2/516

Submit by 21 January 2005

DARWIN INITIATIVE APPLICATION FOR GRANT ROUND 13 COMPETITION:STAGE 2

Please read the Guidance Notes before completing this form. Applications will be considered on the basis of information submitted on this form and you should give a full answer to each question. Please do not cross-refer to information in separate documents except where invited on this form. The space provided indicates the level of detail required. Please do not reduce the font size below 11pt or alter the paragraph spacing. Keep within word limits.

1. Name and address of organisation

Name:	**Address:**
Zoological Society of London (ZSL)	Regents Park, London, NW1 4RY

2. Project title (not exceeding 10 words)

Sustainable management of ornamental fish species in Mamirauá, Brazilian Amazonia.

3. Project dates, duration and total Darwin Initiative Grant requested

Proposed start date: June 2005			**Duration of project:** 3 years		
Darwin funding requested	**Total** **(£)**218,000	**2004/5** **(£)**0	**2005/6** **(£)**76,500	**2006/7** **(£)**71,500	**2007/8** **(£)**70,000

4. Define the purpose of the project in line with the logical framework

To protect the biodiversity of fish within an area of Brazilian Amazon, by developing a sustainable freshwater ornamental fish trade. This is to be achieved by developing a pilot project in the Mamirauá Sustainable Development Reserve (MSDR). The introduction of such a trade will result in direct economic benefits to the rural community, and the monetary value, along with the establishment of a sustainable system, will encourage the long-term protection of fish diversity within the reserve. The pilot scheme will establish trade guidelines that can be adopted for a certification system within this, and other, Amazonian regions.

5. Principals in project. Please provide a one page CV for each of these named individuals

Details	**Project Leader**	**Other UK personnel (working more than 50% of their time on project)**	**Main project partner or co-ordinator in host country**
Surname	Shaw	Oliver	Queiroz
Forename (s)	Alison Jane	Sophie Anne	Helder Lima
Post held	Programme Manager	Projects Coordinator	Science Director
Institution	Zoological Society of London (ZSL)	Zoological Society of London (ZSL)	Sociedad Civil Mamirauá (SCM) and Instituto de Desenvolvimento Sustentável Mamirauá (IDSM)
Department	Conservation Programmes	Conservation Programmes	

6. Has your organisation received funding under the Darwin Initiative before? If so, give details

The Conservation Programmes office of ZSL has received funding under the Darwin Initiative for the following projects:

- Wildlife health monitoring and capacity-building for leopard conservation in Russia. 2005. Sarah Christie, Zoological Society of London.
- The Steppe Forward Programme: Training conservationists for Mongolia's future. 2003. Dr N Nigel Barton, Zoological Society of London.
- Building capacity for conservation of a critically endangered flagship species (Kenya). 2003. Dr R Rajan Amin, Zoological Society of London.

7. IF YOU ANSWERED NO TO QUESTION 6 describe briefly the aims, activities and achievements of your organisation. (Large institutions please note that this should describe your unit or department)

Aims (50 words)
N/A

Activities (50 words)
N/A

Achievements (50 words)
N/A

8. Please list the overseas partners that will be involved in their project and explain their roles and responsibilities in the project. Describe the extent of their involvement at all stages, including project development. What steps have been taken to ensure the benefits of the project will continue despite any staff changes in these organisations? Please provide written evidence of partnerships.

The Sociedad Civil Mamirauá (SCM) is coordinating the Brazilian biological and socio-economic management components of the project and contributing staff time and expertise. SCM obtained initial funding for an ongoing scoping investigation into biological parameters of a small number of ornamental fish species from the reserve. SCM put forward the suggestion for this project to the Zoological Society of London (ZSL) on behalf of the Mamirauá Sustainable Development Reserve (MSDR) community.

SCM partook in initial project discussions with ZSL, and they have contributed to the project development through the co-writing of the project proposal. A Letter of Agreement between ZSL and SCM exists, attached with this application, to document the intention of both parties to work together with this project and in future projects as appropriate.

SCM is administered by the Brazilian Ministry for Science and Technology. Working in partnership with SCM and ZSL to achieve project results are the Federal University of Pará (UFPA), Goeldi Museum in Belém, and the National Institute of Amazonian Research (INPA) and the Federal University of Amazona in Manaus. Technical advice has been sought from Project Piaba, an ornamental fish organisation in Brazil, and future collaborations and information exchange will continue throughout the course of the project.

