Darwin Initiative Annual Report

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

Submission Deadline: 30 April

Darwin Project Information

Project Reference	19-011
Project Title	Conserving the critically endangered Bengal Florican – a Terai flagship species
Host Country/ies	Indian and Nepal
Contract Holder Institution	Royal Society for the Protection of Birds (RSPB)
Partner institutions	Bird Conservation Nepal (BCN) and Bombay Natural History Society (BNHS India)
Darwin Grant Value	£290,417
Start/end dates of project	01/10/12 to 30/09/15
Reporting period (eg Apr 2013 – Mar 2014) and number (eg Annual Report 1, 2, 3)	Apr 2013 to Mar 2014 - Annual Report 2
Project Leader name	Ian Barber
Project website	
Report author(s) and date	Ian Barber & Dr Paul Donald – based on field reports from BNHS (Mohit Lalra) and BCN (Jyotendra Thakuri) May 2014

1. Project Rationale

The decline of the Critically Endangered Bengal florican is inextricably linked to the loss of its Terai grassland habitat. By taking measures to ensure the survival of Bengal florican, through direct species protection and improved habitat management, the work will benefit an array of species unique to the Terai. Traditionally, conservation activities in the region have failed to incorporate the needs of lesser known species in the Terai, which include the Bengal florican, the hispid hare (EN), pygmy hog (CR) and bristled grassbird (VU). Grasslands globally are under threat, and are in retreat or decline in many areas due to their ease of conversion to agriculture, to unsustainable grazing practices, to the loss of natural browsers and to changes in atmospheric carbon, which promotes scrub encroachment. Grasslands are among the most threatened and least protected biomes on the planet.

The project location includes the low-lying grassland areas of the Terai in northern India and southern Nepal and the floodplain grasslands of the Brahmaputra river in North East India

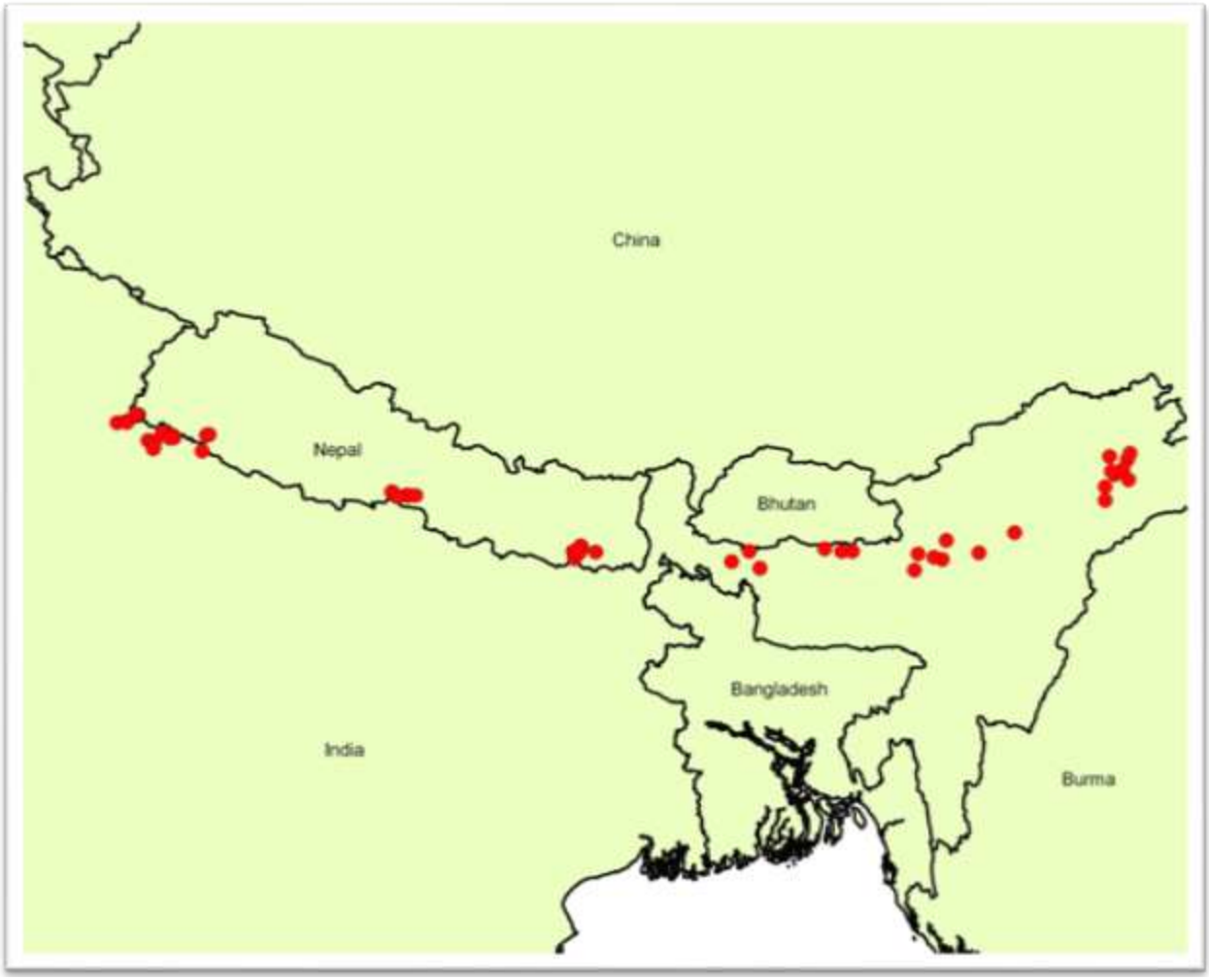


Fig 1 – The focus areas of the project, in southern Nepal and northern India, are indicated by the red circles

2. Project Partnerships

The key relationships are with the two BirdLife Partners, the Bombay Natural History Society (BNHS India) in India and Bird Conservation Nepal (BCN) in Nepal. Both are well-established nature conservation organisations and recognised leaders in the field of bird research in their respective countries.

The RSPB has long-standing partnerships with both organisations going back many years and they form part of our international programme of support to BirdLife Partners around the globe. This project evolved as a result of discussions with both partners and they were instrumental in developing the project proposal. Both organisations appointed existing staff members to work as their Project Co-ordinators, (Mohit Kalra in India and Jyotendra Thakuri in Nepal) and both have worked with the RSPB Project Leader for several years. Collaboration with the in-country partners is ongoing and decisions are agreed at all stages

The project has initiated more direct contact between individuals on all sides which has helped strengthen the relationship between the project partners. Country visits involving RSPB staff has fostered a better understanding of the issues faced and how to overcome them. This is particularly true of the bureaucracy encountered within the Indian government which on occasion has made life difficult for some of the host country staff. One particularly officious PA Deputy Director has restricted entry by BNHS staff to one important area so they are having to use their contacts in other organisations to get information of birds present in the area.

In Nepal on the other hand, the relationship between BCN, RSPB and the Department of National Parks and Wildlife Conservation (DNPWC) has flourished with several positive meetings with Government officials taking place at both field and central level. The Project Leader made a point of meeting with the head of the research division, Maheshwar Dhakal on each of the three occasions he visited Nepal during the year. Of particular value have been the feedback meetings discussing where the satellite

tagged birds have moved and future plans for survey work etc. These meetings helped with a last minute decision to get permission to catch birds at Chitwan.

3. Project Progress

3.1 Progress in carrying out project activities

Output 1 - Knowledge of threats and distribution of Bengal florican in India and Nepal enhanced

Activity 1.3 - Undertake Bengal florican population survey in at least 3 areas in India and at least 4 areas survey in Nepal, using standardised and repeatable survey methods

After the survey co-ordination workshops were held in Nepal and India in March 2013 surveys were organised across most of the grasslands where Bengal floricans have traditionally been recorded. Surveys were undertaken from mid-April to mid-May in Nepal and from mid-April to mid-June in India. The workshop method of moving between grid points, centred on cells of known land cover (NDVI cells), was found to be difficult to follow closely mainly because of the potential for encountering large mammals in many grassland areas. Thus, in the interest of safety, most surveys were of the more traditional type of observing the grassland from a vantage point for a period of up to 3hrs. This was acceptable as long as all birds observed were accurately recorded with a GPS and the associated habitat details noted.

