



Wild Camelid Management

In brief:

- The vicuña is found in the Andes at altitudes between 3.5-5000m. Its fleece is recognised as having the highest quality textile fibre of any species. Following the collapse of the Inca empire, vicuña were hunted almost to extinction such that by the 1950s there were less than 10,000 left of a population that had once stood at two million.
- The guanaco, wild progenitor of the llama, has a wider range than the vicuña. Rare in its northern range at intermediate altitude in the Andes, the guanaco is widespread in Patagonia.
- Proyecto MACS aims to support the development of sustainable production of quality fibre from both species.

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Manejo de Camélidos silvestres
Bulletin of Proyecto MACS—International Cooperation for improved management of the vicuña and guanaco

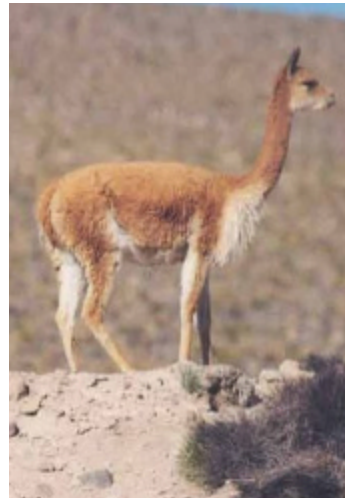
Volume 1, Issue 1
Autumn 2002

Introducing Proyecto MACS

Wild Camelid Management is the first bulletin of a new European Union-funded project to guide the sustainable management of the vicuña and the guanaco, icons of Andean conservation, and bearers of the world's most luxurious natural fibres.

An international team of researchers from 7 countries, has been set up. They are working together to develop practical guidelines and policy recommendations for managing the commercial harvest of wild camelid fibres.

The harvest of luxury textile fibres from vicuña in the Andes has been practised for centuries. Pre-1950s much of the fibre sold was traded in the form of pelts from shot animals. This unsustainable prac-



tice left the vicuña on the verge of extinction. Conservation measures introduced in the sixties have allowed many populations to regain their former abundance. In addition to vicuña, there are also a number of initiatives in Argentina and Chile that are

aiming to derive an income from management of guanaco. The MACS project will aim to support this work, and provide a forum for sharing of data and ideas.

The value of wild camelids does not only lie in their fibre. They are both keystone species in the southern Andes, and have real economic value through ecotourism as well as innate cultural and ecological value which requires protection.

There is a unique opportunity now to ensure that future harvesting systems for fibre are both economically and ecologically sustainable and will reach the highest standards of animal welfare, while ensuring the best possible economic returns for wild camelid managers.

Les presentamos Proyecto MACS

La explotación comercial de fibras finas de CSAS (vicuña y guanaco) ha sido llevada a cabo por siglos. Antes de 1950 mucho de la fibra comercializada era obtenida de pieles de animales muertos. Esta forma de utilización no sustentable terminó con la prohibición de la caza y con estrictas medidas de protección, que han perdurado por más de treinta años. Dado que algunas poblaciones han recu-

perado su número inicial, es nuevamente factible la explotación comercial de ciertas poblaciones y prueba de ello, son varios ejemplos de sistemas de manejo con esquila de animales vivos que han sido establecidos en Perú, Argentina, Chile y Bolivia.

A contar de Noviembre del 2001, una nueva etapa de trabajo conjunto entre investigadores de Sudamérica, Europa y agentes de

gobierno y empresarios privados comenzarán un proyecto conjunto de trabajo para el manejo sostenible de la vicuña y el guanaco en su área de distribución natural. El proyecto denominado MACS, proporcionará la información necesaria para respaldar el diseño de un sistema de explotación sostenible de fibra de CSAS que no afecte la conservación de la especie.

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Coordination meeting sets schedule for first phase of Proyecto MACS

A framework for the first year of MACS was set at a meeting of all the partners held at Pu-

tre, near Arica in Northern Chile, 7th-12th Nov 2001. The meeting was held to enable the MACS team to discuss their individual contributions to the project in detail, to plan the integration of their individual activities, and to evaluate the modified budget and technical annex, as agreed with the European Commission. The major activities agreed in the Technical Annex were confirmed, and ideas were put forward on extra value adding actions that the project will undertake, such as collaboration with other projects. Minor amendments to the detail and timing of actions in the Technical Annex were suggested and agreed, in order to coordinate better the activities of the

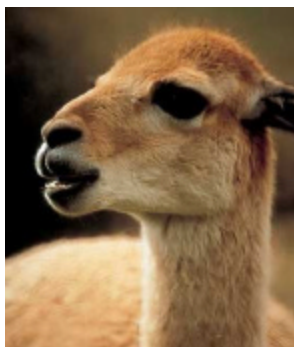
team members. Concern was expressed that the 1/3 cut in funding offered, compared with the original proposed budget will leave some activities seriously underfunded if they are to be undertaken as originally envisaged. Discussions took place on task sharing and possible opportunities for top-up funding from other sources that will ameliorate some of these effects.



