



Darwin Initiative: Final 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)*

Darwin Project Information

Project reference	23-007
Project title	Safeguarding Mesoamerican crop wild relatives
Host country(ies)	El Salvador, Guatemala, Honduras, Mexico
Lead organisation	IUCN
Partner institution(s)	Comisión Nacional para Conocimiento y Uso de la Biodiversidad (CONABIO; National Commission for the Knowledge and Use of Biodiversity) and Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias (INIFAP) Mexico, Instituto de Ciencia y Tecnología Agrícolas (ICTA) Guatemala, Centro Nacional de Tecnología Agropecuaria y Forestal “Enrique Álvarez Córdova” (CENTA) El Salvador, Oficina Regional de la UICN para Mexico, Centro América y el Caribe (ORMACC), University of Birmingham and IUCN
Darwin grant value	£297,401
Start/end dates of project	01 August 2016 - 31 July 2019.
Project leader’s name	Richard Jenkins
Project website/blog/Twitter	https://www.biodiversidad.gob.mx/biodiversidad/agrobiodiversidad/psmesoamerica/es/
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1 Project Rationale



Crop wild relatives (CWR) are wild plants that are the ancestors of crops and closely genetically related, so they are a potential source of adaptive traits required by plant breeders and crop farmers in particular to help mitigate the adverse impacts of climate change and other related threats such as pests and disease. They are therefore of socio-economic importance for people across the globe. Mesoamerica is one of the world's most important centres of origin and diversity of CWR and harbours numerous wild relatives of globally and regionally important crops, such as maize, beans, squashes and cotton. Many of these species, whose inherent genetic diversity

represents an insurance for the future of agriculture and food security, are currently both threatened by habitat loss, degradation, invasive species and introgression with genetically modified organisms and are in most cases not subject to any dedicated conservation action, either *in situ* or *ex situ*. Although there is significant CWR diversity in Mesoamerica, according to ¹Castañeda-Álvarez *et al.* (2016) 74% of global CWR are in need of more active conservation action and in Mexico specifically 47% of priority CWR taxa have no sampled germplasm in gene banks and although there are 275 taxa (89%) whose predicted distribution overlaps with at least an existing protected area PA, here their population management is passive meaning the site is not specifically managed to conserve these CWR taxa and more positive conservation is required (²Contreras-Toledo *et al.*, 2019). Governments in the region, currently led by Mexico, recognize the importance of CWR for future agriculture and food security and the need to actively and systematically conserve them, especially species of restricted distribution and those threatened by anthropogenic disturbance. IUCN invited a government institution of Mexico (CONABIO) and the University of Birmingham to combine their respective expertise, and to build upon existing initiatives and information in Mexico to enhance knowledge and capacity to directly address the lack of active *in situ* and *ex situ* conservation action for CWR in the wider region. Because Mexico currently has the greatest capacity of Mesoamerican countries in CWR conservation, this project concentrated on transferring expertise and processes from Mexico and the UK to other Mesoamerican countries. The project also builds on existing bi-lateral relationships between the various project partners, including an initiative between the National Centre of Genetic Resources, of the National Institute for Agricultural, Livestock and Forestry Research (INIFAP-CNRG) and the University of Birmingham. Results of the project represent a first step to formulate national and regional conservation strategies for CWR in a participatory manner, including national project partners, and national and international experts. The development of national plans should also include local communities, NGOs and other governmental agencies.

¹ Castañeda-Álvarez *et al.*, 2016 DOI:[10.1038/nplants.2016.22](https://doi.org/10.1038/nplants.2016.22)

² Contreras-Toledo *et al.*, 2019 DOI:[10.2135/cropsci2017.07.0452](https://doi.org/10.2135/cropsci2017.07.0452)

2 Project Partnerships

The partnership with CONABIO stemmed from the interest of both institutions (CONABIO and IUCN) to collaborate on a project addressing the conservation of CWR. Additional partners from University of Birmingham and INIFAP-CRNG (Mexico) joined early in the project development and the latter provided information on seed banks in Guatemala, El Salvador and Honduras that they had worked with previously. INIFAP-CRNG also had established working relationships in these three countries. All partners provided input during the development of the project in their areas of their expertise.

Partners in Mexico (CONABIO and INIFAP- CRNG), Guatemala (ICTA), El Salvador (CENTA) and Honduras (DiBio/MiAmbiente) are all governmental institutions.

Collaboration among project partners was sustained throughout the project. It was a great achievement of the project to have the participation of all partner institutions in the many workshops and webinars that took place in the life of the project, these were a great opportunity to develop and strengthen the relationship between partners. The workshops also allowed partners from Central America to observe and

participate in the process followed by Mexico to systematically plan for CWR conservation in the country, which led to establishing the collaborative support needed in the region with the leadership of CONABIO. Project partners engaged in joint activities such as the planning and design of workshops, the identification of important areas for *in situ* conservation and to guide fieldwork expeditions, and the elaboration of key outreach and technical documents for the project. Since the reinstatement of Honduras in the project was secured at a later stage, this partner was not able to participate in the same way in this inter-institution collaboration established among the partners.

As the regional partners, led by CONABIO, place a greater emphasis on the needs of local users and producers they adopted an approach that incorporated in the analysis socio-economic factors in addition to biological ones and attribute weights depending on their importance. This change developed during Year 1 and consequently led to a diminution in the role of UoB, but secured strong regional buy-in.

Having the involvement and commitment of additional institutions invited into the project by the project partners (named in brackets after the countries), in Guatemala (Conanp), El Salvador (Museo Nacional de Historia Natural and Jardín Botánico La Laguna) and Honduras (Universidad Nacional Autónoma de Honduras) was an achievement that strengthened the project bringing a wider set of skills and capacity on e.g. the identification of CWR in the field, processing and maintaining material for herbaria, expertise on CWR conservation and access to venues to hold events.

Written input for the final report was provided by all partners, some particularly relevant questions were discussed in a webinar involving most partners (SM1, SM2, SM3, SM4, SM5, SM6). The in-country collaboration between institutions was strengthened by the project, partners will continue to be in touch as they have already planned for activities, for example, in Mexico, CONABIO and INIFAP-CNRG will continue its collaboration through a GEF project implemented by CONABIO, which will include safeguarding samples of native crop varieties and CWR germplasm in CRNG's genebank; and are working on a mechanism to continue with the full synchrony on sample safeguarding and potential future use as agreed through the project. In El Salvador, CENTA and the National History Museum and the Botanic Garden "La Laguna" have planned further expeditions and exchange of materials to enrich their collections. Lastly, ICTA and CONAP in Guatemala are coordinating activities to conduct further field expeditions to collect CWR (SM1, SM2, SM3, SM4, SM5, SM6). Partners also express an interest in conducting more activities related to the conservation of CWR at the regional level (SM1 to SM6). The Outcome level assumption "Momentum for this work is maintained after the life of the project" appears to be held true.

3 Project Achievements

3.1 Outputs

Output 1. Improve in-country human capacity and knowledge for identifying and establishing conservation priorities for CWR to improve human livelihoods, through the evaluation of the extinction risk of species, including climate change vulnerability, identification of important areas for biodiversity and raising awareness of their importance.

Output 1 of the project was achieved as in-country human capacity was improved by i) involving all project stakeholders in the inception meeting (Indicator 1.1, SM7), ii) training a total of 44 experts from the four participating countries on the use of the IUCN Red List methodology to assess species extinction risk (Indicator 1.2, SM8, SM9), of which 22 were also trained on the assessment of climate change vulnerability of species (Indicator 1.2, SM8) at two workshops, one five day workshop in Mexico, February 2017 (SM8) and one three day workshop in Honduras in February 2019 (SM9). A total of 32 experts in Mexico, 31 in Guatemala and 21 in El Salvador were introduced to systematic conservation planning and a novel methodology developed by partner CONABIO on the identification of important areas for the conservation of CWR and actively participated in identifying the key ecological, social and economic aspects to integrate in this analysis (Indicator 1.2, SM10, SM11, SM12, SM13). Additionally, CONABIO provided a 2-day training session in the use of the planning tool ZONATION®, for two experts from Guatemala and two

experts from El Salvador (Indicator 1.2, SM14). iii) two botanists from Guatemala, El Salvador and Honduras participated in the webinar run by Mexico's INIFAP-CNRG aimed at training on seed collection and preservation and harmonization of accession information (*i.e.* collection passport: SM15) (Indicator 1.3, SM16). The majority of participants (around 90%) that attended the Red List workshop in Mexico also participated in the follow up workshops on conservation planning allowing them to follow and accompany the process from beginning to end. This was extremely valuable for the project as expert input is key in the process of building conservation strategies. Progress for Honduras is only reported for Indicators 1.1 and 1.2 (only extinction risk assessment training), as agreed through change requests, as staff who attended the inception meeting left the institution and late engagement with new partners only allowed for capacity building. This was an anticipated risk and we did our best to engage with alternative partners in the country and deliver as much as possible the project's commitments.