The field teams found it difficult to make all three visits to the sites before the grasses had grown too tall to easily observe and record the birds. However, enough habitat information and bird data were gathered to run GIS based Maximum Entropy models to produce maps of where appropriate grasslands may exist that could support Bengal floricans.

In India they surveyed 95 separate grassland sites and had sightings of 36 birds while in Nepal 117 sites were visited and 48 birds sighted. Some of these will have been repeat sightings of the same bird so do not represent total number of birds in those areas.

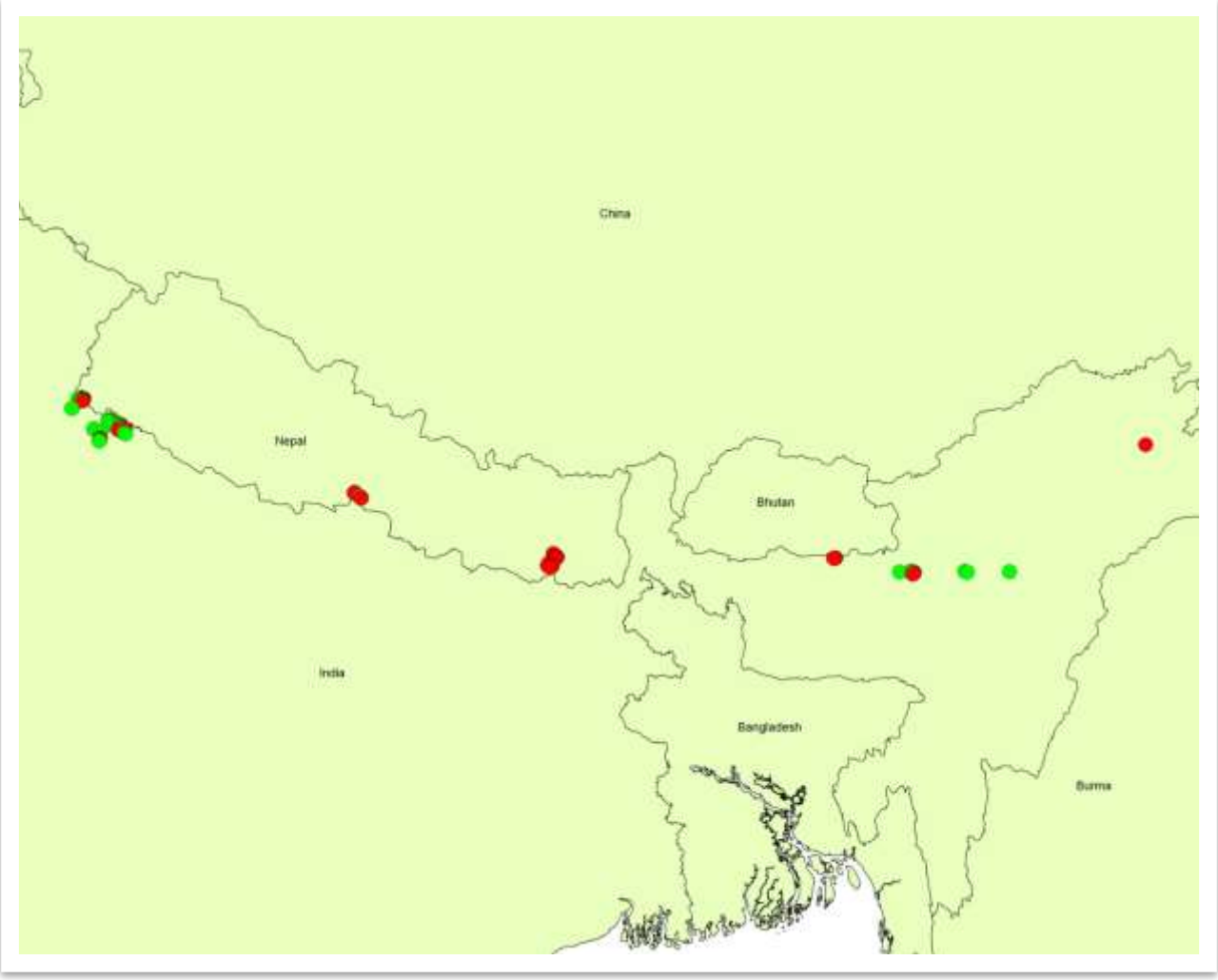


Fig 2 – Map showing the sites surveyed with red circles representing areas where birds were recorded.

Activity 1.4 - Undertake satellite tracking studies. Quantify habitat condition in places used by Bengal florican and unused control sites, catch birds and attach radio satellite tags

A team comprising of Charlotte Packman (UEA), Markus Handschuh (Frankfurt University), Jyotendra Thakuri (BCN), Shambu Ghimire (Himalayan Nature) and Hem Sagar Baral (Himalayan Nature) spent two weeks (26th March to 7th April 2013) at Koshi Tappu in Eastern Nepal attempting to catch and tag birds. They succeeded in catching two birds, both males, which represents the first Bengal floricans ever caught and tagged in the Indian subcontinent.

The number caught was less than the 6 birds hoped for due to the team encountering various problems which hindered their work. Despite the grassland habitat looking good they encountered relatively few birds which was surprising as the males they saw were in breeding plumage indicating conditions were good. It was concluded that they were a little early in the season and maybe putting the catching back a few weeks would allow more birds to arrive and increase the chances of catching in future.

Several attempts to drive the birds towards the mistnets failed as the birds were wary and readily flew. On two occasions when they did manage to drive the birds into the net the birds were not properly ensnared and were able to free themselves and escaped before the team could reach them. The two birds they did catch were feistier than those encountered in Cambodia and assessed to be about 15% heavier which may have accounted for why the birds did not get entangled properly. The conclusion was that the mistnet gauge (50mm) was too small and so new nets were purchased, in time for the catching in 2014, with a mesh size of 70mm.

Although we had hoped to catch enough birds to deploy radio tags, in practice with only 2 birds caught the priority was to try to deploy six satellite tags first and then radio tags on any other birds caught. Consequently no radio tags were deployed this time.

We will attempt to catch birds in India during the 2014 breeding season when a different technique will be tried. BNHS have had considerable success in the past using traditional bird-trappers to catch birds including the Great Indian Bustard, a similar species. They will use life-sized dummy birds to attract birds to areas with nooses laid out on the ground. The Project Leader has seen the model birds which are very realistic having been constructed and painted by the renown Indian bird artist, Carl d'Silva. They have both a male and female dummy bird and hope to catch both sexes if possible. They will attempt to catch birds at Pilibhit Reserve Forest area in May 2014 and then possibly in Assam if permission comes through in time.

Activity 1.5 - Download satellite data and measure distribution, population, movements and habitat requirements Bengal florican. Produce map of areas of existing and potential Bengal florican habitat.

The tags deployed on the two males are still active at the time of this report (13 months) and we have downloaded the data on a weekly basis and overlaid the co-ordinates on Landsat images. Both birds were tagged very close to each other on the same island grassland area and both have exhibited a similar and distinct pattern of movement. In the first month (April) they ranged quite randomly over a distance of 2-3km both on the shore of the river and on the island as they were presumably prospecting for the best grassland sites and a potential mate. In May they both returned to the island where they remained for the next two months and it was not until July and August before we saw any sign of them moving off the island again but even then they spent the majority of the time on the island. It is a reasonable assumption that they settled in the least disturbed areas which during the monsoon months would be on the island as they are less accessible to local people and their livestock. During this period the birds exhibited territorial behaviour and there was little movement by each bird into the other birds "territory".

The behaviour up to the end of the monsoon period (November) was largely predictable but it is the non-breeding period that we know least about the birds movements and was of more interest. Results from similar studies in the Tonle Sap area of Cambodia revealed that the birds ventured up to 30km from their tagged site and utilised lightly wooded areas with a grass understory, again we assume to shelter away from their increasingly disturbed breeding areas.

At Koshi Tappu, after the monsoon rains subside and river level fall, access to the islands is possible and local communities return to cut the tall grass and graze their livestock. As anticipated the birds spent increasingly more time away from the islands and ventured in a south-westerly direction onto the mainland. One bird in particular appeared to be occupying cropped areas which would presumably be heavily disturbed. However, on closer inspection the bird was largely utilising narrow grassland strips on banks between the cropped areas and the river. Both birds spent most of the non-breeding season in

areas about 4km and 7km from the island but in February returned to the same island where they were caught in and interestingly, the maximum distance ventured from the island was only 10km.

