Darwin Plus:
Overseas Territories Environment and Climate Fund
Annual Report

To be completed with reference to the "Writing a Darwin Report" guidance: (http://www.darwininitiative.org.uk/resources-for-projects/reporting-forms). It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

Submission Deadline: 30th April 2020

Darwin Plus Project Information

Project reference	DPLUS087
Project title	Transitioning the Blue Iguana Recovery Programme to Sustain Conservation Success
Territory(ies)	Grand Cayman
Lead organisation	National Trust of the Cayman Islands
Partner institutions	Wildlife Conservation Society (WCS), San Diego Zoo (SDZ), Queen Elisabeth II Botanical Park (QE11BP).
Grant value	GBP 197,902
Start/end dates of project	1 April 2019 – 31 March 2022
Reporting period (e.g. Apr 2019-Mar 2020) and number (e.g. Annual Report 1, 2)	April 2019 – March 2022 Annual Report #1
Project Leader name	Luke Harding
Project website/blog/social media	https://nationaltrust.org.ky/our-work/conservation/ Facebook/Instagram: Blue Iguana Conservation
Report author(s) and date	Luke Harding and Nadia Hardie, 5th June 2020 (agreed extension).

1. Project summary

The Grand Cayman blue iguana (*Cyclura lewisi*) is an endemic species that was classified as Critically Endangered on the IUCN Red List of Threatened Species, being threatened with functional extinction in the early 2000s. Urgent action was needed but saving the blue iguana from extinction was insufficient; longer term strategies were required to guarantee the survival of the species. This stimulated long-running and extensive efforts by the Blue Iguana Recovery Programme (BIRP) to capture remaining wild specimens for breeding, head-start hatchlings at the captive facility and then to release and rebuild wild populations.

Field census surveys of wild blue iguana populations begun in 1987 and have continued annually, alternating each year across three natural survey sites: Queen Elizabeth II Botanic Park, Salina Reserve and Colliers Wilderness Reserve. Two decades of perseverance by the Blue Iguana Recovery Programme has saved *Cyclura lewisi* from the brink of extinction. In 2019, the 1,000th head-started iguana was released into the newest wild reserve. Recent surveys are showing that the wild populations are stable, though there is little evidence of hatchling survival, due to the increasing presence of predation from feral cats. In addition, adult blue iguanas are killed by stray dogs and by moving cars. Capacity to better monitor the wild populations in hundreds of hectares of difficult terrain is urgent. All of these threats place a higher importance on the necessity of the captive facility for the future, therefore, it was deemed crucial to shift the focus from species recovery to a species conservation strategy.

Gap analysis showed that the BIRP facility required an upgrade to hold a reserve of iguanas to protect the species and to generate both sustainable funding and species awareness through ecotourism. To achieve this, necessary emphasis is on implementation of biosecurity measures to reduce interactions with invasive alien species; increasing captive husbandry standards; establishing on-site cultivation of food plants at the head-starting facility to allow the opportunity for improvements in blue iguana nutrition, body condition and reproductive success through active research. Alterations to the security fence and repair of ageing cages and pens is required to exclude invasive animals. Through the facility, the project can provide financial and human resources for performing *in situ* surveys, that monitor 1,500 ha of wild reserves in which blue iguanas have been released.

The development of a revised Strategic Species Action Plan (SSAP), with input through workshops and communications with key stakeholders and partners, will collate contemporary evidence of the conservation successes, methods, veterinary issues and captive husbandry and welfare of similar species to guide BIRP through to 2025.

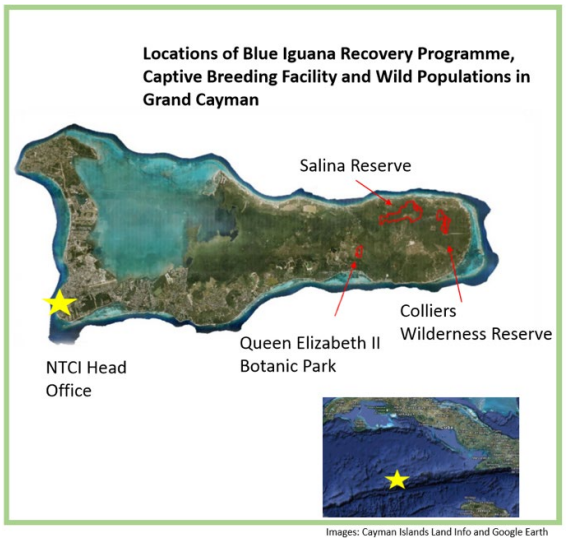

Figure 1. Locations of Blue Iguana Recovery Programme, Captive Breeding Facility (QEII Botanic Park) and Wild Populations in Grand Cayman.

2. Project stakeholders/partners

The Blue Iguana Recovery Programme (BIRP) team have been working with a number of key partners throughout the planning and implementation of the aims and objectives of this project under the National Trust for the Cayman Islands (NTCI). This has been a continuous and leading partnership with BIRP for 20 years by maintaining strategic partnerships with government and non-government agencies, whether locally, regionally and internationally. These include: The Department of Environment (DoE), Queen Elizabeth II Botanic Park (QEIIBP), RSPB, Birds of Caribbean, Birdlife International, Wildlife Conservation Society (WCS), San Diego Zoo and University of Mississippi.

BIRP falls under the management of NTCI which is the registered NPO and are on the front line of managing the captive population, uniquely positioned to identify threats from feral dogs, cats and green iguanas. NTCI is highly committed to minimising deaths from these sources, as well as ensuring the fittest head-started individuals for wild release.

NTCI leads this project within the Cayman Islands, developing the project proposal and providing staffing at all levels of the project. NTCI also performs oversight in conjunction with the established Steering Committee for BIRP. The Steering Committee is made up of representatives from several organisations including NTCI, Department of Environment, QEIIBP and BIRP. The Steering Committee is scheduled to meet quarterly where possible to

discuss issues and future plans for BIRP; the last meeting was held in March 2020 (Annex 3.1) and the next meeting is scheduled for 12 June 2020.

The Queen Elizabeth II Botanic Park, opened in 1994, encompasses 65 acres of native woodland trails and gardens dedicated to floral diversity, Caymanian heritage and medicinal plants and regional and neotropical xerophyte. The BIRP captive facility sits within the QEIIBP, which itself has a population of free-roaming blue iguanas. QEIIBP supports outreach through its website and facilitates schools and educational programmes of the NTCI and others. QEIIBP's role in the project is to provide advice for Output 3.0: including Activities 3.2 and 3.3 (design of planting plots, plant choices, seed collection and storage, maintenance protocols). QEIIBP will work closely with BIRP to ensure that construction and repairs provided for in Outputs 2.0 and 3.0 can be carried out with minimal disruption to other aspects of the BIRP and Botanic Park activities. The horticultural staff at QEIIBP have been advising on suitable plants to cultivate and best practice for growing them in the newly constructed beds. The staff members at the Visitors Centre help to support BIRP by informing park visitors about Iguana tours and providing them with information. QEIIBP are represented on the BIRP Steering Committee and contribute in providing relevant feedback and input on the progress of the project.

The Wildlife Conservation Society (WCS) Zoological Health Program has provided veterinary support to BIRP since 2001, in conjunction with the IUCN Iguana Specialist Group and St. Matthews Veterinary School, Grand Cayman. This support has continued throughout year one of the Darwin grant project and Dr Paul Calle who oversees a team of 3-5 volunteer veterinarians have carried out their annual pre-release evaluations and health assessments of Grand Cayman iguanas at the QEIIBP captive facility and free-ranging iguanas; determining baseline haematologic and biochemical parameters, enteric culture, parasite screening and treatments and providing medical care as necessary. Continued partnership with U.S. based institutions gives the project access to state-of-the-art input in *Cyclura* biological and veterinary research.

WCS's role in the project has been to participate in Output 1.0 – development of a new 5-year Strategic Species Action Plan for BIRP. For Output 3.0 WCS, together with San Diego Zoo's Institute of Conservation Research (SDZICR), has provided improvement advice for husbandry and nutrition, and techniques for recording and reporting measurements of change against the baseline levels of weight and body condition indices. WCS has been responsible for providing timely reporting of annual health evaluations.

BIRP partner, Dr Tandora Grant of SDZICR, maintains a comprehensive stud book for the captive breeding programme. Dr Grant evaluates genetic and demographic statistics to determine captive breeding pairs and wild release candidates. In addition to advising on breeding and releases, SDZICR's role in the project has also focused on Output 1.0: Development of a new 5-year Strategic Species Action Plan for BIRP. Representatives attended the SSAP workshops in 2019 and are contributing partners to the SSAP drafting process. SDZICR and WCS continue to provide advice for husbandry and nutritional improvements (Output 3.0).

