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Western Hemisphere Bird Banding Network (WHBBN)
Red de Anillamiento de Aves del Hemisferio Occidental (RAAHO)

LINKING BANDERS AND BIRD CONSERVATION ACROSS THE HEMISPHERE
Uniendo anilladores por la conservación de las aves a través del Hemisferio

Fourth Workshop

Campos do Jordão Convention Center
Campos do Jordão, Brazil
Sunday, August 22, 2010

With support from:

Proceedings of the fourth WHBBN workshop, Brazil 2010

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www.raaho.info

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I. SUMMARY

The fourth workshop of the Western Hemisphere Bird Banding Network (WHBBN) was held at the 25th International Ornithological Congress in Compos do Jordão, Brazil on August 22, 2010. 38 individuals representing 11 countries within the Americas attended the congress, as well as individuals from Australia and the UK. A total of 6 people were able to attend the workshop with the support of US Fish and Wildlife Service and private donors. During the workshop, the status and achievements of the Network to date were evaluated, and a series of presentations on issues relevant to the Network were given. To enable new members to understand banding capacity within the Americas, short summaries of country schemes and projects were given by individuals from their respective countries. Following each presentation, a brief discussion was conducted to address the key issues of each topic. This was the first time since 2006 that it has been possible for participants across banding programs/projects to meet. Project representatives from Argentina,Brazil, Bolivia, Canada, Costa Rica Paraguay, Peru, and the United States presented. Following this meeting, we identified a series of issues within the programs discussed. We then delegated tasks amongst the participants to work towards an overall improvement within the Network.

II. INTRODUCTION

Through the Western Hemisphere Bird Banding Network (WHBBN) program coordinators representing governmental and non-governmental organizations have been working to enhance collaboration across political boundaries. Many organizations within Latin American and Caribbean countries are in the process of developing, or have expressed interest in developing, national banding schemes. Coordination at this time provides an opportunity to create strong future partnerships. Through previous WHBBN workshops, the Network has produced action plans, developed our webpage (**www.raaho.info**), and provided the space to share expertise and to express ongoing support between bird banders and banding schemas.

Many challenges remain. WHBBN is interested in addressing issues regarding: capacity building; permits; data management and sharing; standardized metadata and data collection; bander ethics; encounter/recovery reporting; and communication among countries. The fourth Western Hemisphere Bird Banding Network workshop was formed to continue processes that had been underway since the 2006 workshop in Veracruz, Mexico. It was also intended to provide a forum for the growing number of Network members to discuss their expectations of the WHBBN. Through guided discussions, we have updated the WHBBN action plan, identified specific actions to be implemented within the year, and addressed the future direction of the Network.

These workshops demonstrate that by coordinating banding programs, and by sharing banding experiences, we are able make more effective our scientific research, and as a result, further the success of avian conservation management.

The workshop was designed to create further dialogue amongst those who were in attendance at the 25th International Ornithological Conference (IOC). Included were representatives from banding projects/programs, and people interested in banding issues throughout the Western Hemisphere. A scholarship program enabled six people from different countries to attend the workshop. The US Fish and Wildlife Service, Porzana Inc. (Stephen Rumsey of the Wetlands Trust, United Kingdom) and private donors from France (Luc Hoffman of Tour du Valet, France), and the U.S. provided funding for the scholarship. The workshop took place on the 22nd August, and was organized in a series of talks following a complementary breakout sessions. The set of presentations was aimed at introducing participants to the key themes that the Network was formed to address. In addition to these, country representatives gave summaries of activities at the national level. To build on the themes developed during each talk's discussions the whole group discussed key tasks to be solved in the next year.

III. PRESENTATION SUMMARIES

Western Hemisphere Bird Banding Network 2006 -2010

(by Maria Isabel Moreno – SELVA, Colombia: Research for conservation in the Neotropics)

Mission to promote communication internationally among people and institutions marking and/or managing bird marking data in the western hemisphere through voluntary sharing of data, information, and expertise regarding bird marking program and project management; towards the support of bird science, conservation, and management across western hemisphere countries.