Although it is too soon to draw any conclusions, we will continue to monitor the birds movements and initial results suggest that the birds do not move as far as we might have anticipated based on research from Cambodia. If they do remain in the general area and continue to utilise grassland areas outside of the breeding season and not lightly wooded areas then this will greatly assist efforts to conserve their grassland habitats. We can say that the effective disappearance of the bird in the non-breeding season is not likely to be because of wholesale emigration.

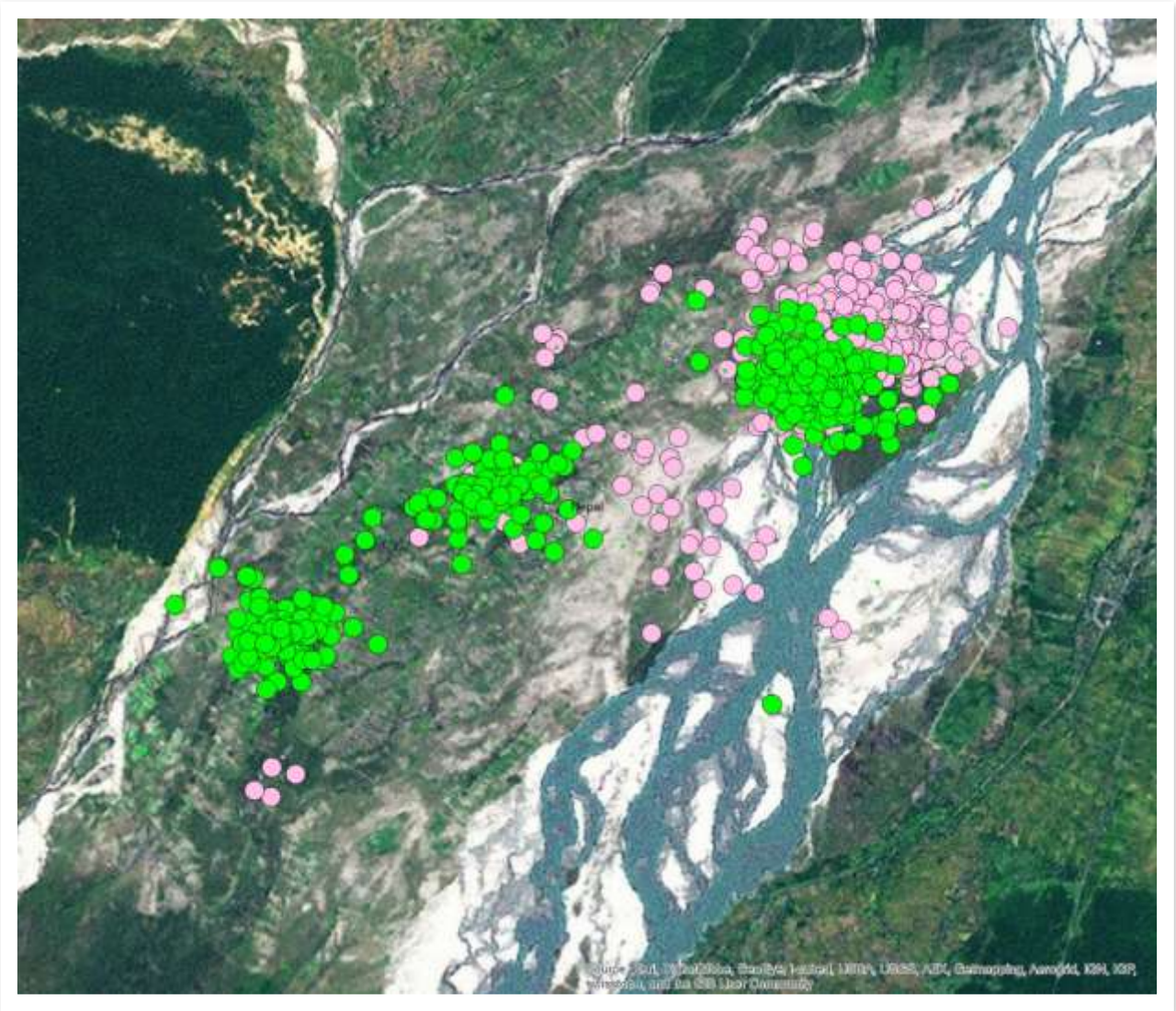


Fig 3 - Maps illustrating movement of the two satellite tagged birds at Koshi Tappu, Nepal. The capture site was the island to the top right and the birds gradually venture in a SW direction during the non-breeding season before returning to the original capture site in February.

We used the results of the 2013 survey to model the distribution of Bengal Floricans across India and Nepal using Maximum Entropy. This matched the locations of the floricans seen to the environmental conditions where they were recorded, based on climatic variables and variables relating to land cover. The models then identified other areas with environmental conditions similar to those in areas where floricans were present. In doing so, the model correctly identified a number of areas known to contain floricans that were not surveyed in 2013, but more interestingly it also identified other areas not known to hold floricans, either recently or historically.

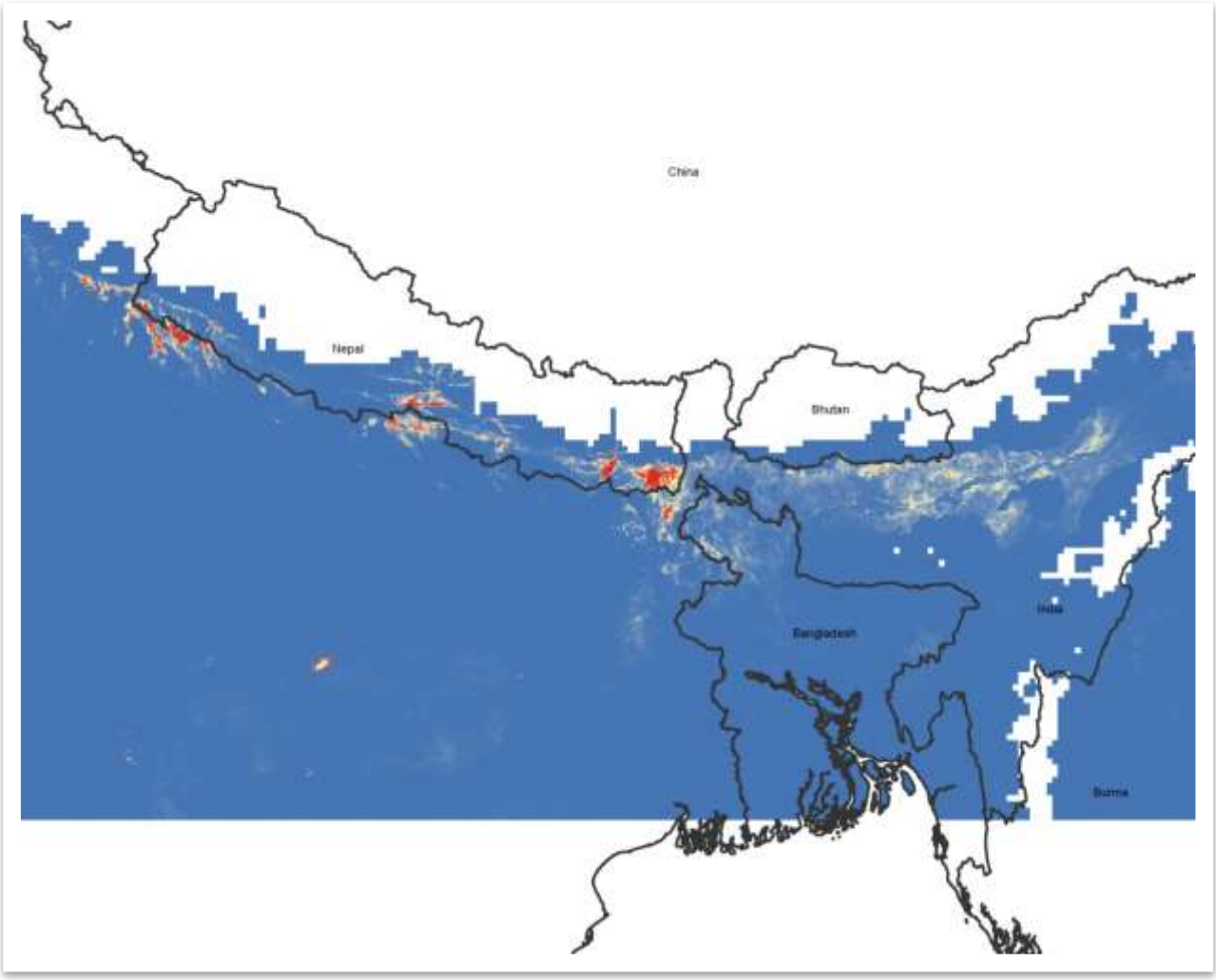


Fig 4 – MaxEnt model showing “hotspots” (in red) of potential grassland areas

The teams visited many of these potential new sites, particularly the larger ones in eastern Nepal and Bihar, India after the monsoon. Although several areas were shown to be unsuitable, we did locate a number of grasslands that could potentially hold important and hitherto unknown populations of floricans. The most promising of these grasslands will be visited during the 2014 surveys.