The objective of Output 1 to raise awareness on the importance of CWR was also successfully achieved by producing four videos of approximately 5 minutes each, designed for a wide range of audiences including decision makers, producers, and the wider public (Indicator 1.4, SM117). The videos include interviews with 25 CWR experts who participated in the project and provide information on how crops originated, what crop wild relatives are, why they are important and suggest actions and strategies to contribute to conserve them. The videos are available on YouTube, Vimeo and Facebook and have reached at least 32,026 views (as of 8 July 2019) since their release on 24 May 2019, and also on the web pages of the project partners (Indicator 1.4, SM18). Additional interview fragments that were not included in the videos will be uploaded to the project's webpage (Indicator 1.4, SM19). Also, a poster with an accompanying booklet featuring watercolour illustrations, commissioned by the project (there were no pictures available for CWR to generate the poster), of the nine crops selected for this project and examples of two of their wild relatives were produced (Indicator 1.5, SM20, SM21). Illustrations will be available for non-commercial use at CONABIO's Image Bank (<http://bdi.conabio.gob.mx/fotoweb/archives/5035-Ilustraciones/>). The booklet highlights facts about changes crops underwent through the domestication process and the relation between CWR and crops, and their current and potential uses, including crop improvement and others such as food, fodder and medicinal. Its intended targets are agricultural producers, the wider public and decision makers.

Communication materials have been widely distributed at national events to present the project's results attended by government officials from the agricultural sector and the environmental sector in Guatemala, El Salvador and Mexico; officials in charge of Natural Protected Areas in the case of Guatemala and El Salvador, and the ITPGRA authority in Guatemala; agronomy faculties and schools from different universities in El Salvador; agricultural producers in Mexico including indigenous female producers in Guatemala; and agricultural technicians and authorities in charge of national corn and bean breeding programs in Guatemala (Indicator 1.6, 1.8, SM22). Workshops, including the Red List workshop in Honduras, national events and activities such as participation at international conferences received media coverage or were featured in institutional bulletins which helped to further raise awareness of CWR, the project and the Darwin Initiative (SM23). The project and the methodology developed were presented at a side event organised by Defra at CBD CoP 13 in México, December 2016 (SM64), the "Mexican Ecology Congress" in Querétaro, México, August 2017 (SM24), the "International Symposium of Genetic Resources for America and the Caribbean", October 2017 in Guadalajara, México (SM25), and the "Joint Congress of Evolutionary Biology" in Montpellier, France, August 2018 (SM26), students and academics of the National Autonomous University of Honduras, February 2019 (SM44). The results were presented at the "Third meeting of State Biodiversity Strategies" in Mexico (in July 2019, SM27) and other academic conferences like the "Mexican Ecology Congress" (Sept-October 2019), the "Mexican Botanical Congress" (October 2019; SM28). Depending on available resources, it will also be presented at the Biodiversity Next Conference to be held in Leiden, Netherlands, 22-15 October 2019 (SM29). Project partners from Guatemala presented the project at the "64th Annual Meeting of the Central American Cooperative

Program for the Improvement of Crops and Animals” in Honduras, May 2019 (SM30) and the regional meeting of collaborators of the ITPGRFA funded project “Collaborative Program on Participatory Mesoamerican Plant/Crop Improvement” (SM43).

In addition, partners presented the results in diverse fora with decision makers, governmental officers, agricultural producers and the general public (Indicator 1.6. -SM30 and SM44). Project results were summarised in an Executive Synthesis aimed at policy makers and key stakeholders (Indicator 2.3, SM31); it includes the main results of the CWR risk assessment, the identification of important areas for the conservation of CWR, the collection of CWR germplasm for *ex situ* conservation, and broad guidelines for the elaboration of national strategies for the conservation of these plants in the region. This communication product has been disseminated as according to the dissemination strategy that was developed by the project partners and includes recipients from academia, government, agricultural producers, agronomy faculties in National Universities (SM22).

Output 2 Areas to safeguard threatened and vulnerable crop wild relatives identified and information shared to assist in future conservation of sites

Important areas for the conservation of CWR were defined through the collaboration of the project partners with CWR experts in each country (Indicator 2.2 and 2.4, (SM10, SM11, SM12, SM13), based on a novel methodology proposed by CONABIO to identify areas that not only consider the richness and complementarity of CWR species but also their potential genetic diversity. The potential existence of genetically diverse populations of CWR was approximated through proxies using climatic, soil and topography variables, and biogeographic regions as well as phylogeographic patterns (SM31). This methodology enabled the CONABIO team to identify areas representing CWR taxa and their different genetic populations. This approach was tested using genomic data of an empirical study of maize wild relatives distributed in Mexico, thereby evidencing these components of biological diversity allowing them to be represented in seed banks and natural protected areas, among others (SM32).

Seventeen news sites of national importance for CWR were selected (see map on page 8-9 in SM31); Mexico (7), Guatemala (5) and El Salvador (5). Of these sites a total of 23% are already in protected areas, and in Mexico 79% overlap with areas important for restoration (see more detail under Aichi Target 11, section 4.2). In El Salvador project partner CENTA has had two meetings with the managers of two protected areas important for CWR identified in the project (Biosphere Reserve Trifinio Fraternidad/National Park Monte Cristo and National Park San Diego and San Felipe, Metapan) where communication materials were handed out (SM22a).

Output 3 Priority Mesoamerican CWR conserved *ex situ* in national seeds banks.

In the three countries, sampling sites were selected by experts based on a set of areas proposed by CONABIO, using the Zonation software, which included the number and diversity of CWR (Indicator 2.2, SM33, SM34, SM35, SM36). Further criteria were discussed during the experts’ national consultation workshop to define collection areas, these were: environmental features and distinctiveness of these areas, ease and safety to access these areas, as well as the probability to find them given their potential distribution and the phenology of taxa (SM11, SM12, SM13). In Mexico six areas were identified to sample germplasm of the species considered in the project (SM11), 9 for Guatemala (SM12) and 14 in El Salvador (SM13). In total 247 seed accessions and herbarium vouchers specimens of 83 species from 33 genera were deposited in national seed banks, CNRG-INIFAP in Mexico, ICTA in Guatemala and CENTA in El Salvador, and herbaria in ICTA in Guatemala and Jardín Botánico la Laguna and Museo Nacional de Historia Natural of El Salvador, there were no herbarium specimens in Mexico; 128 of these correspond

to species whose extinction risk was evaluated as part of this project: *Capsicum* (3), *Cucurbita* (2), *Gossypium* (3), *Phaseolus* (9), *Physalis* (2), *Persea* (1), *Vanilla* (3) and *Zea* (1) (Indicator 3.1 and 3.2, SM37, SM38, SM38a, SM39, SM39a). Additionally, 51 species of 26 genera that were not assessed here, were also collected (Table 1).

Table 1. A summary of the results for the germplasm collection from three different countries. A map of the sampled sites can be found on SM31, page 11).

	Guatemala	El Salvador	Mexico
Months in which the collection took place	February-March	November - February	April
Number of field expeditions	7	3	1
Number of taxa	8	70	20
Number of herbarium vouchers	24	209	1
Number of accessions	27	83	118
Number of taxa in an IUCN threatened category (CR, EX and VU)	0	4	5
Number of taxa not evaluated for the Red List	2	50	11
Number of taxa that represent new additions to the national seed bank	5 (1 new in herbarium)	45	3

These accessions represent an important improvement in the representation of CWR in seed banks of the region. In each country the samples collected filled in important gaps both taxonomically (e.g. through species that were absent from collections) and geographically (e.g. through the exploration of areas where sampling gaps existed prior to field work). In Mexico, two different factors affected the field expeditions. First, a major political transition occurred in July last year in Mexico, which implied a recouplement of the state ministries, and affected the capacity of INIFAP-CNRG to carry out the field expeditions during the fruition period of many species (between August and October). Once the planning of the two expeditions was set, a strike broke out in INIFAP-CNRG preventing the second expedition from taking place.

3.2 Outcome

Outcome: National governments of the four countries are aware of the importance of conserving CWR and start to implement policies and actions to promote their conservation *in situ* and *ex situ* including the CBD and its Nagoya Protocol and the ITPGRFA.

The project had a significant impact on raising awareness on the importance of conserving CWR at the governmental level in all four countries, not only within the participating governmental institutions

(CONABIO, INIFAP-CRNG, ICTA, CENTA and DiBio/Miambiente) but among many others who participated in the national consultations to identify areas for the *in-situ* and *ex-situ* conservation of CWR, for example, the National Commission on Protected Areas in Guatemala, Natural History Museum and the Ministry of the Environment and Natural Resources of El Salvador (a full list of national consultation participants is provided in SM40). National draft plans for the conservation of CWR (Outcome Indicator 0.1) have been reached partially during the project, however partners intend to use project results further to achieve such plans (SM1, SM2, SM3, SM4, SM5, SM6). While the results from the analysis to identify areas for *ex-situ* conservation have been adopted as national plans for improving the representation of CWR in national germplasm banks in the three countries and further expeditions have been planned (SM2), the national plans for *in-situ* conservation are not yet in place as such. Nevertheless, the regional workshop to assess the extinction risk of species (Output2, Indicator 2.1, SM8) and the national consultations in the three countries (Output2, Indicator 2.2, SM10, SM11, SM12, SM13) have laid the foundations for their development through the identification of 1) CWR species threatened with extinction 2) the main processes and drivers of threat, 3) target areas for *in situ* conservation of CWR including threatened and narrowly distributed species, 4) conservation actions needed in the targeted areas and 5) genetically diverse populations of CWR taxa and 6) areas of interest for fieldwork for *ex situ* conservation. A summary of all the points here numbered, including maps of the identified areas, is presented in the project's Executive Synthesis (Indicator 2.3, SM31).