Putre—administrative centre of the Chilean altiplano

"This is a unique project as it offers a real opportunity to demonstrate how endangered wildlife species can be managed sustainably by local communities to produce high-value products for the economic benefit of local communities."

Coordinator, Iain Gordon



Some of the MACS team relaxing during a field visit to LAUCA National Park

MACS in Argentina—Jujuy Province

The MACS team in Argentina started in March 2002 preparing all the logistics to start several trips to do field work in Jujuy and Catamarca. This is a summary of the projects that will be carried out

Behavioural ecology and habitat use by vicuñas

Dr. Bibiana Vilá

Macs, Unlu, CONICET

Lic. Yanina Arzamendia
PhD student. Inbial (Institute of High Altitude Biology, Jujuy) supervised by Dr. B. Vilá.

Aim: to provide behavioural

ecology data on a target population that will be captured in spring 2003. To study habitat use in Toquero area and behavioural interactions with llamas.

Study area: Toquero in Cieneguillas. Cieneguillas is a small town at 3600 meters above sea level with approximately 200-300 inhabitants. The town belongs to an MAB reserve (Laguna de Pozuelos). The density of vicuñas near Cieneguillas is very high showing the tolerance and protection of the species by the local people.

Methods: We chose the Toquero area to work observing a wild vicuñas population from a high and fixed point using binoculars and a telescope. This is the target population for the Macs capture in the spring 2003. We will use standard methods, such as scanning the whole visible population every ½ hour and animal focal sampling of individual vicuñas.

Present state of the project: Three field visits have been made so far. Behavioural studies started, studying circadian rhythms, use of different patches, social groups, and use of habitats. Behavioural interactions between vicuñas and domestic livestock, particularly llamas, will be recorded. Fieldwork will be done for a week on a monthly basis to compare changes between seasons. Our first objective is to have a base line of the unmanaged population that could be use as an indicator of disturbance after the capture. We have already measured some habitat parameters as botanical composition and area of the different patches. We will be able to map the area during 2002.



Argentina MACS partner, Bibiana Vilá with friend



MACS study site—Cieneguillas in Jujuy province, Argentina

“Our first objective is to have a base line of the unmanaged population that could be use as an indicator of disturbance after the capture”.

Los trabajos en impactos ambientales ha comenzado en Argentina en Marzo del 2002. Hay dos proyectos en marcha, uno en la “puna seca” Cieneguillas Jujuy a cargo de la Dra Vilá y otro en la “puna salada” en Laguna Blanca, Catamarca a cargo del Dr. Cassini.

Ambos proyectos se basan en un trabajo intensivo en el campo y ya se han realizado una serie de salidas de campo. El trabajo en Jujuy es principalmente conductual y de uso del hábitat en una escala pequeña desde un punto fijo de observación (Toquero). El trabajo en Catamarca utiliza una escala mayor y metodología de GIS, a su vez comprende análisis de dieta en laboratorio



Wild Camelid Management

Spatial ecology applied to conservation and management of vicuñas

Marcelo H. Cassini



Vicuña in Laguna Blanca, Catamarca

“How do vicuña interact with livestock?”

We are designing an ‘individual based’ model of the distribution of vicuñas in competition with domestic ungulates to explore this and other questions.”

Macs, Grupo GEMA, Universidad de Luján & PROFAUNA Organisation

Aim: to provide ecological information useful for the conservation and management of vicuñas in protected areas with anthropogenic pressure.

Objective: To design an ‘individual based’ model of the distribution of vicuñas in competition with domestic ungulates.

Study area: ‘Laguna Blanca’ Natural Reserve and surrounding areas, Catamarca Province, Argentina .

Methods: The study requires three methodologies. (1) Field work, including census of vicuñas and domestic ungulates, sampling of vegetation and faeces, geo-referencing and habitat characterisation. (2) Laboratory work, for taxonomic and chemical analyses of diet and vegetation; (3) Computational work, to extract information from satellite images and maps on the ecological, geographic and climatic factors, and processing the whole data set with GIS software. The first stage of the project requires of 8 field visits, collecting data for two years.