A separate attachment to this report contains the BNHS field report from Valmiki Tiger Reserve, Bihar & Forest Divisions of Uttarakhand

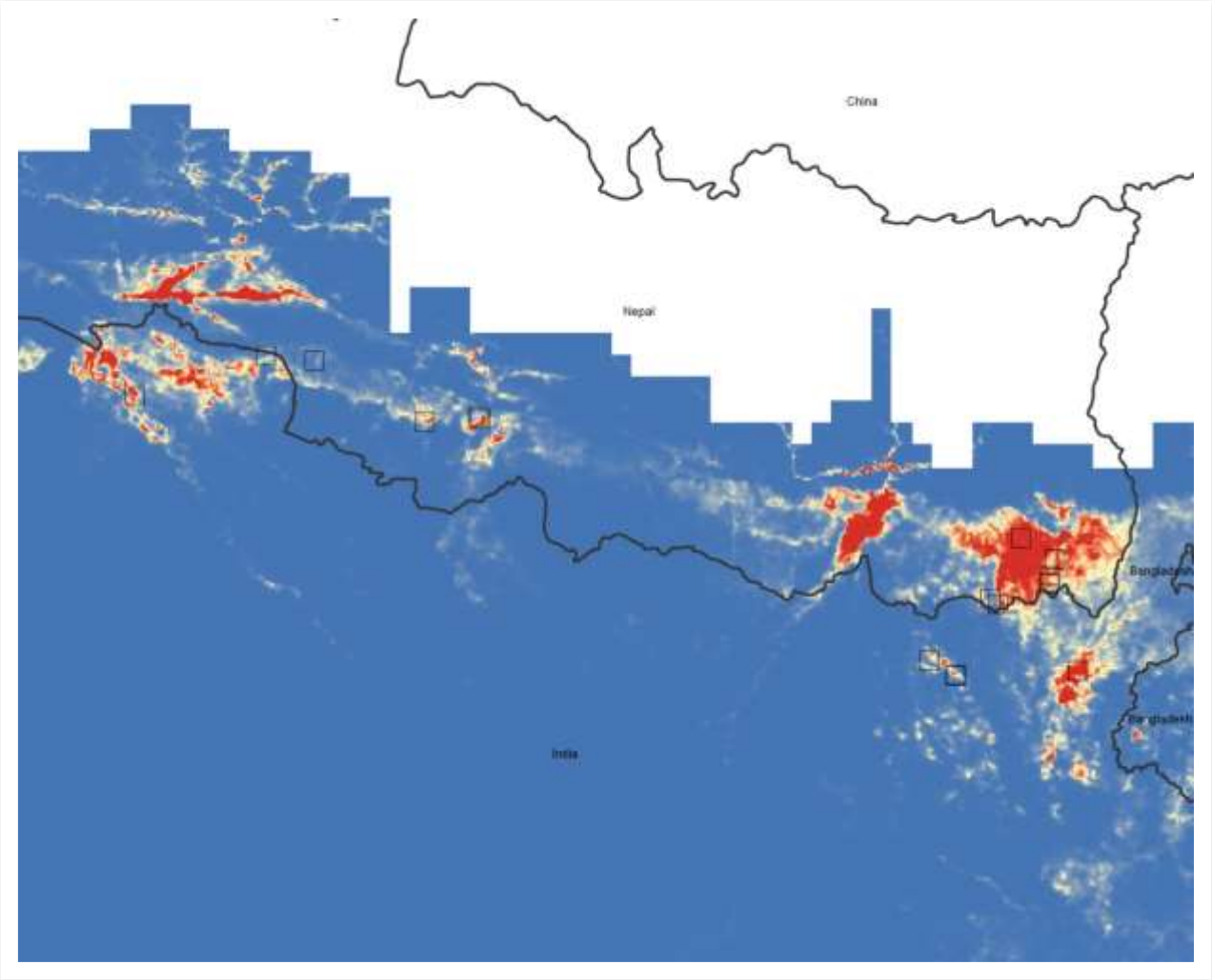


Fig 5 – Map of Central and Eastern Nepal showing good quality grasslands either side of the border with potential to support Bengal floricans (squares)

Activity 1.6 - Research findings published in relevant reports/journals disseminated to key stakeholders.

It is anticipated that the research findings will be written up towards the end of the project. However, PowerPoint presentations on the results from the first year of survey and tagging work have been delivered by the Project Leader to both in-country partners and appropriate Government staff in Nepal.

Activity 2.1 - Engage key stakeholders (eg. landowners/ local communities /Protected Area staff/ local government) to identify methods to recreate habitat conditions identified for Bengal florican under objective 1

During the survey period contact was made with relevant land managers, both Protected Area staff and communities, in both India and Nepal. Discussions were held about the existing grassland management practices, whether there may be potential for varying current practices to favour Bengal floricans and which areas we might be able to undertake trial management plots. The discussions were positive in some areas and as appropriate were taken forward in four areas, two in each country.

Activity 2.2 - Identify at least three suitable sites for habitat restoration trials and negotiate participation in trials of key stakeholders (eg. landowners/ local communities/ pastoralists /Protected Area staff/ local government)

Two areas in India and two in Nepal were identified as having the potential for undertaking restoration trial plots. In India, the Reserve Forest Area at Pilibhit, Uttar Pradesh and the privately owned grassland at Nizamghat in Arunachal Pradesh were initially considered but progress could not be made either with the Protected Area staff at Pilibhit or the owner at Nizamghat. Hence, it was not possible to establish any trial plots in India but we will continue to look for alternative areas for trial plots in 2014.

In Nepal, discussions were more productive and Jyotendra, the Project Co-ordinator was able to develop agreements in two key areas. At Pithauli, inside the Chitwan National Park Buffer Zone an area of grassland was identified that could benefit from management and the local community agreed reserve an area to manage in accordance with agreed practices. This area has held 2 male floricans every year for the last 4 years.

In the east of Nepal at Koshi Tappu Wildlife Sanctuary, an agreement was struck with the PA staff to vary grassland management on a series of islands inside the Sanctuary. This area did not hold birds last year but is reasonably close to the island where the two male birds were tagged in April 2013.

Activity 2.3 - Undertake habitat trials on at least three sites

At Pithauli, the first stage of the agreement was for the community to clear an area of invasive scrub and small trees to further open up the grassland area to benefit the floricans. This was completed successfully over the winter months when work is often in short supply so payment to local labourers was welcome. The second stage was to divide the area into 3 with the inner area as a control plot with no cutting or burning and the outer two plots to be cut to knee height (approximately 40cm) in January or February and then burnt in March in time for the birds usual arrival in April. This stage was progressing well until sometime in March the control plot was accidentally burnt, possibly by a discarded cigarette by someone walking along the footpath running through the middle of the plot. The Project Leader visited the site shortly after this unfortunate incident and the whole area looked very similar with no discernible difference in sward height or structure. This means we will not be able to get any useful data from observing the birds in relation to the plots this year but we will endeavour to repeat the exercise next year and ensure the control plot is as far away from public access as possible and firebreaks are established around each plot. This will reduce the potential for accidental burning.