The project results have been included in at least one report to the CBD (Indicator 0.2), Mexico's Sixth National Report to the CBD under Aichi Target 13 (SM41) and the results were used in the draft report to the Global Strategy for Plant Conservation (SM42). Even though the project manager had face to face conversations with CBD focal points at national workshops in Guatemala and El Salvador and emails were sent with information that could be included in national reports, these are not yet available on the CBD website. In Guatemala in July 9-10 2019 the project was presented at the regional meeting of collaborators of the ITPGRFA funded project "Collaborative Program on Participatory Mesoamerican Plant/Crop Improvement" (SM43). In Mexico the project results were presented at the "Third meeting of State Biodiversity Strategies"(SM27). The project and the importance of the extinction risk assessments of crop wild relatives carried out during it was highlighted on IUCN's position paper for the session of the High Level Political Forum to review the implementation of the SDGs that took place at the United Nations in New York in July 2017.

As reported under Outcome 3, national seed banks in three partner countries and two botanical collections in El Salvador have been improved by adding taxa that were previously absent from their collections, by increasing the number of accessions and increasing the genetic diversity by sampling in areas that had not been previously explored to collect CWR. There has been progress in national seed banks research programs by the guidance provided to conduct CWR seed samples for their collections (Indicator 3.1 and 3.2, SM37, SM38, SM38a, SM39, SM39a). None of the partners have yet reported the use of the seeds in breeding programs. In México, the use or genetic/molecular characterization of germplasm collected as part of this project must meet the guidelines of the Nagoya Protocol and obtain the consent of CNRG and CONABIO for its use. Mexico have been in close contact with the representatives of the national focal point for the Nagoya Protocol. They provided information about the relevant aspects of the Nagoya Protocol and gave an informative session during the zonation workshop in Mexico (SM11).

Impact: achievement of positive impact on biodiversity and poverty alleviation

The project had a positive impact on biodiversity through the assessment of the extinction risk of CWR species (Indicator 2.1, SM45) which fed into the process of prioritisation, conservation and identification of areas to preserve them *in situ*, while identifying those species in more need of *ex situ* conservation (Indicator 2.2, SM31) and increasing the diversity and number of accessions (Indicator 3.2, SM37-SM39). Governments have since pledged to conduct activities in the newly identified important areas for safeguarding CWR. In El Salvador a report on the most important protected areas for safeguarding CWR will be handed to the Ministry of the Environment by November 2019. Partners in Mexico will have a face to face meeting with the new commissioner on protected areas in August 2019. In all three countries, staff from the national seed banks will continue to conduct field work to sample in the areas identified in the project. In Mexico a significant amount of funding has been secured already (see section 7.2). Further, the

project has increased the availability of CWR diversity to breeders, so increasing the potential to produce new climate smart crop varieties, therefore increasing food security and reducing poverty throughout the region.

4 Contribution to Darwin Initiative Programme Objectives

4.1 Contribution to Global Goals for Sustainable Development (SDGs)

Even though the project has no direct impact on SDG's, governments will be empowered to contribute to them through the project's legacy on human capacity building and knowledge on CWR and their conservation needs. Three Sustainable Development Goals are relevant to our project:

Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

Goal 13. Take urgent action to combat climate change and its impacts.

Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Our project contributes towards the achievement of the SDGs listed above by focusing on the importance of CWR in providing potential adaptation to crops for climate change, pests and other stresses and the potential improvement of yields and nutritional value. It also significantly contributes to the conservation of these species in the wild. The methodology proposed by CONABIO, to potentially identify genetically differentiated CWR populations, is a key contribution. Studying, conserving and harnessing the adaptive potential of these CWR populations is a path to promote sustainable agriculture by making available a wider diversity of CWR to plant breeders to develop more resilient crops that require fewer external inputs and could potentially require less land but have better yields and higher nutritional value. Overall, this would reduce the negative impact of agriculture on the environment, including climate change. The contribution of CWR to food security is widely recognised, through the assessment of the risk of extinction, safeguarding CWR germplasm in national seed banks and identifying important areas for *in situ* conservation of these species, the project has an impact on these Goals by providing the needed information for governments to safeguard and eventually improve high valuable crops to better face climate change and other sources of stress.

4.2 Project support to the Conventions or Treaties (CBD, CITES, Nagoya Protocol, ITPGRFA)

The project contributed to the Convention on Biological Diversity, its Nagoya Protocol (with the exception of El Salvador, which is not signatory) and the International Treaty on Plant Genetic Resources for Food and Agriculture (with the exception of Mexico, which is not a signatory).

Strategic Plan for Biodiversity 2011–2020 (Aichi Targets):

Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

Our project contributed to this target through the communication products developed and disseminated (see dissemination strategy SM22), namely the poster and its associated booklet, the videos, the executive synthesis and the web page, all of which promote the importance and value of CWR species and suggest actions to conserve them (Indicator 1.5, SM17, SM20, SM21, SM31).

Target 11: By 2020, at least 17 percent of terrestrial and inland water, and 10 percent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Many important areas for CWR conservation identified during the project overlapped with ecologically representative areas that are key for biodiversity conservation, previously identified in Mexico which have guided the establishment of area-based conservation measures (e.g. protected areas, payment for ecosystem services); thus actions targeted at conserving CWR will further contribute to Aichi target 11 and vice versa (Indicator 2.4, SM31, SM41). In Mexico, approximately 75% of the range of CWR species considered in the project is captured in the top 20% of the landscape (i.e., the highest ranking areas according to the software Zonation; see map in page 8-9 of the Executive Synthesis, SM31). Important areas for CWR conservation overlap with areas identified as key for conservation and restoration given its contribution to biodiversity conservation in Mexico (SM46). Considering only the top 20% of the landscape there is a 23% overlap with natural protected areas, 5% with state, municipal and “ejidal” (shared land among smallholders) natural protected areas, 79% with Priority sites for the Conservation of Biodiversity and Priority sites for Restoration (SM46).

Target 12: By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

The assessment of the risk status of the selected CWR taxa supported this goal by providing the basic information needed to take concrete actions focused on those taxa in risk (Indicator 2.1, SM45). This focus was also captured in the areas identified to be important for the conservation of these species (Indicator 2.4, SM31).

Target 13: By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

All of the projects results have a direct and very significant contribution to this target. Particularly, the novel methodology developed that uses a set of proxies to identify the genetic diversity of CWR taxa is extremely important because it now allows diversity below species and/or subspecies to be acknowledged, accounted for and set as targets for conservation (SM32).

Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks have been enhanced, through conservation and restoration, including restoration of at least 15 percent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Seventy-nine percent of the important areas for CWR conservation contained in the top 20% of the landscape overlap with areas identified as key for restoration considering its contribution to biodiversity conservation, and CWR species need to be highlighted because of its strategic role. The genetic diversity present in the first, second and third gene pools of crops represent the most considerable adaptation tool for agriculture under climate change, it is this that makes the results achieved extremely relevant.

CBD's Global Strategy for Plant Conservation,

Target 2: An assessment of the conservation status of all known plant species, as far as possible, to guide conservation action.

The project contributed to this target through the extinction risk assessments of 237 Mesoamerican CWR published on the IUCN Red List of Threatened Species (Indicator 2.1, SM45).

Target 7: At least 75 percent of known threatened plant species conserved *in situ*.

The project contributed to this target by identifying important areas for the conservation of CWR in Guatemala, Mexico and El Salvador (Indicator 2.4., SM31).

Nagoya Protocol and ITPGRFA

The project assisted four Mesoamerican countries to respond to the CBD notification of August 2015 (Ref.: SCBD/SAM/DC/Dco/84808), which encourages Parties (to CBD and ITPGRFA) to “review, develop or strengthen, national strategies for in situ conservation of CWR through protected areas and integrated approaches that link conservation to sustainable use and Goal 2.5 of the Second Global Plan of Action for Plant Genetic resources for Food and Agriculture: to end hunger by improving food security, nutrition and sustainable agriculture through maintaining the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species”. Since the beginning of the project we have been and continue to be in communication with the CBD, Nagoya Protocol and ITPGRFA NFPs in each of the host countries. The representative of the Nagoya Protocol Focal Point for Mexico (Alejandra Barrios Perez†, in representation of Edda Fernandez Luiselli from the Ministry of the Environment, SEMARNAT, until the beginning of 2019), the representative of the Nagoya Protocol Focal Point in Guatemala (César Azurdia in representation of José Echeverría Tello, CONANP) and the ITPGRFA Focal Point for El Salvador (Aura Morales de Borja) attended the first of two conservation planning workshops in Mexico (Indicator 1.2, SM40). The Nagoya Protocol Focal Point for Honduras (Marlé Aguilar) participated in the webinar on 20 March 2018 (Indicator 1.3, SM16). The National Authority of the ITPGRFA in Guatemala attended the national event in which the project results were presented (Indicator 1.6 SM55), as a result the ITPGRFA’s National Authority invited project partner ICTA to present the project and it’s results at the regional meeting of collaborators of the ITPGRFA funded project “Collaborative Program on Participatory Mesoamerican Plant/Crop Improvement” (SM43).

