



Darwin Initiative
Final Report

Darwin Project Information

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Country	Colombia
UK Contractor	The Natural History Museum
Partner Organisation (s)	Instituto de Ciencias Naturales, Universidad Nacional de Colombia (ICN) and Conservation International – the Center for Applied Biodiversity Science, USA (CI)
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Project website	www.biomap.net
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Project background/rationale

The location of project BioMap was Colombia, north-western South America, although data collection was also undertaken in museum visits throughout Europe and North America. The project further contained an important component of U.K.-based training in research for Colombian M.Sc. students. Colombia is one of the top “mega-diversity” nations in the world, with 15% of all known terrestrial species on just 0.8% of the world’s surface area that contains 18 eco-regions and 65 ecosystem types. Colombia has the greatest bird diversity in the world with 1,869 bird species, including 193 “Endemic Bird Area” species. Nevertheless, it is widely recognised that Colombia faces great conservation challenges and large swathes of the country remain biologically poorly known.

Limited time and money is forcing conservation to be selective and cost-efficient. Priority-led action must be based on sound knowledge. However, the paucity of information on biodiversity distribution in many mega-diverse nations, which are largely tropical, has hindered reliable assessments and therefore timely and targeted action. Fieldwork to collect data is necessary but time-consuming, yet a wealth of available information exists and is accessible in the form of museum collections – a vast legacy and largely untapped biodiversity resource. Among organisms, birds are both the best documented in terms of their taxonomy and distribution and also have a high profile and great public appeal. This makes them pre-adapted for use as a flagship biological group to increase the biological knowledge base, establish research priorities, and promote efficient conservation and sustainable management of biological diversity in Colombia.

The problem that the project aimed to address was to assist effective environmental protection and a sustainable natural resource management strategy for the conservation of biological diversity in Colombia. It would achieve this goal in particular through the provision of a geo-referenced database of all available museum and other appropriate bird specimen data, which could then be used in prioritizing a protected areas strategy for Colombia, together with a programme of training for a cross-section of people likely to become key players in Colombia’s developing biodiversity strategy.

An appreciation of the need for the project grew out of ten years of prior experience in research and conservation-related activities in Colombia by the BioMap project manager, Dr Paul Salaman. Through discussions with a range of interested and qualified personnel in Colombia, notably in the Alexander von Humboldt Institute (IvAH) and in the Instituto de Ciencias Naturales (ICN), Universidad Nacional, Bogota, he identified a demand for this type of project and a commitment from one or more appropriate local partners. At the same time he was aware from numerous research visits to the Natural History Museum bird collections both of the size of its holdings of Colombian specimens and also of its commitment to making information associated with its holdings available to the wider scientific and conservation community. By bringing together these two separate but inter-related strands of interest the momentum for the project was engendered, at which point Conservation International - the Center for Applied Biodiversity Science (CI-CABS), USA, also became involved with an offer to part-fund it.

Project Summary

The logical framework for the project is attached as Appendix V. The purpose was to increase biodiversity knowledge and data input into the Colombian National Bird Conservation Strategy (NCBS), in order to better formulate priorities to effectively and cost-efficiently focus research and conservation action for birds in the first instance. Seven key outputs were specified:

- Improve the scientific knowledge base of bird distribution through making data publicly available to academic and conservation-oriented entities.
- Information to identify and prioritise Important Bird Areas.
- Formulate an integrated bird conservation action plan, thereby helping implement the existing National Bird Conservation Strategy.
- Strengthen Colombian institutional capacity to provide inputs into conservation decision making.
- Provide UK-based training in GIS and environmental assessment and management techniques.
- Increased public awareness of conservation priorities.
- Establish a model example of international cooperation for biodiversity data repatriation.

The main alteration to the operational plan for the project came right at the beginning, shortly after it had been approved. The original Colombian partner organisation was to have been the main biodiversity institute in Colombia, the Instituto Alexander von Humboldt (IAvH). However, following a change in director at IAvH during the Project BioMap approval stage, it proved impossible to reach agreement with IAvH to continue the project as planned. With the agreement of the Darwin Secretariat, the Colombian partner organisation was therefore changed to the Instituto de Ciencias Naturales (ICN), Universidad Nacional, and the start of the project delayed.

The Articles under the Convention on Biological Diversity (CBD) which best describe the project are shown in Appendix 1. The main thrusts of Project BioMap were to synthesise disparate information relating to hundreds of thousands of bird specimens scattered through the world's museums into a coherent database (the Darwin Database), for use in devising conservation strategies for the Colombian avifauna and other biota and to train Colombian scientists in environmental assessment and management techniques. The project has been more successful in its data-gathering and training components than envisaged, but it has suffered considerable delay to the completion of the on-line version of the Darwin Database, with consequent delay to its intended publication outputs, as the complexities of, in particular, truthing and geo-referencing the data-base inputs were very substantially underestimated. However, in certain respects the database now exceeds original specifications, e.g. every specimen has a link to Google Earth so that one can see exactly where it was collected.

Scientific, Training, and Technical Assessment

Research outputs of four types have been produced, or are planned, from Project BioMap. The two Colombian Darwin Fellows undertaking M.Sc. degrees at King's College London, Clara Isabel Bohórquez and Juan Carlos Verhelst, produced M.Sc. dissertations entitled "*Setting conservation priorities in Colombian Andean forests: problems and solutions to the geographical analysis*" and "*Bird species richness in Colombia: environmental controls and conservation*" respectively, copies of which are provided with this report. The analyses in these were based on information generated by Project BioMap, but will require updating

prior to publication as only a subset of the total database generated by Project BioMap was available at the time they conducted their analyses. Documentation papers drawing attention to the Colombian bird specimen resources held both in Colombian museums and worldwide are in preparation; a draft of the former, *Las colecciones ornitológicas en Colombia: una fuente importante de información sobre la biodiversidad de nuestro país*, intended for the journal *Ornitología Colombiana*, is submitted with this report. A National Action Plan for Conservation and Research, integrating results from Project BioMap with the existing National Bird Conservation Strategy, was discussed in detail at a BioMap Workshop in October 2004, drafted in a Spanish-version report on BioMap progress (document supplied herewith) and is planned for publication in revised form in *Conservación Colombiana* (see below).