Present state of the project: We have conducted two visits to the study area.

The first trip had the objectives

of: (1) attending a meeting organised by the Argentinean Administration of National Parks, (2) define the area that will be covered by the study, and (3) organise the logistics of the field work.

In the second trip, we started data collection. We censused vicuñas and domestic ungulates at two ecological scales: macro- and micro-habitats. We also sampled vegetation and faeces considering these two scales. The micro-habitat level implies the detailed analyses of the food resources available at four ‘vegas’ the few patches of rich vegetation available in the Puna

We have also started with the computational work, by extracting information from images and maps, and with the lab work, by processing samples for micro-histological and chemical analyses.



Project coordination tour, March 2001

Prof. Iain Gordon

In early March 2002, I travelled to Argentina, Peru and Bolivia to present the MACS project to government, agency, university and local community representatives from the different countries. My main aim was to ensure that those who needed to know about the project were informed as to its aims and objectives and were

given more details of the work that is to be conducted under the different work packages. My main message was that the MACS project will provide objective information on the welfare, population, conservation, social and economic costs and benefits of different management scenarios for harvesting vicuña fibre. It is not for the project itself to say what is the

“best” management option, as this will depend upon the national and local circumstances.

I emphasised the fact that the MACS project has been commissioned by the EC under contract and as such is circumscribed and cannot, therefore, take on all of the issues to do with the management of the altiplano which are seen as being necessary to meet

the needs of the campesinos. Overall, there was a great deal of interest in the project from all concerned and enthusiasm for the information that will be come out of the project in the future. For example, the campesinos were most interested in how best to market the fibre which is produced from the shearing and also to be trained in capture and shearing methods.

The agencies were interested in how to assess the carrying capacity for vicuña in the altiplano especially in relation to competition for forage which might occur from domestic livestock (including al

pacas and llamas) as it was felt that this would allow the campesinos to determine the optimum number of animals that may be supported by a given area of ground.

The university representatives saw the MACS project as an opportunity to facilitate the training of their staff and students on wildlife management and ecology in the field.

Overall, the MACS project was very well received and was thought to be timely by all who attended the meetings. There is already a great deal of information available on the status, distribution

and economics of vicuña and it is important that we do not appear to replicate the work which is already underway in the host countries but that we compliment and collaborate with the current initiatives.

I would like to thank Jane Wheeler, Leonardo Blanco & Bibi Vilá for organising the meetings and for showing me such excellent hospitality during my visit to their countries. I would also like to thank all those people who gave up their time to meet me during my whistle-stop tour of South America.



Iain Gordon, coordinator of the MACS research team

“The MACS project will provide objective information on the welfare, population, conservation, social and economic costs and benefits of different management scenarios for harvesting vicuña fibre.”



Proyecto MACS

Proyecto MACS comprises 5 semi-independent Work Packages. Each Work Package represents a collaborative research venture between a research team in Latin America, and a leading research institution in Europe, and cover the range of scientific disciplines addressed by the project. The aims of the individual Work Packages are as follows:

- WP1. Utilisation systems. Assess health, welfare and product quality impacts of management options for vicuña and guanaco at a systems level, and develop recommendations for best practice.**
- WP 2. Economics and socio-cultural impacts. Evaluate the economic viability of management options for wild South American camelids and trade in their fibres, and identify policies to encourage appropriate management approaches and equitable distribution of benefits.**
- WP 3. Environmental impacts. Evaluate significant environmental interactions and map ecosystem indicators, such as carrying capacities.**
- WP 4. Biodiversity conservation. Develop management strategies which will minimise the impact of sustainable utilisation on wild camelid populations.**
- WP 5. Networking and dissemination. Handling of information arising from the project. Bibliography, networking, conferences, and training courses for teachers and community representatives on local ecology, conservation and development options.**



Wild Camelid Management

MACS in Chile

Cristian Bonacic & Jessica Gimpel

Two geographic sub-species of vicuña have been described in Chile, the Northern vicuña,

- translocation and reintroduction

Currently Chile is auctioning the first 20 kilos of fibre collected from animals captured for farming. It is estimated that a total yield of 250 g of fibre could be obtained from *Vicugna vicugna* by shearing every two years. Considering a life span of 8 years in the wild, a potential total of 1 kg of fibre could be harvested per adult vicuña.