4.3 Project support to poverty alleviation

The project had a potentially positive impact on the improvement of human development and wellbeing by increasing the germplasm collection of these species - which are key for adapting crops to different stresses - in seed banks and herbaria of the region. The benefits of this contribution are not immediate but likely span into the medium and long term, depending on research undertaken in the potential use for this genetic material for crop improvement. Also, in the short or medium term, and depending on the political steps taken, the project might have an impact on poverty alleviation by supporting those sectors of the population, *i.e.* traditional smallholders, who intentionally or inadvertently preserve these species. The project also emphasized the important role played by smallholder farmers in contributing towards the conservation and use of crop wild relatives in relation to agriculture and food security.

4.4 Gender equality

The project followed the Darwin Initiative gender equality guidelines in respect to the relative balance of male and female researchers/experts attending project related events such as workshops (Indicator 2.1, SM40). In the Red List Workshop 12 males and 9 female experts participated, and 5 male and 17 female support staff from collaborating institutions attended; in the Conservation planning workshop in México 10 males and 11 females experts participated, and 6 male and 15 female support staff from collaborating institutions attended; in the conservation area identification workshop in Guatemala 24 males and 7 females experts participated, and 3 males and 8 females support staff from collaborating institutions, in the Zonation workshop in El Salvador 13 males and 8 females experts participated, and 4 males and 8 females supported the workshop. Finally, in the Zonation workshop in Mexico 10 males and 12 female experts participated, and 13 males and 15 females supported the event (SM40). Partners ensured that females participated in panels and as presenters in the national events (SM52, SM53, SM54). In Guatemala, indigenous female and young producers were particularly encouraged to attend the event where project results were presented in the Huehuetenango region, where 14 females and 14 male attended of which 9 were indigenous women, including 2 young girls (SM52 page 3).

Programme indicators

- **Did the project lead to greater representation of local poor people in management structures of biodiversity?**
 - Not directly during the life of the project, however, this sector was put in the forefront as targets of the communication products and *in situ* conservation recommendations because of their relevance for CWR conservation..

- **Were any management plans for biodiversity developed and were these formally accepted?**
 - The Executive Synthesis developed for decision makers, provides key messages about CWR and highlights the main results obtained in the project that can contribute to move towards the goal of securing the conservation of CWR (Indicator 2.3, SM31). A set of general guidelines, derived from the consultation to experts, are further detailed in the report annexes (Indicator 2.3, SM31, SM11, SM12, SM13, SM46).
- **Were they participatory in nature or were they ‘top-down’? How well represented are the local poor including women, in any proposed management structures?**
 - The mentioned guidelines derive directly from the project results and from the recommendations of experts, hence they have a strong participatory component (Indicator 2.2, SM11, SM12, SM13). Local populations were not consulted for the elaboration of these general guidelines, but we strongly suggest their participation in the elaboration of the detailed management plans.
- **How did the project positively influence household (HH) income and how many HHs saw an increase?**
 - The project activities were not at the scale to influence individual household income.
- **How much did their HH income increase (e.g. x% above baseline, x% above national average)? How was this measured?**
 - The project activities were not at the scale to influence individual household income.

4.5 Transfer of knowledge

No formal qualifications were ever intended to be delivered by the project. Transfer of knowledge about the project’s results were disseminated through different outlets. There are at least two academic publications in preparation. The first is led by Barbara Goettsch and deals with the results of the risk assessment. The second, led by Wolke Tobon and Alicia Mastretta, presents the methodology proposed by them to construct a set of proxies of genetic diversity. The project, methodology and its resulting products were presented at different conferences (SM24, SM25, SM26, SM27, SM28, SM29, SM30). The results of the project were also presented to key actors -namely agricultural producers, agronomy students, and governmental officials of the environmental and agricultural sectors- in Guatemala, El Salvador and Mexico (Indicator 1.6, SM55, SM56, SM57). In addition, printed and electronic versions of the project’s “Executive Synthesis” were distributed among key policy makers (Indicator 1.6, SM22). The project results will be presented at the IUCN World Conservation Congress in 2020.

We also strived to transfer knowledge about CWR to key stakeholders through the videos, poster and informative booklet (Indicator 1.4 and 1.5; SM17, SM20, SM21). We aimed to increase the understanding of key stakeholders about the importance of CWR for present and future agriculture, including key processes like the domestication process and syndrome, the loss of variability in modern crops, and the importance of the genetic diversity and adaptive traits of CWR for crop improvement (Indicator 2.3, SM21).

4.6 Capacity building

In Guatemala, María de los Angeles Mérida (female), focal point for the project from partner institution ICTA, was invited to give a talk at the regional meeting of collaborators of the ITPGRFA funded project “Collaborative Program on Participatory Mesoamerican Plant/Crop Improvement” (SM43). This invitation was received given the relevance of the project in the region, giving this presentation in a regional ITPGRFA meeting raises the profile of both the presenter and the institution she represents.

5 Sustainability and Legacy

Project partners believe that all project achievements will endure in time since they represent the cornerstone of future efforts for the conservation of CWR. The extinction risk assessment informs about the conservation status of the subset of CWR species evaluated, and represents the baseline to assess future conservation actions directed at these organisms. *Ex situ* conservation was improved in the participating countries through the increase in the germplasm collection in seed banks and herbaria. Moreover, the methodological approach to identify genetically diverse CWR populations along the Mesoamerican region, will improve the capacity of institutions to safeguard this diversity. The identification of important areas for *in situ* conservation pinpoints areas that maximise conservation action, through conventional area based conservation measures or through other policy approaches targeted at conserving agrobiodiversity with the involvement of local communities and farmers.

Most team members who participated in this project are employees of the implementing institutions, and hence the acquired capacities and knowledge will enable future projects that use the present results. For example, results on the areas to collect CWR and information about the phenology of species provided by experts for this project, will be used by CNRG in further CWR collection projects (SM2).

Throughout the project we kept regular dialogue with the partners to keep track of the challenges and things that were working well. On 1 July IUCN convened a project closure meeting with all partners to discuss the challenges and opportunities as a basis for completing the section below (SM1, SM2, SM3, SM4, SM5, SM6).

The project benefited by having committed and proactive partners with a genuine interest and understanding of the project. It was also key for the project to have a regional leader from Mexico, CONABIO, able to commit significant in kind resources and significantly support the activities and partners in Guatemala and El Salvador.

The project also benefitted from having partners with a wide range of skills and strengths that help achieve the project's objectives. The project benefitted from having many partners but this in turn made it a very demanding project in terms of management, which resulted in an under budget of the time of the project manager.

The main challenges are summarised below.

Administrative and Legal

Signing contracts with some partners took up to six months and this lengthy process impacted the project because it was not included in the original timelines. Most significantly, it delayed some activities such as field expeditions and workshops. After our first experience with this issue we started working on contracts with partners well in advance which in some cases helped, but in many cases the causes of delay are out of our control (see text under output 3 and section 2. Project Partnerships).

For some partners their institutional rules made the management of the funds difficult and restrictive. We overcame this issue staying in close communication with the partner and its needs and issuing letters authorising the use of funds in a timely manner.

Institutional

The change of personnel within partner institution also had a major impact on the project. This assumption was monitored during the life of the project and was found to be incorrect on repeated occasions during the life of the project and even though in some cases we managed to engage with the new person in charge, as was the case with ICTA and CENTA, in others it resulted in the partner institution being unable to further engage in the project.

Political

The change in national governments also had an impact in the project, for example when directors of partner institutions were reassigned and they had to get familiarised with the project, this often resulted in delays on administrative aspects. If we had to start the project again, we would not engage with a Commission representing several independent institutions, as was the case of CONAREFIH in Honduras, which makes it a somewhat unstable and highly changing partner in terms of its governance. Having

learned from this experience, we would in the future engage with a partner with greater institutional capacity, such as DiBio/MiAmbiente.

Scientific Approach

A difference in the scientific approach to identify important areas for conservation of CWR developed between CONABIO and University of Birmingham. We overcame this by talking openly about the two different approaches and letting partners follow their preferred approach.

Technical

The technical challenges of the project were related to data availability, for example on species of interest or having access to spatial data to generate complete distribution maps, mainly outside Mexico. The project could also have benefited from having a *Data Management Plan* integrated at the beginning of the project. Limited proficiency in Spanish and English by the workshop participants meant it was challenging to fully integrate the University of Birmingham's expertise during meetings. We overcame this by providing simultaneous translations from CONABIO staff. In future we would consider budgeting for professorial translation services.