Technical delays in setting up the on-line version of the Darwin database, arising from problems in the truthing of the database inputs, have meant that planned analytical papers for submission to international peer-reviewed journals have fallen considerably behind schedule. However, this should shortly be rectified as a number of papers are in early draft form and three PhD students, all Colombians and including the 2 Darwin Fellows, are presently using outputs from the Darwin database in their research, notably relating to distributional modelling of rare and threatened species in Colombia for conservation assessment. Finally, the detailed museum research involved in compiling the Darwin database and the field research that Project BioMap has helped stimulate has provided information for a number of unenvisaged publications. An example of the first is the currently in draft description of a new bird species in the genus *Grallaria* from an old, previously misidentified museum specimen; unfortunately field searches in its area of origin, where almost no natural habitat now survives, have thus far failed to locate a surviving population. An example of the latter is the involvement of the Project Manager in the rediscovery of a hummingbird not seen since its original collection over 50 years ago (Krabbe et al. 2006 – see Appendix III).

Project BioMap provided extended employment and training to six Colombian scientists, selected by interview from a pool of 30 applicants, during the early phases of their careers: Sussy de la Zerda (B.Sc. Universidad de los Andes, Bogotá, Colombia; M.Sc. Virginia Polytechnic Institute & State University) was appointed as Colombian project co-ordinator; Diana Arzuza (B.Sc. Atlantic University, Barranquilla, Colombia) and Andreas

Morales (B.Sc. Pontificia Universidad, Javeriana, Colombia) as Colombian museum cataloguers; and Clara Isabel Bohórquez (B.Sc. Universidad Nacional, Bogotá, Colombia) and Juan Carlos Verhelst (B.Sc. Universidad de los Angeles, Bogotá, Colombia) as Darwin Fellows to undertake the M.Sc. course at King's College London and act as United States museum cataloguers. Sussy de la Verde took up a new post in January 2004 and was replaced by Loreta Rosselli (B.Sc. Universidad de los Andes, Bogotá, Colombia; M.Sc. Universidad de Costa Rica) as Colombian project co-ordinator. Using funding derived from non-Darwin sources, the Darwin project manager, Paul Salaman, and a British ornithologist, Nigel Cleere, acted as European museum cataloguers. Details of other, shorter-term training provided to Colombian scientists through BioMap-organized activities is summarized in Appendix VI.

Project Impacts

The 217,660 specimen records collated from 88 collections worldwide has provided a comprehensive biodiversity data base relating to Colombian bird distribution that is unparalleled in virtually any developing nation and provides a baseline for future monitoring and environmental impact assessment efforts. Its public availability (http://www.biomap.net/BioMAP/login_en.php) has implications that are both broad and far-reaching and significantly increase the biodiversity knowledge of Colombia and guide priority-setting actions. Production of this involved development of the BioMap Data Entry Tool (see BioBytes nos 1-3 - copies of all BioBytes supplied herewith and also available via www.biomap.net in both English and Spanish), with facilities both for museum specimen and observation databasing, and including dictionaries for contributors (authors), institutions, locations (full gazetteer), species nomenclature (including synonyms) and bibliography; this will provide a major resource for future databasing efforts in Colombia. Information compiled in the Darwin Database is now being used by three Colombian PhD students for conservation-related research.

The existence of Project BioMap has served to bring together ornithologists from essentially all relevant institutions in Colombia, and was directly responsible for the setting up of the Network of Colombian Bird Collections (RCCA) – see BioByte no. 3, p. 6. The late 2004 workshop was attended by representatives of essentially all of these institutions, including the Alexander von Humboldt Institute (IvAH) (see BioByte no. 8, p. 10). Project

BioMap formed a particularly close and significant partnership with the Fundacion ProAves, Colombia’s leading bird conservation group, for which the Project Manager has served as Director of their council. The most impressive impact of Fundacion ProAves’s conservation actions, assisted by the BioMap manager and staff, has been the creation of eight Bird Reserves covering over 25,000 acres in different priority sites in Colombia to protect the most endangered species and sites that lay outside of the state protected area network (Table 1).

Table 1: Location of ProAves Bird Reserves across Colombia established with the support of Project BioMap data (For more information see www.proaves.org).

ProAves reserve	Location	Department	Longitude	Latitude	Area(ha)	Min Alt	Max Alt	Identified
Loro Orejamarillo	5 km S of Jardin	Antioquia	-75.77810	5.55000	300	1900	2600	Rediscovery
Mirabilis-Swarovski	18 km W of El Tambo	Cauca	-77.00000	2.70000	1900	1500	3020	Major collection
El Dorado	15 km SE of Minca	Magdalena	-73.56000	10.9100	600	1900	2600	Major collection
El Mirador	8 km E of Génova	Quindío	-75.71000	4.13310	1905	2900	4000	Fieldwork
El Paujil	1 km SE of Puerto Pinzon	Boyacá/ Santander	-74.05000	6.04750	1200	150	1200	Fieldwork
Colibri de Sol	5 km N of Urrao	Antioquia/ Chocó	-76.07482	6.43442	2852	2800	4060	Rediscovery
Reinita Cerúlea	4 km W of San Vicente de Chucurí	Santander	-73.38770	6.86418	200	1600	2500	Collection
Arrierito Antioqueño	90 KM NE of Medellin	Antioquia	-75.11171	6.98487	600	1400	1850	Fieldwork

On a broader, international scale, Project BioMap has brought together museums across Europe and North America to contribute the information they hold on Colombian birds, much previously inaccessible to researchers and conservationists in Colombia. It has also in turn assisted many of these museums by creating or greatly improving databases of information for their Colombian bird specimens. Likewise, the model that Project BioMap created is currently being drawn upon for similar projects being planned for other tropical Andean countries such as Peru and Bolivia.

Project Outputs

Seven key outputs were specified, of which the first was to “Improve the scientific knowledge base of bird distribution through making data publicly available to academic and conservation-oriented entities”, to be achieved via the proposed on-line Darwin Database, the planned primary output from Project BioMap. Getting access to all the museums to database and incorporate their information in Project BioMap was a complex and protracted enterprise. Despite substantial hold-ups in achieving this for a couple of major U.S. museums, the necessary specimen data were compiled and verified by BioMap-employed personnel at every museum holding significant Colombian bird

collections in North America, Europe and, with one exception, Colombia itself. A detailed breakdown by museum is provided on pp 5-6 of BioByte newsletter no. 7, and in slightly updated form in the longer Spanish-version draft final report (attached). In total 217,660 specimens from 88 different museums were included. The single important collection currently remaining unincorporated is that of the Instituto Alexander von Humboldt (IAvH) in Colombia. As outlined above, the IAvH originally agreed to be the primary Colombian partner on Project BioMap, and it has proved impossible as yet to date to bridge the gap that developed after they withdrew from it. However, discussions continue and hopefully data from their important collection, the second largest in Colombia, will eventually be incorporated. The hold-ups in gaining access to two major museum collections, combined with subsequent technical difficulties in truthing and geo-referencing, have substantially delayed the release of the Darwin Database to the public domain, but at the same time its specifications have been enhanced beyond those originally planned. An on-line version is currently available via http://www.biomap.net/BioMAP/login_en.php and will shortly be available via www.biomap.net .