The Tourist Attraction Board (TAB), another partner, is the management group for the QEIIBP, in which the captive facility is based. As part of the botanic park eco-tourism the Blue Iguana Safari visitor tours are offered three times daily. These tours offer the general public an educational and informative insight into BIRP's history, conservation efforts and an interactive experience. The tours are advertised within the park office and promoted by the park staff who assist with the bookings and offering information to visitors who go to the garden's visitor centre. BIRP works closely with the botanic park staff to develop eco-tourism efforts within the park.

The annual blue iguana welfare veterinary visit by Bronx Zoo (WCS) occurred in October 2019, led by Dr Calle to assess the health of the captive population and confirm suitability for release at a later date. In 2019, project partners and stakeholders agreed on the implementation of Species360, enabling the facility to improve the standard of husbandry using an internationally renowned record keeping database. This new database will be a key tool to allow nutritional improvements to be more effectively evaluated by BIRP and the Steering Committee.

Throughout Year 1 BIRP has been in communication with the main supermarkets on island and has now established a partnership with Fosters Food Fair supermarket, resulting in occasional food donations. In addition, the National Trust Executive Director sealed a partnership with a local farmer who donates locally grown food produce bi-weekly and food plants for cultivation at the facility. Using social media platforms, BIRP has reached out for 'Blue Iguana Champions' for food donations from local residents, for which the support from the general public and NTCI members has had considerable success.

BIRP are able to access support from the local Island veterinarians for the day to needs of the facility. The veterinary team are on hand to assist locally with any concerns with illness or injury to individual Iguanas and were represented at the SSAP workshop.

BIRP enjoys good working relationships with its partners and in October 2019, local partners met for a strategic planning meeting, the main focus of which was to discuss logistics, methodologies and equipment needed for the 2020 survey. This preparatory work at this meeting proved essential in ensuring the success of the survey – all the necessary equipment was available when the team arrived, everyone was sure of their roles and what was required of them. Work rota and schedules had been previously decided and worked well. Candidates for the survey team were selected at this meeting and the international field survey team for March 2020 was made up of competent specialist herpetologists and conservationists, most of which were experienced in captive husbandry and/or fieldwork. The survey work ran smoothly and with no major problems and the planning, support and input of the steering group was an integral part of the survey's success.

3. Project progress

3.1 Progress in carrying out project Activities

Output 1: Strategic Species Action Plan (SSAP) 2020-2025 is delivered by key stakeholders.

1.1 SSAP Secretariat was appointed and preparations for 2019 SSAP workshop were carried out. Invitations and a workshop agenda (Annex 3.2) were sent to local and international partners and representatives and all the necessary meeting facilities, accommodation and travel arrangements were put in place. The meeting was delayed from July to September 2019 due to availability of key stakeholders and changes in staff at NTCI.

1.2 The SSAP workshop was held on the 16th-20th September 2019 and included eight overseas and 28 local attendees. Many of the key stakeholders were represented, including staff from the Bronx Zoo (WCS), San Diego Zoo, Fort Worth Zoo, The Department of Environment (DoE) and Island Vets (*Figure 2*). The WCS annual veterinary visit occurred after the workshop on this occasion due to availability of required WCS team.

1.3 All outcomes from the workshop were collated by the Secretariat, who also prepared a post-workshop report (Annex 3.2). The Secretariat continued drafting the SSAP document until resignation from the post in February 2020 and replacement was made (please refer to sections 3.2; 3.4). The newly appointed SSAP Secretariat continues to draft SSAP document with input from key stakeholders and partners, on track for a final draft to be ready in September 2020.

1.4 Actions towards 2020 workshop & preparation for September 2020 are on hold due to global pandemic restrictions and current uncertainties (please refer to section 7).

1.5 In accordance to Activity 1.4, the September 2020 workshop may be held over videoconferencing or postponed until early 2021.

1.6 The SSAP 2020-2025 will be published in 2021.

Figure 2. Some of the SSAP workshop delegates at Colliers Wilderness Reserve, Grand Cayman in September 2019.

Output 2: Captive Breeding Facility reconfiguration, biosecurity improvements carried out.

2.1 Facility staff have made essential repairs to the existing concrete enclosures and repainted where necessary. Ideas were trialled to increase optimal standards for husbandry and welfare of captive blue iguanas, whilst maximising flexibility of enclosures and cost. Ten new concrete-walled, semi-wild habitat pens have been built to enable the most species-appropriate housing (Annex 3.5) and an area within the facility has been realised for four additional pens in future.

2.2 Facility staff have continued to build hatchling and sub-adult cages, most of which are dividable to increase flexibility dependent on the changing number animals held within the facility (Annex 3.5).

2.3 Staff and community volunteers have regularly cleared vegetation along the perimeter fence line. Labourers have cemented the chain-link fencing into the ground to greatly reduce the risk of invasive alien species (cats, dogs and green iguanas) entering the facility. Flashing and rollers are to be put onto the fencing, though this was delayed due to the delayed imports of certain materials through COVID-19 lockdown (please refer to section 7 and Annex 3.3 and 3.4)

Output 3: Iguana nutrition improved and diversified by: (i) wild food plant cultivation plots built at Captive Breeding Facility; (ii) transportation, refrigeration purchased; (iii) recruitment partner supermarket.

3.1 A baseline report and literature review has now been completed summarising the existing captive *Cyclura* diets and increase project knowledge on wild blue iguana food plant identification. Seasonal inefficiencies for collection require further travel to a variety of collection sites to ensure a diverse captive diet that increases body condition and general health in captive blue iguanas at the facility. Edits are being made to the report and it will be available by the Half Year Report in 2020.

3.2 Four cultivation plots for the facility were designed, with the addition of a 180 ft planting bed. The wooden planters were designed to prevent iguanas from climbing in and this has been successful (Annex 3.6).

3.3 The cultivation plots were constructed and planted with seeds and seedlings of eight different food plant species. Various species have been trialled, including hibiscus, marigold, ganges rose and callaloo. Maintenance is carried out by staff and volunteers, with daily watering manually and through irrigation (Annex 3.6).

3.4 A supermarket partnership has been agreed with Fosters Food Fair and this has been promoted on social media platforms. Food donations have been received.

3.5 A hybrid vehicle for food collection and supermarket donations was purchased for BIRP staff use.

3.6 A new refrigerator has been purchased for the captive facility, enabling fresh flowers, fruits and leaves to be stored appropriately, securely and allows for keeping of larger quantities of food donations that ultimately reduces wild food collection time.

Output 4: Perform annual surveys of the Colliers and Salina Reserve wild populations.

4.1 An analysis of special challenges for Colliers Wilderness Reserve was carried out in a baseline report, available in 2021 with the inclusion of Salina Reserve. Field survey candidates were selected.

4.2 Survey candidates were contacted to confirm participation and arrangements for travel and accommodation were made.

4.3 Trails were cleared and maintained in Colliers Wilderness Reserve to required survey standards and a temporary field shelter was erected in the camp. Work was completed on schedule and in time for the scheduled date for the surveys (Annex 3.7).

4.4 Field survey for blue iguana population census was successfully carried out in Colliers Wilderness Reserve over six days (Annex 3.7). The field shelter was dismantled at the close of surveys.

4.5 A verbal survey conduct report occurred and the team were debriefed on the success of the surveys. Relevant adjustments to 2021 survey will be decided during a survey planning meeting in late 2020.

4.6 Survey results were compiled (Annex 3.7) and were comparable across previous years.

4.7 Trails will be cleared in Salina Reserve, on schedule for the March 2021 survey.

3.2 Progress towards project Outputs

Output 1 focuses on the Strategic Species Action Plan 2020-25 (SSAP) which has been adopted by BIRP. It was identified that an SSAP was essential to help focus the work of the project and to support the transition of the project from recovery to conservation. A Secretariat for the SSAP was appointed and they organised the 2019 SSAP workshop on Grand Cayman. The attendance rates at the meeting were significantly higher than anticipated with around 30% higher attendance. The forecast was to have seven overseas and up to 18 local stakeholders in attendance, though the actual numbers attending were significantly higher, giving a much broader representation and wealth of experience to the four-day workshop. The workshop meetings and discussions were productive and attendees worked cohesively to ensure that the time together was used effectively (Annex 3.2).

Coupled with continued communication and SSAP input via telephone and email, the Secretariat continued to contribute towards drafting a final version of the 2020-2025 SSAP. Recruitment for this position proved difficult on island and this was taking place at the same time as recruitment for the new BIRP manager. These factors coupled with the resignation of the Secretariat in February 2020 led to an initial delay of the SSAP draft. Further disruption to the recruitment process was caused by the recent COVID-19 pandemic (please refer to section 7), so it was decided that the new Project Manager would also take over the Secretariat role. Work towards the 2020 workshop and SSAP document has now resumed, with the new Secretariat continuing to draft the SSAP with dialogue from key stakeholders, although this too has suffered set-backs due to the COVID-19 pandemic making contact with key stakeholders more fragmented as many people are now self-isolating or presently furloughed from employment, therefore communication is slower than anticipated or desired. A first draft is aimed to be circulated in time for the second SSAP meeting in September/October 2020.

