

Darwin Initiative for the Survival of Species

Half Year Report (due 31 October each year)

Project Ref. No.	14-030
Project Title	<i>Going for Gold – Cordyceps Conservation in Bhutan</i>
Country(ies)	Bhutan
UK Organisation	CAB International (CABI Bioscience)
Collaborator(s)	Council for Renewable Natural Resources of Bhutan (CORRB), Ministry of Agriculture, Bhutan
Report date	October 2006
Report No. (HYR 1/2/3/4)	HYR2
Project website	http://194.203.77.76/Cordyceps/

1. Outline progress over the last 6 months (April – September) against the agreed baseline timetable for the project (if your project has started less than 6 months ago, please report on the period since start up).

Good progress has been made in many areas. In April, a stakeholder workshop was held to bring together harvesters and buyers of *Cordyceps* with officials from the various Government departments with interests in the subject. This proved to be most successful, and consensus was reached that the permitted collection season should be brought forward two weeks from the month of June to mid May – mid June. This was a win-win situation for conservation and the collectors, as mature fungi collected later in the season are less valuable in the open market, and we believe that sufficient fruit bodies emerge late (beyond the end of the legal collection season) to ensure procreation of the species.

The Government acted commendably swiftly to this proposal, and the 2006 official collection season was duly changed to the earlier dates. The benefits of this were demonstrated to the collectors at the official auctions that took place in July, with significantly higher prices (up 30%) being achieved compared with the previous year. We believe that this was due partly to the fungi being collected in an immature condition, and also to the programme that was put in place last year to educate collectors as to the best way to preserve the fungi after collection. In 2005, many of the samples had not been dried correctly and had become mouldy and thus effectively worthless.

We believe that the best way to set the legal collection period is to relate it to weather conditions; emergence of the fungi is likely to be affected most significantly by the period when the soil thaws after the winter freeze. We have therefore put a data logger in place at our most intensively studied site, allowing us to correlate temperature and humidity with fruit-body emergence. We will also have access to data from similar loggers in other locations. It will take some years to build up a statistically significant data set, but the process has been set in place.

We have also put a formal monitoring programme in place at the Nam Na study site, to chart emergence and maturity of the fungi. A number of semi-permanent (i.e. multi-annual) transects have been mapped out and data stored on frequency, size and state of maturity at 3-4 week intervals. This has been an arduous process due to the inaccessibility of the site, and the final data for 2006 was gathered in late August. We intend to sample along the same transects in 2007 and 2008 to give an indication of the variation in seasonality of the fungus. We also took the opportunity to set up some exclusion plots to establish the extent to which the vegetation

(and also probably *Cordyceps* incidence) is affected by yak grazing.

Work with the host moth and its caterpillars has been less successful. Caterpillar collection is very labour-intensive (involving digging up substantial areas of vegetation with highly interlaced root systems, and their transfer to experimental conditions at lower altitude has not worked effectively. Currently, only one out of 25 caterpillars remains alive. There are various explanations for this, but damage during transport (several days on horseback) is likely to be important in addition to the environmental change. This year, we succeeded in capturing adult moths using a light trap, and specimens have been preserved in the CORRB collection at Yusipang. Initial studies suggest that the species involved is different from those described from China, but we need to export the specimens temporarily to allow examination with a good-quality microscope. So far this has not been possible; a CBD-compliant mechanism has been put in place to allow samples of Bhutanese species to be sent abroad for study, but this is administered by a separate Government department and it seems that they are highly reluctant to put the mechanism into practice. We have suggested a compromise whereby the samples are carried abroad by a CORRB official and returned directly to the country after examination, and we are waiting to see whether this will be allowed.

Potential host plants have been established at Yusipang and Lingshi for caterpillar feeding trials, but difficulties in obtaining experimental subjects means that this part of the project has not progressed as rapidly as we planned.

2. Give details of any notable problems or unexpected developments that the project has encountered over the last 6 months. Explain what impact these could have on the project and whether the changes will affect the budget and timetable of project activities.

The various difficulties on the entomological side of the project (described above) mean that development of *Cordyceps* farming is likely to be a longer-term programme than can be accommodated within the current project. As described in the original application, this side of the work was always considered as high-risk and it was therefore given a secondary focus compared with the work on sustainable harvest.

We are therefore considering a proposal to modify the objectives of the remaining part of the project to reduce emphasis on the entomological component, and to add further tasks in compensation. These are likely to include developing a system for community-based natural resource management for *Cordyceps*, and to produce a non-specialist illustrated book of the montane flora of Bhutan. A major focus of CORRB is medicinal plant research so this fits well with their remit, and preliminary discussions with RBG Edinburgh have shown promise. We would however like to have a further project meeting before presenting these proposals formally to the Darwin Initiative. We would expect the changes to have a neutral effect on the budget.

Have any of these issues been discussed with the Darwin Secretariat and if so, have changes been made to the original agreement?

Not as yet. I will be requesting virement between budget headings to allow for further travel expenditure for the "extraordinary" project meeting.

Discussed with the DI Secretariat: no, in..... (month/yr)

Changes to the project schedule/workplan: no, in.....(month/yr)

3. Are there any other issues you wish to raise relating to the project or to Darwin's

management, monitoring, or financial procedures?

No

If you were asked to provide a response to this year's annual report review with your next half year report, please attach your response to this document.

Please note: Any planned modifications to your project schedule/workplan or budget should not be discussed in this report but raised with the Darwin Secretariat directly.

Please send your **completed form by 31 October each year per email** to Stefanie Halfmann, Darwin Initiative M&E Programme, stefanie.halfmann@ed.ac.uk. The report should be between 1-2 pages maximum. **Please state your project reference number in the header of your email message.**