PROTECTION

Vicuña have been protected by the International Convention for the Trade of Endangered Species (CITES) since 1973 and by the Vicuña Convention signed by Argentina, Bolivia, Chile and Perú since 1979. This agreement initially signed by Perú and Bolivia in 1969 and followed by Chile and Argentina in 1974, ensured the protection of the species in national parks and private lands for future sustainable use by requiring animals to be sheared alive and returned to the wild. The successful partnership between Government agencies, local communities and international conservation agencies resulted in a fast population recovery and the vicuña population is now classified as 'out of danger of extinction' in the northern range of distribution (Parinacota Province). However, the southern populations are still in danger of extinction and little progress has been made to effectively protect them from poaching. The ban on trade of their fibre has been lifted to allow shearing, and a programme of sustainable use has been promoted. Since it was

stated in the Vicuña Convention that protection would be followed by sustainable use for the local people's benefit, vicuña conservation is now inextricably linked to sustainable use.

SUSTAINABLE USE AND CONSERVATION

The Vicuña Convention originally identified three main issues that needed to be considered for the protection and sustainable use of the species: i) population recovery, ii) ecosystem conservation and, iii) social benefits from the use of the species.

The current trend in Chile is to promote capture and captive breeding farms in the altiplano or Andean puna for commercial use. The consequences of captive breeding and artificial selection in Chile are not known. Three main aspects to evaluate the conservation value of in situ captive breeding programmes are:

1. The genetic impact of artificial selection on the captive vicuñas and the positive/negative effects that this practice may cause on wild populations.
2. The risk of disease transmission between livestock and enclosed wild vicuñas and the likelihood of cross species disease transference to wild populations from accidental escapes of captive vicuñas.
3. The impact of habitat use restriction caused by captive farming considering that vicuñas are adapted to move and select habitats in a fragile ecosystem.



Vicuña grazing a bofedal - Lago Chungara, Parque Nacional Lauca

"Considering a life span of 8 years in the wild, a potential total of 1 kg of fibre could be harvested per adult vicuña"

Vicugna vicugna mensalis (18° 45' S to 19° 00' S) and the Southern vicuña, *Vicugna vicugna vicugna* (19° 00' S to 27° 30' S). The distribution of both subspecies is generally a continuum of scattered and fragmented groups that are less frequent from North to South. The estimated current population size is 17-22,000 animals in Chile (99% of which is in the northern range) and more than 220,000 in the Andean region.

MANAGEMENT

The vicuña has a double-coated fleece and is one of the most valuable and highly prized sources of animal fibre. The fine fibres are the commercially important part of the fleece and, since only 2% of the fleece is made up of the coarser primary hairs, it is highly prized. Current management policies for vicuña include:

- capture and shearing of wild animals,
- captivity and farming,



Cristian Bonacic, MACS partner in Chile

Community management of wild vicuña in the Bolivian Altiplano

Nadine Renaudeau d'Arc

University of East Anglia, UK

Community-based conservation is the prevailing paradigm in wildlife management in many developing countries. (Hulme and Murphree 2001). Vicuña in the Bolivian Altiplano provide a case study in community-based conservation that illustrates well the challenge to establish a balance between, on the one hand, an international conservation agreement, to which the sovereign state is a signatory, and on the other hand, the social and economic concerns of the citizens of that state. The drive towards community-based man-

The rationale for the shift towards utilitarian approaches to vicuña conservation is that as well as achieving international conservation objectives by maintaining biologically viable populations, the vicuña can contribute sufficient benefits to remove the cost of conservation from either local communities (as benefits foregone and direct costs incurred) or nation-states (in the form of enforcement and management costs, and macro-economic benefits foregone).

The current research forms the basis for a PhD thesis, undertaken

ity.

The shift to a utilitarian approach introduces potential threats to the success of vicuña conservation, in terms of conserving biodiversity and genetic potential. These threats include direct harm to populations through increased mortality or reduced reproductive success brought about by the capture and shearing programme, and genetic homogenisation (e.g. of separate subspecies or races).

These biological impacts of sustainable use of vicuña populations will be evaluated, largely in collaboration with other members of the MACS team and the economic impacts of a shift from preservation to sustainable use will be investigated through an analysis of the benefits of vicuña shearing programmes. The main research area of the thesis, however, is in the analysis of institutions engaged in the sustainable use of wild vicuñas.

