

Darwin Initiative for the Survival of Species

Half Year Report 3

Capacity Building for Temperate Rainforest Biodiversity Conservation in Chile



Project Ref. No. 15/006



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Project Title	Capacity Building for Temperate Rainforest Biodiversity Conservation in Chile
Country	Chile
UK Organisation	Macaulay Land Use Research Institute
Collaborators	Fauna Australis, WildCRU, CONAF
Report date	31 October 2008
Report No.	HYR 3
Project website	www.temperaterainforests.net

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).

Summary

Progress since April has been good. Our last report review highlights several areas in which we were falling behind schedule, and recognizes the ongoing problems we were having with a project partner. All these areas have been decisively addressed, and we are now up to schedule in conference presentations, dissemination, workshops, and the proposal for the biosphere reserve. Parques para Chile retired from the project in August 2008, having completed the Biosphere Reserve proposal. Through Fauna Australis, and with other new local university partners, we are involved at a local level as biodiversity experts in an integrated catchment management programme in Pucon, and at national level in a network of long-term environmental monitoring stations. Now, with Fauna Australis, the biodiversity centre and field station is in use by thesis students, and its wider role in sustainable development, education and outreach is being developed. The visitor centre is ready to reopen (under new management) in the summer season (starting December), and the business plan has now been prepared. The guide to fauna has evolved as a mobile exhibition of wildlife photography from the Darwin programme to support the workshop and dissemination programme.

Progress made against the baseline timetable for Year 3

2.10. Project management meeting

A project management meeting was held in July 2008 in San Jose de Maipo, Santiago. The meeting was attended by Cristian Bonacic, Nicolas Galvez and Tomas Ibarra of Fauna Australis, Jerry Laker of Macaulay Institute, and Andrew Taber of Wildlife Trust Alliance, an organisation with whom we have been developing our conservation science strategy. The meeting was used to develop our thinking about the longer term plans for our partnership. In particular the development of collaborations with new partners to achieve the Darwin project objectives, and to secure long term stability for the research and its influence in local decision-making in the study area. Fauna Australis is now participating in an integrated catchment management project in our study area - the Tolten (Villarrica) catchment. Additional meetings with Dr. R. Rozzi from Fundacion Omora and Dr. J. Armesto from Fundacion Senda Darwin have been positive towards the creation of a network of field stations for the temperate rainforests with our field station representing the Andean Temperate Rainforests node.

2.1d. Wildlife monitoring

The wildlife monitoring programme is now well established. All 27 camera sites have been visited every 25-30 days providing continuous data from these sites since December 2007. In addition, several high altitude (>1000m) snow track surveys were made during the winter to ascertain the presence or absence of large fauna in this season. However, unusually low snowfall this year (la Niña effect) reduced the number of possible survey days compared with last year.



A puma (*Puma concolor*) visits one of our camera traps.

We continue to visit reports of livestock predation by Pumas. Out of 10 reports investigated, 5 of these have had evidence that the responsible agent was a puma. Livestock officials have missed some opportunities to inform us of predation events, and we are in discussion with them about implementing a proper system of notification.

Bird sampling, led by Tomás Ibarra, has continued on a quarterly basis as planned from which we now have summer and autumn and winter data. Two publications have resulted from this work to date.

3.2. Two Chilean MSc research projects set up

Robert Petitpas is undertaking a study of land use change in the Villarrica/Tolten catchment as part of the Darwin research program. This work involves setting up a database of historical aerial orthophotos and satellite images from various surveys since 1945, and the standardisation of projections and formats.

Gonzalo Ossa has begun a study of the bats of Pucon, with particular reference to their interactions with humans (their role in control of agricultural pests, pollination and seed dispersal)



***Myotis chiloensis* – one of 5 species of bat found in Pucon in a preliminary study, August 2008.**

Three projects completed

Undergraduate student Isabel Rojas successfully completed her thesis on relationships between fragmentation and species composition, vegetation structure and an index of human impact. Her work was presented in a Forestry Conference in Chile this August.

Undergraduate Architecture student, Manuel Rios, successfully completed his thesis on designs for the Centre for Biodiversity.



Computer-generated impression of the accommodation block at the Centre for Biodiversity designed by Manuel Rios for his architecture thesis.