With BioMap support, BioMap partners Conservation International (Colombia) and Fundacion ProAves obtained additional funding from the United States Fish and Wildlife Service (USFWS) to undertake detailed monitoring fieldwork across 9 field stations in Colombia – all known from museum data as historical collecting locations with good specimen collections. As a result, the ProAves National Monitoring Database, comprising field observations and banding data, has expanded rapidly and is now available on-line (<http://www.proaves.org/SisOS/login.php>): it contains approaching 200,000 records of around 1,000 bird species from 146 monitoring stations in 14 departments of Colombia, with 102 organisations in Colombia having contributed. In combination, the Darwin Database of museum specimen records and the ProAves National Monitoring Database comprise a powerful research tool for biodiversity investigations, in particular for those requiring a historical dimension (see under Sustainability and Legacy below)

The second key output was “Information to identify and prioritise Important Bird Areas” in Colombia. Information for 48 sites from Project BioMap was available in time to be submitted by the Project Manager for the relevant chapter of the BirdLife International/Conservation International book *Áreas Importantes para la Conservación de las Aves en los Andes Tropicales* (2005), and one of the assistant authors on this chapter

was Loreta Roselli, who was Colombian project co-ordinator for BioMap from January 2004 (see above). A summary for 134 sites, synthesised from the raw data included in the Darwin Database and prioritised by scientific importance and threat status, is provided on pp 7-9 of BioByte newsletter no. 8 and in more detailed form in the Spanish draft final report (both supplied herewith). The third key output “Formulate an integrated bird conservation action plan, thereby helping implement the existing National Bird Conservation Strategy”, was the focus of the final workshop held under the auspices of BioMap in October 2004, attended by 55 ornithologists from 23 museum, university and government entities from across Colombia. A summary of the programme and results is given on pp 4-6 of BioByte newsletter no. 8. It was intended that the published version of this would appear in the inaugural issue of *Conservación Colombiana* in 2006, but it has had to be held over and is currently being prepared for the 2007 issue.

The fourth key output was to “Strengthen Colombian institutional capacity to provide inputs into conservation decision making”. A list of the ten major technical workshops and training meetings organised and co-organised by BioMap is given in Appendix VI. In total these involved training for 446 people over 252 hours and 32 days. Arising out the BioMap-organised first meeting of Colombian bird collection curators (BioByte no. 3: 5-6), a formal “Network of Colombian Bird Collections” (RCCA) was set up (BioByte no. 5: 1 and 6). This continues to stimulate co-operation between Colombian bird collections and is committed to producing a National Manual for Bird Collections. In addition, BioMap presented talks and/or posters at 15 other workshops and conferences (Appendix VII). The fifth key output was to “Provide UK-based training in GIS and environmental assessment and management techniques”, with the specific aim of ensuring that two of the BioMap staff achieved training at Masters’ level. To this end, Juan Carlos Verhelst and Clara Isabel Bohorquez were appointed as “Darwin Fellows” and began the one-year M.Sc. course (part taught, part dissertation) “*Modelling, Monitoring and Management of Environmental Change*” at the Geography Dept, Kings’ College, University of London, in September 2002. Both to fit in with their museum data-basing duties and also to permit their dissertations to be based on the analysis of data synthesised by BioMap, their participation in the course was split over two years and both graduated successfully in September 2004.

The main means of achieving the sixth key output “Increased public awareness of conservation priorities” both internationally and nationally was through the high profile BioMap website (www.biomap.net), which achieved an average of 28,900 hits per month through 2005, together with the regular BioByte newsletter which was e-mailed to over 800 people and organisations as well as being downloadable from the website. Within Colombia, this was supplemented by local and national press coverage, e.g. articles about BioMap published in the Universidad Nacional Newspaper, which is circulated with the national newspaper *El Tiempo*, in January 2003 and October 2004. The final, seventh output was to “Establish a model example of international cooperation for biodiversity data repatriation”. This has been emphatically achieved, despite the delay in finalising the web availability of the Darwin database. BioMap is now known by ornithologists and conservationists world-wide as one of the few successful examples in which the world museum bird specimen resource for a large tropical country has been data-based and checked and is being made available for detailed research analysis for conservation purposes (the other main one relates to Mexico, where similar work was begun in the mid 1990s as a Mexican/U.S. joint project and is still on-going – see Navarro, A.G. et al. 2003 *Museums working together: the atlas of the birds of Mexico. Bull. Brit. Orn. Club* 123A: 207-225). It has further acted as a model for similar endeavours now underway for other major regions of the developing world, e.g. southern Africa.

Project Expenditure

Darwin budget headings	Funding	Expenditure	Balance
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Totals	149,854.00	-149,217.45	636.55
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NB Darwin gave permission for the virement of £4,500 to travel from elsewhere in the budget. Final workshop costs were included in the final Bogotá reconciliation for travel, so the balance in the workshop budget was vired to travel. Student fees were lower than estimated. Capital items was overspent due to the replacement of a laptop in Bogotá.

Project Operation and Partnerships

In our application we noted that six regional ornithological associations and Conservation International-Colombia would be involved, as well as our main Colombian partner, ICN, which housed BioMap's in-country Colombian staff, hosted a number of the technical and training meetings and provided major project support through the involvement of its chief ornithologist, Dr Gary Stiles. During the course of this project, we significantly expanded the project partnership through involving all possible ornithologists (and associated institutions) in the review of data and analysis. We formed a particularly close working relationship with Fundación ProAves, the leading Colombian bird conservation organisation, and also received the support of 23 bird collections in Colombia (far more than we had originally envisaged). We expanded operations to work with all, which in turn has helped galvanise support for Project BioMap within Colombia.

1. Colegio San José de Guanentá, San Gil
2. Colegio San José, Medellín, Medellín
3. Ecoparque Los Yarumos, Manizales
4. Gorgona, Cauca (Island in Pacific).
5. INCIVA, Cali
6. Inderena, Bogota
7. Instituto de Ciencias Naturales UN, Bogotá
8. INEMAR, Santa Marta
9. La Planada, Pasto
10. Museo de Historia Natural Instituto Champagnat, Pasto
11. Museo La Salle, Cúcuta
12. Museo Madre Caridad Brader, Pasto
13. Universidad de Antioquia, Medellín
14. Universidad de Caldas, Manizales
15. Universidad de la Salle, Bogotá, Bogotá
16. Universidad de los Andes, Bogotá
17. Universidad de Nariño, Pasto
18. Universidad del Atlántico, Barranquilla
19. Universidad del Cauca, Popayán
20. Universidad del Valle, Cali
21. Universidad Distrital, Bogotá
22. Universidad Industrial de Santander, Bucaramanga
23. Universidad Nacional, Medellín, Medellín

Project BioMap counts as one of the most significant and extensive partnerships of bird collections across North America, Europe and Australasia to date, with 66 collections, almost all of which were visited by Project BioMap staff, contributing their specimen information to the Darwin Database.