At the Koshi Tappu site the Protected Area staff were very enthusiastic about trialling different techniques. In discussion with Jyotendra, they agreed to establish 6 different trial plots across 3 island areas thereby reducing the possibility of disturbance. Plots 1, 2 & 3 are adjacent to each other on one island, plot 4 is on a separate island and plots 5 & 6 are adjacent to each other on a third island. The management variations of the plots are shown in the table below:

Plot No	Plot size	Location	Cutting height/Month	Burning Month	Florican records
1	100m^2	Island 1	Knee high/February	March	
2	100m^2	Island 1	Uncut	Unburnt	
3	100m^2	Island 1	Knee high/February	March	
4	200m^2	Island 2	Knee high/February	March	1 female (2013), male and female (2014)
5	100m^2	Island 3	Ground level/February	March	
6	100m^2	Island 3	Ground level/February	Unburnt	Male between plots 5 & 6 (2014)

Table 1 – Management variations of trial plots at Koshi Tappu, Nepal

The total area of managed plots is 9ha which gives a good spread of management variations. Next year we will ensure the grassland in Pithauli inside the Chitwan NP Buffer Zone is better established and controlled and we will endeavour to create at least one trial plot in India

Activity 2.4 - Measure changes in habitat condition at trial sites

This activity will take place during 2014/15

Activity 2.5 - Monitor Bengal florican usage of trial sites

From the 2013 survey the largest plot (No.4) had one female in May 2013. Since the establishment of the plot, both a male and female have been recorded in February 2014. Further monitoring will continue during the 2014 survey season.

Activity 2.6 - Produce report on habitat usage of Bengal florican and disseminate to key stakeholders

This activity will take place during 2015

3.2 Progress towards project outputs

Output 1. Knowledge of threats and distribution of Bengal florican in India and Nepal enhanced.

After one season of research and survey work good progress is being made towards this output. The 2013 survey results of both birds and habitat were sufficient to develop an initial distribution map using the GIS MaxEnt model. This will be further refined with the addition of the 2014 survey data later this year to facilitate the development of maps indicating the existing and potential grassland habitats for Bengal Florican across the sub-continent (Indicator 1c). The survey data and maps will further enable an estimate of population size and identification of the key sub-populations and sites (Indicator 1a).

The habitat requirements during both breeding and non-breeding seasons (Indicator 1b) will be determined from both the breeding season survey data and the tracking data from the satellite tagged birds. While the birds are relatively easily located and data gathered during the breeding season, the non-breeding season locations are largely reliant on the satellite tag data which to date has been generated by only two tags.

The main assumption was that “research methods produce significant results”. While the survey data has been progressing satisfactorily, the fact that only two birds were tagged in the first year means the quantity of data is significantly less than was anticipated. While we remain confident we will have generated some essential and unique datasets greatly furthering our knowledge of the birds’ distribution it remains to be seen to what extent the limited tracking data will have on the attainment of this overall output.

Output 2. Management techniques to produce suitable Bengal florican habitat in and around Protected Areas developed and trialled

By the start of the second season of survey work (March 2014) we managed to establish two of the three restoration management trial areas (Indicator 2a). This is sound progress and we are confident we will establish one more trial area by the start of the third survey season. One trial grassland area was created at Pithauli, by local farmers (Indicator 2b) with the initial task of improving the area through the removal of scrub and tree encroachment being successfully completed. However, the different management techniques initially started have been compromised this year due to an unforeseen fire, but we will work with the community to help rectified this for next year.

The second trial area, inside the Koshi Tappu Wildlife Sanctuary, is a series of 6 plots with differing management practices within a Protected Area. We are optimistic this multi-variable area of management techniques will yield useful data towards this output.

The monitoring of these trial areas is ongoing and the initial results will only be known in June/July 2014.

The assumption that managing for Bengal floricans is compatible with other species still holds true.

Output 3. Local communities, Senior Protected Area decision makers, relevant conservation organisations and local Bengal florican Conservation Groups are aware of management techniques for Bengal florican

Communication and liaison with communities and Government Officials has generally been good, generating a positive rapport.

In Nepal, we have successfully established a local support group (Indicator 3a) by utilising the existing Namuna Community Forest, which operates inside the Chitwan Buffer Zone. A sub-committee has been established to facilitate our work at Pithauli grasslands and BCN employ a local person to co-ordinate the sub-committees work to manage the trial plots.

At Koshi, BCN employ local residents to liaise with the Sanctuary staff. For any activity within the Sanctuary the staff are consulted and participate in managing the trial plots. We are looking to establish a local support group after the monsoon in time for next seasons work.

At all four PA sites where bird-monitoring surveys have been undertaken (Suklaphanta, Bardia, Chitwan and Koshi Tappu) park staff have been involved. This year, we will be surveying two new unprotected areas suggested by the MaxEnt model and local teams have been established to undertake the survey work.

At a central level, liaison with more senior Government Officials has been very good, particularly with the Senior Research Ecologist Dr Maheshwar Dhakal. BCN have very good relations with senior Government officials and the Project Leader has made a point of meeting with senior staff during each visit to Kathmandu to brief them on progress and discuss future plans. This has helped cement relationships and facilitated the permission to attempt to catch and tag birds at Chitwan NP in April 2014.

In India, the picture is mixed particularly in the state of Uttar Pradesh. Local politics play a heavy hand particularly among NGOs. An added complication is that some NGOs are out of favour with some local Government PA staff and as the project has progressed it has become increasingly apparent that working with some NGOs will de facto alienate us from other NGOs and potentially local Government staff. As a result, BNHS have not channelled resources directly through any NGO but have deployed their own staff and taken on local people as and when required. This even-handed approach has helped avoid any unpleasant situations but at the same time enabled local people to engage with the project.

In NE India, although politics also play a part, progressing the project utilising existing networks, NGOs and PA staff has been easier. One of the largest NGOs, Aaranyak, has been working in key areas for Bengal florican for some years. We have engaged them to undertake survey monitoring work in Manas NP and to assist with satellite tagging where necessary.

Another local conservation group, Laokhowa Burachapori Wildlife Conservation Society are very keen to help and will undertake monitoring in 2014 at their local site, Laokhowa Burachapori Wildlife Sanctuary, where there have been historical florican records. This may lead to management techniques being trialled there next year.

We have received very good cooperation from the PA staff at the most important site in NE India, Kaziranga NP. This famous site still holds sizable numbers birds and we are hopeful we can work with Park officials next year on grassland management favourable for floricans.

The assumptions that traditional grazing regimes benefit Bengal florican habitat, advocacy and awareness raising encourages positive land management and key stakeholders participate are still relevant.

3.3 Progress towards the project Purpose/Outcome

Purpose - Develop, demonstrate and advocate conservation measures for Bengal florican in India and Nepal.

Progress has been satisfactory especially in Nepal where we have good engagement with Government staff at both site and central level. Trial plots are underway inside the Koshi Tappu Wildlife Sanctuary and the Chitwan National Park Buffer Zone. We are confident these trials will continue and deliver valuable results in helping develop appropriate management practices that will be incorporated into management plans not only for those PAs but at Suklaphanta and Bardia as well (Measureable Indicator).

In India, progress has been more difficult and no trial plots have been established to date. Engagement with Government staff has been complicated by local politics and bureaucracy. However, there are good signs that we can establish trial plots at Kaziranga NP for 2015 survey season and we can refine what we have learnt from the trials in Nepal. We would like to establish trials on a private or community owned grasslands but with so few of these areas left in India that has proved difficult.

The assumption that State and National governments remain supportive of grassland conservation management is still valid.

3.4 Goal/ Impact: achievement of positive impact on biodiversity and poverty alleviation

The project sub-goal is to significantly reduce the extinction threat to Bengal florican and will be measured by a reduction in threat category five years after the end of the project. The first 18 months of the project has established an essential research foundation to be able to monitor future changes in population and distribution. The project is undertaking the first systematic survey across the species range in India and Nepal which will help in assessing its status. The key factors in securing the long-term

future of the species are having enough good quality grassland areas available being managed for their requirements.

The satellite tagging is helping develop a better understanding of their movements and habitat use outside of the breeding season while the breeding season survey work and trial plots will further refine the management techniques best suited to their requirements.

An exciting element from the initial survey season has been the discovery of new grassland areas with the potential to support Bengal floricans if managed appropriately. The results from this year's survey will help refine the model but already three new areas (two in Nepal and one in India) have been ground truthed and have the potential to support floricans. It remains to be seen if these areas will attract any birds given their precarious conservation status and the initial indication of their apparent reluctance to venture far from traditional breeding grounds.

4. Project support to the Conventions (CBD, CMS and/or CITES)

The research results give the Governments of India and Nepal improved knowledge of the population and distribution of Bengal floricans. In addition, their habitat requirements will be better understood which will enable them to develop practical actions to help conserve this highly threatened species.