The preparations are ongoing for the next SSAP workshop and provisional dates for the next meeting in 2020 were discussed to ensure that all delegates have sufficient time to schedule this meeting. The finalisation of the dates has been put on hold at present, due to the uncertainties surrounding travel arrangements during the current pandemic. It is not anticipated that international travel will be possible to Grand Cayman until late 2020 or early

2021, therefore a revision of plans may be required as outcomes from this pandemic emerge. Arrangements for the next meeting will be complex, not least by the nature of the individual responses and restrictions made by each country and the individual needs, risks and preferences of each delegate. The Secretariat will have to monitor this developing situation over the coming months so that a suitable outcome can be reached in order to facilitate the next SSAP meeting and work towards the completion and approval of an SSAP for the blue iguana.

Output 2 concerns the reconfiguration of the captive blue iguana facility and carrying out biosecurity improvements at the facility. The activities identified have been ongoing and progress has been made towards repairing the existing concrete enclosures, with all repairs and repainting now completed. The indicators are still the best measures to help us achieve this output and although some necessary adjustments have been made, they are still largely in keeping with the original output indicators.

Concrete-walled, semi-wild pens have been repaired with new gates included (Indicator 2.1) and an additional ten pens have now been constructed for adult iguanas. Temporary walls can be erected into previous concrete-walled pens where necessary, though this is a case-by-case basis depending on necessity to separate breeding pairs (Annex 3.5).

The team have started to develop areas for the addition of several new larger enclosures which can be subdivided to create greater flexibility for the capacity of the facility and the needs of the animals. The team initially took time to evaluate a number of design ideas in order to improve the functionality of the new enclosures, so that they offer optimal environments for blue iguanas and contribute more effectively to improving health and welfare standards with the facility. A new idea was trialled for dividing the enclosures to use a more flexible structure than brick work. A trial using mesh panels with rollers was unsuccessful as two iguanas escaped during tests as the dividing wall allowed them to gain footing and make it over the roller. All attempts to scale the fence were stopped by the roller where there was no footing available (*Figure 3*).

Figure 3. A captive blue iguana gained footing on the solid wall to allow escape avoiding using the roller at the Blue Iguana Recovery Programme facility, October 2019.

Bricks and mortar is deemed preferable as it offers greater longevity than other materials and is more secure for the iguana, preventing escape opportunities as they do not allow the Iguana to gain purchase to climb out. Ten new concrete-walled semi-wild habitat pens have been constructed; therefore, the facility will have a total of 28 concrete-walled pens, rather than the originally suggested 32, due to the prioritised budget demands. An area within the facility has been identified for at least four additional semi-wild habitat pens at a later date.

Other work is being carried out to improve biosecurity at the facility, including improvements to the perimeter fencing to keep out invasion from green iguanas and feral cats and dogs (Annex 3.3; 3.4). This is an important measure in order to protect the blue iguanas housed at the facility. A total of 160 green iguanas have been culled in and around the facility perimeter in the first year and four dogs and a number of cats have been trapped in the botanic park (Annex 3.4). Replacement of the entire facility perimeter fence was too costly; therefore, tenders were requested, evaluated and labourers approved to install biosecurity upgrades with the adaptation of the 8 ft high chain-link facility perimeter fence. The fencing has been extended to 776.95 m from the initial 275 m originally stated in the log frame and is held in concrete footings

in the ground with 3 ft flashing. Rollers have been imported to replace barbed wire at the top of the fence to achieve robust green iguana exclusion fencing, as rollers were trialled in the facility and were effective barriers when used correctly (Annex 3.3; Annex 3.4).

Boundary clearing commenced and is ongoing as the boundary of the facility is natural vegetation and so requires constant maintenance. Repairs and biosecurity achieved to standard as monitored by the Project Leader.

As most materials are imported their arrival was delayed due the restrictions of the Covid-19 pandemic. There was a complete embargo on goods entering Grand Cayman until the end of May 2020, after which goods were quarantined on arrival until deemed safe to move. These restrictions have not only delayed orders but also the purchase of other essential building materials and has hindered any building work for the project in the last quarter, but goods are now arriving and work has recommenced.

Indicator 2.2 suggests the need for 100 new sub-adult and 50 new hatchling cages to be made available for occupation. This work is ongoing and further research and evaluation has adjusted some of the plans: twelve smaller, wooden/mesh adult cages have been identified as beyond repair and, under veterinary advice of WCS, will be replaced with twenty-eight semi-wild pens with a concrete base, mesh sides and roofing. Each cage will have moveable dividers to split cages if necessary. The new cages can house individuals, pairs, or groups of hatchlings (ten max.) to allow flexibility to the holding capacity of the breeding facility in the future. The required quantity of cages has not altered. However, the approach has changed by using a more flexible cage design, enabling the improved management and welfare of all life stages of iguanas held at the facility and a fast response to potential changes e.g. injured animals who may come in for a short time to recover before being re-released.

Eleven standing mesh caged units have been built or adapted to be subdivided with wooden boards. The units have a solid wood divider to prevent the risk of conflicts through mesh and injuries to snouts and toes and also provide visual barriers. The dividers allow flexibility to hold either one, two or four individuals, increasing facility capacity by up to 22 juveniles or 44 hatchlings. Each unit has locks to prevent risk of theft or escapes even if wood expands or warps.

Daily patrolling of the facility, dog trap checks and maintenance of fence line have been carried out.

Output 3 focuses on the improvement and diversification of iguana nutrition at the captive facility (i) wild food plant cultivation plots built at the captive facility; (ii) transportation, refrigeration purchased; (iii) recruitment of partner supermarket.

A key task in the improvement and diversification of the iguana diet has been to create a baseline draft report including, performing a literature review of *Cyclura* diets, describing current feeding protocol using primarily but limited diversity wild collected plant material, identifying issues with seasonality inefficiencies in collection methods and identifying preferred seasonal native plants to cultivate. A first draft of this document was completed in January 2020 and has been circulated to key partners for their comments and input, with the final report due by the Half Year report in 2020.

The review of the diet offered has moved away from zoo feeding programmes for leafy greens due to issues seen in some captive populations. There is a working hypothesis which suggests a link between reproductive health and diet and so changes have been made in the quantity of food offered, this is altered seasonally and also an increase in the variety of plant species offered to widen the nutritional composition and balance of the Iguana diet.

Early indications are that the changes made to the diet of the captive blue iguanas has significantly improved the plant species diversification offered and these changes are reflecting in a measurable increased body condition by weight since the beginning of this grant. The improved condition was noted by Dr Calle at the October 2019 veterinary visit and weights have continued to improve to present day.

In addition to the fresh diet offered each day, dry food pellets have been sourced from Mazuri Exotic Animal Nutrition for emergency use at the facility in the event of hurricanes when fresh food may be in short supply.

Husbandry, welfare and nutrition is being achieved to the standard set by the SSAP and as monitored by veterinary welfare partner WCS and evaluated by the Steering Committee.

Body condition and weights of captive iguanas have shown a steady increase since introducing more food plant species and appropriate volume of food to all size iguanas reflecting in good quality egg yield and a blue iguana record clutch of 20 eggs in April 2020.

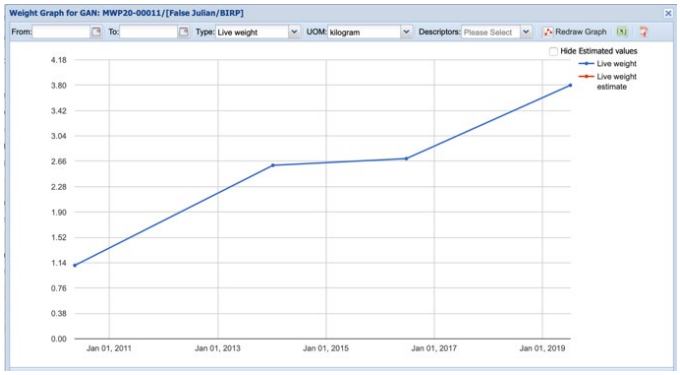

Figure 4. Weight chart of a captive male blue iguana at the facility, showing significant weight gain.

Using the preliminary information and through discussions with the Horticultural staff at QEIIBP, cultivation plots have been designed and constructed at the facility (Annex 3.6) and several plant species established within the plots. By mid-2019, there were only three species growing and now this has increased to eight different plant species. This is a higher number than projected for Year 1 (projection was for five species within Year 1) and confirms the project to be well on track to reach, and probably exceed, the target of growing ten plant species by the end of the project term. Irrigation systems have been installed and are contributing to the success of maintaining the cultivation plots. Four pilot cultivation planters were built to test growing success, with trials of ganges rose, marigold and hibiscus plants. A 54.9 m (180 ft) planting bed was developed along one fence line, maximising cultivation opportunities for a variety of plants, including callaloo. In addition, food plant seeds were sown in all semi-wild habitats, along with four Indian Mulberry trees, two mango trees and indigo (Indicator 3.2).