The concept of conservation need for the project have been identified by the local community at MSDR. An ornamental fishery previously established within the reserve was managed unsustainably, to the detriment of both the ornamental fish populations and the associated trade. For this reason, the community are now keen to practice sustainable extraction methods. By grounding the project activities in community action, there is less dependence on staff activities or changes from within partner organisations, and the project's results will be more likely to be sustained in the long term.

9. What other consultation or co-operation will take place or has taken place already with other stakeholders such as local communities? Please include details of any contact with the government not already provided.

The re-establishment of the ornamental fishery in the area has been requested directly by the local community of MSDR through consultations involving fishers, community promoters and SCM personnel, during fisher meetings at Jarauá Sector of MSDR between 2000 and 2001. Community officers have been working in the community for the past twelve years and they have succeeded in the creation of fisher associations, and the establishment of a sustainable *Pirarucu* fish extraction for consumption and sale. It is through the development of these fisher associations and the existing infrastructure of the reserve that the ornamental fish project intends to proceed.

Core funding from ZSL was secured to hold consultation meetings with other stakeholders including Brazilian governmental departments (such as regional and national IBAMA - *Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis* and the ProVárzea Project team (see attached for letter of support), INPA - *Instituto Nacional de Pesquisas da Amazônia*, and other Brazilian organisations involved in the Amazonian ornamental fish trade, such as Project Piaba.

Consultations have also taken place with the Chief Executive of the UK ornamental fish trade association (OATA), the Executive Director and the Certification Systems Director from the Marine Aquarium Council certification scheme, representatives from the international aquarium trade, independent environmental consultants and marine economists from University of Florida and the Renewable Aquatic Resources Group, Imperial College London.

Consultations with other non-governmental organisations, such as *Amazonas Victoriana,* Amazon Ornamental Fish Aquarium project in Peru, Iwokrama in French Guyana, other trade associations and trade related operations (including importers, wholesalers and retailers) are scheduled.

The project's review team will be made up of project staff and relevant stakeholders who have been invited to contribute to the development and design of the project and to ensure careful evaluation of project outputs.

PROJECT DETAILS

10. Is this a new initiative or a development of existing work (funded through any source?) Are you aware of any other individuals/organisations carrying out similar work, or of any completed or existing Darwin Initiative projects relevant to your work? If so, please give details explaining similarities and differences and showing how results of your work will be additional to any similar work and what attempts have/will be made to co-operate with and learn lessons from such work for mutual benefits.

SCM has a long-standing programme of community-based natural resource management, including sustainable food fisheries, within MSDR.

Biological research on a small number of ornamental fish species is currently being undertaken by the science team at MSDR, with funding from Petrobrás (*Petróleo Brasileiro*). This work involves trained researchers from the University of Amazonas, University of Pará, and the National Institute of Amazonian Research (INPA). Relevant findings from this work will be fed into the ornamental fish project.

The project is a new initiative to develop a sustainable system of extraction of selected ornamental fish species within MSDR. This fits with the mission of MSDR and all Brazilian Government-managed sustainable development reserves to develop community-based management approaches to address sustainable resource use and biodiversity conservation within their reserves.

Three Amazonian projects are also looking to extract fish in a more sustainable fashion. These are, Project Piaba (Brazil), Iwokrama (French Guyana), and Amazon Ornamental Fish Aquarium (Peru). Whereas Project Piaba is working to influence procedures within an existing trade, this

project is developing best-practice approaches for a new trade using the existing MSDR infrastructure and community framework.

The need for improved regulation and certification in the wild-caught freshwater ornamental fish trade is widely recognised by trade associations, regulators, importers, and other interested parties. This project seeks to use existing knowledge of the Amazonian ornamental fish trade to develop a best-practice approach for trial in MSDR. Peer organisations and stakeholders are invited to join the review committee to advise on project outputs to develop their applicability to other Amazonian areas.

11. How will the project assist the host country in its implementation of the Convention on Biological Diversity? Please make reference to the relevant article(s) of the CBD thematic programmes and/or cross-cutting themes (see Annex C for list and worked example) and rank the relevance of the project to these by indicating percentages. Is any liaison proposed with the CBD national focal point in the host country? Further information about the CBD can be found on the Darwin website or CBD website.