66 International collections are listed (name, country and city):

1. Staatliches Museum für Naturkunde (SMNS), Germany, Stuttgart
2. Museum für Naturkunde (ZMB), Germany, Berlin
3. Forschungsinstitut und Naturmuseum Senckenberg (SMF), Germany, Frankfurt
4. Staatliches Museum für Tierkunde (SMTD), Germany, Dresden
5. Institut für Zoologie (IZH), Germany, Halle
6. Naturkunde-Museum Bamberg (MKMBA), Germany, Bamberg
7. Zoologisches Forschungsinstitut und Museum (ZFMK), Germany, Bonn
8. Zoologische Staatssammlung, Germany, Munich
9. Biologie Zentrum des Oberösterreichisches Landesmuseums (BZOL), Austria, Linz
10. Naturhistorisches Museum (NMW), Austria, Vienna
11. Koninklijk Belgisch Instituut voor Natuurwetenschappen (KBIN), Belgian, Brussels
12. Zoologisk Museum, Denmark, Copenhagen
13. Museo Nacional de Ciencias Naturales (MNCN), Spain, Madrid
14. Museu de Zoologia, , Spain, Barcelona
15. Muséum d'Histoire Naturelle de Toulouse (MHNT), France, Toulouse
16. Muséum d'Histoire Naturelle de Nantes (MHNN), France, Nantes
17. Muséum National d'Histoire Naturelle (MNHN), France, Paris
18. Zoologisch Museum (ZMA), Holland, Amsterdam
19. Nationaal Natuurhistorisch Museum (RMNH), Holland, Leiden
20. National Museum of Wales, England, Cardiff
21. The Natural History Museum (BMNH), England, Tring
22. Leeds Museum Resource Centre (LEEDMC), England, Leeds
23. Booth Museum (BMB), England, Brighton
24. Bolton Museums, Art Gallery & Aquarium (BOLMG), England, Bolton
25. Royal Albert Memorial & Art Gallery, England, Exeter
26. Oxford University Museum (OUM), England, Oxford
27. National Museums & Galleries on Merseyside (NMGN), England, Liverpool
28. The Manchester Museum (MANCH), England, Manchester
29. University Museum of Cambridge (UMZC), England, Cambridge
30. Natural History Museum, National Museum of Ireland (NMINH), Ireland, Dublin
31. Museo Civico di Zoologia (MZGZ), Italy , Roma
32. Collegio San Giuseppe (CSGT), Italy , Turin
33. Museo Regionale di Scienze Naturali (MRSN), Italy , Turin
34. Museo Civico di Storia Naturale 'Giacomo Doria' (MSNG), Italy , Genoa
35. Museo Civico di Storia Naturale (MSNM), Italy , Milan
36. Musée National d'Histoire Naturelle (MNHNL), Luxembourg, Luxembourg
37. Zoologisk Museum (ZMBN), Norway, Bergen
38. Zoologisk Museum (ZMUO), Norway, Oslo
39. Auckland Museum, New Zealand, Auckland
40. Darwin Museum (SDM), Russia, Moscow
41. Malmö Museer (MM), Sweden , Malmö
42. Naturhistoriska Riksmuseet (NRM), Sweden, Stockholm
43. Naturhistorisches Museum , Switzerland , Bern
44. Muséum d'Histoire Naturelle de Genève, Switzerland , Geneva
45. Musée Zoologie, Lausanne (MZL), Switzerland , Lausanne
46. Muséum d'Histoire Naturelle de Neuchâtel (MHNN2), Switzerland , Neuchâtel
47. Academy of Natural Sciences of Philadelphia (ANSP), Philadelphia
48. American Museum of Natural History (AMNH), New York
49. California Academy of Sciences (CAS), San Francisco
50. Carnegie Museum of Natural History (CMNH), Pittsburgh
51. Cleveland Museum of Natural History, Cleveland
52. Cornell University Museum of Vertebrates (CUMV), Ithaca
53. Delaware Natural History Museum (DMNH), Wilmington
54. Field Museum of Natural History (FMNH), Chicago

55. Florida Museum of Natural History, University of Florida (FLMNH), Gainesville
56. Los Angeles County Museum, Los Angeles
57. Michigan State U. Museum of Zoology (MSU), East Lansing
58. Museum of Comparative Zoology, Harvard (MCZ), Boston
59. Museum of Natural Science, Louisiana State University (LSU), Baton Rouge
60. Museum of Vertebrate Zoology, University of California (MVZ), Berkeley
61. Museum of Zoology, University of Michigan (UMMZ), Ann Arbor
62. Peabody Museum of Natural History, Yale University (YPM), New Haven
63. San Diego Natural History Museum (SDNHM), San Diego
64. University of New Mexico (UNM), Albuquerque
65. University of Puget Sound, Sclater Museum of Natural History (PSM), Tacoma
66. Western Foundation of Vertebrate Zoology, Camarillo

Monitoring and Evaluation, Lesson Learning

Project BioMap had a five-person Directive Committee to oversee and monitor the project implementation, operation and post-project success. This was chaired by Robert Prÿs-Jones (Natural History Museum) and included the Project Manager, Paul Salaman, and representatives of ICN, Conservation International (Colombia) and Conservation international (CABS). Evaluations of project progress were conducted by the Directive Committee based on biannual newsletters (October/April) and accounts by the BIOMAP Manager. The Manager was responsible directly to the Directive Committee chairman for project development and line management of staff and trainees. A Memorandum of Understanding (MoU) between institutions involved detailed specific responsibilities and obligations.

Quality control to validate data collected was thoroughly undertaken through, for example, statistical vetting for distribution outliers, differentiation between specimen, literature, and observation points for visual comparison, random performance checks, etc. The main reason for the delay in the Darwin Database going live has been the efforts made to ensure a high quality product.