In order to address the institutional viability of a move towards conservation through community-level sustainable use, the research will first identify the stakeholders in the vicuña management structure, their interests and agendas. Key actors at the international, national, sub-national and local levels will be identified and their respective interests addressed. A cross-scale analysis will permit the

Community management of wild vicuña in the Bolivian Altiplano



"The challenge is to establish a balance between, on the one hand, an international conservation agreement, to which the sovereign state is a signatory, and on the other hand, the social and economic concerns of the citizens of that state."



agement is founded on theoretical analysis and empirical evidence from common property resource management systems, with the community being the institutional vehicle to realise devolved resource management (Berkes 1989). The underlying assumptions are that defined, cohesive communities interested in conservation and benefit-sharing will be motivated to participate in collective action to conserve vicuña through sustainable utilisation.

at the University of East Anglia, as part of the MACS project. The thesis addresses the analysis of institutions for management of vicuña with special emphasis on the viability of the institutional arrangement in Bolivia: community-based management of vicuñas in the wild.

Viability in this context refers to the biological, economic and institutional constraints and opportunities presented by this shift in conservation approach and devolution of management responsibil-



Wild Camelid Management

Manejo comunal de la vicuña en silvestría en el Altiplano Boliviano

Nadine Renaudeau d'Arc

El Programa de Manejo de la vicuña en silvestría por comunidades locales en Bolivia se enmarca dentro de un creciente debate sobre hasta qué punto los Proyectos integrados de Conservación y Desarrollo están contribuyendo a la conservación (Hulme and Murphree 2001). Una de las causas principales de este debate se debe a la dificultad de conciliar el manejo y distribución de beneficios recurso local regulado por una convención de conservación internacional (CITES).



Lipez, Bolivian altiplano

".....mientras se cumplan los objetivos de conservación Internacional manteniendo poblaciones biológicas viables, la vicuña puede contribuir a beneficios suficientes para justificar el costo de conservación"



Vicuña scarf

La tendencia hacia el manejo comunal de los recursos naturales se basa en análisis teórico y evidencia empírica de sistemas de manejo de recursos de propiedad común, donde la comunidad constituye el vehículo institucional para realizar esa devolución de manejo sobre el recurso (Berkes 1989). La suposición implícita es que comunidades definidas

como cohesivas e interesadas en la conservación y en los beneficios compartidos estarán motivadas para participar en acción colectiva para conservar la vicuña a través del uso sustentable.

El motivo principal hacia un enfoque utilitario para la conservación de la vicuña es que para las comunidades locales

El enfoque principal de esta investigación es el análisis de instituciones para el manejo de recursos comunales y Bolivia presenta un estudio de caso particular e interesante para identificar y relacionar los distintos factores que condicionan la viabilidad de la institución establecida para el manejo comunitario de la vicuña en silvestría.

Por medio de un estudio sociológico basado en observación participativa, entrevistas semi-estructuradas, consultas de documentos relevantes y análisis comparativos, esta investigación intenta responder a las siguientes preguntas de investigación:

- ¿Cuáles son los actores principales dentro del sistema de manejo de la vicuña, cuáles son sus intereses y agendas?
- ¿Qué instituciones (organizaciones sociales) existen para el manejo de camélidos (vicuña y domésticos) y cómo funcionan?
- ¿Cuáles son las distintas connotaciones de éxito y fracaso dentro del programa de manejo comunitario de la vicuña en silvestría?

El trabajo de campo se realizará entre los meses de Agosto y Diciembre del 2002 con posibilidades de una segunda visita entre enero y junio y/o octubre y diciembre del 2003. El estudio sociológico y consulta de material bibliográfico se realizará en La Paz y comunidades ubicadas dentro de los tres centros pilotos para el manejo comunal de la vicuña antes, durante y/o después del proceso de captura y esquila de la vicuña

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(continued from p7)

.....tracing of linkages of their actions and interactions in identifying the power relationships, conflicts of interest and trade-offs.

The study will identify how stakeholders' interests are mediated through existing and new institutions. The research focuses not only on the newly created agencies and structures around vicuña management, but also the established and currently more influential systems that exist for managing the other native camelids. The emphasis in this research is on local-level institutions that deal with communities, property rights and common property resources where property is defined as the rights and obligations of individuals or groups to use either vicuña or domestic camelids. Special attention will also be given to the mechanisms that shape individual and collective action.