In summary:

- the research information to date is inputting to Article 12a, b & c and Article 7b, c & d and Aichi Target 19
- the trial management plots are contributing to Article 8c, d & e and Article 10b & c and Aichi targets 5 & 7
- the discovery of potential new grassland areas is in line with Article 12a and Aichi Target 5

As well as working closely with high-level Government officials who are engaged with their countries CDB process there has been some dialogue with the CBD Focal Point in Nepal. Mr Braj Kishor Yadav attended a presentation on the project at the end of December 2013 and discussed the results with Jyotendra, the country Project Co-ordinator. In addition, BCN were asked to provide information about the project for the country report to CBD which is in the process of being submitted.

In India, BNHS contributed to the CBD report which states:

"The Bustards (including floricans) are an extremely endangered group of birds that are dependent on grassland ecosystems. There are four species of bustards in India: Great Indian Bustard (GIB), the Lesser florican, the Bengal florican and the Houbara bustard. The population of the GIB has been declining and the bustards have disappeared from about 90% of their range. The present population of the GIB (according to the 2011 census) is made up of 209 individuals in six States in India (Figure 1.21e). Currently, the Bengal florican is found only in Uttar Pradesh (70-80), Assam (180-220) and Arunachal Pradesh (40-50). Looking at the current trend in the bustard population, the MoEF, has formulated the Resident Bustards Recovery Programme-2013. The document advocates a holistic conservation approach that integrates research and monitoring; protection and management; local livelihood concerns; conservation awareness; and the possibility of a conservation breeding programme."

5. Project support to poverty alleviation

Although this project was not designed to specifically contribute towards poverty alleviation, we are looking to develop mechanisms to allow sustainable use of Terai grassland habitat. We are starting to identifying and develop management techniques that benefit Bengal florican with a view to advocating practices that will also benefit local pastoralists. With increasing pressure on all grasslands in India and the lack of any national grassland policy, there will be benefits to communities of sustainable grassland use that will be relevant to communities living in grassland areas across India and Nepal.

To date the only direct contribution towards human development and welfare is the employment of local people for survey and monitoring work, excluding full time project staff. In Nepal, 27 local people have been employed across the 6 grassland sites during the survey season (April/May 2013 and March 2014) and this represents a total of 296 working days. In India, they have employed fewer people (10) but for longer periods (630 working days).

6. Monitoring, evaluation and lessons

The Project Leader made four separate visits to India and three to Nepal throughout the year to liaise with the Project Co-ordinators and field staff for monitoring and evaluation purposes. Workplans and activities were agreed and any issues arising discussed. This is in addition to regular email/Skype/phone contact with project personnel.

The trial management plots are a key element to enable the effective demonstration of appropriate conservation measures to land managers. Ultimately, we are working towards practices being incorporated into management plans and National Species Action Plans developed and adopted. To date, two areas in Nepal are under trial management, RSPB project team members have visited both, and their management discussed with the key personnel involved. An additional plot is required and will be developed after the monsoon period and in time for the next survey season.

To evaluate the potential of the new grassland areas identified through the MaxEnt model, the RSPB Project Leader and Research Supervisor (Dr Paul Donald) helped ground truth some of the areas in Nepal and India with the project staff. All other areas were visited by the local Project Co-ordinators and reports submitted. (Mohit's report). All these new areas and the trial plots will be carefully monitored during the survey period for utilisation by the species.

The lessons learnt from last season's satellite tagging work were discussed with the team members and recommendations made for the second season of tagging from April-May 2014. The main changes being to attempt to catch birds slightly later when more birds have arrived and adjustment to the mesh size of the mistnets used.

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

Q1 It is not completely clear whether the team arrived to tag birds before the habitat was suitable, so it would be useful in future reports to comment in a little more detail on the structure and height of grass swards related to the presence of birds, or the stage of their breeding cycle.

It was not entirely clear during the first attempt to catch birds ((March/April 2013) as to why there were relatively few birds present. The experienced team though the grasslands were good for Bengal floricans (both sward height and structure) and of the few birds they did see the males appeared to be in full breeding plumage. Consequently, they thought there should have been more birds present given the high count of almost 50 birds in late April 2012 (Baral *et al* 2013). With fewer birds available catching was more difficult than anticipated. Another possibility is that the birds would naturally favour the less disturbed areas many of which would be island grasslands that are relatively difficult to access.

With the lack of experience in catching and tagging this type of bird among Nepal's bird researchers, foreign specialists have to be part of the catching team. The logistics of this necessitates setting fixed dates for the fieldwork and so we have planned the second year of catching to take place slightly later, towards the end of April 2014.

Q2 Have the BTO commented on the mesh size of the mist nets? And I wondered, given the reference in several places to birds getting tangled by their necks, and this not being "good for the health of the birds", whether any birds had been injured during the mist netting

The BTO have not been consulted about the mesh size as it was considered more appropriate to take the opinion of those who have direct experience of catching floricans and similar sized birds in the field. Both Charlotte Packman and Markus Handschuh are very experienced in catching and tagging Bengal floricans and it was their suggestion to increase the net size. Unfortunately, neither was available for the 2nd year of catching and so we will be employing the services of Jacky Judas. He also agreed with using a bigger net size based on his experience with catching and tagging Arabian bustards in Eritrea and Yemen.

We can categorically state that "no birds have been harmed in the making of this project." Although some birds were caught by the neck in the first year, all either freed themselves unharmed or were caught and tagged and released again unharmed.

Q3 Indian bureaucracy is a concern expressed under Activities 1.3/1.4, and is again referred to in Sections 8 and 9. It would be useful to clarify when these problems have been overcome

Answered in last half-yearly report.

8. Other comments on progress not covered elsewhere

The refinement to the catching methods and the new technique to catch birds in India are discussed in Section 6 and 3.1 (Activity 1.4).

With only two satellite tags successfully deployed during the first season there has been limited download data available on which to assess the birds movements and indeed an underspend in the budget. We anticipate being able to attach more tags during the second breeding season

The decision was taken by the country partners that a separate Advocacy Officer was not needed this year as there was limited work to do until there ware more survey and trail management plot results. However, we will review the situation at the beginning of the next year and decide on the best time to employ people to liaise with key stakeholders including grassland managers and Government officials.

The issue of bureaucracy and local politics in India is never far from the surface and at times has hindered progress. However, BNHS have found ways to circumvent any problems, for example employing their own staff in Uttar Pradesh and an established NGO in Assam to avoid any local sensitivity.

9. Sustainability

Given the longevity of the programme and number of organisations who have received funding in the past, there is a growing understanding of the Darwin Initiative in both countries. This project has helped raise the profile in Nepal but less so in India for reasons discussed under the next section.

The project sustainability is to some extent dependant on key stakeholders undertaking grassland management practices that will benefit Bengal Floricans beyond the life of the project. To this end, we have made useful progress in Nepal engaging with communities and Government Officials at both central and local level. In two locations they have shown willing to participate in the trial management plots and in other areas they are assisting with the survey and monitoring work.

In India, while making some progress with participation in survey and monitoring work we have not yet established any trial management plots and this will be a focus for the coming year. On the other hand, BNHS have finally received funding for Bengal florican work under their Ministry of Environment and Forest (MoEF) project which was submitted almost 3 years ago. This should help secure further funding as the Government has recognised the precarious position all three bustard species (Great Indian Bustard, Lesser Florican and Bengal Florican) are in and have flagged this up in the report to the CBD.

We will also start looking this year for future funding and have already had dialogue with ZSL about their recently launched EDGE Fellowship programme for local conservationists. Bengal Florican comes in at No.6 and they have encouraged us to apply this time next year to continue work after this Darwin project has finished.

Training of in-country staff also contributes to the overall sustainability of the project and to that end we have trained two local staff in Nepal to deploy satellite transmitters and also GIS training.

10. Darwin Identity

Publicity this year has not been as high as last year for two reasons. In Nepal, there was some initial publicity around the successful tagging of the first Bengal floricans in the Indian Sub-continent which was reported in last years annual report (Annex 4). However, once the birds were satellite tagged the government research personnel were anxious that there might be some repercussions if the tags failed or worse still if the birds were to die. Consequently, they urged BCN not to seek further publicity until they were satisfied things were safe to report. With the second season of tagging starting, the Project Leader will be visiting Nepal in late May and he will discuss situation and anticipates we will be able to get the temporary embargo lifted. In all dealings with government and communities, full recognition of the Darwin Initiative support is given for example during PowerPoint feedback on the status of the project.