The project is a cooperative initiative involving community associations, Brazilian and international organisations to bring together local knowledge, national expertise and international perspectives into project design and implementation for sustainable resource use in MSDR (CBD Article 5, Cooperation, 15%).

The project will improve the capacity of individuals and organisations to monitor, review and manage their resources. This will be achieved through relevant training and capacity-building of individuals and improved communication links between stakeholders (CBD Article 12, Research and Training, 20%, and CBD Article 17, Exchange of Information, 10%).

Linked to the above, the project will produce trained researchers capable of assessing resources, maintaining data and monitoring ornamental fish populations within MSDR (CBD Article 7, Identification and Monitoring, 15%).

The project will investigate the social and economic benefits of establishing a trade in selected ornamental fish species through community, trade and market assessments (CBD Article 11, Incentive Measures, 15%).

The project will develop a feedback system to evaluate and adjust extraction levels of ornamental fish from MSDR accordingly. Prepared documents, such as a Collection Area Management Plan (CAMP) - including local data, fishery information and extraction criteria, business plan and trade guidelines, will encourage the reliable and sustainable extraction of ornamental fish from MSDR and along the chain of custody (CBD Article 10, Sustainable Use of Components of Biological Diversity, 25%).

This project fits within the Inland Water Biodiversity CBD thematic programme and cross-cutting issues relevant to the project are, Traditional Knowledge, Innovations and Practices, Economics, Trade and Incentive Measures, Sustainable Use and Biodiversity, and Technology Transfer and Cooperation.

12. How does the work meet a clearly identifiable biodiversity need or priority defined by the host country? Please indicate how this work will fit in with National Biodiversity Strategies or Environmental Action Plans, if applicable.

Brazil follows the International Convention for the Conservation of Biological Diversity (CBD), as demonstrated by the Presidential decree of 3rd Feb 2004 and previous decrees. The Brazilian Agenda 21 is the official document used by the Ministry of Environment to implement its national strategy for the CBD and this closely follows the international Agenda 21 document. The document encourages regional and non-governmental initiatives that seek to achieve sustainable ways to utilise biological resources. The following excerpts from chapters of the Brazilian Agenda 21

demonstrate the conservation priorities of the country that are applicable to the project.

Chapter 2: International Cooperation for sustainable development by promoting sustainable development through the liberation of trade and by establishing reciprocal support between trade and the environment.

Chapter 3: To fight poverty by income generation and greater control over local resources by local people, backing local institutions and providing institutional and technical strengthening and increased involvement in non-governmental organisations and local authorities as agents of this implementation. To develop healthy and sustainable management strategies for the environment within poor areas, thereby protecting resources, reducing poverty and generating employment and income.

Chapter 4: To change the patterns of consumption by promoting production methods that reduce pressure on the environment.

Chapter 7: To promote the sustainable development of human settlements by building institutional and technical capacity.

Chapter 8: To integrate the environment and development in decision-making with the use of economic tools and market incentives.

Chapter 15: To conserve biological diversity by improving the conservation and the sustainable use of biological resources, in conjunction with needs identified by the CBD, and to ensure the fair and equitable share of benefits and of biological resources. To improve the scientific understanding and economic importance of biological diversity and its function in ecosystems.

Chapter 27: Strengthening of non-governmental organisations and their role as partners for sustainable development, by incorporating local cultural and environmental knowledge in sustainable development projects. To increase the cooperation of scientists through the promotion of activities and research programmes. The participation of local people in the definition of priorities and in decision making for sustainable development.

13. If relevant, please explain how the work will contribute to sustainable livelihoods in the host country.

The work is intended to provide the foundations on which to establish the sustainable utilisation of ornamental fish species within MSDR. This will enable additional income generation for local fisher families involved in the extraction enterprise, as it will open up a new natural resource which can be utilised by the community.

Other sustainable livelihood opportunities will be made available for those involved further along the supply chain, including wholesalers, handlers and exporters.

This project will form one of a number of economic activities developed within MSDR since 1998 that seek to manage the growing pressure on the reserve's natural resources. The project will help to relieve these demands by managing the ornamental fishery resources in a sustainable manner by regulating off-take and fisheries practices. The strain on resources will also be alleviated by expanding the number of focal species that can be utilised. Incentives from this project are to be considered as alternative or additional sources of income to the local traditional economy (and not substitutes). As a consequence, the food-fishery and farming practised by the MSDR community will remain the primary economic activities. This strategy of the sustainable utilisation of natural resources is also being implemented at Amanã Sustainable Development Reserve, and other protected areas such as this in other parts of the Amazon.