Three communities have been chosen as study sites in the initial phase: Lipez-Chichas (Potosi), Area de Manejo Integrado Apolobamba and Mauri Desaguadero (La Paz).

institutions for collective action. Cambridge, Cambridge University press.
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MACS-EA. Environmental education programme in Argentina

Bibiana Vilá

The Macs-EA courses help to support an indigenous conservation education program based on local ecology, description of the adaptations of camelids to the Puna ecosystem (especially vicuñas) and social environmental situations.

"Environmental education should not be just one more subject to add (...) Its subject-matter should permeate every part of formal and no-formal programmes and constitute one and the same continuous organic process (...). The central idea is to attain, by means of growing inter-disciplinary and of prior co-ordination of disciplines, a practical education oriented towards a solution of the problems of the environment, or at least to make pupils better equipped to participate in decision-making" (Final report, Tbilisi Conference).

The Macs-EA target i-practice primary school teachers because in the area most of the people have just primary education. Local coya houses made of adobe are very isolated and distant and some children live in the school during week days while others go

to school not only for learning but because they receive food at mid-day. In this scenario, the teacher is a kind of "local authority" that usually is involved in more things that just teaching children. Because of the conditions of remoteness and isolation of the area the teachers and directors can play an important role in the environmental education out of schools grounds. By working with teachers, using their own cultural heritage (legends and stories told by old people living locally), Macs-EA try to encourage children to value Camelids as a genuine resource that belongs to the Puna and concentrated efforts can cause great results.

"The training of qualified personnel is a priority activity. This holds good for both pre- and in-service training, for the purpose of familiarising teachers in formal education and organisers of non-formal activities for young people and adults." (Final report, Tbilisi Conference).

The short duration and intensive form of the courses are specially designed for teachers who have to travel and stay in the area. Dr. Bibi

Vilá have sent all the formal letters to the Ministry of Education in the Jujuy Province and the Macs-EA1-La Quiaca was accepted as part of the "official" training courses for teachers.

Macs-EA1- La Quiaca was held from 13-17th of May, 2002 The course started with a standardised questionnaire prepared and discussed with partner 3 Dr. Javier García Gomez, allowing cross-countries (other courses will be run in Bolivia, Chile and Perú) statistical analysis of the data and checking the concepts teachers have on ecology, natural and artificial selection, socio-cultural and natural environment . This "previous knowledge or non-knowledge" is the base from where we construct the learning process (Constructivism pedagogy). We work hard on this theoretical concepts through ludic activities (gaming, acting) and we prepare some controversial issues as a project for a vicuñas reserve. We had a nice day out (with camelids on view) and we worked on "flowing learning" activities in the field. All the activities were prepared with the "think globally, act locally" slogan in mind.



MACS exhibition stand

"The central idea is to attain, by means of growing inter-disciplinary and of prior co-ordination of disciplines, a practical education oriented towards a solution of the problems of the environment."

(Final report, Tbilisi Conference on environmental education).

Algunas de las evaluaciones finales de los maestros comentaron:

"En lo personal el curso fue mucho mas que interesante, sobrepasando mis expectativas, llenando vacíos didácticos, como de conocimientos, ofreciendo un nuevo panorama y otra visión de nuestro entorno. Quisiera que este tipo de cursos sean acompañados de un seguimiento e intercambio de información mas continuo. Me gustaria la visita de usted y su equipo a mi escuela, ya que hay muchas vicuñas en sus alrededores.

Muchas gracias por su tiempo, sus conocimientos y su...aguante."

"Estoy muy conforme con el curso de educación ambiental por la información brindada sobre temas muy nuestros y también por el cambio conceptual sobre algunos conceptos nuestros que no teníamos claros. En cuanto a las actividades, muy creativas y participativas, trabajando como base la biodiversidad. La actividad de campo y comentarios sobre la investigación en camélidos, muy rica, muy completa y sobre todo para mi muy novedosa. La elección de contenidos realizados y transpuestos fueron adecuados y el desarrollo científico en el tema camélidos tuvo un nivel excelente. Suerte, profe, deseo que siga adelante con la misma fuerza, el mismo cariño y la misma firmeza. Nosotros, al menos yo, seremos multiplicadores de estos nuevos conocimientos revalorizando lo nuestro".



MACS-EA course 1 in progress

Wild Camelid Management

Curso Macs-EA1, La Quiaca.