The 7 themes: The collaborators of the Network addressed issues regarding:
1. Capacity building (training, organizational support, and partnership)
2. Bander ethics and safety
3. Permit issues
4. Band and marking issues
5. Data management and sharing
6. Encounter/recovery reporting
7. Mechanisms for communication between countries

Since 2006 to date, major advances of the Network includes:

- A total of 103 individuals who are members of RAAHO
- A new functional webpage supported by SELVA at www.raaho.info
- A preliminary database of potential trainers, in Spanish, in the Western Hemisphere published at the webpage.
- Support to new banding schemes or banding programs (such as, Chile, Costa Rica, Peru).
- An exchange of banders and trainers between countries.
- A draft Action Plan 2006-2010 to be updated in 2011.
- An ongoing commitment to organize annual workshops in conjunction with international meetings.
- Two banding courses (Mexico and Brazil), and support for several others across the continent.
- New contacts within the Brazil, Argentina, Paraguay and Bolivia banding centers/projects

1. CAPACITY BUILDING

Organizational support

A preliminary analysis of the status of banding schemes in the Western Hemisphere

(Maria Isabel Moreno, Colombia (SELVA) / Fernando Spina, Spain (IOC Bird Marking Committee)

In 2006, a questionnaire was developed and given to banding centers and programs/projects across the Western Hemisphere. The results from the questionnaire informs us that:

- There are four countries with well established banding programs (Canada, United States, Brazil and Argentina) (1920 – 1977)
- There are seven banding projects that have operated between 2001 and 2010 (Colombia, Mexico, Bolivia, Venezuela, Chile, Costa Rica and Peru).
- Governments have operated some of the older banding programs, and most of the new programs are operated by Non-Government Organizations (NGO) or universities.
- In the majority of countries, there are only 1 to 5 staff people managing the banding program.
- United States, Canada and Brazil have between 700 and 5000 banders
- The other banding programs/projects have less than 50

Figure 1. Status of the banding programs in the Western Hemisphere.

- Banders are taught procedures through banding courses, internships and/or get experience from others
- All programs collect data on age and sex, some on fat, molt, biometrics (wing) and trapping effort.
- Banding data is computerized in the newer programs
- Internationally, there is access to an online recovery reporting system

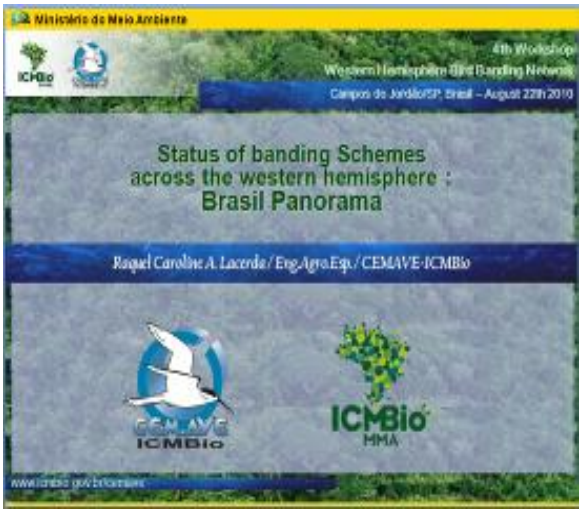
Status of banding Schemes across the Western Hemisphere:

BRAZIL

Raquel Caroline A. Lacerda- / CEMAVE-ICMBio

The first band recovery occurred in Brazil was in 1928 of a *Sterna hirundo* (a US band). Between 50's and 70's banding in Brazil began with different topics for research (hummingbirds, monitoring bird diseases and Amazonian birds' community structure). In the 70's the Brazilian Institute for Forestry Development (IBDF), Secretaria Agricultura/RS and W. Belton started the first banding program. In 1977, IBDF along with the Fundacao Brasiteira Para a Conservacao da Natureza (FBCN) created the Centro de Estudos de Migrações de Aves (CEMAVE). The National Banding System began with migration studies in the early 80's, however, it wasn't until

the 90's that data was supplied to the Systema Nacional database (SNA). After 2005, the system was updated to accept data online



To stimulate bird banding in Brazil, CEMAVE developed banding training with a total of 430 banders including people from other countries of Latin America. Additionally, CEMAVE offers scientific orientation to graduate students, online services at SNA.net, free bands, and has many partnerships that include NGOs, universities and other federal institutions.