Vanessa Coldwell (MS(c)) Imperial college, successfully completed her MSc thesis on camera trapping techniques, sampling design and transects



Imperial College MSc student, Vanessa Coldwell out on fieldwork in Araucaria forest, August 2008

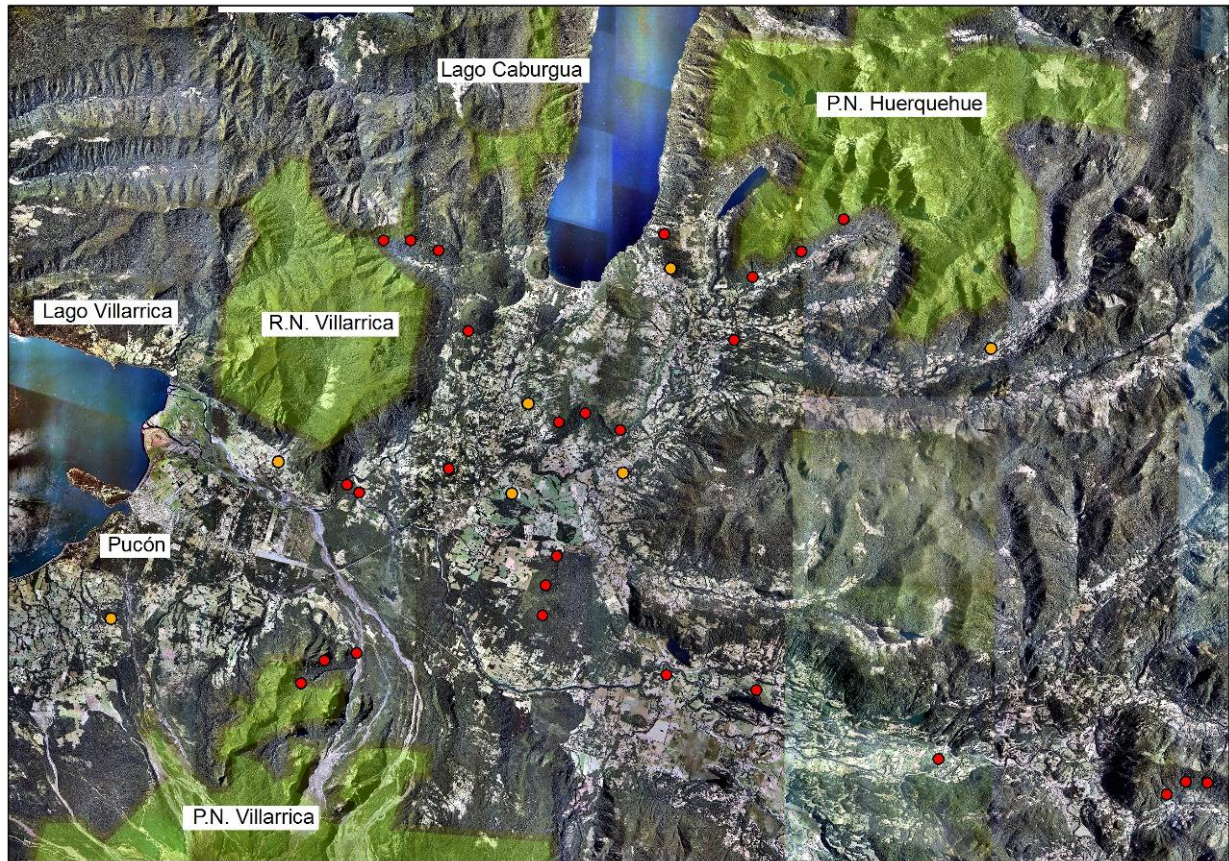
Two ongoing theses in preparation

Felipe Hernandez has been working as part of the team in Pucon on his thesis on kod-kod cats. "Evaluation of the presence, abundance and health status of the kod-kod (*Leopardus guigna*) in the Andean evergreen temperate rainforest of the Araucaria Region of Chile". This study has the specific objectives: Determine the relative abundance (or presence) of kod-kod in continuous forest and forest fragments; Evaluate and compare the physiological condition and incidence of parasites in kod-kod in continuous forest and forest fragments.

Andres Rubio has begun the literature review and several field visits for his thesis on Pudu. The study will use his own field data plus the information from the camera trapping programme. Part of this study will investigate possible interactions between pudu and introduced species (wild boar and feral dogs).

3.3. GIS compendium of species distributions and habitats

The GIS compendium is advancing well now, with new partners. This was a deliverable of Parques para Chile, and whose lack of delivery caused frustrations during 2007. We are now working in a new collaboration with the geography department of the Catholic University of Temuco within the framework of a new project for integrated catchment management. We have collected together many GIS coverages of the area, including historical land cover classifications, and aerial and satellite photos since 1978. A student is working on evaluating vegetational changes in the area, standardising the datasets. These same data will be made publicly accessible through the Catchment Management project. The Darwin sponsored research represents an important input to this project, which aims to inform a strategy for sustainable development in the catchment, and the collaboration will allow us to develop the spatial component of our wildlife monitoring research output. The species distribution coverages will be ready for the next report.