Safety

The safety of the staff conducting the field work was always the main priority when planning fieldwork given that unfortunately, the three participating countries have high levels of crime. We overcome this challenge by completely avoiding visiting areas of high risk regardless of their importance for the project and by having local people as guides. Unfortunately, our partners in El Salvador had their personal and work belonging stolen while in one of the field expeditions.

Looking back, it would have been desirable to have applied for a scoping grant to allow to construct the project in a more participatory manner and fill in gaps that were detected once the project had started, for example expertise on GIS technology in Central American institutions.

5.1 Monitoring and evaluation

M&E was used to verify the achievement of our targets throughout the duration of the project. CONABIO and the Project Leader monitored the progress of the project through several means: minutes of internal meetings, internal meetings of team members of CONABIO and IUCN, revision of the project logframe every 6 months, weekly meetings of the Project Manager with the Research Assistants, and monthly meetings between IUCN (Project Manager and Project Leader) and the University of Birmingham. The financial status of the project (e.g. exchange rates and total funds received in each payment in Mexican pesos) was closely monitored by CONABIO and IUCN. Reports were generated for keystone activities such as workshops (SM8, SM10, SM11, SM12) and for two workshops, the Red List workshop in Mexico and the Red List training workshop in Honduras, participants filled in evaluation surveys.

The executive synthesis was reviewed by José Sarukán Kerméz, head of CONABIO, Daniel Piñero, head of the Coordination of Agrobiodiversity, and Lucía Ruíz Bustos, Director of Strategies for Institutional Enhancement, SEMARNAT (SM31).

The poster and booklet were reviewed by CWR experts: Araceli Aguilar Meléndez, Alfonso Delgado Salinas, Manuel González Ledesma, Rafael Lira Saade, Mahinda Martínez y Díaz de Salas, Daniel Piñero Dalmau, Diana María Riviera Rodríguez, Aarón Rodríguez Contreras, José de Jesús Sánchez González, Guillermo Sánchez de la Vega, Ofelia Vargas Ponce, Melania Vega, and Ana Wegier (SM21).

The project was internally reviewed at an end of project face to face meeting with CONABIO (SM51), and remotely with the University of Birmingham, INIFAP-CRNG, ICTA and CENTA. Finally, IUCN convened a remote project closure meeting to which all partners were invited (SM1 to SM6).

The issues raised by Darwin project reviewers on annual reports were all addressed and when necessary discussed with partners during our regular meetings.

6 Darwin identity

The project made every effort to publicise the Darwin Initiative, the logo was included in all communications (SM47). Banners with the Darwin Initiative logo, project partners' logos and the project name (in English and Spanish) were displayed in project events (SM48). The Darwin logo also appears on the project's webpage (www.psmesoamerica.org) and was also included in all printed and audio-visual products, including the poster and informative booklet (Indicator 1.5, SM17, SM20, SM21), the executive synthesis (Indicator 2.3, SM31) and the project web page (Indicator 1.4, SM49). Project partners fully understood how the Darwin Initiative works as they were involved in submitting the proposal. The Darwin Initiative is always explained, for example, what the Darwin Initiative is, how it operates, where funds come from, what its objective is, how many times a year the call is open, what kind of projects and where projects are funded.

7 Finance and administration

7.1 Project expenditure

Project spend (indicative) since last annual report	04-07/2019 Grant (£)	04-07/2019 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)			6%	
Consultancy costs				
Overhead Costs			10%	This is a Draft figure as we still have not carry out the audit
Travel and subsistence			100%	Unforeseen changes to travel arranges, the airfare was bought in Year 3 for travel to happen in Year 4, when this unexpected change had to be made
Operating Costs			100%	Some costs from partners reported late
Capital items (see below)				
Others (see below)				
TOTAL			0%	

Staff employed (Name and position)	Cost (£)
Esmeralda Urquiza, Project Research Assistant	
Mati Serah, Senior Legal Officer, IUCN	
Shelagh Kell, Project academic oversight	
Grethel Aguilar, Regional support	
TOTAL	

Capital items – description	Capital items – cost (£)
NA	
TOTAL	

Other items – description	Other items – cost (£)
NA	
TOTAL	

7.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)

IUCN	
In-kind IUCN	
In-kind CONABIO	
INIFAP-CRNG	
TOTAL	

Source of funding for additional work after project lifetime	Total (£)
GEF project managed by CONABIO	
INIFAP research fund	
TOTAL	

7.3 Value for Money

Red List workshops are always good value for money as significant amounts of information is gathered and processed in a relatively short period by gathering experts and facilitators concentrating in a single task that otherwise would have a very high cost in terms of time and money.

Wherever possible partners provided access to venues to run workshops and events without cost. Also, institutional special fees were often use to book accommodation, subsistence and printing services. We always looked for the best prices available for airfares.

Careful use of funds was exercise by all partners, this is reflected in the additional activities that could be accomplished, such as covering travel to attend conferences and organising a second conservation planning workshop in Mexico.

Annex 1 Project’s original (or most recently approved) logframe, including indicators, means of verification and assumptions.

Note: Insert your full logframe. If your logframe was changed since your Stage 2 application and was approved by a Change Request the newest approved version should be inserted here, otherwise insert the Stage 2 logframe.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Impact: Important crop wild relatives (CWR) of Mesoamerica are safeguarded in situ and ex situ, delivering improved food-security for present and future generations.</p>			
<p>Outcome: National governments of the four countries are aware of the importance of conserving CWR and start to implement policies and actions to promote their conservation in situ and ex situ including the CBD and its Nagoya Protocol and the ITPGRFA</p>	<p>0.1 Developing of national plans for the conservation of CWR using information from this project are underway in the three partner countries.</p> <p>0.2 Partner countries include the results of this project in their national reports to the CBD and its Nagoya Protocol and the ITPGRA.</p> <p>0.3 Breeding and research programs on CWR are improved in the four partners’ countries through better national seed collections (a maximum of new important CWR incorporated in collections and at least 50% used in breeding programs) and inter-country exchange of genetic material, so supporting the ITPGRA (with the exception of Mexico) and Nagoya Protocol (with the exception of El Salvador).</p>	<p>0.1 Draft plan and outputs of meetings convene to discuss it (Mexico, Guatemala and El Salvador)</p> <p>0.2 National reports to the conventions (Mexico, Guatemala and El Salvador)</p> <p>0.3 Updates from the partner institutions responsible for the curation and exchange of CWR genetic resources (Mexico, Guatemala and El Salvador)</p>	<p>Momentum for this work is maintained after the life of the project</p>

	<p>0.4 In situ conservation of CWR improved through a better understanding of the importance of CWR by stakeholders in proposed</p>	<p>0.4 Reports from consultation meetings held with stakeholders that outline intended conservation actions (Mexico, Guatemala and El Salvador)</p>	
<p>Outputs 1</p> <p>1. Improved in-country human capacity and knowledge for identifying and establishing conservation priorities for CWR to improve human livelihoods, through the evaluation of the extinction risk of species, including climate change vulnerability, identification of important areas for biodiversity and raising awareness of their importance</p>	<p>1.1 Attendance of at least 2 identified key stakeholders from each of the partner countries at the initial inception meeting (beginning of year 1)</p> <p>1.2 At least two national CWR experts from each of the four partner countries trained to conduct species extinction risk assessments using The IUCN Red List categories and Criteria and climate change vulnerability assessments using IUCN guidelines (by end of year 1), and identification of sites of global significance for the persistence biodiversity areas based on the IUCN's globally approved standard (end of year 2)</p> <p>1.3 At least two botanists from El Salvador, Honduras and Guatemala trained in seed bank collection and preservation by Mexican experts (end of year 2)</p> <p>1.4 Key stakeholders use the knowledge generated through this</p>	<p>1.1 Project inception meeting report and group picture</p> <p>1.2 List of workshop participants with signature, certificates of attendance and participation, group picture. Published assessments of species extinction risk will contain the trained staff names as authors.</p> <p>1.3 Copy of emailed invitation and list of webinar participants.</p>	