BCN also highlighted the project in their Annual Report 2012-13 which is downloadable at http://www.birdlifenepal.org/publication.php

In India, for diplomatic reasons particularly to facilitate permissions to survey and catch birds, this project is seen as part of a Ministry of Environment and Forests programme. BNHS have a separate MoEF project which is part of their co-funding for the Darwin project and have purchased additional satellite tags to deploy. As a result, there has been limited media coverage and little direct recognition of the Darwin support. There was some coverage during the Project Leaders visit to Bihar in November 2013 to look at one of the grassland sites highlighted as having potential to support Bengal floricans. Local press ran stories in the local language about the trip to not only see the Bengal Florican site but also to see

other species including the Endangered Greater Adjutant. The Times of India did print the story in English: http://timesofindia.indiatimes.com/home/environment/flora-fauna/Migratory-birds-flock-Gangetic-wetlands-in-Bihar/articleshow/25964233.cms

The UK project staff have highlighted and emphasised the importance of Darwin support in their dealings with in-country stakeholders and have included the Darwin logo in all presentations particularly to Government officials.

The Project Leader produced two blogs on the RSPB Communities website. The first about the exciting story of catching and tagging the first Bengal floricans in the Indian Sub-continent http://www.rspb.org.uk/community/ourwork/b/biodiversity/archive/2013/05/01/bengal-florican-tag-teamed-and-a-first-for-the-indian-subcontinent.aspx

The second was about a trip to the Pithauli grasslands in Chitwan to look at the trial management plots and an encounter with a group of rhinos.
http://www.rspb.org.uk/community/ourwork/b/biodiversity/archive/2014/03/31/rhinos-ahead-and-other-obstacles-an-interesting-field-day-in-nepal.aspx

11. Project Expenditure

Table 1 project expenditure during the reporting period (1 April 2013 – 31 March 2014)

Project spend since last annual report	2013/14 Grant (£)	2013/14 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Others (see below)				
TOTAL				

Highlight any agreed changes to the budget and explain any variation in expenditure where this is +/- 10% of the budget. Have these changes been discussed with and approved by Darwin?

12. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes

I agree for the Darwin Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here)

The most notable achievement this year has been the modelling of survey data to produce a hotspot map of possible new grassland areas with the potential to support Bengal floricans. Subsequent visits to verify these areas have revealed three areas as suitable and we will be monitoring these next year.

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2013-2014

Project summary	Measurable Indicators	Progress and Achievements April 2013 - March 2014	Actions required/planned for next period
Goal/Impact Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources		The survey work and deploying satellite tags has helped raise awareness of the plight of the species among PA staff and communities. The discovery of three new grassland areas may lead to new populations being found contributing towards an improved status.	[redacted]
Purpose/Outcome Develop, demonstrate and advocate conservation measures for Bengal florican in India and Nepal.	Needs of Bengal florican incorporated into management of four protected areas in India and Nepal	Overall progress has been satisfactory. The focus over the year has been on survey work and satellite tracking to help identify potential new grassland areas. We have established two trial management areas in Nepal which have fostered good relations with communities and Government officials in those areas.	Catch and tag more birds in both Nepal and India and monitor their movements. Monitor trial plots and work to establish more plots for next season.
Output 1. Knowledge of threats and distribution of Bengal florican in India and Nepal enhanced.	1a. Population size in sub-continent estimated and key sub-populations identified by Sept 2014. 1b. Habitat requirements of Bengal florican (both breeding and non breeding) identified by Mar 2015. 1c. Maps of remaining and potential Bengal florican habitat in India and Nepal published by Sept 2015.	Progress has been good. First year survey results enabled a hotspot map of potential grasslands using MaxEnt to be developed. Sites were ground truthed and 3 new sites identified to survey next season. Two birds have been satellite tagged and 12 months tracking data indicated birds have not ventured far from capture site. Indicators appropriate	
Activity 1.1 Recruit field staff in India and Nepal and identify capacity		Assessment of advocacy needs will happen once trial management plots and tracking of birds yields data next year.	
Activity 1.2 Collate and digitise all existing information on distribution on Bengal florican into a GIS. Download and analyse remote sensing environmental layers in the GIS. Develop list of sites to survey.		Completed	
Activity 1.3. Undertake Bengal florican population survey in at least 3 areas in India and at least 4 areas in Nepal, using standardised and repeatable survey		Census technique difficult to complete in areas where encounter with large mammals is likely. However, traditional methods of observing from fixed location	

methods.		is adequate First surveys season completed and second season underway.
Activity 1.4 Undertake satellite tracking studies. Quantify habitat condition in places used by Bengal florican and unused control sites, catch birds and attach radio satellite tags		Two birds tagged in Nepal in April 2013 and further catching and tagging will take place in both Nepal and India in April/May 2014. Habitat details of areas used by birds has been collected and will continue next year when we should have more birds to monitor.
Activity 1.5 Download satellite data and measure distribution, population, movements and habitat requirements Bengal florican. Produce map of areas of existing and potential Bengal florican habitat.		Two birds tracked during the last year and did not move far from location they were caught (max 10km). Both birds return to the island they were caught in time for this years breeding season. Map of potential grasslands was produced and ground truthing revealed 3 new areas worth surveying next year.
Activity 1.6 Research findings published in relevant reports/journals disseminated to key stakeholders.		To be done towards end of project summarising research data and results
Output 2. Management techniques to produce suitable Bengal florican habitat in and around Protected Areas developed and trialled	2a. Three restoration management trials developed and are being utilised by Bengal floricans by Sept 2015 2b. Local farmers and pastoralists from two communities involved in habitat management trials by Sept 2015.	Progress has been satisfactory with two out of three plots established. Indicators appropriate
Activity 2.1 - Engage key stakeholders to identify methods to recreate habitat conditions identified for Bengal florican under objective 1		Discussions with PA staff and local communities are ongoing as we continue to monitor trial plots.
Activity 2.2 - Identify at least three suitable sites for habitat restoration trials and negotiate participation in trials		Trial management plots identified at four sites, two each in India and Nepal.
Activity 2.3 - Undertake habitat trials on at least three sites		Trial management plots started at two sites in Nepal at Koshi Tappu and Chitwan. The 6 trial plots at Koshi are extensive although the plots at Chitwan suffered fire damage after clearance of encroaching scrubs and trees. Further discussions to start plots in India will continue next year.
Activity 2.4 - Measure changes in habitat condition at trial sites		Changes to be measured next year
Activity 2.5 - Monitor Bengal florican usage of trial sites		Started and will continue next year
Activity 2.6 - Produce report on habitat usage of Bengal florican and disseminate to key stakeholders		To start this year
Output 3. Local communities, Senior Protected Area decision makers, relevant conservation organisations and local Bengal florican Conservation Groups are aware of management techniques for Bengal florican.	3a. Three local Bengal florican support groups established by Sept 2014. 3b. Three visits to demonstration trials made by Key decision makers from National Park management authorities by Sept 2015. 3c. Grassland management strategy developed and adopted by four protected areas by EOP.	Progress towards this output has started with two community identified and relations with key stakeholders established Indicators still appropriate

	3d. Key decision makers endorse species recovery plans	
3.1 Meet communities to advocate management techniques identified under objectives 1 and 2.		Engagement with two communities (one each in Nepal and India) has been initiated and is progressing
3.2 Train individuals from local communities to take part in habitat trial monitoring.		Individuals from Namuna Community Forest, Chitwan are participating in monitoring trial plots. Other communities will be approached next year.
3.3 Identify and establish three local conservation groups to monitor Bengal florican populations.		Two groups have been established (one each in India and Nepal) and are assisting with survey and monitoring work. Another group will be identified and engaged next year.