Darwin Identity

Project BioMap has strongly promoted the Darwin Initiative in:

- *institutional capacity building* (national and regional levels meetings and workshops);
- *training* (a series of workshops with BioMap support);
- *research* (MSc theses, conference presentations etc.);

The Darwin Initiative logo and/or name have been used in:

- The “Darwin Database” for all bird specimen records gathered from museums worldwide.
- Darwin draft report towards a national action plan for birds, produced from Colombia’s first Ornithological congress (sponsored by Darwin Initiative).
- Logo on reports, training course material, databases, and letterheads.
- Project website (www.biomap.net) and the regular newsletter BioByte (produced in electronic and printed form in both Spanish and English).
- Presentations at congresses and other events.
- The two MSc students called Darwin Fellows.

Within Colombian ornithological circles, and to a considerable extent in the international museum ornithological community, Project BioMap had a clearly distinct identity as a project funded by the Darwin Initiative and Conservation International that would leave a permanent legacy in the Darwin Database.

Leverage

Project BioMap was able to proceed because the funding provided by the Darwin Initiative to support the Colombian part of the project was matched by almost equivalent funding from Conservation International (see Appendix V) which permitted the employment of the Project Manager, Paul Salaman. This relationship developed further when from September 2002, with the knowledge and approval of the Darwin Initiative, Paul Salaman transferred to the direct employment of Conservation International, based first in Quito and subsequently in Bogota, but with his responsibilities to Project BioMap unchanged except that he would no longer be responsible for databasing the European museum collections. Instead, Conservation International funding was made available to employ Nigel Cleere to undertake the majority of the European databasing as well as subsequently assisting the Colombian BioMap personnel with the completion of databasing in U.S museums. Further European Community funding (sources in brackets after museums) was successfully applied for to support travel and subsistence during the BioMap databasing visits made to the Copenhagen (COBICE), Madrid (Biodiberia), Paris (Colparsyst) and Stockholm (HIGH LAT) museums.

While employed by Conservation International, part of Salaman's duties were to seek to develop the existing Project BioMap in Colombia into a wider Program BioMap encompassing the Andean nations from Venezuela to Bolivia and including additional taxonomic groups to birds (amphibians, reptiles, mammals and selected butterfly groups). To this end, early in 2003, Conservation International and the Natural History Museum put in an application for just over US\$ 2 million (out of a total planned budget of US\$ 3 million) to the MacArthur Foundation under a call for projects relating to "Conservation and Sustainable Development in the Tropical Andean Hotspot". This was unfortunately not successful. However, we know that funding for similar projects to BioMap is now being actively pursued for both birds and other taxonomic groups within other northern Andean countries. Within Colombia, Project BioMap supported the successful application by Fundación ProAves to the USFWS for US\$ 150,000 for targeted fieldwork and monitoring at historically important collecting sites (see above), and the combined availability of the Darwin specimen database and the ProAves observation and ringing database look set to provide important synergies for future biodiversity research (see Sustainability and Legacy Section below).

Sustainability and Legacy

The Darwin Database is an immense legacy for ornithology and conservation in Colombia that should endure in perpetuity. The world museum resource of specimen information relating to Colombian birds is now held on databases hosted by ICN and Conservation International (Colombia) and available for biodiversity research by Colombian and other biologists. The availability of these data is already spawning numerous requests and opening up areas of research opportunity, which two examples may serve to illustrate. First, both Darwin Fellows are now enrolled in PhD research programmes in Colombia, focused on using the Darwin Database information for biodiversity research. Second, linkages are being formed between the Colombian partner organisations on Project BioMap and other overseas research institutions to exploit the potential of the database. Notably, there is a tie-up with the State University of New York (SUNY), which is already beginning to generate results as indicated by the following abstract of a talk to be presented at May 2007 Neotropical Ornithological Congress in Venezuela:

VELASQUEZ, J., GRAHAM, C. (both SUNY), SALAMAN, P. (American Bird Conservancy & BioMap Project Manager) & MORALES, A. (Fundacion ProAves, Colombia & former BioMap cataloguer): Knowledge of spatial patterns of biodiversity is necessary for systematic conservation planning over large areas. In Colombia, a country which holds the world's most diverse avifauna, knowledge on the distribution of most species is lacking. Current protected areas seem to be insufficient to halt the current trends of endangerment and therefore there is an urgent need to map the distribution of these species as well as to identify areas that are critical for their conservation. We developed a methodological framework that uses a combination of expert opinion and data to model species distributions with limited point localities, and to report the uncertainty in the developed models and the resulting sets of potential conservation areas. Priority areas identified are located primarily in the Andes as well as in the inter-Andean valleys. These areas cover a total of 11% of Colombia's surface, and if they were protected would represent all 235 species considered in this study and increase their representation targets a further 88%. Concentrations of threatened species at particular localities never exceeded more than 8 species, suggesting that conservation of Colombia's threatened birds might require extensive protected areas. Our results also highlighted areas of importance for future surveys, which include localities where recent ornithological surveys have found new species and therefore future fieldwork in these areas might still reveal undescribed taxa.

These studies are continuing to develop, and the central role that BioMap data are playing in them are illustrated by two paragraphs from a recent application *The implications of the shifting baseline syndrome in understanding ecological patterns in a biodiverse tropical region* for further funding made to the US NSF by Graham, C. (SUNY), Brookes, T. (Conservation International – CABS) & Salaman, P. (American Bird Conservancy & BioMap Project Manager) :

Colombian birds will be used as a case-study, building on recent investments in data compilation, most notably BioMap, an initiative to establish a complete database of all Colombian bird specimens across the world. The project will also use the National Monitoring Database, a database of field observations and banding data compiled by Fundación ProAves.

The BioMap database assimilates and repatriates biodiversity data to enhance the knowledge base in Colombia. Funded by the Darwin Initiative, Project BioMap has compiled 230,000 records of Colombian bird specimens from 87 collections across the world, spanning 160 years. BioMap will provide the basis of the species locality data that will be used in this analysis, particularly for historical records. It will be complemented by recent records compiled by Fundación ProAves, a database of 176,480 field observations and banding records from 1989 to date. Our project will focus on species endemic or near-endemic to Colombia.

Value for Money

We believe that Project BioMap achieved excellent value for money, based on the following points:

- It assimilated 150 years of museum-based data both in a highly cost-efficient manner compared to employing solely field survey techniques and in a way that provides an historical dimension for studies aiming to understand how habitat change etc. has influenced distribution patterns. Considering only the Darwin Database and not the many other outputs, each specimen record incorporated cost just over £1.
- It has provided extensive training for host-country biologists, which is now being built on as they develop their careers.
- The scientific and conservation value of the Darwin Database is immeasurable, providing a major legacy for Colombia that will grow in value with time.