Los cursos Macs-EA, intentan desde su planificación cumplir con una educación ambiental regionalizada, con un fuerte



hincapié en la posibilidad del desarrollo sostenido a partir del uso de camélidos y especialmente vicuñas, basada en la demanda de los docentes que identifican su necesidad de adquirir contenidos regionales ("aunque quiera no tengo de donde obtener información para enseñar el tema los camélidos"), de metodologías ("no tengo formación didáctica para la educación ambiental), y de bibliografía ("nuestras bibliotecas no tienen material al respecto"). Los cursos Macs-EA

"Los cursos Macs-EA hacen hincapié en un abordaje transversal, constructivista y sistémico de la educación ambiental."

hacen hincapié en un abordaje transversal, constructivista y sistémico de la educación ambiental.

El curso Macs-EA1-La quiaca fue dictado del 13 al 17 de Mayo en La Quiaca, Argentina y estuvo a cargo de la Dra Bibiana Vilá. Los ayudantes del equipo docente fueron Ana Wawrzyk y Maximiliano Zalazar Rodríguez, alumnos de la Licenciatura en Información Ambiental de la Univ. Nacional de Luján. El curso fue realizado por el Macs con la colaboración de la Secretaría de Recursos Naturales y Medio Ambiente de la Provincia de Jujuy (Argentina) y la Regional I del Ministerio de Educación de la Provincia de Jujuy (Argentina).

Se reunieron 38 docentes de diversas escuelas del área puneña, principalmente de La Quiaca y Abrapampa y también de escuelas rurales como Cieneguillas, Yavi Chico, Rinconada, Cusi.cusi, Sta. Catalina, Tilcara, La Intermedia, Llulluchayoc, La Quiaca vieja, Suripujio. La mayoría de estos docentes estaban en actividad a

cargo de años de EGB o de los

primeros años de Polimodal.

Desde el equipo de investigación, las tareas próximas que se realizarán son:

Análisis estadístico de la población de docentes que participó del curso, así como de la información brindada sobre las escuelas en las que ejercen.

Estudio de los conceptos previos de los docentes a partir de la encuesta inicial.

Estudio de los conceptos aprendidos en el curso a partir del envío de la encuesta inicial a sus escuelas por correo en un futuro cercano.

Edición de un video del curso Macs-EA1-la quiaca.

Realización de unas jornadas de educación ambiental (del 2 al 4 de Julio) en la Escuela Nro 29 "Puna Argentina" de la localidad de Cieneguillas, Jujuy, donde se lleva a cabo gran parte del WVP3 y donde se planifica una esquila experimental a cargo del Macs en nov. 2003

Achieving sustainable community management of vicuña



Dr David Preston, co-supervisor of PhD at Leeds University, UK.

Though rural development initiatives, and conservation policy in the altiplano are well established, the changing legal status of vicuña, both nationally and internationally (CITES, *Convenio de la vicuña*), is already having a fundamental effect on wildlife management. There has been a general trend toward allowing more localised decision-making about use of vicuña, which started in Peru in the early 1990s, and this currently appears to be being generally followed in Chile and Bolivia. This scenario, allow-

ing wildlife to contribute to local rural development – to let communities become stakeholders in the wildlife resource is widely considered as democratic and fair. A bottom-up alternative to blanket, top-down, restrictions on use, in and outside protected areas. There is an extensive literature on community approaches to wildlife management throughout the world, including Southern Africa, but also from Southern Asia, Central and

tropical South America. It is proposed that this debate – how best to empower local communities to manage their own wildlife resources, and how to monitor, guide and support their endeavours may have much to contribute to the development of new systems for community management of vicuña. PhD student, Jerry Laker, supervised jointly by Macaulay Institute and Leeds University, will study some of the important questions relevant to

Continued on P11

Vicuña conservation and CITES

CITES, the Convention on International Trade in Endangered Species of Wild Flora and Fauna, is holding its Twelfth meeting of the Conference of the Parties in Santiago (Chile), 3-15 November 2002. COP12 is being held to 'discuss and evaluate joint actions, leading to the regulization of economic development while conserving the natural balance of the species'

There are 3 proposals that relate to vicuna in Chile, Argentina and Bolivia. The full text of the proposals can be found on the internet at <http://www.cites.org/eng/cop/index.shtml>. However, following the consultation process carried out with IUCN, some preliminary comments have been released:

"Comments from the Parties and comments and recommendations from the Secretariat on the proposals to amend Appendices I and II

The Secretariat recommends the adoption of this proposal and also recommends that Chile and the other range States of this species

consider, under the auspices of the Convenio de la Vicuña, the need to strengthen the operation and oversight of captive management as well as the need to address the potentially detrimental effect of captive management on the status of wild populations.