Discussions with major supermarkets on the island have taken place and a partnership with one of Cayman Islands' largest supermarkets, Fosters, has been formed to provide donations of suitable food to supplement the iguanas diet. In addition, an agreement has been made with several local residents and farmers for food donations. This initiative has been publicised on the programme's social media platforms and is gaining momentum with residents viewing posts about 'Blue Iguana Champions' who support the programme with food donations and more residents are now coming forward with offers of support (*Figure 5*).

A hybrid motor vehicle has been purchased for use by the BIRP staff. This vehicle is making a significant contribution to work at the facility, enabling staff to collect and offer a greater diversity of diet for the iguanas. Food variation is now more than five-times greater, with an increase from six plant species to over 31 species of plants currently offered. Six new plant species have been added since the Half Year Report and, with the guidance in the draft nutrition report, the variety offered will continue to increase.

Figure 5. Fosters supermarket Blue Iguana Champion social media post on Facebook (please refer to section 4 regarding project rebrand).

The target is to reduce staff time for food collection by 25% and that is still the goal. Due to several reasons, food collection time has not yet decreased significantly. New staff have needed to orientate themselves and locate suitable collection sites which offer the quantity, quality and variation of food, but it is anticipated that the time spent gathering food will start to decrease as new staff are developing an excellent working knowledge of the area and plants and have identified and mapped many suitable collection sites.

A partnership with Fosters supermarket has resulted in occasional donations of leafy greens to supplement the diet, building upon community spirit regarding the protection and awareness of blue iguanas. Increased community donations of locally sourced fruits, including 10lbs mango and noni per week, have also reduced staff food collection time and have created links with residents to become Blue Iguana Champions. This would not be possible without the vehicle, as it enables donation collection from across the island.

The hybrid vehicle is in daily use to reach farms and food collection sites, though seasonality is putting pressure on food collection time due to finding sites further afield. Conversely, food collection times have decreased recently due to bi-weekly contributions of 20 lbs of fresh cultivated local food plants from farmers. However, a greater variety of plant species are being gathered and the amount of food offered to each iguana has been seasonally adjusted and increased by 200% in line with veterinary advice and so some of the time savings have been lost, as more food is needed at present.

The old refrigerator has been replaced with a brand new and more economical refrigerator. This has further enhanced ability to collect a wider range of plants, due to the possibility of chilling delicate flowers and fruits, responding to donations given and keeping food fresh when it becomes available. The team are able to collect larger volumes of food in one outing because food can be kept chilled at the facility, reducing total food collection time throughout the week.

All aspects pertaining to nutrition, including food collection and feeding are under regular review by the Operations Manager, Steering Committee and veterinarians.

Output 4 is to perform annual surveys of the Colliers and Salina wild populations.

This year, BIRP has been able to begin analysis of the special challenges of surveying the enlarged areas of occupancy at Colliers Wilderness Reserve and produce a baseline report. During a meeting on 31 October 2019, a team of survey candidates was identified and they were contacted to confirm their participation in the 2020 surveys. Extensive preparation work was undertaken to clear trails in Colliers, to enable the survey teams to gain suitable access to perform surveys to the required standards. Temporary field shelters were constructed prior to arrival of the survey team (Annex 3.7).

The March 2020 field survey in Colliers Wilderness Reserve was successful. The survey team were able to take the advantage of the good weather at the time of the survey and worked cohesively and efficiently to complete the survey in the allotted time. The field team were recruited from candidates who were identified as having the required skills set and the surveys were completed within budget. An additional survey team member was recruited and designated to assist at the facility during the surveys and currently throughout the entirety of COVID-19 lockdown on Grand Cayman.

The early conclusions from the survey is that the results of individuals found within the reserves was comparable to previous years but noticeably, there were no sub adults sighted in Colliers.

Work has already started on clearing trials at the Salinas reserve and these trails will be cleared and maintained by the next survey in 2021. The target date for completion of the trails in Salinas is February 2021 and we are well on course for achieving this so that the March 2021 surveys can take place. A competent and suitably experienced field team will be selected by January 2021.

Following the departure of the field team, the field shelters were dismantled and results from the surveys have been compiled and analysed (Annex 3.7). Survey participants were debriefed and their experiences and input will form part of the final evaluation of the 2020 surveys and

help to inform any necessary adjustments to the 2021 surveys at the Salina Reserve through verbal assessment amongst the Steering Committee.

3.3 Progress towards the project Outcome

Project Outcomes:

To transition from recovery to stabilised conservation requires the realisation of several key outcomes.

1. The SSAP workshops and collaboration between partners aim to create and adopt a new Strategic Species Action Plan and priorities for species conservation for the blue iguana. This will benefit the captive facility to continue achieving and promote best practice of husbandry, welfare, breeding and nutritional standards. The first SSAP meeting was successfully carried out and enabled work on a draft SSAP document to commence. [As detailed in section 3.2]
2. BIRP's captive facility should be upgraded to allow for future longevity of logistical and practical useable cages and pens. Animal welfare will benefit, as larger pens allow improved body condition, which can be measured during annual veterinary visits and behavioural data. [The work is ongoing as detailed in section 3.2]
3. A focus on a diverse and highly nutritional diet will be offered to the captive blue iguanas to increase body condition over the first two years, as measured by weight, annual veterinary visits and reproductive data. The changes to the diet already seem to be making a difference to the health of the Iguana population at the breeding facility – [refer to details in Section 3 – Output 3]
4. Recruited capacities of trained and competent individuals are satisfied for annual surveys; trails cleared and surveys are carried out at the highest standard to ensure quality of data for comparison across past surveys. Results will benefit overall conservation of blue iguanas as outcomes can influence focus towards the captive facility, alternative field methodologies and/or SSAP considerations. All agreed time frames set out in the log frame were met and the surveys were successfully completed.

3.4 Monitoring of assumptions

Some of the assumptions regarding the project objectives have changed and some were realised during the year:

The assumption that otherwise no significant risks are likely to cause delay has been tested by the COVID-19 pandemic but this could not have been reasonably assumed at the time of submitting the grant documentation and even at the October 2019 Half Year Report when COVID-19 was not a consideration.

SSAP
The risk that the SSAP is rejected by governmental bodies as a key source for a statutory species conservation plan is mitigated by DoE as a key stakeholder, has held true to date. The partnership with the DoE has so far meant that the project has benefited from existing partnerships within the DoE. Risk of road developments in or near the protected areas is well understood and is still a major existing risk, as some animals are killed on the roads. BIRP tries to use social media to inform the public and the mobilisation of public response would still be the route to follow, should a new road or building project be proposed near to one of the protected reserve sites.

Change of Personnel
Assumption 2 indicates that unanticipated staff turnover might cause delay in delivery and that no significant risks are otherwise assumed which could cause delay in the delivery of the project outcomes. The assumption regarding the impact of staff turnover has proven true. The first year has seen drastic and unanticipated changes to personnel, which continually delayed delivery schedule. There were three changes in the Iguana Warden role at the captive facility

in 2019. Additionally, BIRP Operations Manager, Nick Ebanks, was replaced by Luke Harding in May 2019. The DPlus807 Project Lead resigned from the National Trust for the Cayman Islands in February 2020, leaving a delay until Darwin accepted Luke Harding as Project Lead. The project has continued progress despite these changes. The knock-on effect of staff turnover resulted in the delay of the first SSAP meeting from July to September 2019. The SSAP Secretariat left in February 2020 and the role has been re-assigned to Luke Harding in addition to his main role as Project Lead by acceptance of the Steering Committee (change request accepted in May 2020). This change meant difficulties in collating information, but time loss is being regained. The Strategic Species Action Plan is currently being compiled using the same methodologies as past SSAPs but using a revised format in accordance with SSAPs for other species. The baseline nutrition report will be completed by the Half Year Report in 2020 and SSAP drafts are still on target.

Cultivation of native plants at the captive facility
The risk of extent to which cultivation of native plants at the captive facility can succeed has been tested previously by a small pilot bed in the early days of BIRP. This is counteracted by subsequent successful establishment of a native plant nursery at the park, the recent appointment of a new horticulturalist, and availability of larger area for growing. It is recognised that such production will remain supplemental to wild-collected food. The test beds have been developed and the larger plots established. The liaison with the QEIIBP and its horticultural staff has proved valuable in selecting and propagating a variety of plant species to offer as a supplement to wild food collections, with eight plant species being grown at the facility. Ongoing monitoring will continue as issues are assessed, such as seasonal variation and weather-related events such as the approaching hurricane season.

Field survey teams
Assumption 4 pertains to sufficient field team capacity being recruited within budget and that surveys are not delayed or extended by weather conditions (it is impossible to conduct the surveys accurately when overcast or in rain). These risks are mitigated by offering funding for the two significant out-of-pocket expenses for volunteers and by conducting surveys in March (dry season) also avoiding hurricane risks. The weather in March 2020 was very favourable and the surveys were conducted in a timely fashion. The planned surveys for 2021 will be set for March when predicted weather patterns are favourable, though March may not always be ideal for student and academic volunteers.