	<p>project on CWR species, key sites for conservation and their importance for food security to create a video for a general public awareness and plan a strategy for a media campaign (starting in year 1, revisited and finalised in year 3)</p> <p>1.5 Key stakeholders use the knowledge generated through this project on CWR species, key sites for conservation and their importance for food security to create an informative poster (2,000 copies) and plan a dissemination strategy to distribute poster to targeted audiences such as rural agronomy schools, meeting centres for landowners and managers, NGO's, government offices related to the environment and agriculture making sure woman and young audiences are included (starting in year 1, revisited and finalised in year 3)</p> <p>1.6 National agencies responsible for conserving CWR and for reporting against the relevant conventions are informed about the results in a dedicated national event convened by local partner in each country (Mexico, Guatemala and El Salvador) (year 3)</p> <p>1.7 Publication for the scientific community on a regional analysis</p>	<p>1.4 Strategic plan for media campaign ad video widely available on multiple platforms (e.g. National TV, youtube and stakeholder webpages)</p> <p>1.5 Printed poster and dissemination strategic plan including list of sites, institutions, NGO's, rural agronomy schools to which the poster will distributed</p> <p>1.6 Copy of invitation to the event sent by email to stakeholders and convention focal points</p> <p>1.7 Draft version of peer review paper</p>	<p>Local representatives for key sites for biodiversity are available and effective communication develops with this key stakeholder group</p>
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	<p>on the conservation of CWR (year 3)</p> <p>1.8 Face to face communications in each country with the local authority representatives for sites identified as important areas for the conservation of CWR (year 3)</p>	<p>1.8 List of responsible authorities and feedback from communicators (Mexico, Guatemala and El Salvador)</p>	
<p>2. Areas to safeguard threatened and vulnerable crop wild relatives identified and information shared to assist in future conservation of sites</p>	<p>2.1 Regional workshop to assess the extinction risk of at least 250 species of CWR attended by at least 2 participants from each of the four partner countries, including civil society, academia and governments (year 1). Making sure female experts are invited (if there are any) and.</p> <p>2.2 Three national consultations workshop (one in each country) to identify important sites for the conservation of CWR a) in situ and b) ex situ (year 2).</p> <p>2.3 Technical report that identifies the sites, prioritise and proposes management strategies written for national stakeholders in Spanish (Mexico, Guatemala and El Salvador) (year 3)</p> <p>2.4 Key sites for in situ CWR conservation identified in each of</p>	<p>2.1 Workshop report that include a list of evaluated species and their respective extinction risk category and vulnerability to climate change and list of participants</p> <p>2.2 Consultation workshop report including list of important sites for the conservation of CWR and list of participants (Mexico, Guatemala and El Salvador)</p> <p>2.3 Printed report</p> <p>2.4 List of key sites and map showing them. Spatial data on sites fed to national and global databases</p>	<p>All experts are able to attend the workshop</p>

	<p>the 4 partner countries 2.5 At least one key site proposed as a genetic r</p> <p>2.5 At least one key site proposed as a genetic reserve in each partner country (Mexico, Guatemala and El Salvador)</p>	<p>(Mexico, Guatemala and El Salvador)</p> <p>2.5 List of key sites proposed as genetic reserves in each partner country, map showing them and overall recommendations for their management (Mexico, Guatemala and El Salvador)</p>	
<p>3. Priority Mesoamerican CWR conserved ex situ in national seeds banks</p>	<p>3.1 At least 3 field expeditions in each of the partner countries to collect seed samples of priority CWR (year 3) (Mexico, Guatemala and El Salvador)</p> <p>3.2 Representative seed samples of a maximum of 30 priority species accessioned on three national seed banks (year 3)</p> <p>3.3 Duplicate samples of at least 50% of material collected from 2 signatory countries to the ITPGRFA are made available to be sent to international collections (year 3)</p>	<p>3.1 Field work report, including list of species and localities where seeds were collected</p> <p>3.2 List of species and their accession number</p> <p>3.3 List of the institutions duplicate specimens will be made available sent to and the list of duplicates, including name of species and accession number</p>	<p>Contractual agreements developed between lead institution (IUCN) and national seed banks in each country.</p> <p>Acquisition of relevant permits received on time</p>
<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> <p>Activities</p> <p>1.1 Inception meeting convened by IUCN hosted by CONABIO including participants from all four partner countries to discuss project planning, design, logistics, implementation, reporting, legal and ethical compliance.</p> <p>1.2 Five-day training workshop including both, theoretical and practical, on the assessment of species extinction risk and climate change vulnerability assessments, as a tool for conservation planning followed by practical application of methods learned to the CWR selected by the stakeholders.</p>			

- 1.3 Induction on identification of key biodiversity areas by practical application of methods learned to priority CWR.
- 1.4 Run a webinar for partner institutions carrying out field work and managing the collections in seed banks to exchange methodologies on seed collection and their preservation.
- 1.5 Information to be presented in the video selected by stakeholders
- 1.6 Plan a strategy for a media campaign to broadcast informative video and selection of platforms where the video will be shown discussed with stakeholders in early stages of project and revisited after obtaining project results
- 1.7 Broadcast video on national TV and websites of stakeholders.
- 1.8 Information to be presented on the poster to be selected to generate a draft design to be discussed with stakeholders.
- 1.9 Strategic dissemination plan for poster discussed with stakeholders in early stages of project and revisited after obtaining project results
- 1.10 Distribute informative poster on crop wild relatives in relevant sites (e.g. rural agronomy schools, meeting centres for landowners and managers, NGO's, government offices related to the environment and agriculture) and according to the dissemination plan
- 1.11 Generate list of key invitees and send out invitations to event to present the results of the project.
- 1.12 Hold event to present the project's results.
- 2.1 Generate a preliminary species list based on global CWR conservation targets.
- 2.2 Review preliminary list by stakeholders to allow a consensus list that includes global, regional, national and local CWR conservation priorities.
- 2.3 Collate spatial data provided by national experts to generate species distribution maps to be reviewed during extinction risk assessment workshop.
- 2.4 Collate published data on CWR to be assessed and enter it onto the IUCN's, Species Information Service online database
- 2.5 Run 5-day expert workshop, including participants from each of the four partner countries and international experts, to assess the extinction risk of at least 250 CWR.
- 2.6 Peer review process of assessments of crop wild relatives including editing, consistency check and standards for publication on the red list.
- 2.7 Generate priority CWR species list based on the results from expert workshop.
- 2.8 Run 5-day expert workshop to identify important sites for the conservation of CWR a) in situ and b) ex situ in each country and to propose overall management strategies of genetic reserves.
- 2.9 Elaborate a report in Spanish summarizing the main findings of the project and necessary actions to promote the conservation of CWR.
- 3.1 Field expeditions conducted in all four countries to collect seed samples of CWR identified in earlier stages
- 3.2 Enter information from field expeditions into national databases
- 3.3 Assertion of seeds in national seed banks
- 3.4 Seed exchange between institutions

Annex 2 Report of progress and achievements against final project logframe for the life of the project

Project summary	Measurable Indicators	Progress and Achievements
<p>Impact: Important crop wild relatives (CWR) of Mesoamerica are safeguarded in situ and ex situ, delivering improved food-security for present and future generations.</p>		<p>The project reached the desired impact through the selection of CWR species of economic importance and for human livelihoods in the region. The assessment of the extinction risk of CWR species (SM8) fed into the prioritisation conservation process and the identification of areas to preserve CWR <i>in situ</i> and identify those species in more need of <i>ex situ</i> conservation (SM10-SM13). Actions to promote the in situ conservation of CWR species are underway and the <i>ex situ</i> conservation was exceeded (SM37-SM39). Momentum in the region will allow the project to have further impact after the life of the project (see section 7.2).</p>
<p>Outcome National governments of the four countries are aware of the importance of conserving CWR and start to implement policies and actions to promote their conservation in situ and ex situ including the CBD and its Nagoya Protocol and the ITPGRFA</p>	<p>0.1 Developing of national plans for the conservation of CWR using information from this project are underway in the three partner countries (end of year 3)</p> <p>0.2 Partner countries include the results of this project in their national reports to the CBD and its Nagoya Protocol and the ITPGRA (end of year 3)</p> <p>0.3 Breeding and research programs on CWR are improved in the four partners' countries through better national seed collections (a maximum of new important CWR incorporated in collections and at least 50% used in breeding programs) and are made available for inter-country exchange of genetic material, so supporting the ITPGRA (except for Mexico) and Nagoya Protocol (with the exception of El Salvador) (end of Year 3)</p>	<p>The project set the foundation upon which national plans for the conservation of CWR will be developed. Partner countries are eager to use the methodology developed in the project as they participated in the consultations process to agree on it. Countries have already adapted the results as national guidance to fill in gaps in CWR collections. Important areas for the conservation of CWR and the collection of CWR were determined using a novel methodology proposed by CONABIO to identify genetically diverse CWR populations (Indicator 0.1, SM32). Information about the project was included in Mexico's national report to the CBD (Indicator 0.2, SM41) and the representation of CWR germplasm was also increased in seed banks of the region (Indicator 0.3, SM37, SM38, SM38a, SM39, SM39a, see also table 1). Together, these results can be used to identify the gaps in <i>in situ</i> and <i>ex situ</i> conservation efforts, which is a necessary step to develop these plans (Indicator 0.4, SM31).</p>