"The Secretariat recommends the adoption of this proposal but also recommends that Argentina and the other range States of this species consider the development of a regional conservation strategy that will take full account of the potentially detrimental role of captive management on the status of wild populations.

"The IUCN/TRAFFIC analysis questions the conservation benefits of the captive management system annexed to the proposal, specifically whether it provides strong incentives for the protection of the wild population of vicuña, or their habitat, in this province. The Secretariat supports the proposal and also recommends that

Argentina and the other range States of this species consider, under the auspices of the Convenio de la Vicuña, the need to strengthen the operation and oversight of captive management as well as the need to address the potentially detrimental effect of captive management on the status of wild populations."

These comments highlight the general international support for sustainable use of vicuña, but also the essential requirement that such use be based on sound science and proactive management practices.

This is underscored by recent changes to the controls on import of vicuña fibre to the United States announced by the U.S. Fish and Wildlife Service. The vicuña has been reclassified from endangered to threatened under the Endangered Species Act (ESA). This change opens the door to imports to the USA of vicuña fibre and products from populations classified as Appendix II in CITES.



Vicuña in a Peruvian *chaku*

"Research in MACS will identify the large scale spatial and ecological dynamics of the trade-off between the traditional activity, livestock production,

Management of vicuña (cont. from p10)

establishing effective support for community wildlife management in the altiplano:

- How are vicuña currently distributed in relation to population and livestock?
- How do priorities for management change with location within the altiplano?
- To what extent do the interests of wildlife users overlap with

- established land use interests (herding, mining, tourism etc.)?
- What management units for vicuña are appropriate in what areas?
- Can sustainable yields of vicuña fibre be predicted per management unit?
- What lessons can be learned from elsewhere to support the establishment of community

- wildlife management programmes in the altiplano?

The Phd will coordinate with the other strands of research work within MACS, identifying the large scale spatial and ecological dynamics of the trade-off between the traditional activity, livestock production, and the novel activity, commercial, non-lethal, harvesting of wildlife products.



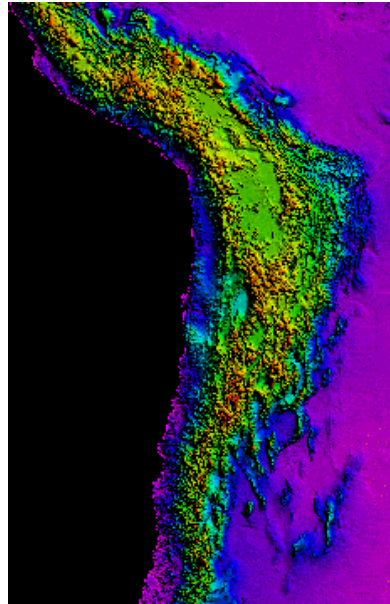
Jerry Laker, researcher and co-editor of Wild Camelid Management



Manejo de Camelidos silvestres
Bulletin of Proyecto MACS—
International Cooperation for
improved management of the
vicuña and guanaco

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The altiplano from space—topical relief map (courtesy of NASA)

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- Partner 3 - University of Valencia, Spain (UV). Prof Javier García Gómez
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MACS is on the Internet:
www.macs.puc.cl

Wild Camelid Management / Manejo de Camelidos Silvestres

Wild Camelid Management is published jointly by Macaulay Institute in Scotland, and Fauna Australis, Universidad Católica de Chile for Proyecto MACS.

WCM is aimed at scientists, professionals and field workers with an involvement in development of effective systems for the management of the vicuña and the guanaco. The pub-

lication is aimed internationally, and so will publish articles in both English and Spanish. Our policy is one of international accessibility and inclusion, and we aim to reflect the broad range of studies and development projects that are taking place throughout the altiplano, as well as reporting work directly arising from Proyecto MACS.

The editors invite articles from all practitioners in this field for publication to represent the broad range of work being currently undertaken in the development of management systems. This may cover all aspects of camelid ecology, sus-

tainable use and rural development, and may take the form of brief research reports, work-in-progress, letters-to-the-editor, and general thoughts and ideas on management practice, philosophy and ethics. While the format is flexible, articles ought to be short (500 words max). Colour photos are encouraged.

Articles may be submitted in Spanish, or English (or both). Offered contributions should be sent by electronic mail, preferably in MSWord, photos and graphics in .jpg or .gif

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Proyecto MACS acknowledges the financial support of the Commission of the European Commission - Confirming the International Role of Community Research (INCO-DEV), Project number ICA4-2000-10229.