Annex 2 Project's full current logframe

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal: Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.			
Sub-Goal: Extinction threat to Bengal florican is significantly reduced.	Five years after end of project (EOP) Bengal florican is downgraded from Critically Endangered to a lower category of threat.	- IUCN publications. - Peer reviewed publications.	
Purpose Develop, demonstrate and advocate conservation measures for Bengal florican in India and Nepal.	Needs of Bengal florican incorporated into management of four protected areas in India and Nepal.	- National park management plans - Community grassland management plans	State and National governments remain supportive of Grassland conservation management.
Outputs (add or delete rows as necessary) 1. Knowledge of threats and distribution of Bengal florican in India and Nepal enhanced.	1a. Population size in sub-continent estimated and key sub-populations identified by Sept 2014. 1b. Habitat requirements of Bengal florican (both breeding and non breeding) identified by Mar 2015. 1c. Maps of remaining and potential Bengal florican habitat in India and Nepal published by Sept 2015.	- Population monitoring reports - IUCN bustard group reports - Peer reviewed publications	Research methods produce significant results.
2. Management techniques to produce suitable Bengal florican habitat in and around Protected Areas developed and trialled.	2a. Three restoration management trials developed and are being utilised by Bengal floricans by Sept 2015 2b. Local farmers and pastoralists from two communities involved in habitat management trials by Sept 2015.	- Habitat management trial reports. - Records of Bengal Floricans on restoration trial areas - Media reports	Management techniques for Bengal florican and spatial extent to which they should be applied are compatible with requirements of other key species.

3. Local communities, Senior Protected Area decision makers, relevant conservation organisations and local Bengal florican Conservation Groups are aware of management techniques for Bengal florican.	3a. Three local Bengal florican support groups established by Sept 2014. 3b. Three visits to demonstration trials made by Key decision makers from National Park management authorities by Sept 2015. 3c. Grassland management strategy developed and adopted by four protected areas by EOP. 3d. Key decision makers endorse species recovery plans	- Project progress reports - Grassland habitat management guidelines - Endorsed species recovery plans	Traditional grazing regimes are shown to benefit Bengal florican habitat. Advocacy and awareness raising is successful in encouraging positive land management for Bengal florican. Participation of key stakeholders is secured.
4. Capacity for Bengal florican Conservation Programme in India and Nepal built, sustainability and legacy of project outputs secured.	4a. National Scientists and Park Authority staff are monitoring Bengal florican using consistent replicable protocols by Sept 2014 and seeking funding from government for Bengal florican conservation programmes by Sept 2015 4b. Three local conservation groups monitoring and protecting floricans, by Sept 2014 and seeking funding to continue work beyond the end of the project by Sept 2015. 4c. Nepalese National Species Recovery Plan for Bengal florican published and launched by Sept 2014. 4d. Indian National Species Recovery Plan for Bengal florican reviewed and amended by Sept 2014. 4e. Indian and Nepalese authorities are implementing action points from National Species Recovery plans within 1yr of EOP.	- Park Authority florican monitoring reports - Park Authority funding applications - Local conservation group reports - Funding applications to support Local conservation groups - Bengal florican National Species Recovery Plans - Media reports of Recovery Plan launch.	Project partnerships remain strong throughout the duration of the project.

Annex 3 Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	Total to date	Number planned for reporting period	Total planned during the project
Established codes								
4A	Catching and tagging birds in Nepal	2	1			3	1	3
4B	Number of training weeks to be provided	1	2			3	2	10
4C	Catching and tagging birds in Nepal and GIS training	2	2			2	2	2
4D	Number of training weeks to be provided	3	2			5	2	10
6A	Survey Census Techniques training workshops in India and Nepal	30[1]	0			30	0	10
6B	Number of training weeks to be provided	1[1]	0			1	0	4
8	Three trips made to project areas in India and Nepal	9	3			12	3	8
12A	Database established of historical records and new survey data from year 1 of project	0	1			1	1	1
15A	Number of national press releases in host country(ies)	4	0			4	2	4
15B	Number of local press releases in host country(ies)	2	2			4	2	6
18C	Number of local TV programmes/features in host country(ies)	1	0			1	1	2
22	Trial management field plots established at Pithauli and Koshi Tappu	0	2			2	3	3
23	UK salaries and overheads							
	Travel and subsistence							
	Operating Costs							
	Equipment – radio tags, Esri ArcGIS software, vehicle							
	Total	**£41,631**	**£20,742**			**£62,373**	**£37,162**	**£108,975**
New - Project specific measures								

[1] – 3-days in Nepal and 2-days in India

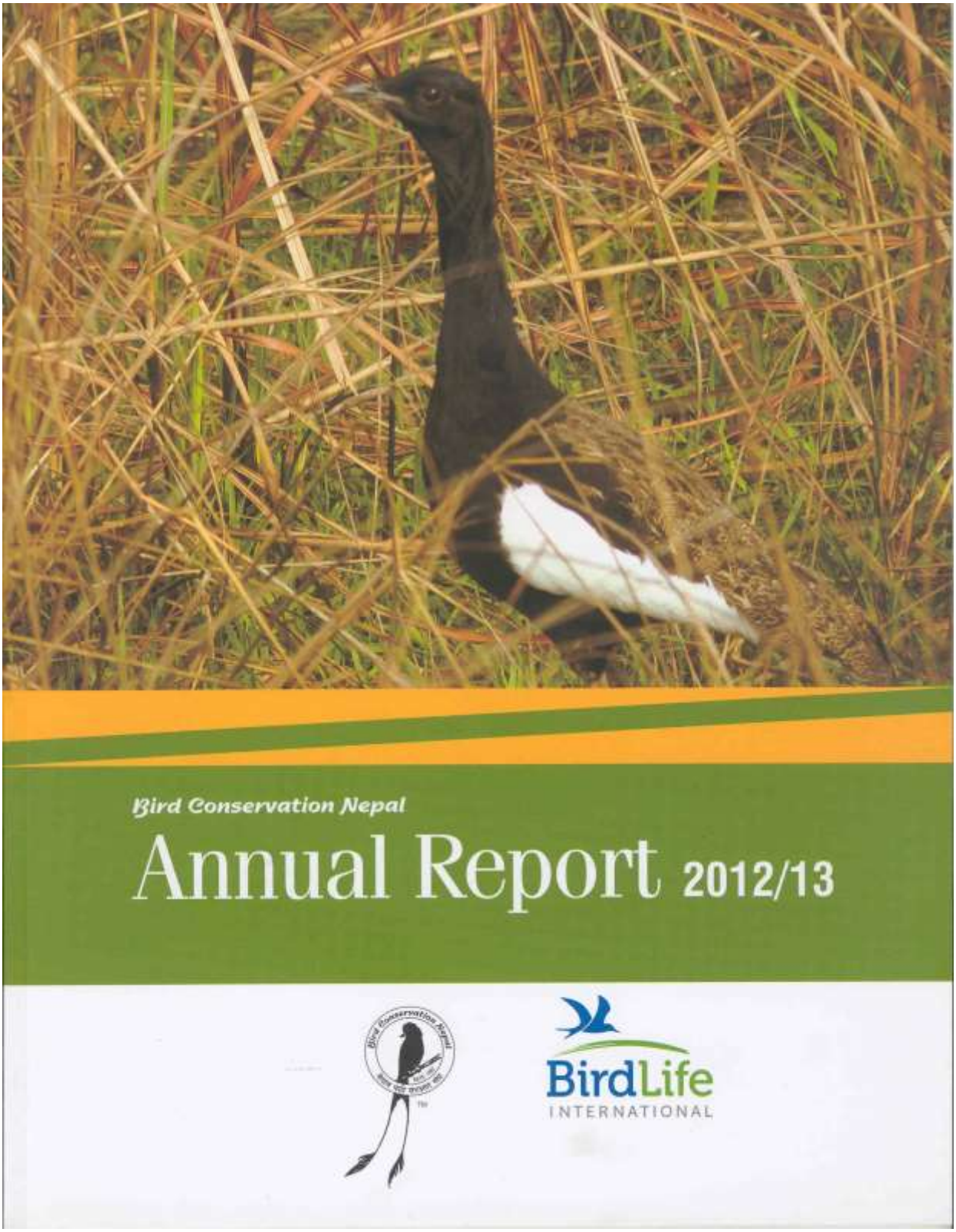
Table 2 Publications

Type (eg journals, manual, CDs)	**Detail** (title, author, year)	**Publishers** (name, city)	**Available from** (eg contact address, website)	**Cost £**

Annex 4 Onwards – supplementary material (optional but encouraged as evidence of project achievement)

Potential new grassland area at Kankai eastern Nepal

Footprint of possible Bengal Florican recorded at Kankai



Bird Conservation Nepal Annual Report 2012/13 – downloadable at http://www.birdlifenepal.org/publication.php

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.	x
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.	x
Have you involved your partners in preparation of the report and named the main contributors	√
Have you completed the Project Expenditure table fully?	x
Do not include claim forms or other communications with this report.	