respectively thereby benefiting 2500 fishing households 3.2 By the end of project 2000km² of currently invaded area under biological control of <i>Salvinia molesta</i> and with increased species richness of waterbirds</p>	<p>3.1 Reports from baseline and end of project participatory fishing community assessment surveys 3.2 Reports based on baseline, mid-term and end of project mapping and biological surveys</p>	<p>3.1 Successful collection of biocontrol agent from Kafue Fisheries (here in Zambia) Project site conditions favourable for biocontrol agent multiplication 3.2 Biocontrol agent spreads and mixes well in-situ</p>
<p>4. Project partners maintain and build on the outcome of the project and promote biological control of alien invasive species in areas under aquaculture across Zambia for livelihood improvement and biodiversity conservation.</p>	<p>4.1 Experience on biocontrol of invasive weed shared with at least 2 national institutions in 2 sites where it is a threat to biodiversity and fishing at project mid-term and project end</p>	<p>4.1 Lesson-sharing workshop reports 4.2 Media reports</p>	
<p>5. Project management, impact monitoring and evaluation structures and processes ensure that the project objectives are achieved on schedule and within budget</p>	<p>5.1. Partners and staff with project contractual agreements and full understanding of project requirements, including reporting 5.2 Biodiversity and socio-economic baselines, with follow-up monitoring & evaluation system in place 5.3 Documentation of biocontrol agent activity and progress</p>	<p>5.1 Site visits 5.2 Reports and on site footage</p>	<p>5.1 Biocontrol agent spreads and mixes well in-situ</p>

	published annually in the State of the Wetlands annual report as well as IBA status and trends reports which are all publically shared documents		
<p>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)</p> <ul style="list-style-type: none"> 1.1 Hire a consult to conduct EIA 1.2 Conduct EIA 1.3 Consult submits draft EIA report to BWZ for review 1.4 Final revised EIA report submitted to ZEMA 2.2 Conduct awareness talks no site, discussing the control program and methods 2.3 Community mobilisation of participants, time table development, etc 3.1 Training of participants; first institutional partners then community members 3.2 Establishment of on-site weevil breeding ponds 3.3 Weevil collection and release into on-site ponds 3.4 Rearing of weevils by community members supervised by BWZ staff 3.5 Releasing the weevil into trial sites within the swamps 3.6 Monitoring of released weevil 3.7 Release weevil into additional sites 3.8 Maintain on-site breeding ponds 3.9 Documentation, including video footage of weevil and no weevil released sites 4.1 Meeting with key stakeholders to share progress, successes, failures and lessons 4.2 Newspaper article on overall project activity 4.3 TV interview sharing on-site video footage 5.1 Contract project partners and staff 5.2 Undertake project induction/inception and quarterly meetings 5.3 Set/confirm biodiversity and socio-economic baselines 5.4 Undertake project monitoring and reporting involving partners 			

25. 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 2017)

Please add/remove columns to reflect the length of your project. For each activity (add/remove rows as appropriate) indicate the number of months it will last, and shade only the quarters in which an activity will be carried out. The workplan can span multiple pages if necessary.

Activity	No. of months	Year 1				Year 2				Year 3				Year 4			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 1																	
1.1 Hire a consult to conduct EIA	1																
1.2 Conduct EIA	3																
1.3 Consult submits draft EIA report to BWZ for review	1																
1.4 Final revised EIA report submitted to ZEMA	1																
1.5 Await EIA comments and approval from ZEMA	2																
Output 2																	
2.1 Conduct awareness talks no site discussion control program and methods	1																
2.2 Community mobilisation of participants, time table development, etc	1																
2.3																	
Output 3																	
3.1 Training of participants; first institutional partners then community members	1																
3.2 Establishment of on-site weevil breeding ponds	1																
3.3 Weevil collection and release into on-site ponds	1																
3.4 Nurturing of weevils by community members supervised by BWZ staff	2																
3.5 Releasing the weevil into trial sites within the swamps	1																

26. Project based monitoring and evaluation (M&E)

Describe, referring to the Indicators above, how the progress of the project will be monitored and evaluated, making reference to who is responsible for the project's M&E. Darwin Initiative projects are expected to be adaptive and you should detail how the monitoring and evaluation will feed into the delivery of the project including its management. M&E is expected to be built into the project and not an 'add' on. It is as important to measure for negative impacts as it is for positive impact.

(Max 500 words)

The BirdLife Project Coordinator and BWZ Project Leader will oversee M&E, to ensure the timely and satisfactory achievement of all indicators. At the project inception meeting, an M&E plan will be developed and SMART indicators refined. Baseline socio-economic and biodiversity data will be collected for the first six months of the project to complement existing baseline data. Quarterly project meetings will be held to assess progress against the M&E plan and determine necessary adjustments to project implementation. Meetings will include inputs from all project partners. Prior approval will be sought from Darwin for any project changes.

Besides undertaking an EIA for the entire biocontrol process as mentioned in indicator 1.1 above, BWZ with its partners will undertake a pre and post release socio-economic assessment to improve impact monitoring of the Kariba weed control work. Although an independent consultant will be hired to undertake the EIA, BWZ and partners will oversee this work and ensure that all necessary documentation such as impact evidence, past examples using biocontrol, etc is readily available.

Indicator 2.1 is based on a current baseline of 20 SSG members actively working to remove Kariba weed mechanically to be used in comparison to the proposed 50 community members sensitised and trained in the biocontrol process, this will be done by BWZ staff with help from the SSG. As mentioned in indicator 2.2, the aim of the sensitisation is to make community members aware of their role and have at least 50% of those sensitised at the start of the project willingly volunteering their time to participate in the biocontrol as well as long term monitoring at the end of the project. Currently the SSG is 30% male and 70% female, it is our hope that this trend continues throughout the project as this gives women more opportunity to be active participants.