14. What will be the impact of the work, and how will this be achieved? Please include details of how the results of the project will be disseminated and put into effect to achieve this impact.

The main impacts of the work will be:

- The creation of an additional sustainable income source for the local community of MSDR.
- The alleviation of pressure on MSDR's biodiversity by the sustainable exploitation of an economically attractive resource.
- The training and building of local capacity in all stages of the monitoring and exploitation of ornamental fish, among scientific staff, association representatives, and community members who will disseminate good practices and experiences within, and outside of, the reserve.
- The improvement of captive husbandry, packing and transportation techniques that will be of benefit to the pilot scheme and to the Amazonian freshwater ornamental fish trade.

These will be achieved by:

- The creation of a sound scientific base for biological monitoring as a basis for a regulated trade in ornamental fish from the reserve.
- The establishment of a simple and efficient process for fish trade from source to supplier which has been carefully designed and documented.
- The development of best-practice guidelines that can be used in the creation of a certification system for the Amazonian ornamental fish trade.
- A thorough economic analysis of the UK freshwater ornamental fish trade and investigation of market opportunities for sustainably harvested freshwater ornamental fish prepared by the project's UK Aquatic Economic Adviser.
- The dissemination of results and outputs through workshops, seminars and other communications with Brazilian and international stakeholders. Dissemination to the wider industry will be through websites, trade magazines and the press.

In addition, the new ZSL aquarium development and associated team will become part of an improved collaboration of importers and trade associations that promote the trade in sustainable and certifiable ornamental fish. This will be achieved through direct actions, such as sustainable sourcing policies, and through awareness-raising activities, such as interpretation and education.

15. How will the work leave a lasting legacy in the host country or region?

- Expertise to conduct biological and socio-economic monitoring will be developed within MSDR, and the data from this will be feed into the management and business plans to inform decision-making for the continuation of the trade after the project period.
- During the course of the project, a number of Brazilian students will have been trained in biological survey techniques. Training and auditing techniques will be incorporated into the approach and designed for ease of repetition after the project ends.
- The marketing potential of the trade will have been assessed within the UK and Brazil and a business plan will have evaluated the Brazilian ornamental fish trade and will guide future decisions.
- A website will promote the work of the project and provide information on the ornamental fish trade in MSDR for potential traders.
- A greater understanding of the MSDR freshwater flooded forest ecosystem will have been obtained and will be published in accessible forms.
- A standardised and adaptable system to assess ornamental fish resources, evaluate community impacts and guide the extraction, transportation and regulation of the freshwater ornamental fish trade will be in place that can be adopted elsewhere in the region.
- The capacity of community associations to run the schemes from a business perspective will be increased, leaving transferable skills in management, logistics and accountancy.

16. Please give details of a clear exit strategy and state what steps have been taken to identify and address potential problems in achieving impact and legacy.

- The flooded forest ecosystem is a poorly-understood, complex and dynamic environment. The project framework has been designed to anticipate, identify and adapt to potential problems as they arise, and one of its key goals is to strengthen the infrastructure and communication links between all project components to ensure relevant information and data is fed back into the project as it progresses. The fishery extraction model within the Collection Area Management Plan will be designed to adapt to changes in response to the latest resource and collection information becoming available and this system will be in place by the end of the project.
- After biological survey and monitoring methodologies are developed involving ZSL technical expertise, scientific training protocols are in place, and the review committee is set up and functioning, the Mamirauá Head Scientist and science team will be responsible for biological monitoring.
- After feedback from original investigation into socio-economic indicators, and ongoing monitoring techniques have been designed, the Mamirauá Head Sociologist and community promoters will be responsible to monitor the progress of the project through community associations.
- The construction of the business plan will determine whether the trade has the potential for long-term economic viability. After the completion of the business plan, Collection Area Management Plan (CAMP) and the establishment of a review committee involving Mamirauá managers and other stakeholders, the community associations will be responsible to operate the trade, through guidance and with the overall responsibility of Mamirauá management. On-going organisational and business capacity-building within the community, through the work of the community promoters, will help to overcome potential problems with this exit strategy.