Veterinary Partners
Output 1 assumes that partner WCS continues to fund its attendance for annual veterinary monitoring. This remains the case to date and there has not been any indication that this will not continue. The veterinary team are still hoping to carry out their annual inspection but this will be dependent on travel restrictions due to COVID-19 and not funding.

Facility breeding levels and construction of habitats
Output 2 assumes that resumption of breeding of blue iguanas at the levels of the original recovery programme will not be needed; no special assumptions required or significant risks related to the configuration and biosecurity elements; materials and capacity are readily available in the Cayman Islands; unanticipated staff turnover could affect delivery schedule for those elements to be performed by BIRP staff. These assumptions are largely still true at present but there is a consideration for the adjustment of breeding level at the captive facility in response to early results from the surveys and camera trapping. It is evident that there is little, if not zero, survival of wild hatchlings, therefore the need to breed a higher volume of iguanas at the facility is far more crucial than originally assumed. In 2019, the Steering Committee and SSAP contributors agreed that the facility is no longer viewed as temporary for population recovery and instead is required for conservation breeding and head-starting for the foreseeable future. This is reiterated by the March 2020 field survey results, which also suggest a long-term negative effect on wild numbers without the assistance of the captive facility. Materials are usually readily available on Grand Cayman and as previously discussed there has been some delay in getting products on island due to COVID-19 but this was not a generally applied factor/assumption. The effects of unanticipated staff turnover have been

discussed previously and did, in some cases, have a deleterious effect and whilst this is regrettable, it was not unforeseen as this had been assumed in the planning.

Cultivation plots and nutritional diversity
Output 3 assumes that time spent on wild food collection will not be reduced due to the expectation of time taken to maintain cultivation plots. However, regardless of that trade-off, the increase in time staff are able to be at the facility enables the scheduling of a greater number of income-generating Blue Iguana Safari Tours. Initially there was increased staff time spent in building the plant beds and learning to manage them but that has now significantly reduced and there has been a decrease in the overall time spent managing the planters.

Replacement of aged or defunct donated equipment is necessary to alleviate staff shouldering financial burdens/depreciation of personal vehicles and to provide capacity for storage of donated produce. The purchase of the new hybrid vehicle has managed most concerns and has proved an invaluable asset to the project.

Difficulty in transitioning adult captive blue iguanas to a greater diversity of wild food and/or larger percentage of non-native leafy vegetables is not expected, based on existing *Cyclura* husbandry research. Iguanas being conditioned for release into the wild will need only to be fed wild food in the lead-up to release. The collection of a wider range of wild food has been enable by the purchase of the project vehicle and the increase in community support offering wild food for the blue iguana.

Supermarket partner is unable to supply surplus produce at level of demand is not considered to be a significant risk as they supply hundreds of kilos of produce to a population of 63,000 people daily. The potential supermarket partners have a track record of community support. The supermarkets have been approached and a partnership with Fosters, one of the largest supermarkets on Grand Cayman, has added to the food available for the blue iguanas at the captive facility. Despite the recent lockdown and reduced food items arriving onto the island, the supermarket has continued to support us with food.

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

A key part of the foundation of the National Trust for the Cayman Islands was designed to drive environmental protection through conservation and education across our three islands. Therefore, NTCI holds firm to the Environmental Charter signed by the UK government and Cayman Islands Government in 2001, as well as the 2009 National Biodiversity Plan objectives. The Blue Iguana Recovery Programme also serves to feed into the Species Conservation Plan under the National Conservation Law, 2013.

This project was established to continue to maintain and protect Critically Endangered blue iguanas, as well as develop and improve the safeguards and management of the conservation programme. The National Trust, through the BIRP team and its key partners, have been working hard to ensure that the species does not return to Critically Endangered status and improve the captive head start facility and the overall welfare of the iguanas. The project has made very good progress towards the creation of the new five-year Strategic Species Action Plan (SSAP) after holding the first of two dedicated workshops in September 2019, attended by experts and long-term partners. The second follow-up workshop will take place towards the end of 2020 or early 2021 and may be a virtual meeting based on COVID-19 restrictions. The SSAP will become the foundation of the National Conservation Council's statutorily mandated Species Conservation Plan.

These successes to date underpin Point 7 under the Guiding Principles of the UK/CIG Environment Charter 2001. The project also contributes to Convention of Biological Diversity (Articles 6a, 7b, 8d, f, 9b, c,d, 10e, 13a), and equivalent objectives of Protocol concerning Specially Protected Areas and Wildlife, Aichi Biodiversity Targets (1, 12, 17).

Despite the challenges faced in 2019/20, namely several staff changes, and a global pandemic, BIRP is proud of what has been accomplished in one year. The changes to the facility and

welfare of the iguanas in the captive facility have improved significantly because of the improvements made to date.

Our Education and Public Awareness (Commitments 9 & 10) for the programme have improved greatly, the programme has endeavoured to put more blue iguana digital content online, aimed at differing ages groups and for general public use. This has been a particularly important resource during the three-month island wide lockdown because of COVID-19. Our outreach with schools, both private and public, in the Cayman Islands remains strong and the promotion is encouraged.

BIRP was rebranded to *Blue Iguana Conservation* (BIC) during the summer of 2019 to fulfil an objective from our current Strategic Species Plan. This new branding was particularly well received and further helped increase public awareness of our conservation programme, which in turn helped drive tour interest, revenue, and donations.

Engagement has risen on our social media platforms (Facebook & Instagram) and some blue iguana posts reach well over 8000 plus impressions. The blue iguana web pages and tour pages are also the most visited pages on our www.nationaltrust.org.ky website.

5. Monitoring and evaluation

BIRP considers monitoring and evaluation to be central to the project and a key tool in assessing the progress and success of the outcomes and outputs. The log frame is constantly used as a reference point for the tasks agreed and deadlines set. In addition, the updated documents, such as the nutrition baseline report and the draft SSAP, are used to reflect project progress and reflect information, for example, from the Colliers surveys and the camera trapping. These documents are shared with the key stakeholders to keep them informed and also to gain their input and expertise into the content of these documents. Project activities and outputs are monitored regularly by the team, management and at steering group meetings and form the basis of discussions with our key stakeholders.

6. Lessons learnt

Despite factoring in assumptions of possible disruption if unforeseen staff changes happened, the reality of how much impact this caused was unprecedented. The initial recruitment of the Project Manager and Iguana Warden(s) took longer than anticipated and led to a delay of a few months at the start of the project. The recruitment and immigration process were necessarily rigorous in order to ensure that staff recruited had the desired skills and experience in order that they have maximum impact on the project, but this proved a lengthy process and meant that two new staff members did not take up their posts until the beginning of June 2019. This did impact on work at the start of the project, but a great deal of effort has been put in by the team and staff have managed to mitigate this initial delay and made progress with the project outputs.

It has been realised that through the volume of change requests, the original grant was mis-budgeted due to the changes in skilled staff (i.e. masonry, construction) that were available at the time of the grant proposal. More accurate project quotes are necessary for the future as the project is now relaying on external skilled labourers to complete the building work.

Another lesson learned would include more in-depth discussions with the Steering Committee before putting the grant together, in regard to the maximum carrying capacity of the facility that still would allow for best standards of husbandry practices. The new Project Manager has had to request changes to reduce quantity of enclosures, but increase their quality concerning improved animal welfare and logistics for husbandry maintenance.

No assumption was made regarding the impact of a global pandemic and this has been an enormous challenge over the last few months (see Section 9) and will be a cause for concern in the coming months with arising uncertainties and the individuality of infection rate and response within different countries. Many of our key stakeholders are from the U.S.A. and the survey

teams were very international in their composition to maximise skills and experience. Future travel and budget restrictions are factors which will have to be considered as further details emerge and could have a significant effect on the stakeholders and their support of the project and, therefore, the resulting outcomes. BIRP and the NTCI will be monitoring the situation and will submit any changes if deemed necessary. At present, the project continues to move forward as planned in most aspects (one noticeable exception is tours for visitors which are currently prohibited, therefore the programme has a resultant shortfall in revenue). In addition, future time frames must include the allowance of time for materials to be restocked on island.

7. Other comments on progress not covered elsewhere

COVID-19

COVID-19 has had an impact on the project schedule. Unforeseen COVID-19 restrictions have delayed construction work and imports of specific materials, as despite the log frame assumption, not all materials were readily available in the Cayman Islands. There were delays for materials and supplies getting to the island and/or in short supply during lockdown. COVID-19 restrictions have also impacted on income-generating Blue Iguana Safari tours, as the QEIIBP and BIRP facility have been closed to the general public and exempted staff have kept necessary food collection during lockdown to a minimum. Despite the completion of the March 2020 field surveys, one original team member decided against flying to Grand Cayman due to COVID-19 risks. This was mitigated by two additional volunteers joining the survey team. Follow-up capture surveys with San Diego Zoo representatives were scheduled for the end of March but were cancelled due to international borders closing and in-country staff were on restricted journeys across Grand Cayman during lockdown. The second SSAP workshop (2020) may be held over video conferencing due to COVID-19 restrictions. COVID-19 may continue to be a risk into 2021, as international travel may not be resumed or flight costs might be raised due to possible post-pandemic changes.