Biodiversity assessment trends from 2007 to 2009, and from 2012 and 2013 have indicated a reduction in species richness on the Swamp; these periods correspond with the first record of *Salvinia* infestation. BWZ staff, through bi-annual waterbird counts, and annual data from the department of fisheries will provide a means of monitoring the impact of biocontrol on biodiversity richness on the swamp (both fish and waterbirds). As birds and other biodiversity may take several years to return to the site, long term monitoring is critical for measuring project success. However, to measure short term success, habitat quality parameters such as dissolved oxygen, light penetration depth and pH will be used.

As to date biocontrol has not been a popular method in Zambia, BWZ and partners will document activities and include video footage of the process providing an example for similar initiatives to be replicated across the country. Furthermore, work undertaken will be published in scientifically accredited journals and publically accessed magazines, websites and blogs. This effort is based on the fact that, there is little evidence of all biocontrol attempts in Zambia and BWZ wishes to demonstrate its effectiveness by publically sharing its results.

Number of days planned for M&E	45
Total project budget for M&E	£2,790
Percentage of total project budget set aside for M&E	1.116 %

FUNDING AND 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. You should also ensure you have read the 'Finance for Darwin' document and considered the implications of payment points for cashflow purposes.

NB: The Darwin Initiative cannot agree any increase in grants once awarded.

27. 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.

(max 300 words)

The largest cost on the project is the human resource or staff cost. BirdLife staff time will be required in providing partners in Zambia, especially BWZ with project and financial management support. This project is hands on and requires 4 BWZ staff to spend 60% of their time on the project over the 4 year period. All the staff in Zambia members are indigenous Zambians based in Zambia at a gender ratio of 50-50 with a female project leader. In addition to that, BWZ will endeavour to hire a local consultant to do the EIA required by ZEMA prior to the start of the biocontrol process.

To reduce on staff travelling cost, on site school leavers will be temporarily employed and will be required to report via telephone weekly during the periods that BWZ staff are not present on site. In addition to telephone reports, they will also be required to do a monthly written report. Furthermore, certain activities on the project will be conducted jointly so as to reduce costs in the long term.

The project implementing team will try by all means to reduce the number of visits by BLAPS and CABI partners from Kenya so as to further reduce the total cost of international travel to once a year for the 4 years that the project is running.

Lastly, the £299,016 applied for from the Darwin initiative will mostly be spent controlling *Salvinia* to improve the lives of at least 2,500 households (approximately 22,500 people) the actual project cost is over £380,000 as is reflected in the attached budget template.

A small component of the budget will be used to purchase capital items currently lacking in the BWZ office that will be required for the successful implementation of this project.

28. Capital items

If you plan to purchase capital items with Darwin funding, please indicate what you anticipate will happen to the items following project end.

(max 150 words)

We anticipate that the capital items purchased with Darwin funding will be donated to BWZ and the SSG at the Lukanga Swamps IBA. It is our view that items such as safety gear will motivate the community members to continue monitoring weevil activity even after the close of the project. Furthermore, scientific data collection equipment such as Secchi disks, laptop, and binoculars once donated to BWZ will be used in field data collection especially the biannual waterbird counts during which a lot of data is collected.

FCO NOTIFICATIONS

Please check the box if you think that there are sensitivities that the Foreign and Commonwealth Office will need to be aware of should they want to publicise the project's success in the Darwin competition in the host country.

Please indicate whether you have contacted your Foreign Ministry or the local embassy or High Commission (or equivalent) directly to discuss security issues (see Guidance) and attach details of any advice you have received from them.

Yes (no written advice) **Yes, advice attached** **No**

CERTIFICATION

On behalf of the trustees/company* of BIRDLIFE INTERNATIONAL
 (*delete as appropriate)

I apply for a grant of £299,016 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 applicant institution to submit applications and sign contracts on their behalf.)

- I enclose CVs for key project personnel and letters of support.
- I enclose our most recent signed audited/independently verified accounts and annual reports

Name (block capitals)	PATRICIA ZURITA
Position in the organisation	CEO

Signed**



Date:

13th March 2017

If this section is incomplete or not completed correctly the entire application will be rejected. You must provide a real (not typed) signature. You may include a pdf of the signature page for security reasons if you wish. Please write PDF in the signature section above if you do so.

Stage 2 Application – Checklist for submission

	Check
Have you read the Guidance ?	X
Have you read and can you meet the current Terms and Conditions for this fund?	X
Have you provided actual start and end dates for your project?	X
Have you provided your budget based on UK government financial years i.e. 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)	X
Have you included a 1 page CV for all the key project personnel identified at Question 10?	X
Have you included a letter of support from your key partner organisations identified at Question 9?	X
Have you been in contact with the FCO in the project country/ies and have you included any evidence of this?	X
Have you included a signed copy of the last 2 years annual report and accounts for the lead organisation?	X
Have you checked the Darwin website immediately prior to submission to ensure there are no late updates?	X

Once you have answered the questions above, please submit the application, not later than 2359 GMT on Monday 5 December 2016 to Darwin-Applications@ltsi.co.uk using the application number (from your Stage 1 feedback letter) and 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 (eg 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 the Darwin Initiative. Application form data will also be held by contractors dealing with Darwin Initiative 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 (ie name, contact details and location of project work) on the Darwin Initiative and Defra 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 Foreign and Commonwealth Office posts outside the United Kingdom, 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.