New project cartography showing study areas, generated from catchment management project partnership. Red points are positions of our camera traps. Orange points are rural schools.

3.4. Weekend courses for environmental educators

During the 28 and 29 of April we conducted a workshop on Conservation issues and Wildlife surveys techniques with CONAF park rangers of protected areas system surrounding our study area. Follow up reports from park rangers are being gathered for the next report.



CONAF rangers training course run by Fauna Australis in Huerquehue National Park

Fauna Australis also undertook a field course in rainforest ecology with MSc students. The course addressed local conservation issues affecting the temperate rainforest and demonstrated wildlife survey techniques in the field.



Nicolas Galvez gave a talk on local fauna and conservation issues to 25 local ecotourism guides

In the kodkod or Güiña cat project we organized a workshop with 10 teachers from 8 local schools in the study area. This was before conducting the activities with the children so that the teachers became familiar with the issues to be addressed, biology of the Güiña cat, and overall coordination for the duration of the project.

Our "Ambassadors of the Güiña" environmental education programme set up visits by schoolchildren and local ecotourism guides to Fauna Andina (Wildlife rescue center), and this was followed by school visits to 8 local schools to give information on kod kod conservation and forest ecology.



A food chain takes shape in Pichares rural school in our environmental education programme



Ambassadors of the kod kod at the wildlife rescue centre, Fauna andina.

A 2-day international seminar about Darwin frog was also co-organised by our research team. See poster attached. More than 200 hundred people attended in the central University headquarters in Santiago

Summary of progress against project outputs

1. A research and education facility for local biodiversity issues

Now that development of the Centre for Biodiversity is no longer in the hands of Parques para Chile, we are in a much better position to secure the sustainability of the Centre and the monitoring programme. One outcome of the changes is that we will have to drop the name, “Centre for Biodiversity”. However, the general objectives remain the same – we continue to develop a research and education facility for local biodiversity issues at the same site in Pichares. A business plan outlining an innovative strategy to manage the development of the site has been prepared and is annexed to this report. This plan has been developed by the owners, local company, Pensamiento Global Ltda., and a business consultancy firm, Caminados Ltda. Essentially, the idea is to create a “Rural Technology Park”, in which Fauna Australis will house its field station, working independently alongside other commercial activities, such as the restaurant, a hostel and manufacturer of beverages based on endemic plants.



The visitor centre restaurant in Pichares. Core element of the “Cani” Rural Technology Park.

The rural development element of the park is the site management agency that will have the role of organising events and activities that will realise the synergies between the different companies involved. It is envisaged to seek Chilean government (CORFO) support for projects on renewable energy and energy efficient construction, local development and conservation. Commercial activities foreseen include courses on environment and wildlife, permaculture and sustainable development.

The Fauna Australis field station has several new local partners, including the Catholic University in Villarrica, and the Dept Geography of the Catholic University of Temuco. The integrated catchment management programme that has been developed with these partners will help to ensure both the long term sustainability of the wildlife monitoring, and an effective context in which the results of the research can be incorporated in local decision making.

2. Knowledge on temporal-spatial use of habitats.

The wildlife monitoring work is now well established and producing interesting information on presence and activity patterns of all the native and introduced large mammals present in this ecosystem. This knowledge has been disseminated through a series of conference publications (see section "Dissemination" below). The work also formed the basis for an Imperial College MSc thesis this summer, and several Chilean thesis studies. The monitoring programme has been incorporated into the Integrated Catchment Management programme for the Villarrica/Tolten Catchment.

3. 3-6 Chilean MSc research projects advancing project research objectives

Two Chilean dissertations and UK theses have been completed, and four more are in progress, as described earlier.

4. Workshops with campesinos on sustainable forest management

Workshops were held with groups of campesinos in five parishes in the study area: Pichares, Coilaco, Carileufu, Palguin bajo and Relicura. Approximately 30 people attended each one. The purpose of the workshops was to evaluate the level of knowledge in the communities about carnivores and carnivore ecology, in particular the kod kod cat. Knowledge and images gained through our camera trapping work were presented to highlight the positive benefits of carnivores, in particular their role in the control of Hanta virus, which is vectored by rodents, and prevalent in the area.



Participants at our workshop on carnivores in Pichares, September 2008.

Two further workshops are planned for November 2008 to feed back knowledge gained from our work on private lands to the land owners involved. These talks will be supported by our mobile wildlife photography exhibition.