	<p>0.4 In situ conservation of CWR improved through a better understanding of the importance of CWR by stakeholders in proposed genetic reserves (end of year 3)</p>	
<p>Output 1. Improved in-country human capacity and knowledge for identifying and establishing conservation priorities for CWR to improve human livelihoods, through the evaluation of the extinction risk of species, including climate change vulnerability, identification of important areas for biodiversity and raising awareness of their importance</p>	<p>1.1 Attendance of at least 2 identified key stakeholders from each of the partner countries at the initial inception meeting (beginning of year 1)</p> <p>1.2 At least two national CWR experts from each of the four partner countries trained to conduct species extinction risk assessments using The IUCN Red List Categories and Criteria and climate change vulnerability assessments using IUCN guidelines (by end of year 1), and identification of sites of global significance for the persistence biodiversity areas based on the IUCN's globally approved standard (end of year 3)</p> <p>1.3 At least two botanists from El Salvador, Honduras and Guatemala trained in seed bank collection and preservation by Mexican experts (end of year 2)</p> <p>1.4 Key stakeholders use the knowledge generated through this project on CWR species, key sites</p>	<p>The in-country human capacity and knowledge for establishing conservation priorities for CWR was improved through workshops, training sessions, webinars, and by transferring the knowledge acquired during this project to key stakeholders. CWR experts of the partner countries were trained to conduct species extinction risk assessments using The IUCN Red List Categories and Criteria and climate change vulnerability assessment (Indicator 1.2, SM8, SM9). Three webinars were organized by partners in Mexico (Indicator 1.3). The first two were organized by INIFAP-CNRG to review aspects regarding the sample passports, harmonization of data to be collected between institutions, collection protocols for orthodox and recalcitrant species, among others (SM16). The third webinar was convened by IUCN and run by CONABIO, the aim was to review the needs from progress made by the team from Guatemala and El Salvador with respect to the scenarios for <i>in situ</i> collection and conservation using the Zonation tool, as well as agree on the steps to follow for the planning of expert workshops in both countries (SM50). Additionally, CONABIO's expert in conservation planning, Wolke Tobon, gave a 2-day training session in the use of the conservation planning tool ZONATION®, to two experts from Guatemala and two experts from El Salvador (SM14). The results of the project were shared with stakeholders and decision makers during the closing events of the project and other related events in each country (Indicator 1.6 and 1.8, SM22, SM22a, SM52, SM53, SM54). In Mexico the presentation of the project's results was organized around a discussion panel integrated by Celia Florián a traditional Mexican cuisine chef from Oaxaca, the head of CONABIO, José Sarukhán, the Director of INIFAP, Fernando de la Torre and CWR expert Alfonso Delgado from the National Autonomous University of Mexico and it was chaired by Patricia Koleff from CONABIO and focal point for the project (SM51). There were 3 events in Guatemala, involving representatives of agriculture associations, producers including indigenous female producers, agriculture technicians including students and decision makers including the directors of national</p>

	<p>for conservation and their importance for food security to create a video for a general public awareness and plan a strategy for a media campaign (starting in year 1, revisited and finalised in year 3)</p> <p>1.5 Key stakeholders use the knowledge generated through this project on CWR species, key sites for conservation and their importance for food security to create an informative poster (2,000 copies) and plan a dissemination strategy to distribute poster to targeted audiences such as rural agronomy schools, meeting centres for landowners and managers, NGO's, government offices related to the environment and agriculture making sure woman and young audiences are included (starting in year 1, revisited and finalised in year 3)</p> <p>1.6 National agencies responsible for conserving CWR and for reporting against the relevant conventions are informed about the results in a dedicated national event convened by local partner in each country (Mexico, Guatemala and El Salvador) (year 3)</p> <p>1.7 Publication for the scientific community on a regional analysis</p>	<p>breeding programs on corn and bean, totalling 90 attendees. María de los Ángeles Mérida from ICTA presented the project results in all three events (SM52, SM62). In El Salvador the national event was chaired by Aura Morales de Borja from CENTA and project results were presented by Jenny Menjivar from the National History Museum of El Salvador and Dagoberto Delcid from the Botanic Garden La Laguna (SM53). Key stakeholders were also reached through an informative poster (Indicator 1.5, SM20) and booklet (SM21), as well as a series of videos (Indicator 1.4, SM17). In El Salvador and Guatemala project partners had face to face meeting with local authorities at sites important for the conservation of CWR identified through the project (SM22a and SM55). The project was also presented in several academic meetings, conferences and dedicated sessions (Indicator 1.7, SM24, SM25, SM26, SM27, SM28, SM29, SM30, SM44) and its original contributions will be published in at least two academic publications (Indicator 1.7).</p>
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	<p>on the conservation of CWR (year 3)</p> <p>1.8 Face to face communications in each country with the local authority representatives for sites identified as important areas for the conservation of CWR (year 3)</p>	
<p>Activity 1.1</p> <p>Inception meeting convene by IUCN hosted by CONABIO including participants from all four partner countries to discuss project planning, design, logistics, implementation, reporting, legal and ethical compliance.</p>	<p>The inception meeting was carried out successfully the first year of the project (SM7)</p>	
<p>Activity 1.2.</p> <p>Five-day training workshop including both, theoretical and practical, on the assessment of species extinction risk and climate change vulnerability assessments, as a tool for conservation planning followed by practical application of methods learned to the CWR selected by the stakeholders.</p>	<p>The workshop was carried out successfully in Cuernavaca, Morelos, Mexico, 13-17 of February, 2017 (SM8).</p>	
<p>Activity 1.3 Induction on identification of key biodiversity areas by practical application of methods learned to priority CWR.</p>	<p>Four national workshops were organized to identify key biodiversity areas using a systematic conservation planning approach (SM10, SM11, SM12, SM13)</p>	
<p>Activity 1.4 Run a webinar for partner institutions carrying out field work and managing the collections in seed banks to exchange methodologies on seed collection and their preservation.</p>	<p>Three webinars were organized by the partners in Mexico. The first two were organized by CNRG to review aspects regarding the collection passports, homogenization of data between institutions, collection protocols for orthodox and recalcitrant species among others (SM16). The third webinar was organized by CONABIO, its aim was to review the progress made by the team from Guatemala and El Salvador with respect to the</p>	

	scenarios for in situ collection and conservation using the Zonation tool, as well as agree on the steps to follow for the planning of expert workshops in both countries (SM50).
Activity 1.5 Information to be presented in the video selected by stakeholders.	A series of 4 informative videos was produced (SM17).
Activity 1.6 Plan a strategy for a media campaign to broadcast informative video and selection of platforms where the video will be shown discussed with stakeholders in early stages of project and revisited after obtaining project results.	The dissemination strategy to distribute the audio-visual material were discussed in a series of internal meetings. The videos are currently available on CONABIO's webpage and will also be uploaded to the web page of CNRG, CENTA and ICTA (SM18).
Activity 1.7 Broadcast video on national TV and websites of stakeholders	The videos were presented at the closing events and are broadcasted in the websites of the project partners (SM51)and youtube, vimeo and facebook (SM17).
Activity 1.8 Information to be presented on the poster to be selected to generate a draft design to be discussed with stakeholders.	A poster featuring botanic illustrations of 27 species related to 9 crops was produced (SM20). In addition, an informative booklet which is linked to the poster, was also designed to transfer knowledge about the importance of CWR, the domestication process and the domestication syndrome as well as the origin and uses of crops and their wild relatives (SM21).
Activity 1.9 Strategic dissemination plan for poster discussed with stakeholders in early stages of project and revisited after obtaining project results.	The dissemination strategy to distribute the printed material (<i>i.e.</i> poster and booklet) were discussed in a series of internal meetings and were distributed among relevant stakeholders (SM22, SM22a).
Activity 1.10 Distribute informative poster on crop wild relatives in relevant sites (<i>e.g.</i> rural agronomy schools, meeting centres for landowners and managers, NGO's, government offices related to the environment and agriculture) and according to the dissemination plan.	A total of 3300 posters and booklets were printed and distributed among different sectors in the partners countries (Indicator 1.5, SM22).
Activity 1.11 Generate list of key invitees and send out invitations to event to present the results of the project.	Lists of invitees were generated linked to the dissemination strategy, 90 people attended three events in Guatemala (SM55), 48 attended one event in El Salvador (SM56), and 72 in Mexico (SM57).