The outcomes of the SSAP meeting meant a change in plan and commitment to the longevity of the facility. Increased carrying capacity for breeding, more permanent structures and additional repairs was required, therefore, it was essential to shift from wood and temporary materials to brick and mortar.

8. Sustainability and legacy

Completion of this project ensures the continuation of the BIRP and complements other projects aimed at developing greater sustainability though the ecotourism value of the programme. The objectives of this project will be sustained after the project is finished through: (a) adoption of a five year SSAP which is not expected to require further major revisions after the expiry as the programme transitions to a stable state of conservation management; (b) purchase of a low-mileage, low maintenance, recent model year, hybrid vehicle, (c) the upgrades to the Captive Breeding Facility have a conservative life-expectancy of at least 20 years.

Other projects in progress include improving sustainable funding via the acclaimed Blue Iguana Facility Tour by adding new tour packages, VIP events and wheelchair access. Ongoing BIRP staffing is sustained by NTCI, in part from a government grant.

It is recognised that funding for future wild population surveys will need to sourced, but the development of new survey methods should mean that there are less requirements for off-island assistance.

9. Darwin identity

The Darwin logo is used alongside the newly created BIC logo and NTCI in many of the documents which publicise work relating to the grant. Online publications are available from the NTCI website, Cayman Compass News Source, the Darwin Initiative website and social

media platforms (Annex 3.8). The Darwin Initiative is discussed on the Blue Iguana Safari tours, by informing visitors of the streams for revenue and funding to the project.

Darwin Initiative funding has been recognised as a distinct project to keep identity of the parts of the BIRP work of which it relates. Darwin Initiative is so renowned that we can example other work/projects which relate to the country of origin for our tourism guests.

The Darwin Initiative maintains a high profile and many of the residents and visitors to the island have a fair understanding and awareness of many of the projects and work under the weight of the logo and the initiative. Within the key stakeholders, there is certainly knowledge of the Darwin Initiative, e.g. partnership staff at the DoE and the staff at the QEIIBP.

As of 2019, BIRP was rebranded to Blue Iguana Conservation (BIC), which has Facebook and Instagram pages, on which posts have mentioned Darwin Plus. Any public announcements relating to construction work were not deemed in good taste during COVID-19 lockdown, therefore social media posts will feature construction work relating to this grant from July 2020.

10. Safeguarding

The National Trust for the Cayman Islands (which overseas BIRP) has the following procedures in place:

- National Trust Employee Handbook which sets out clear guidelines for expected and acceptable behaviour including a complaints and disciplinary process;
- A Safe-guarding Policy in place for all staff which outlines our expectations and procedures. This document must be read, understood and signed upon joining the National Trust;
- Provision of *Darkness to Light* training for any employees that work or interacts with vulnerable adults and children. This training is run by the Cayman Islands Red Cross.

The National Trust and Blue Iguana Recovery Programme team is a small tight-knit team who work closely together and mutual respect is mandated for one another, as well as for the amazing volunteers who dedicate their free time to the programme's conservation efforts.

11. Project expenditure

Table 1: Project expenditure <u>during the reporting period</u> (1 April 2019 – 31 March 2020)

Project spend (indicative) in this financial year	**2019/20 D+ Grant (£)**	**2019/20 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 2019-2020 – <u>if applicable</u>

Project summary	Measurable Indicators	Progress and Achievements April 2019 - March 2020	Actions required/planned for next period
Impact A permanent wild population of Grand Cayman endemic Blue Iguanas, safeguarded against a return to Critically Endangered status, supported by a healthy, sustainable and efficient captive breeding programme.			
Outcome The Blue Iguana Recovery Programme transitions from recovery to stabilized conservation: guided by updated planning; upgrading and innovation in captive breeding management and biosecurity; and through expanded wild monitoring.	0.1 By the end of the project BIRP is functioning in accordance with a Strategic Species Action Plan 2020-25 (SSAP) 0.2 Captive Breeding Facility repairs and new biosecurity achieve improvement to husbandry and welfare of iguanas. By end of first year: all 16-year-old captive pens and cages refurbished/replaced with 32 pens and 150 new cages and CBF fencing is 100% alien green iguana proof. 0.3 Diversification of diet achieves improved captive iguana nutrition as measured by weight at body quality indices by end of second year. 36 adults, 80 2-5-year-olds and 10-15 juveniles (based on expected hatchlings per annum) 0.4 By survey season March 2020 capacity for annual surveys of the Colliers and Salina Reserve wild populations has been recruited. These eight persons are, trained and are producing reliable results according to	Draft SSAP report started and will be ready to distribute to key stakeholder prior to the next SSAP meeting in Autumn 2020. Repairs to large enclosures complete and the refurbishment of cages is on-going. CBF fencing work is half completed. The diet has been enriched by the introduction of new plant species to the captive diet. There are now 31 plant species being fed regularly and more will be offered. Regular weights and measures are carried out on the hatchling and juveniles and the adult population at the facility. All are showing improved growth and egg laying numbers for 2020 are improved. March 2020 survey of Colliers reserve conducted with a full team recruited to carry out the survey work. The weather was favourable and all work was completed within the allotted time. Reliable data was gathered and is	Continue to collect data and input from Key stakeholders via video conferencing and steering group meetings and next SSAP meeting. New pens will continue to be built and extra-large brick enclosures will also be completed before the end of year 2 and Bio security fencing finished once work can resume from COVID-19 restrictions. Seasonal variation of type and amount of food offered will continue as will the weights and measures of the captive population at the facility. Trail clearing has now commenced on the Salinas reserve in preparation for the 2021 surveys. There is extensive work required to clear and maintain the trails by Feb 2021 to ensure they are ready for the survey team next year.

Project summary	Measurable Indicators	Progress and Achievements April 2019 - March 2020	Actions required/planned for next period
	established monitoring protocols across extensive and expanding areas of occupancy and ensuring quality of data is comparable across years.	currently being analysed and evaluated and the outcomes will be shared with the key stakeholders soon.	
Output 1. Strategic Species Action Plan 2020-25 (SSAP) has been adopted by BIRP.	1.1 By September 2020 Strategic Species Action Plan (SSAP) is delivered by key stakeholders. 1.2 Key stakeholders draft first version of SSAP at a 4-day workshop held in September 2019 following annual veterinary welfare visit. 1.3 SSAP secretariat continues drafting of SSAP in communication with key stakeholders via monthly video conferencing. 1.4 Key stakeholders complete and approve final version of SSAP at a 3-day workshop held in Q2 2020 following annual veterinary welfare visit.	The draft SSAP document is being worked on and will be circulated prior to the next SSAP meeting. The incumbent SSAP secretariat resigned and the role is now going to be carried out by the current Project Manager to ensure continuity. Video conferencing calls will be undertaken now that the role is being carried out. The preparation for this final workshop is underway and a draft proposal/agenda is being formulated by the project manager/secretariat.	
Activity 1 1.1 SSAP Secretariat prepares for 2019 workshop, invitations, meeting location, accommodation, etc, for 8 overseas attendees (airfares for 3 paid by partners). 1.2 Key stakeholders (8 overseas and up to 18 local) meet for 4-day workshop held in September 2019 following annual veterinary welfare		Completed Completed	

Project summary	Measurable Indicators	Progress and Achievements April 2019 - March 2020	Actions required/planned for next period
visit draft first version of SSAP (most efficient means of gathering overseas personnel).			
1.3 SSAP Secretariat continues drafting of SSAP in communication with key stakeholders via monthly video conferencing.		First draft started, initial communication made	Continuation of drafting SSAP, regular emails and input from key stakeholders
1.4 SSAP Secretariat prepares for 2020 workshop, invitations, meeting location, accommodation etc. for 8 overseas attendees (airfares for 3 paid by partners).		On hold due to global pandemic restrictions and current uncertainties	The 2020 workshop may be postponed or held over videoconferencing in early 2021
1.5 Key stakeholders complete and approve final version of SSAP at a 3-day workshop held in Q2 2020 following annual veterinary welfare visit.		SSAP in production	Please refer to 1.4
1.6 Publication of SSAP in Q3.		SSAP in production	SSAP will be approved and published in 2021
Output 2. Captive Breeding Facility reconfiguration, biosecurity improvements carried out.	Indicators 2.1 Thirty-two captive breeding, concrete-walled pens are available for use by adult and breeding iguanas (80% increase in individual spaces by selective subdivision of existing large pens and walled sub-adult section no longer needed).	Construction of enclosures and biosecurity fence is half-way completed	
	2.2 100 new sub-adult and 50 new hatchling cages are available for occupation.	Completion of pens and biosecurity fence to be completed once COVID-19 restrictions are lifted	
	2.3 275 m of 2.5 m high chain-link fencing is made secure against incursions by green iguanas and dogs.	Finish biosecurity improvements once COVID-19 restrictions are lifted and continue monitoring invasive alien species	