17. How will the project be advertised as a Darwin project and in what ways would the Darwin name and logo be used?

The Darwin name and logo will be featured on the project website and on ZSL and Mamirauá webpages. The Darwin Initative will be credited as the project's donor on all of the published outputs from the project, including ZSL and SCM press releases and reports. An info-sheet and magazine articles on the project will be produced along with published project outputs and workshop proceedings and all of these will state Darwin's involvement.

18. Will the project include training and development? Please indicate who the trainees will be and criteria for selection and that the level and content of training will be. How many will be involved, and from which countries? How will you measure the effectiveness of the training and will those trained then be able to train others? Where appropriate give the length and dates (if known) of any training course. How will trainee outcomes be monitored after the end of the training?

Each year, Brazilian student researchers will be trained in scientific surveying techniques by the Scientific Coordinator, with technical input from the Mamirauá Head Scientist, and from SCM and ZSL science personnel. Training will take place in August prior to survey seasons and will consist of practical and theoretical training sessions. Development of survey skills will continue into September and procedures and techniques will be overseen by the Head Scientist. Training documentation will be produced in conjunction with a scientific monitoring protocol. Annual refresher training will be scheduled and training methods will be evaluated within methodology reviews each December and through annual reviews each April. A requirement will be that tests are completed to reflect comprehension of techniques, safety and theory. SCM will be ultimately responsible for training standards to be upheld.

Mamirauá community promoters will be trained in socio-economic monitoring techniques by the Junior Social Scientist, with technical input from the Mamirauá Head Sociologist. Documentation of techniques in the form of a monitoring manual and consistency of methods will be the ultimate responsibility of SCM, through the review team. Wherever possible, quantitative indicators will be

selected to improve comparitability of data. The Mamirauá Head Scientist will train community promoters in fishery monitoring techniques, as advised through the Collection Area Management Plan, which will be carried out by fishers involved in the project. Standards for this will be maintained through schemes as agreed by association members and through the methodology review process. Cross-checking will be carried out by the Mamirauá Head Sociologist with the assistance of community promoters. Socio-economic interviews within the community will include questions that seek to evaluate comprehension of project principles and methods and assess reporting procedure.

Fishers, researchers and handlers along the chain of custody will be trained in relevant skills, such as fish collection, husbandry, handling and transportation techniques. This will ensure that a high standard of animal welfare is achieved. The training will be carried out through the community promoters and under guidance from the ZSL Head Aquarist and science team. Methods and training protocol will be incorporated into best-practice guidelines. Within the second year of the project this will involve training around 40 fishers and project staff.

The fishers involved with the project will be supported by community promoters and offered training to develop skills in record-keeping, administration, legal issues, accountancy and developing market contacts. This training will be ongoing and will commence in the second year of the project.

LOGICAL FRAMEWORK

19. Please enter the details of your project onto the matrix using the note at Annex B of the Guidance Note. This should not have substantially changed from the Logical Framework submitted with your Stage 1 application. Please highlight any changes.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal: **To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve** • **the conservation of biological diversity,** • **the sustainable use of its components, and** • **the fair and equitable sharing of benefits arising out of the utilisation of genetic resources**			
Purpose Populations of ornamental fish species in MSDR protected through management within a sustainable ornamental fishery, made possible through strengthened capacity of fishers, local community, researchers, reserve managers and national and international traders.	Compiled database of ornamental fish inventory and stock estimates. Annual monitoring conducted. Identified number of households participating in implementation of management plan. Trade initiated and documentation available interpreted and acted upon. Guidelines in place to maximise efficiency and effectiveness of chain of custody.	Field survey reports and active database established by end of year 1. Monitoring procedure determined by end of year 2. Monitoring protocol and training documents prepared. Collection Area Management Plan (CAMP) in operation and information disseminated by end of year 3. Monitoring, surveillance and community-led enforcement team in operation. Trade guideline report prepared by end of year 3. Trade data documented and disseminated through training sessions and stakeholder workshops.	SCM continues to support projects to investigate the sustainable use of MSDR's natural resources. There is a market for sustainably sourced ornamental fish which is not overshadowed by improvements in captive breeding techniques or other market influences. Cooperation between stakeholders in freshwater ornamental fish trade is in existence and can be built upon.
Outputs Biodiversity of ornamental fish species in MSDR assessed, and a standardised, repeatable monitoring programme established.	Fish population and monitoring data.	Biological baseline survey report by end of year 1. Monitoring procedure manual by end of year 2. Biological and other data incorporated into preparation of CAMP. Fisher meetings. Scientific review meetings.	Standardised survey techniques and methodologies adhered to so that valid analyses and modelling can be carried out.