<p>Activity 1.12 Hold event to present the project's results.</p>	<p>Guatemala carried out 3 events on the 28 and 31 of May and 6 June to present the project's results (SM52), gathering a total of 90 people from agriculture student to decision makers and indigenous smallholders including women and young girls.</p> <p>El Salvador had their closing event the 22 of May, 2019 at the Botanical Garden of "La Laguna" (SM53). The closing event in El Salvador had 48 participants from CENTA, Botanical Garden, Fundasal (NGO), University of El Salvador, USAM (Universidad Salvadoreña Alberto Masferrer), and agricultural producers (SM53).</p> <p>Mexico's event was inserted in the context of the "9th week of Biodiversity", an event organized on a yearly basis by CONABIO with the aim to collate biodiversity values to the wider public and to promote its restoration, conservation and sustainable use (SM54, SM58). This year the event entitled "Our biodiversity, our diet, our health" was devoted to the role of biodiversity in the wellbeing of humankind. The event was also transmitted live through CONABIO's facebook page and was organized around a panel of key stakeholders relevant for CWR conservation (see text under Output 1) (SM51, SM54).</p>
<p>Output 2. Areas to safeguard threatened and vulnerable crop wild relatives identified and information shared to assist in future conservation of sites</p>	<p>2.1 Regional workshop to assess the extinction risk of at least 250 species of CWR attended by at least 2 participants from each of the four partner countries, including civil society, academia and governments (year 1). Making sure female experts are invited (if there are any).</p> <p>2.2 Three national consultations workshop (one in each country) to identify important sites for the conservation of CWR a) in situ and b) ex situ (year 2).</p> <p>The workshops under indicator 2.2 were successfully run even though they were carried forward to year 3 (as agreed on a change request) (SM8, SM10, SM11, SM12, SM13) (see text under activity 2.5 and 2.8). The results of these workshops fed into the Executive Synthesis (and annexes) and included the results on the identification of important areas for the conservation of CWR, results regarding the field expeditions and general guidelines upon which national plans for the conservation of these species should be based on (see text under activity 2.9, SM31). CWR experts from Honduras, whose involvement was not secured until a later stage, received training on the assessment of species extinction risk following IUCN Red List Categories and Criteria, 18-20 February, 2019 (SM9).</p>

	<p>2.3 Technical report that identifies the sites, prioritise and proposes management strategies written for national stakeholders in Spanish (year 3) (Mexico, Guatemala and El Salvador).</p> <p>2.4 Key sites for in situ CWR conservation identified in each of the 4 partner countries.</p> <p>2.5 At least one key site proposed as a genetic reserve in each partner country.</p>	
<p>Activity 2.1. Generate a preliminary species list based on global CWR</p>	<p>A preliminary list of more than 500 species and subspecies of 62 genera related to 16 cultivated plants was generated (SM59).</p>	
<p>Activity 2.2. Review preliminary list by stakeholders to allow a consensus list that includes global, regional, national and local CWR conservation priorities.</p>	<p>The preliminary list of CWR was reviewed and reduced to 237 taxa (SM60).</p>	
<p>Activity 2.3 Collate spatial data provided by national experts to generate species distribution maps to be reviewed during extinction risk assessment workshop.</p>	<p>237 distribution maps and 199 potential distribution maps were generated and reviewed during and after the extinction risk assessment workshop.</p>	
<p>Activity 2.4 Collate published data on CWR to be assessed and enter it onto the IUCN's, Species Information Service online database.</p>	<p>Published information was collated for 237 CWR taxa on the IUCN's Species Information Service online database and published on the IUCN Red List (SM45).</p>	

<p>Activity 2.5 Run 5 day expert workshop, including participants from each of the four partner countries and international experts, to assess the extinction risk of at least 250 CWR.</p>	<p>The workshop took place in Cuernavaca, Morelos, Mexico, February 13-17, 2017 (SM8).</p>
<p>Activity 2.6 Peer review process of assessments of crop wild relatives including editing, consistency check and standards for publication on the red list.</p>	<p>Peer review process assessments were carried out for 251 taxa, after which taxonomic changes resulted in 237 taxa published in the Red List (SM45).</p>
<p>Activity 2.7 Generate priority CWR species list based on the results from expert workshop.</p>	<p>A priority CWR species list was defined based on threat level i.e. Critically Endangered, Endangered and Vulnerable species(SM45).</p>
<p>Activity 2.8 Run 5 day expert workshop to identify important sites for the conservation of CWR a) in situ and b) ex situ in each country and to propose overall management strategies of genetic reserves.</p>	<p>In total, four workshops, in which important sites for the conservation of CWR were identified, were carried out: 1 in Guatemala (SM12), 1 in El Salvador (SM13), and 2 in Mexico (SM10, SM11).</p>
<p>Activity 2.9 Elaborate a report in Spanish summarizing the main findings of the project and necessary actions to promote the conservation of CWR.</p>	<p>An Executive Synthesis in Spanish that summarize the main findings, was developed for decision makers (SM31).</p>
<p>Output 3. Priority Mesoamerican CWR conserved ex situ in national seeds banks.</p>	<p>3.1 At least 3 field expeditions in each of the partner countries to collect seed samples of priority CWR (year 3).</p> <p>3.2 Representative seed samples of a maximum of 30 priority species accessioned on four national seed banks (year 3).</p> <p>3.3 Duplicate samples of at least 50% of material collected from 3 signatory countries to ITPGRFA are made available to be sent to international collections (year 3).</p> <p>The planned field expeditions were carried out successfully in Guatemala and El Salvador securing the collection of CWR germplasm in national seed banks (Indicator 3.1 and 3.2, SM37, SM38, SM38a, SM61, SM62). In Mexico there were three field expeditions planned, but only one could be carried out because of political issues within the partner institution INIFAP-CNRG (Indicator 3.1 and 3.2, SM63). However, in the single field expedition carried out, 20 taxa were successfully collected and sheltered in the INIFAP-CNRG seed bank (Indicator 3.2, SM39, SM39a; see text under activity 3.1, 3.2 and 3.3).</p> <p>A total of 228 accessions of 98 taxa including 9 threatened species.</p>

<p>Activity 3.1 Field expeditions conducted in all four countries to collect seed samples of CWR identified in earlier stages.</p>	<p>Seven field expeditions in Guatemala (SM61), three in El Salvador (SM62) and one in Mexico (SM63).</p>
<p>Activity 3.2 Enter information from field expeditions into national databases.</p>	<p>Information gathered as part of the collection passport was integrated into national databases (SM37, SM338, SM39) which will be integrated into CONABIO's National Information System on Biodiversity (SNIB).</p>
<p>Activity 3.3 Assertion of seeds in national seed bank.</p>	<p>8 taxa in Guatemala, 70 in El Salvador and 20 in Mexico were deposited in national seed banks (SM37, SM38, SM38a, SM39, SM39a)</p>

Annex 3 Standard Measures

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
Training Measures							
1a	Number of people to submit PhD thesis	1	Mexican	Female			
1b	Number of PhD qualifications obtained	1	Mexican	Female			
2	Number of Masters qualifications obtained						
3	Number of other qualifications obtained						
4a	Number of undergraduate students receiving training						
4b	Number of training weeks provided to undergraduate students						
4c	Number of postgraduate students receiving training (not 1-3 above)						
4d	Number of training weeks for postgraduate students						
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification (e.g., not categories 1-4 above)	2	Brazil UK	Female			
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)						

6b	Number of training weeks not leading to formal qualification						
7	Number of types of training materials produced for use by host country(s) (describe training materials)						
Research Measures		Total	Nationality	Gender	Title	Language	Comments/ Weblink if available
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (ies)						
10	Number of formal documents produced to assist work related to species identification, classification and recording.						
11a	Number of papers published or accepted for publication in peer reviewed journals						
11b	Number of papers published or accepted for publication elsewhere	237	Mexico, Guatemala, El Salvador	Female and Male			All Red List assessments are publication and have a DOI. They are available at https://www.iucnredlist.org/ . Also see SM45.

12a	Number of computer-based databases established (containing species/generic information) and handed over to host country						
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	4	Mexico, Guatemala, El Salvador,				
13a	Number of species reference collections established and handed over to host country(s)						
13b	Number of species reference collections enhanced and handed over to host country(s)	4	Mexico, Guatemala, El Salvador,				

Dissemination Measures		Total	Nationality	Gender	Theme	Language	Comments
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	3 national workshops	El Salvador	Female (3 presenters)	Presentation of the Red List risk assessment of CWR and the results of the Zonation analysis	Spanish	
			Guatemala	Female (3 presenters)			
			Mexico	Female (5 presenters)			

			Honduras	Female (1 presenters)			
14b	Number of conferences/seminars/workshops attended at which findings from Darwin project work will be presented/ disseminated.	8	Mexico Guatemala	Females	Presentation of the project's results and the methodology proposed	Spanish and English	

Physical Measures		Total	Comments
20	Estimated value (£s) of physical assets handed over to host country(s)		
21	Number of permanent educational, training, research facilities or organisation established		
22	Number of permanent field plots established		Please describe

Financial Measures		Total	Nationality	Gender	Theme	Language	Comments
23	Value of additional resources raised from other sources (e.g., in addition to Darwin funding) for project work	232,551					

Annex 4 Aichi Targets

	Aichi Target	Tick if applicable to your project
1	People are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	x
2	Biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	
3	Incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.	
4	Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.	
5	The rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	
6	All fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.	
7	Areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	
8	Pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.	
9	Invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	

10	The multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.	
11	At least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	x
12	The extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.	x
13	The genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.	x
14	Ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.	
15	Ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.	x
16	The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.	x
17	Each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.	
18	The traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.	
19	Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.	x

20	The mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.	
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Annex 5 Publications

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Nationality of lead author	Nationality of institution of lead author	Gender of lead author	Publishers (name, city)	Available from (e.g. web link, contact address etc)
e-journal	IUCN Red List Assessments	Mexico, Guatemala, El Salvador	Mexico, Guatemala, El Salvador	Female in approximately 30% of assessments (237 in total) and male in 70% of the assessments	IUCN, Cambridge	https://www.iucnredlist.org/

Annex 6 Darwin Contacts

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Checklist for submission

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