Project summary	Measurable Indicators	Progress and Achievements April 2019 - March 2020	Actions required/planned for next period
Activity 2.1 Staff repair existing concrete enclosures and build sub-dividing walls for greater flexibility of adult maintenance and breeding. 2.2 Staff replace breeding cages, 50 hatchlings, 100 sub-adults. 2.3 Tenders requested, evaluated and contractor approved to install biosecurity upgrades (boundary clearing, flashing on existing 8 ft high chain-link fence and concrete footings to tie to ground to create Green Iguana exclusion fencing.		Ongoing (delayed by COVID-19 restrictions) Ongoing (delayed by COVID-19 restrictions) Ongoing (delayed by COVID-19 restrictions)	Continual boundary clearing
Output 3 . Iguana nutrition improved and diversified by (i) wild food plant cultivation plots built at Captive Breeding Facility, (ii) staff transportation and refrigeration replaced, (iii) recruitment of partner supermarket to supply excess produce.	Indicators 3.1 Facility staff have decreased number of hours per week by 25% under baseline for collecting food in wild, by additional efficiencies from provision of a facility vehicle and refrigeration. 3.2 By end of first year a 20 x 20 m pilot plot is established with 5 plant species growing in two treatments (a) 12 m^2 of raised tub plantings (b) 3 1 x 10 m beds managed according to permaculture techniques. 3.3 End of third year cultivation plots providing 20% supplemental diet to CBF iguanas, with diversity of plants raised to 10 species. 3.4 Facility has established relationship with one or more local	Vehicle and fridge are being utilised and time impact is being monitored Completed Cultivation plots planted with eight species of target food plants	

Project summary	Measurable Indicators	Progress and Achievements April 2019 - March 2020	Actions required/planned for next period
	supermarkets for the regular supply of surplus leafy vegetables and fruit; is collecting 35-40 lbs of suitable produce per week.	Relationship established with local supermarket and local farmer for food donations	
	3.5 Weight and body condition of CBF iguanas maintained / increased over baseline.	Regular monitoring at the captive facility and annual veterinary health check confirm maintenance of body condition and weight gain	
Activities 3. 3.1 Draft Baseline Report including, perform literature review of *Cyclur*a diets, describing current feeding protocol using primarily but limited diversity wild collected plant material, identifying issues with seasonality inefficiencies in collection methods. Identify preferred seasonal native plants to cultivate.		Draft completed and sent for final comments	Final version to be agreed by Half Year Report
3.2 Design cultivation plots.		Completed	
3.3 Construct cultivation plots establish plants and perform routine maintenance.		Plots constructed; 8 food plants seeded	Reach target of 10 food plant species
3.4 Hold meetings with / arrange partnership with one or more of the three major supermarkets in Grand Cayman to supply excess produce on weekly basis. Promote partnership.		Completed	Explore possibilities of additional partnerships. Maintain promotion of partnership
3.5 Hybrid vehicle purchased and fuel funded for wild food collection and pick up of supermarket produce.		Completed	
3.6 Old refrigerator replaced and additional refrigerator purchased.		Completed	

Project summary	Measurable Indicators	Progress and Achievements April 2019 - March 2020	Actions required/planned for next period
Output 4. Perform survey each year, alternating Colliers and Salina Reserves wild populations (approx. 250-300 wild iguanas per survey), with a survey at the QEIIBP population every third year. I.E., QEIIBP 2019, Colliers 2020, Salina 2021 and so on. (Note: QEIIBP free roaming iguana population is smaller and terrain is much less difficulty to survey, thus no additional capacity is required).	Indicators 4.1 By survey season March 2020 a pool of individuals has been identified who are physically capable and available for foreseeable future from which 8 can be drawn for Colliers and Salina surveys, in addition to the 4 members of staff/DOE available. 4.2 By end of February each year all trails at the relevant survey site are adequately cleared to perform surveys to required standards. 4.3 Annual Surveys, Colliers 2020, Salina 2021, are completed in entire areas of occupancy at Colliers and Salina Reserves.	Completed Completed Completed 2020, ongoing Salina 2021	
Activities 4 4.1 2019. Analyse special challenges of surveying the enlarged areas of occupancy at Colliers and Salina Reserves and produce Baseline Report. Identify survey candidates who are physically capable and available annually for foreseeable future. 4.2 2019. Contact potential survey candidates, confirm participation, arrange travel and accommodation for four survey teams of two persons each.		Field survey meeting conducted with key stakeholders and partners on 31 October 2019 to discuss analysis Completed	Similar meeting and baseline report to be produced for Salina Reserve survey

Project summary	Measurable Indicators	Progress and Achievements April 2019 - March 2020	Actions required/planned for next period
4.3 February 2020. All trails at Colliers adequately cleared to perform surveys to required standards; temporary field shelter erected.		Completed	
4.4 March 2020. Colliers survey conducted in entire areas of occupancy; field shelter dismantled.		Completed	
4.5 April 2020. Survey conduct report compiled and survey participants de-briefed; adjustments, if any, for 2021 considered.		Completed	No adjustments required for 2021 survey.
4.6 Results of Colliers 2020 Survey complied and compared to prior years; adjustments, if any, for conduct of 2021 survey made.		Completed. Partners from DoE compiled and analysed results from 2020 survey.	No adjustments required for 2021 survey.
4.7 Repeat steps 4.2-4.6 above for 2021 survey at Salina.			

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

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: A permanent wild population of Grand Cayman endemic blue iguanas, safeguarded against a return to Critically Endangered status, supported by a healthy, sustainable and efficient captive breeding programme. [28]			
Outcome: The Blue Iguana Recovery Programme transitions from recovery to stabilized conservation: guided by updated planning; upgrading and innovation in captive breeding management and biosecurity; and through expanded wild monitoring. [26]	0.1 By the end of the project BIRP is functioning in accordance with a Strategic Species Action Plan 2020-25 (SSAP) 0.2 Captive Breeding Facility repairs and new biosecurity achieve improvement to husbandry and welfare of iguanas. By end of first year: all 16-year-old captive pens and cages refurbished/replaced with 32 pens and 150 new cages and CBF fencing is 100% alien green iguana proof. 0.3 Diversification of diet achieves improved captive iguana nutrition as measured by weight at body quality indices by end of second year. 36 adults, 80 2-5-year olds and 10-15 juveniles (based on expected hatchlings per annum) 0.4 By survey season March 2020 capacity for annual surveys of the Colliers and Salina Reserve wild	0.1 Annual reporting as mandated by the Strategic Species Action Plan. 0.2 Repairs and biosecurity achieved to standard equivalent to original/those replaced and as monitored by Project Leader. 0.3 Husbandry, welfare and nutrition achieved to standard set by SSAP and as monitored by Veterinary welfare partner WCS and evaluated by Steering Committee. 0.4 Inspections and interim reports on preparations and on close of surveys (enabling adjustments for following season). Results of Annual Surveys demonstrate that they have been completed in entire areas of occupancy at Colliers and Salina Reserves in accordance with the SSAP and distance sampling protocols.	0.1 Risk that the SSAP is rejected by governmental bodies as a key source for a statutory species conservation plan is mitigated by DoE as a key stakeholder. Risk of development of roads in or near the protected areas is well understood and mobilization of public response would follow any such threat. 0.2 Unanticipated staff turnover might cause delay in delivery; otherwise no significant risks. 0.3 Risk of extent to which cultivation of native plants at the CBF can succeed has been tested previously by a small pilot bed in the early days of BIRP. This is countered by subsequent successful establishment of a Native Plant Nursery at the Park, the recent appointment of a new horticulturalist, and availability of larger area for growing. It is recognized that such production will