Appendix I: Project Contribution to Articles under the Convention on Biological Diversity (CBD)

Please complete the table below to show the extent of project contribution to the different measures for biodiversity conservation defined in the CBD Articles. This will enable us to tie Darwin projects more directly into CBD areas and to see if the underlying objective of the Darwin Initiative has been met. We have focused on CBD Articles that are most relevant to biodiversity conservation initiatives by small projects in developing countries. However, certain Articles have been omitted where they apply across the board. Where there is overlap between measures described by two different Articles, allocate the % to the most appropriate one.

Project Contribution to Articles under the Convention on Biological Diversity		
Article No./Title	Project %	Article Description
6. General Measures for Conservation & Sustainable Use	10	Develop national strategies that integrate conservation and sustainable use.
7. Identification and Monitoring	25	Identify and monitor components of biological diversity, particularly those requiring urgent conservation; identify processes and activities that have adverse effects; maintain and organise relevant data.
8. In-situ Conservation	0	Establish systems of protected areas with guidelines for selection and management; regulate biological resources, promote protection of habitats; manage areas adjacent to protected areas; restore degraded ecosystems and recovery of threatened species; control risks associated with organisms modified by biotechnology; control spread of alien species; ensure compatibility between sustainable use of resources and their conservation; protect traditional lifestyles and knowledge on biological resources.
9. Ex-situ Conservation	5	Adopt ex-situ measures to conserve and research components of biological diversity, preferably in country of origin; facilitate recovery of threatened species; regulate and manage collection of biological resources.
10. Sustainable Use of Components of Biological Diversity	0	Integrate conservation and sustainable use in national decisions; protect sustainable customary uses; support local populations to implement remedial actions; encourage co-operation between governments and the private sector.
11. Incentive Measures	0	Establish economically and socially sound incentives to conserve and promote sustainable use of biological diversity.
12. Research and Training	30	Establish programmes for scientific and technical education in identification, conservation and sustainable use of biodiversity components; promote research contributing to the conservation and sustainable use of biological diversity, particularly in developing countries (in accordance with SBSTTA recommendations).

13. Public Education and Awareness	5	Promote understanding of the importance of measures to conserve biological diversity and propagate these measures through the media; cooperate with other states and organisations in developing awareness programmes.
14. Impact Assessment and Minimizing Adverse Impacts		Introduce EIAs of appropriate projects and allow public participation; take into account environmental consequences of policies; exchange information on impacts beyond State boundaries and work to reduce hazards; promote emergency responses to hazards; examine mechanisms for re-dress of international damage.
15. Access to Genetic Resources		Whilst governments control access to their genetic resources they should also facilitate access of environmentally sound uses on mutually agreed terms; scientific research based on a country's genetic resources should ensure sharing in a fair and equitable way of results and benefits.
16. Access to and Transfer of Technology		Countries shall ensure access to technologies relevant to conservation and sustainable use of biodiversity under fair and most favourable terms to the source countries (subject to patents and intellectual property rights) and ensure the private sector facilitates such assess and joint development of technologies.
17. Exchange of Information	25	Countries shall facilitate information exchange and repatriation including technical scientific and socio-economic research, information on training and surveying programmes and local knowledge
19. Bio-safety Protocol		Countries shall take legislative, administrative or policy measures to provide for the effective participation in biotechnological research activities and to ensure all practicable measures to promote and advance priority access on a fair and equitable basis, especially where they provide the genetic resources for such research.
Total %	100%	Check % = total 100

Appendix II Outputs

Please quantify and briefly describe all project outputs using the coding and format of the Darwin Initiative Standard Output Measures.

Code	Total to date (reduce box)	Detail (←expand box)
Training Outputs		
1a	Number of people to submit PhD thesis	
1b	Number of PhD qualifications obtained	
2	Number of Masters qualifications obtained	2 (Colombian MSc students graduated from King's College, London. Both have gone on to do PhDs involving the data)
3	Number of other qualifications obtained	
4a	Number of undergraduate students receiving training	250 (See Appendix VI)
4b	Number of training weeks provided to undergraduate students	3.6 weeks
4c	Number of postgraduate students receiving training (not 1-3 above)	10 (See Appendix VI)
4d	Number of training weeks for postgraduate students	3.6 weeks
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification(i.e not categories 1-4 above)	4 (BioMap staff who received considerable training for the first 16 months).
6a	Number of people receiving other forms of short-term education/training (i.e not categories 1-5 above)	26 (Curators and young professionals trained for 1 or more days at each collection)
6b	Number of training weeks not leading to formal qualification	3.6 weeks (Certificates of participation were provided to all training course participants.)
7	Number of types of training materials produced for use by host country(s)	About 50 pages of documents on databasing methods, collecting guides, databasing standards, collections care
Research Outputs		
8	Number of weeks spent by UK project staff on project work in host country(s)	52 (The BioMap manager frequently visited Colombia from the project outset, and was based in-country part of the time.)
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (s)	1 (National Action Plan)
10	Number of formal documents produced to assist work related to species identification, classification and recording.	
11a	Number of papers published or accepted for publication in peer reviewed journals	4 published, 1 in press
11b	Number of papers published or accepted for publication elsewhere	

Code	Total to date (reduce box)	Detail (←expand box)
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	1 (Darwin Database)
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	1 (Pro Aves bird observations database enhanced)
13a	Number of species reference collections established and handed over to host country(s)	
13b	Number of species reference collections enhanced and handed over to host country(s)	

Dissemination Outputs		
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	3 (2 meetings of Colombian collections personnel + Conservation Action Plan workshop – see Appendix VI)
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	13 (see Appendix VII)
15a	Number of national press releases or publicity articles in host country(s)	1
15b	Number of local press releases or publicity articles in host country(s)	1
15c	Number of national press releases or publicity articles in UK	
15d	Number of local press releases or publicity articles in UK	
16a	Number of issues of newsletters produced in the host country(s)	8 (all available on BioMap website)
16b	Estimated circulation of each newsletter in the host country(s)	750
16c	Estimated circulation of each newsletter in the UK	50
17a	Number of dissemination networks established	1 (Network of Colombian Bird Collections - RCCA)
17b	Number of dissemination networks enhanced or extended	
18a	Number of national TV programmes/features in host country(s)	
18b	Number of national TV programme/features in the UK	
18c	Number of local TV programme/features in host country	
18d	Number of local TV programme features in the UK	
19a	Number of national radio interviews/features in host country(s)	
19b	Number of national radio interviews/features in the UK	
19c	Number of local radio interviews/features in host country (s)	
19d	Number of local radio interviews/features in the UK	
Physical Outputs		
20	Estimated value (£s) of physical assets handed over to host country(s)	£3,000
21	Number of permanent educational/training/research facilities or organisation established	0
22	Number of permanent field plots established	0
23	Value of additional resources raised for project	£138,220

Appendix III: Publications

Provide full details of all publications and material that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Details will be recorded on the Darwin Monitoring Website Publications Database that is currently being compiled.