Social and economic parameters of community determined and monitored, local knowledge and needs identified, and feedback loop established.	Number of households with potential to benefit from fishery identified. Their economic status evaluated. Number of fishers participating in project known.	Socio-economic survey report completed by end year 1. Fisher meetings, feedback sessions and participant lists prepared. Community collection scheme and socio-economic monitoring protocol designed and trialled through participatory community methods.	Willingness of community to participate in survey and scheme, and sufficient information available to assess economic parameters accurately.
Market and economic potential for fishery identified, a business plan and standardised guidelines in place for trading procedure from source to end-user.	Guidelines tested and adopted through chain of custody. Project personnel following business plan. Sustainable trade initiated.	Stakeholder written agreements to participate. Trade documentation. Traders workshop and stakeholder feedback sought and trade guidelines report completed by end of year 3.	Communication between all links of trade chain and willingness to document trade movements.
Standards for sustainable harvesting upheld within reserve.	Fishers, researchers and managers following recommendations set within Collection Area Management Plan (CAMP) and business plan.	Quota records. Monitoring protocol. Training course attendants list, training manual. CAMP tested and adopted by end of year 3.	Standardised monitoring techniques maintained. Relevant stakeholders willing and able to participate in training. Continuity for trained staff and their willingness to disseminate training methods to others.
Understanding of, support for, and participation in sustainable ornamental fishery within community.	Community members trained in business and practical skills associated with project and knowledgeable about project concept.	Fisher meetings and training sessions. Training documents. Community meetings. Information distributed and discussed with fisher and community groups.	Willingness of stakeholders to participate and embrace project principles.

Activities	**Activity Milestones (Summary of Project Implementation Timetable)**
Research and monitoring programme	Within year 1: Undertake population survey of ornamental fish species. Socio-economic survey of local community. Collect information required for CAMP. Assessment on Brazilian and international trade and market perspectives. Within year 2: Establish monitoring system protocols for biological and socio-economic work. First biological monitoring survey and trial collection season. Produce working business plan. Within year 3: Put in place pilot system for evaluating and monitoring off-take and socio-economic indicators. Data organised, maintained and available in accessible forms. Fisher organisations with increased capacity to coordinate business and carry out practicalities of trade. Produce working guidelines for trade.
Workshops, meetings and training	Within year 1: Hold introductory and information-gathering meetings. Biological and socio-economic methodology training. Community interviews. Brazilian trade analysis meetings and workshop. Methodology review and annual review meetings. Within year 2: Hold fishers meetings to discuss collection scheme planning. Hold community training on business, collection, handling and transportation techniques. Trade meetings to discuss business plan, CAMP and trade procedures. Refresher biological and socio-economic methodology training. Methodology review and annual review meetings. Within year 3: Hold fisher training sessions for business and collection procedures. Trade workshop to present and discuss CAMP and trade guidelines documents to stakeholders.
Production of material	Within year 1: Biological survey report. Database. Semi-annual and annual report. Within year 2: Socio-economic survey report. Biological and socio-economic monitoring results and monitoring protocol reports. Stakeholder agreements. Drafted business plan and CAMP. Semi-annual and annual report. Within year 3: Guidelines for trade. Business plan and CAMP. Training manual. Summary of project. Semi-annual and final report.