5. Participatory consultative process for UNESCO Biosphere Reserve.

The preparation of the expedient document for the extension of the UNESCO Araucarias Biosphere Reserve was undertaken by Parques para Chile, in collaboration with CONAF. The draft document has been approved by the regional government, and is expected to be presented to UNESCO in December. The document is annexed to this report.

Dissemination

We have put a considerable effort into local awareness via press and magazine articles and conference presentations.

In the last 6 months we have presented results of this work at the National Ornithological Congress – a symposium presentation on monitoring bird populations in the Araucanía. (Tomás Ibarra), and a poster presentation on Habitat use of two nocturnal birds of prey (Tomás Ibarra) – and at the National Forestry Sciences Congress: Fragmentation and human disturbance on the composition and structure of remnant vegetation in the pre-Andean cordillera of the Araucanía. (Isabel Rojas).

The Darwin project supported the first symposium on Darwin's frog, in Santiago in September 2008, attended by 200 participants. Results obtained from a survey in our study area by Fauna Australis as part of the Darwin programme were presented. (<http://www.bio.puc.cl/caseb/simposio/>). We are also organising and presenting results at the II International Seminar on Medicine and Conservation of Birds of Prey to be held by Fauna Australis on 17 Nov 2008 in Santiago.

Dr. Cristian Bonacic presented part of our research work in a seminar in York organised by CLS and in the Pan American Veterinary Conference in Mexico (October 2008). In addition, Dr Bonacic gave a talk on the ethics and practice of wildlife conservation to a group of church authorities at a special conference - the first environmental "Pastoral" in Villarrica. This presentation drew extensively from our experience of conservation science in the Villarrica catchment.



Dr Cristian Bonacic begins his talk to church authorities on conservation and ethics

Popular press articles have appeared in several magazines, local and national press, eg. the magazine Travesía (distribution in Patagonia). Several on-line local presses published an article on the Güiña project: www.laopinon.cl/; www.pucvillarrica.cl/; <http://www.puc.cl/visionuniversitaria/> <http://www.bligoo.com/tag/g%FCi%F1a>; The Güiña project was presented on 6 local radio stations (13 of June) (Montecarlo, Ritmica, Pianisima, Parque Nacional, Pucón Radio, Puelche)

Nicolas Galvez presented the results of our fauna monitoring in September to the Biodiversity Council of CONAMA in Temuco, as part of our dissemination programme.



Nico Galvez presenting our fauna monitoring work to the Biodiversity Council in Temuco

One talk and two posters on the Darwin research will be presented at the Annual meeting of the Chilean Ecological Society, Nov 26-29, 2008 in Pucon. Abstracts are annexed to this document.

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.

In August 2008, our local partner, Parques para Chile officially withdrew from the Darwin project and from the Centre for Biodiversity project in Pucon. This development was not unexpected, as their withdrawal was preceded by a long period of frustration at their failure to deliver the project deliverables for which they were responsible.

With the withdrawal of Parques para Chile, the participation of Rainforest Concern became irrelevant as they were working directly with Parques para Chile. Quest Overseas had already suspended their volunteer programme with Parques para Chile, and thus, independently, had already become inactive in the project. This loss of three of our project partners is envisaged to have a relatively minor impact on our meeting the project objectives. In response to the continuing lack of progress during the past year, we made contingency plans to meet our project commitments in other ways. In particular, these relate to the co-funded activity – the establishment of the Centre for Biodiversity, with its business plan, the development of GIS resources, and the guide to local fauna.

Together with Fauna Australis and regional partners we have developed alternative approaches to meet each of these objectives:

1: The physical infrastructure of the former Centre for Biodiversity is now overseen by MLURI and Fauna Australis, and is used as a base for our fieldwork. Fauna Australis is now in a collaborative project with other local actors for integrated catchment management in the Villarrica (RiverTolten) area. The project includes multidisciplinary catchment management planning, and local capacity building for conservation. We see this as an effective way to channel the Darwin supported research activities over the coming years into practical conservation action.