Mark (*) all publications and other material that you have included with this report

Type *	Detail	Publishers	Available from	Cost £
(e.g. journals, manual, CDs)	(title, author, year)	(name, city)	(e.g. contact address, website)	
journal	(*) Las colecciones ornitológicas en Colombia: una fuente importante de información sobre la biodiversidad de nuestro país. Morales-Rozo, A., Arzuza-Buelvas, D., Verhelst, J.C., Bohórquez, C.I., Cleere, N., Salaman, P., Prys-Jones, R., De La Zerda, S., Rosselli, L. (in prep)	Ornitología Colombiana	Paul Salaman, psalaman@abcbirds.org	0
Book chapter	Áreas importantes para la conservación de las aves en Colombia. Franco, A.M. & Bravo, G. (2005)	Pp 117-281 in <i>Áreas importantes para la conservación de las aves en los Andes tropicales</i> . BirdLife International, Quito.	Paul Salaman, psalaman@abcbirds.org	0
journal	Rediscovery of the Dusky Starfrontlet <i>Coeligena orina</i> , with a reassessment of its taxonomic status. Krabbe, N., Florez, P., Suárez, G., Castaño, J., Arango, J.D., Pulgarín, P., Munera, W.A. Stiles, F.G., Salaman, P. (2006)	<i>Ornitología Colombiana</i> 3: 28-35	Paul Salaman, psalaman@abcbirds.org	0
journal	Key Biodiversity Areas as Site Conservation Targets. Eken, Güven, Leon Bennun, Thomas M. Brooks, Will Darwall, Lincoln D. C. Fishpool, Matt Foster, David Knox, Penny Langhammer, Paul Matiku, Elizabeth Radford, Paul Salaman, Wes Sechrest, Michael L. Smith, Sacha Spector, & Andrew Tordoff (2004)	<i>BioScience</i> 54: 1110-1118	Paul Salaman, psalaman@abcbirds.org	0
journal	A new species of <i>Scytalopus</i> Tapaculo from the upper Magdalena Valley, Colombia. Krabbe, N., Salaman, P., Cortés, A., Quevedo, A. Ortega, L.A. & Cadena, C.D. (2005)	<i>Bulletin of the British Ornithologists' Club</i> 125: 93-108	Paul Salaman, psalaman@abcbirds.org	0

Appendix IV: Darwin Contacts

To assist us with future evaluation work and feedback on your report, please provide contact details below.

Project Title	Project BioMap
Ref. No.	165/10/015
UK Leader Details	
Name	Robert Prys-Jones
Role within Darwin Project	Project Leader
Address	Bird Group, The Natural History Museum, Akeman St, Tring, Herts HP23 6AP
Phone	
Fax	
Email	
Other UK Contact (if relevant)	
Name	Paul Salaman
Role within Darwin Project	Project Manager
Address	28 Oakway, West Wimbledon, London SW20 9JE
Phone	
Fax	
Email	
Partner 1	
Name	Thomas Brooks
Organisation	Conservation International
Role within Darwin Project	Directive committee
Address	2011 Crystal Drive, Suite 500, Arlington VA 22202, USA
Fax	
Email	
Partner 2 (if relevant)	
Name	F. Gary Stiles
Organisation	Universidad Nacional de Colombia
Role within Darwin Project	Directive committee
Address	Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogota D.C., Colombia
Fax	
Email	

Appendix V: Logical Framework

Project summary	Measurable indicators	Means of verification	Important assumptions
<p>Goal</p> <p>To assist an effective environmental protection and a sustainable natural resource management strategy for the conservation of biological diversity and poverty elevation in Colombia.</p>	<ol style="list-style-type: none"> 1) Proposed protected area network covering 50% of target areas by 2007. 2) Increased sustainable natural resource management plans in target areas. 3) Reduce biodiversity losses; 90% of bird species within a proposed protected area by 2007. 	<ol style="list-style-type: none"> 1) Governmental and NGO protected area registry. 2) Monitor annual regional natural resource corporations' and NGOs' development reports. 3) Monitor threatened and indicator species status by ornithological associations. 	<ol style="list-style-type: none"> 1) Relative economic stability for protected area expansion. 2) No major erosion of environmental policy 3) Government control of protected areas against encroachment.
<p>Purpose</p> <p>To increase biodiversity knowledge and data input into the National Bird Conservation Strategy (NBCS), in order to better formulate priorities to effectively and cost-efficiently focus research and conservation action for birds in the first instance.</p>	<ol style="list-style-type: none"> 1) Framework for monitoring bird populations and targeted fieldwork by 2004. 2) Focus attention of government entities and NGOs to all of target areas by 2004. 3) Provide new user-friendly management tools (database/GIS) by 2004. 	<ol style="list-style-type: none"> 1) Reviewing the national research permit database to determine to what extent research is focussing on target areas. 2) Monitor reports and action plans by institutions & NGOs. 3) Outputs; reports, citations, Darwin Database, & information requests. 	<ol style="list-style-type: none"> 1) Cost effective measures incorporated into strategy. 2) Governmental and institutional willingness to participate. 3) Participants trained to use & interpret database results.
<p>Outputs</p> <ol style="list-style-type: none"> 1) Improve scientific knowledge base of bird distribution through making data publicly available to academic and conservation-oriented entities. 2) Information to identify and prioritise of Important Bird Areas (IBA). 3) Formulate an integrated bird conservation action plan, thereby helping implement the existing National Bird Conservation Strategy. 4) Strengthen Colombian institutional capacity to provide inputs into conservation decision making. 5) Provide UK-based training in GIS & environmental assessment and management techniques. 6) Increased public awareness of conservation priorities. 7) Establish a model example of international cooperation for biodiversity data repatriation. 	<ol style="list-style-type: none"> 1) Darwin Database released to public domain, via web by July 2004. 2) IBA report with Output 1 published in October 2004. 3) Publish a National Action Plan for Conservation and Research integrating results of BIOMAP with the NBCS in October 2004 with Output 2. 4) Technical workshops, 150 people trained from relevant institutions by Sept 2004. 5) Two MSc graduates from King's College, London by May 2004. 6) Publicity campaign, internet, and poster campaign in 2004 7) Successful execution of the project activities by 2004. 	<p>Directive committee:</p> <ol style="list-style-type: none"> 1) Circulation of website address by late 2003 2) Published by partners. 3) Published by partners. Feedback from national and regional decision-makers. 4) Project reports from sessions, evaluations from trainers. Project newsletter. 5) Successful University graduation and qualification. 6) Press cuttings, interviews, poster & website visitor data. 7) Completing measurable indicators under Activities 	<ol style="list-style-type: none"> 1) Permission granted from source data collaborators for full or partial data release. 2) Biodiversity mapping and analysis yielding results. 3) Wide Colombian institutional consultation and involvement forthcoming in this process. 4) Institutional budgets and strategy continue on track among project partners 5) Recruiting suitable students in Colombia for the course. 6) Public are open to awareness campaign. 7) International institutions participating and permitting appropriate release of information.
<p>Activities</p> <ol style="list-style-type: none"> 1) Compile specimen-based locality data for birds from museum specimens and all literature sources. 2) Where possible, collect unpublished data from individual ornithologists in a self-recording database. 3) For key areas found to lack existing data, undertake rapid fieldwork surveys where logistically feasible. 4) Synthesis of data from above activities into an integrated Darwin Database to analysis with GIS components and WorldMap to feed Outputs. 	<p>Budget:</p> <p style="padding-left: 40px;">Research staff = £209,550 Travel = £16,800 Overheads = £19,800 Admin./printing = £1,350 Capital equipment = £4,800 Miscellaneous = £35,714 Total = £288,074</p> <p>Note:</p> <p style="padding-left: 40px;">Matching funds: £138,220 Darwin Initiative: £149,854</p>	<ol style="list-style-type: none"> i) Receipts and NHM accounting procedures. ii) Audits. iii) Interim reports. iv) Project internet newsletter every six months. v) Field reports vi) Website. vii) Database published in CD. viii) Institutional publications. viii) Scientific publications. 	<ol style="list-style-type: none"> 1) Cooperation of museum curators in Europe and North America are sustained. 2) Cooperation of ornithologist's and birders making personal data available. 3) Providing safe access is available to target field study sites across Colombia. 4) Suitable Darwin Database constructed for modelling.