20. Provide a project implementation timetable that shows the key milestones in project activities.

Project implementation timetable		
Date	**Financial year**	**Key milestones**
	Apr-Mar 2005/6 Apr-Mar 2006/7 Apr-Mar 2007/8	
Aug 05	Apr-Mar 2005/6	• Undertake review of current ornamental trade and develop trade links (e.g in UK). Steps and processes, authorisation etc in Brazil and internationally.
Aug 05	Apr-Mar 2005/6	• Assessment of existing certification and standardised guideline schemes and potential for application to the freshwater ornamental fish market reported.
Dec 05	Apr-Mar 2005/6	• Organise stakeholder meetings (and if appropriate, workshop in Manaus) to determine current situation and issues.
Dec 05	Apr-Mar 2005/6	• Biological research survey methodologies finalised.
Dec 05	Apr-Mar 2005/6	• Collect additional information necessary for CAMP.
Dec 05	Apr-Mar 2005/6	• Socio-economic survey methodologies finalised.
Dec 05	Apr-Mar 2005/6	• Potential communities and individuals identified for involvement in the project.
May 06	Apr-Mar 2005/6	• Determine protocol to establish extraction procedure (collection areas and no-take areas expected to relate to MSDR management plan). List of suitable species determined.
May 06	Apr-Mar 2005/6	• Baseline surveys at Mamirauá completed, database components established and data entered.
May 06	Apr-Mar 2005/6	• Socio-economic situation of community explored through participatory meetings, interviews and information gathering. Details obtained on desired community collection methods and association structure to feed into CAMP.
May 06	Apr-Mar 2006/7	• Identify and document current typical production processes and systems including collection, fishing, handling, husbandry and transportation.
May 06	Apr-Mar 2006/7	• Determine current Brazilian trade regulations/exportation requirements and investigate likely future developments.
Jun 06	Apr-Mar 2006/7	• Biological survey findings report produced and information disseminated to community.
Aug 06	Apr-Mar 2006/7	• Working biological monitoring protocol documentation prepared.

Sep 06	Apr-Mar 2006/7	• Collection scheme set-up designed to reflect community requirements. Socio-economic report completed and protocol in place to monitor socio-economic indicators of project.
Sep 06	Apr-Mar 2007/8	• Organisation of association, registration and membership ascertained (all sectors of community considered).
Aug 07	Apr-Mar 2007/8	• Develop a business plan (draft by Aug 06, amend and update following annual review, Aug 07).
Sep 07	Apr-Mar 2005/8	• Biological research survey team trained, annual refresher training, before survey season and ongoing.
May 07	Apr-Mar 2006/7	• First biological monitoring survey at Mamirauá completed, input into database, information disseminated to community.
Jul 07	Apr-Mar 2006/7	• Draft CAMP prepared and peer-reviewed comments received.
Dec 07	Apr-Mar 2007/8	• Annual reviews conducted at Mamirauá into research methodologies and protocols, implementation of CAMP, community needs etc.
Apr 08	Apr-Mar 2007/8	• Annual and semi-annual project review team meeting and reporting. Review of business plan, CAMP, guidelines and all other outputs and issues. Address grant reporting requirements.
May 08	Apr-Mar 2007/8	• Second monitoring survey completed, input into database, information disseminated to community.
by May 08	Apr-Mar 2007/8	• Training of association in business management, accountancy, reporting.
by May 08	Apr-Mar 2007/8	• Training of fishers associations in sustainable exploitation, resource management, use of CAMP, safety, monitoring, reporting, husbandry and transportation techniques.
by May 08	Apr-Mar 2007/8	• Implementation of business plan (trialling processes if appropriate).
by May 08	Apr-Mar 2007/8	• Documentation, auditing and feedback processes for trade in place.
by May 08	Apr-Mar 2007/8	• Establishment of standardised husbandry and industry guidelines (draft by Jun 06, final disseminated and discussed with stakeholders by May 08).

21. Set out the project's measurable outputs using the separate list of output measures.

PROJECT OUTPUTS		
Year/Month	**Standard output number (see standard output list)**	**Description (include numbers of people involved, publications produced, days/weeks etc.)**
2009	1B	One Brazilian PhD thesis prepared.
2007	2	Two Brazilian MSc research theses prepared.
by 2008	4A	Training of 4 biological research personnel.
by 2008	4B	4 weeks biological training per year.
by 2008	6A	Training of scientific coordinator, junior sociologist and 2 community promoters. Training of 40 fishers in collection, husbandry and transportation skills.
by 2008	6B	2 weeks participatory methods training. 4 weeks collection, husbandry and transportation skills training.
2007	7	Training manuals, materials and documentation for biological and socio-economic research, collection, husbandry and transportation techniques for fishers and other handlers.
by 2008	8	Twenty-two weeks spent in Brazil by technical staff from UK over the course of the project, including technical advice for collection scheme from Aquarist, project development and capacity building from UK project management team and trade advice from UK Trade expert.
by 2008	9	One Collection Area Management Plan
2007	10	Identification section within Biological Monitoring Protocol.
by 2008	11B	A paper for submission to a peer-reviewed journal.
2007	12B	Biological database enhanced to include fish species, collection sites, methodologies etc.
2008	14A	A workshop to present and disseminate suggested guidelines to trade representatives and Brazilian officials and to discuss replication and certification opportunities.
by 2008	15A	Five national press releases (Brazil)
by 2008	15B	Ten local press releases (Brazil)
by 2008	15C	Two UK national press releases
by 2008	16A	Three e-newsletters in Brazil, one UK newssheet, two magazine articles.