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	populations has been recruited. These eight persons are, trained and are producing reliable results according to established monitoring protocols across extensive and expanding areas of occupancy and ensuring quality of data is comparable across years.		remain supplemental to wild collected food. 0.4 Assumption is that sufficient capacity can be recruited within budget and that surveys are not delayed or extended by weather conditions (it being impossible to conduct the surveys accurately in overcast or rain). This risk is mitigated by conducting surveys in March in the dry season, also avoiding hurricane risks.
Output 1 Strategic Species Action Plan 2020-25 (SSAP) has been adopted by BIRP.	1.1 By September 2020 Strategic Species Action Plan (SSAP) is delivered by key stakeholders. 1.2 Key stakeholders draft first version of SSAP at a 4-day workshop held in September 2019 following annual veterinary welfare visit. 1.3 SSAP secretariat continues drafting of SSAP in communication with key stakeholders via monthly video conferencing. 1.4 Key stakeholders complete and approve final version of SSAP at a 3-day workshop held in Q2 2020 following annual veterinary welfare visit.	1.1 Strategic Species Action Plan (SSAP) is published and uploaded on NTCI and BlueIguana.ky websites. 1.2. Workshop agenda and objectives document; attendance list; PowerPoint presentations; feedback sheets; minutes and actions circulate by SSAP Secretariat. 1.3 SSAP secretariat maintains call logs, email and video conference output. 1.4 Strategic Species Action Plan (SSAP) is published and uploaded on NTCI and BlueIguana.ky websites.	Planning for this output follows same/similar methodologies used to generate 2001-2006 and 2009-2011 Plans. Assumes that partner WCS continues to fund its attendance for annual veterinary monitoring.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Output 2 Captive Breeding Facility reconfiguration, biosecurity improvements carried out.	2.1 Thirty-two captive breeding concrete-walled pens are available for use by adult and breeding iguanas (80% increase in individual spaces by selective subdivision of existing large pens and walled sub-adult section no longer needed). 2.2 100 new sub-adult and 50 new hatchling cages are available for occupation. 2.3 275 m of 2.5 m high chain-link fencing is made secure against incursions by green iguanas and dogs.	2.1 and 2.2. Repairs and improvements overseen by Operations Manager, standard equivalent to original/those replaced and as monitored by Project Leader. 2.3 Verified by daily patrolling of the Captive Breeding facility by staff and results of dog trap monitoring. Maintenance of vegetation-clear zone around perimeter inspected and reported by Project Leader	Output 2 assumes that resumption of breeding of Blue Iguanas at the levels of the original recovery programme will not be needed No special assumptions required, or significant risks related to the configuration and biosecurity elements. Materials and capacity are readily available in the Cayman Islands. Unanticipated staff turnover could affect delivery schedule for those elements to be performed by BIRP staff.
Output 3 Iguana nutrition improved and diversified by (i) wild food plant cultivation plots built at Captive Breeding Facility, (ii) staff transportation and refrigeration replaced, (iii) recruitment of partner supermarket to supply excess produce.	3.1 Facility staff have decreased number of hours per week by 25% under baseline for collecting food in wild, by additional efficiencies from provision of a facility vehicle and refrigeration. 3.2 By end of first year a 20 x 20 m pilot plot is established with 5 plant species growing in two treatments (a) 12 m^2 of raised tub plantings (b)	3.1 Baseline Report describing current feeding protocol (using primarily but limited diversity wild collected plant material), identifying issues with seasonality and other inefficiencies in collection methods, design for cultivation plots. 3.2 Monthly Reporting by Operations Manager. Quarterly and Annual Reporting by Project Leader,	We expect that maintenance of cultivation plots does not exceed decrease in time spent on wild food collection. However, regardless of that trade off the increase in time staff are able to be at the facility enables the scheduling of a greater number of income-generating Blue Iguana Safari Tours. Replacement of aged or defunct donated equipment is necessary to alleviate staff shouldering financial

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	3 1 x 10 m beds managed according to permaculture techniques. 3.3 End of third year cultivation plots providing 20% supplemental diet to CBF iguanas, with diversity of plants raised to 10 species. 3.4 Facility has established relationship with one or more local supermarkets for the regular supply of surplus leafy vegetables and fruit; is collecting 35-40 lbs. of suitable produce per week 3.5 Weight and body condition of CBF iguanas maintained / increased over baseline.	reviewed by Steering Committee/Vets. 3.3 Annual Reporting by Operations Manager/Project Leader, reviewed by Steering Committee/Vets 3.4 Monthly Reporting by Operations Manager. 3.5 Annual Reporting by Veterinary Team, reviewed by Steering Committee.	burdens/depreciation of personal vehicles and to provide capacity for storage of donated produce. Difficulty in transitioning adult captive Blue Iguanas to a greater diversity of wild food and/or larger percentage of non-native leafy vegetables is not expected based on existing Cyclura husbandry research (Lemm et al 2010). Iguanas being conditioned for release into the wild will need to be fed wild only food in the lead up to release. Supermarket partner is unable to supply surplus produce at level of demand is not considered to be a significant risk as they supply hundreds of kilos of produce to a population of 63,000 people daily. The potential supermarket partners have a track record of community support.
Output 4 Perform survey each year, alternating Colliers and Salina Reserves wild populations (approx. 250-300 wild iguanas per survey), with a survey at the QEIIBP population every third year. I.E., QEIIBP 2019, Colliers 2020, Salina 2021 and so on. (Note: QEIIBP free	4.1 By survey season March 2020 a pool of individuals has been identified who are physically capable and available for foreseeable future from which 8 can be drawn for Colliers and Salina surveys, in addition to the 4 members of staff/DOE available.	4.1.a Baseline Report in 2019 analyzing special challenges of surveying the enlarged areas of occupancy at Colliers and Salina Reserves (capacity problem, number of persons, kms of trails, heat, stealth etc required)	Assumptions are that sufficient capacity can be recruited within budget and that surveys are not delayed or extended by weather conditions (it being impossible to conduct the surveys accurately in overcast or rain). These risks are mitigated by offering funding for the

Project summary	Measurable Indicators	Means of verification	Important Assumptions
roaming iguana population is smaller and terrain is much less difficulty to survey, thus no additional capacity is required).	4.2 By end of February each year all trails at the relevant survey site are adequately cleared to perform surveys to required standards. 4.3 Annual Surveys, Colliers 2020, Salina 2021, are completed in entire areas of occupancy at Colliers and Salina Reserves	4.1.b March 2020 report to Steering Committee. 4.2 Trails are inspected by Survey Leader and/or Ops Manager. 4.3 Results of Annual Surveys demonstrate that they have been completed in entire areas of occupancy at Colliers and Salina Reserves in accordance with the SSAP, distance sampling protocols and ensuring quality of data is comparable across years.	two significant out-of-pocket expenses for volunteers and conducting surveys in March in the dry season, avoiding hurricane risks also. However, the March date may not always be ideal for student and academic volunteers.

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)

Output 1 Strategic Species Action Plan 2020-25 (SSAP)

1.1 SSAP Secretariat prepares for 2019 workshop, invitations, meeting location, accommodation, etc. for 8 overseas attendees (airfares for 3 paid by partners).
1.2 Key stakeholders (8 overseas and up to 18 local) meet for 4-day workshop held in September 2019 following annual veterinary welfare visit draft first version of SSAP (most efficient means of gathering overseas personnel).
1.3 SSAP Secretariat continues drafting of SSAP in communication with key stakeholders via monthly video conferencing.
1.4 SSAP Secretariat prepares for 2020 workshop, invitations, meeting location, accommodation etc.
1.5 Key stakeholders complete and approve final version of SSAP at a 3-day workshop held in Q2 2020 following annual veterinary welfare visit.
1.6 Publication of SSAP in Q3.

Output 2 Captive Breeding Facility reconfiguration, biosecurity improvements carried out.

2.1 Staff repair existing concrete enclosures and build sub-dividing walls for greater flexibility of adult maintenance and breeding.
2.2 Staff replace breeding cages, 50 hatchlings, 100 sub-adults.
2.3 Tenders requested, evaluated and contractor approved to install biosecurity upgrades (boundary clearing, flashing on existing 8 ft high chain-link fence and concrete footings to tie to ground to create Green Iguana exclusion fencing.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Output 3 Iguana nutrition improved and diversified by (i) wild food plant cultivation plots built at Captive Breeding Facility, (ii) transportation, refrigeration purchased, (iii) recruitment partner supermarket 3.1 Draft Baseline Report including, perform literature review of *Cyclura* diets, describing current feeding protocol using primarily but limited diversity wild collected plant material, identifying issues with seasonality inefficiencies in collection methods. Identify preferred seasonal native plants to cultivate. 3.2 Design cultivation plots. 3.3 Construct cultivation plots establish plants and perform routine maintenance. 3.4 Hold meetings with / arrange partnership with one or more of the three major supermarkets in Grand Cayman to supply excess produce on weekly basis. Promote partnership. 3.5 Hybrid vehicle purchased and fuel funded for wild food collection and pick up of supermarket produce. 3.6 Old refrigerator replaced and additional refrigerator purchased. Output 4 Perform annual surveys of the Colliers and Salina Reserve wild populations. 4.1 2019. Analyse special challenges of surveying the enlarged areas of occupancy at Colliers and Salina Reserves and produce Baseline Report. Identify survey candidates who are physically capable and available annually for foreseeable future. 4.2 2019. Contact potential survey candidates, confirm participation, arrange travel and accommodation for four survey teams of two persons each. 4.3 February 2020. All trails at Colliers adequately cleared to perform surveys to required standards; temporary field shelter erected. 4.4 March 2020. Colliers survey conducted in entire areas of occupancy; field shelter dismantled. 4.5 April 2020. Survey conduct report compiled and survey participants de-briefed; adjustments, if any, for 2021 considered. 4.6 Results of Colliers 2020 Survey complied and compared to prior years; adjustments, if any, for conduct of 2021 survey made. 4.7 Repeat steps 4.2-4.6 above for 2021 survey at Salina.			

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