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.**

ANNEXES

1. Comments on specific questions raised by the 2008 annual report review
2. Notice of modifications to contracted work programme for project 15/006 in year 3
3. Internal management paper: "Darwin project financial report July 2006-March 2008"
4. Internal management paper "Interim activity report, March-July 2008"
5. Formal collaboration agreement between the government agencies, CONAF and SAG with Fauna Australis to work on puma conflict mitigation
6. Progress report to CONAF on collaborative work on puma conflict mitigation. "Mitigación del conflicto puma en la zona lacustre de la IX Región"
7. Report to CONAF on the studies that we are carrying out in the national system of protected areas in the IX región of Chile
8. Abstract of Chilean Ecological Society conference paper: VARIACIÓN ESTACIONAL DE ATAQUES A GANADO DOMÉSTICO COMPARADO CON PRESENCIA DE PUMA CONCOLOR EN UN FRAGMENTO DE BOSQUE NATIVO EN LA PRECORDILLERA DE LA ARAUCANÍA
9. Abstract of Chilean Ecological Society conference poster: OCUPACIÓN Y PATRONES DE ACTIVIDAD DE *LEOPARDUS GUIGNA* EN LA PRECORDILLERA DE LA ARAUCANÍA MEDIANTE CÁMARAS TRAMPA. (Occupancy and activity patterns of *Leopardus guigna* by camera traps of ,in pre-Andean areas of the Araucania).
10. Abstract of Chilean Ecological Society conference poster: OBSERVACIONES SOBRE LA PRESENCIA DE MAMÍFEROS EXÓTICOS EN BOSQUE NATIVO DE LA PRECORDILLERA DE LA ARAUCANIA. Observations on the presence of exotic mammals in native woodlands of the pre-cordillera of the IX Region.
11. Abstract of National Forestry Sciences Congress poster: "Relationship between fragmentation and human-generated degradation and floristic composition and structure of precordillera woodlands (39°S;72°W) of the Araucanía Region of Chile." (*Relación entre fragmentación y degradación antrópica y la composición florística y estructura del Bosque precordillerano (39°LS;72°LO) de la Región de la Araucanía, Chile*).
12. Abstract of National Ornithological Congress oral presentation: "Monitoring the temporal relationships between birds in primary forest and managed woodlands in the Araucanía Region" (*Monitoreo de relaciones temporales entre las aves y bosques primarios y antropizados de la araucanía*).
13. Abstract of National Ornithological Congress poster presentation: Relative abundance and habitat use by the Austral Pygmy owl (*Glaucidium nanum*) and the Rufous-legged owl (*Strix rufipes*) in primary and interfered forests of Araucanía. (*Abundancias relativas y uso de habitat por el chuncho (Glaucidium nanum) y el concón (Strix rufipes) en bosques primarios y antropizados de la Araucanía*)
14. Al rescate de la guina. Magazine article to raise awareness about Kod kod cat conservation needs.
15. Kod kod information leaflet and poster

16. Conceptual outline of the multimedia CD.
17. Business plan for field station at Pichares, Pucon
18. Photo exhibition title poster "The temperate rainforest of the South of Chile, a look at its fauna and landscapes" (*El Bosque templado del sur de Chile: una Mirada a su fauna y paisajes*)
19. The photos included in the exhibition can be seen in this link:
<http://picasaweb.google.com/jerry.laker/ExposicionSeleccionFinal?authkey=1BWOANv13LY>
20. Workshop programme CONAF-Fauna Australis: Techniques of sampling and monitoring wildlife. (*Técnicas de muestreo y monitoreo de fauna silvestre*)
21. MSc training course programme: Techniques for wildlife studies in temperate rainforest. (*Técnicas de estudio de Vida Silvestre en Bosque Templado Lluvioso*).
22. Conference announcement: Global Amphibian Decline Symposium: The case of Darwin's Frog (*Simposio Declinación Global de Anfibios el caso de la rana de Darwin*)
23. Conference announcement: II International Seminar on Medicine and Conservation of Birds of Prey (*II Seminario Internacional Medicina y Conservación de Aves Rapaces*)
24. Preparatory essay for future thesis on bats in Pucon: Conocimiento actual de Chiroptera en Chile y su rol en el control de plagas agrícolas, polinización y dispersión de semillas. (Current knowledge on chiroptera in Chile, and their role in control of agricultural pests, pollination and seed dispersal).
25. Thesis (Forestry) Isabel Rojas. Patrón de variación de la riqueza de especies invasoras en un gradiente de tamaño, degradación y altitud de fragmentos remanentes del bosque precordillerano de la IX región de la Araucanía, Chile. (Patterns of variation in invasive species richness along gradients of size, degradation and altitude in remaining fragments of precordilleran forest of the IX Region of Araucania, Chile).
26. Thesis (Ecology) Vanessa Coldwell. An Analysis of Methodologies used to study Medium and Large Mammals in the Valdivian Temperate Rainforests of central-southern Chile
27. Thesis (Architecture) Manuel Rios. Centro para la Biodiversidad del bosque templado lluvioso. (Centre for temperate rainforest biodiversity)
28. Integrated Catchment Management Project proposal (Anteproyecto Centro de Investigación y educación para el desarrollo local sustentable)
29. Araucarias Biosphere Reserve Proposal