	16C	1000 newssheets produced, circulation for magazine 25,000.
by 2008	17B	The organisational structure of the community strengthened to assist with the dissemination of techniques and training associated with the collection scheme and monitoring of resources. The improved communication between stakeholders along the chain of custody to develop and encourage the sustainable trade of freshwater ornamental fish.
by 2008	18A	One Brazilian TV feature.
by 2008	18B	Currently in negotiation with BBC for mainstream documentary on ZSL's aquatic activity.
by 2008	19A	One Brazil national radio feature.
by 2008	19B	One UK radio feature.
by 2008	19C	Five local radio features in Brazil.
by 2008	20	Project physical assets of £15,000. A speedboat (£7000), survey equipment (£3000), floating storage facility for fish £4000 and a computer £1000.
by 2008	21	Membership into fishers ornamental fish association to coordinate training and collection procedures for a sustainable trade in ornamental fish.

MONITORING AND EVALUATION

22. Describe, referring to the Indicators in the Logical Framework, how the progress of the project will be monitored and evaluated, including towards delivery of its outputs and in terms of achieving its overall purpose. This should be during the lifetime of the project and at its conclusion. Please include information on how host country partners will be included in the monitoring and evaluation.

A team of researchers will be trained by the Head Scientist in survey techniques, and biological data applicable to the trade will be collected by May 06 at Mamirauá. Collection methods will be repeatable, for later incorporation into the biological monitoring protocol. Results will be fed into a database kept on site and validated by the Head Scientist. Methodologies will be discussed within the existing annual methodology review held at MSDR every December. Findings from the survey will be discussed and evaluated at the annual review in April 06, and a report from this baseline survey will be prepared by June 06.

A protocol to carry out annual biological monitoring at Mamirauá will be finalised by August 06 by the Head Scientist with technical advice from SCM and ZSL. Annual biological monitoring for the project will assess fish stocks and biological parameters applicable to the project. Monitoring training materials and training sessions will be provided for researchers and fishers. Comprehension of methods and theory will be evaluated through assessments carried out within training sessions. Standards will be upheld through cross-checking by the science team. Monitoring techniques, quality of results and other issues will be addressed within annual reviews involving lead figures from the project from Brazil and UK.

Socio-economic data to create a profile of the community and potential participants will be gathered by May 06. Input from the community on potential involvement, project design and implementation techniques will be sought using participatory approaches during this time. Methodologies and findings will be discussed and evaluated at the annual review in April 06. A socio-economic profile report and a monitoring protocol to evaluate socio-economic indicators will be prepared by September 06. An organised association of community participants in the project will be assembled by May 07. Information from the community will feed into the development of the CAMP and information from the fishery will be collected over time to influence decision-making on sustainability issues. Regular discussions will be held with the community to evaluate progress and obtain feedback from project developments.

Capacity-building of the community association to operate as a business will be achieved through training sessions. Training of the community in collection and handling techniques will be conducted through the Head Sociologist with input from the Head Scientist prior to and during collection seasons. The Head Aquarist will 'spot-check' and advise on procedures to maintain standards and evaluate methods.

Progress of the business plan will be discussed in April 06 and a draft will be available by August 06. It will subsequently be evaluated and updated through semi-annual and annual reviews, from ongoing development and feedback, and from inviting comments from stakeholders.

The drafted CAMP will be discussed at the annual review in April 07 and finalised through peer-review and feedback from the community by the end of the project.

Trade guidelines will be drafted and built upon through the duration of the project. These guidelines will be evaluated through the review process and trade workshop, and circulated in the final year of the project for comment from Amazonian freshwater ornamental fish organisations, international trade organisations and certification scheme organisations.