Appendix VI: Technical workshops(*) and training courses organised or co-organised by Project BioMap

dates	people	duration (hrs) (days)		Event	held	other details
21-26 Jan 2002	15	30	6	BioMap training workshop in Colombian ornithology and use of the BioMap database	ICN, Bogotá, Colombia	For all BioMap staff and other Colombian scientists from IAvH, CI-Colombia and Universidad Nacional
1-15 June 2002	35	10	2	Zoological collection management course at ICN, Colombia	ICN, Bogotá, Colombia	
15-19 Aug 2002	50	60	5	1st Training course for observation, identification and techniques for the study of terrestrial birds	Otun-Quimbaya Flora & Fauna Sanctuary, Colombia.	All six BioMap staff helped organise and participate in.
13-15 Sept 2002	26	18	3	* 1st Colombian Bird Collection Roundtable Meeting	ICN, Bogotá, Colombia	BioMap for the first time brought together 26 curators and other personnel from ten key ornithological collections in Colombia to explore closer collaborative links.
21-24 May 2003	35	10	2	* 2nd Colombian Bird Collection Roundtable Meeting	ICN, Bogotá, Colombia	Organised by BioMap, ICN and CI, held at ICN. Attended by 35 personnel from 18 Colombian and 1 Venezuelan collections.
7-12 Aug 2003	50	60	5	2nd Training course for observation, identification and techniques for the study of terrestrial birds	Jardin, Antioquia, Colombia	BioMap staff helped organise and participate in
14-Aug-2003	60	3	1	BioMap, collections importance and management	Antioquia University, Colombia	With university staff and students before the project started databasing their collection
15-16 Oct 2004	55	7	2	* To establish a National Bird Research and Conservation Action Plan for Colombia and the importance of scientific collections to assess research and conservation in Colombia	Workshop at 1st National Ornithology Congress, Santa Marta Colombia	Jointly organised by BioMap and IavH and attended by 55 personnel from 23 universities and government institutes from across Colombia. This began the process of using the results generated by BioMap (see BioByte no. 8).
24-29 June 2005	45	50	5	3rd Training course for observation, identification and techniques for the study of terrestrial birds	Pangan Reserve, Narino, Colombia	Three BioMap staff helped organise and participate, including workshop on collecting
19 Oct-3 Nov 2005	75	4	1	1st Advanced bird banding training course	San Andres, Colombia	Four BioMap staff helped organise and participate, including workshop on collecting
Totals:	446	252	32			

Appendix VII: BioMap presentations (papers/posters) at other conference/workshops

Dates	Event	Place	Other details
9-12 Nov 2001	2nd European Bird Curators' Meeting	Bonn, Germany	
27 Jan-1 Feb 2002	Tropical Andes "Center for Biodiversity Conservation" workshop	Cartagena, Colombia	
25-27 March 2002	International Student Conference on Conservation Science,	Cambridge, U.K.	
11-12 April 2002	Colombian "Congreso Ambiental Nacional"	Bogotá, Colombia	
17-Jun-2002	Darwin Seminar	London, U.K.	
5-Jul-2002	Conference of the Society of Conservation GIS	California, USA.	Biodiversity Spatial Datasets: Essentials for Information Management
8-12 July 2002	Outcomes definition workshop for the Andes Center for Biodiversity Conservation	Bogotá, Colombia	Attended by Colombian Minister of the Environment
16-Oct-2002	VIII Latin American Botanical Congress and II Colombian Botanical Congress	Cartagena, Colombia	Botanical information management by internet to help modelling biodiversity
14-18 Oct 2002	AndinoNET workshop	Maracay, Venezuela	
8-Nov-2002	Integrating systems and biodiversity information networks in the Americas	Bogotá, Colombia	Organised by the Alexander von Humboldt Institute and the IABIN network, Colombia.
7-11 Nov 2002	XV National Ornithological Meeting	Valledupar, Colombia	
29 Sept – 1 Oct 2003	National Ecology Meeting	Bogotá, Colombia	Javeriana University
5-11 Oct 2003	VII Neotropical Ornithological Congress	Chile	
10-12 Oct 2003	European Bird Curators' Meeting	Leiden, The Netherlands	
23-Nov-2003	XVI National Ornithological Meeting	Jardin, Antioquia	
July 2004 - June 2005	Bi-monthly meetings to implement the CI-Colombia quality plan for data management and guidelines for online publication	Bogotá, Colombia	

Appendix VIII: Documents provided with this report

Set of 8 BioByte project newsletters

Draft National Action Plan

MSc thesis – Juan Carlos Verhelst Montenegro

MSc thesis – Clara Isabel Bohórquez

Draft paper – La colecciones ornitológicas en Colombia