Permits

- Bander Permit (senior): 18 years old, minimum 1 year of experience, two recommendation letters. Doesn't need to be renewed (can be suspended, inactivated or canceled)
- Banding Authorization: senior bander permit, project presentation (objectives, methodology, locations, target species), duration one year

Data Sharing and management

- On-line data input: Banders information, projects, banding, recovery reports
- Since 2006: 'importing' historical data to SNA.Net (1977 to 2005 reports on paper)

Next steps:

- Corrections and adjustments (e.g., locations, coordinates, taxonomy)
- Improve data accessibility (for banders and researchers)
- Reports and statistics (for analysis support)

Bands and marks

- Bands supplied by Anhilas Capri, Porzana, and private US company
- The bands have the inscription "AVISE CEMAVE "
- Free standard bands for authorized senior banders.

Banders and banding projects

- A total of 951 people with bander permit
- A total of 548 banding authorizations
- A total of 258 active projects.

Species banded

- Between 1973 and 2003 most species banded were waterfowl or seabirds. Because legislation in 2004 required inventory studies and environmental analysis a broad range of taxonomic groups have been banded.
- The most recovered species since 1973 are *Sula leucogaster* and other seabird and waterfowl species.

Main problems:

- Bands availability (80-90's was difficult)
- Number of banders active is low!
- Number of Bandings per year is low!!!
- Projects need more publicity and 'marketing'
- Priority and accessibility (projects are in the most accessible areas, not in the most important ones)
- Keep up the effort on training new banders
- Recovery and Recapture: data are not reported

The next steps:

- Keep stimulating the banding uses and publications (e.g., through the journal *Ornithologia* - CEMAVE)
- Guarantee bands stocks (until 2013)
- Review theregulations and guidelines: formation of a National Banding Committee; a new category of bander ("master"), and requirements for new banders.
- The website of SNA.Net needs improvements such as new tools
- Keep stimulating the training of new banders; need to instruct in thecurrent techniques and their scientific potential
- Improve the role of senior banders as trainers
- Implement the macro analysis of meta data (through Geographic Information Systems for locations)
- Participate on the Western Hemisphere Banding Network **– RAAHO**

National Bird Banding System in CHILE

Ana María Venegas – Union de Ortnitólogos de Chile

The **Servicio Agrícola y Ganadero (SAG)** a governmental institution manages the National Banding Office, ONA, created to implement the National Wild Bird Banding System (SNAA). It has the support and collaboration of AvesChile in various aspects such as training and certification of banders, fundraising, etc.

Permits

The capture of wild birds is regulated by Chilean law *(SAG-Subdepartamento de Vida Silvestre- Art. Nº16, modificacion Decreto supremo Nº 5 de 1998.)* To ensure the safety and welfare of the birds, SAG requires persons have adequate training in the trapping, handling and banding of birds. To obtain a permit for trapping and banding, researchers should make a written request at least 30 days before the starting date of the project.

Bands

- The SNAA distributes bands for free to banders with an active SAG permit, with a total of 23 different sizes of bands.
- Bands available are principally for passerines, shorebirds and seabirds. There are no available bands for raptors and hummingbirds.

Data management and data sharing

- SAG manages a banding database where the basic information is compiled about all birds banded (species, band number, location, date and bander).
- Each bander is owner of their data and SAG guarantees that any data can not be used without previous authorization.

Recoveries

- Each band has the following inscription "www.snaa.cl SAG CHILE, "

Partnership

- Between 2007 and 2009 SAG-and AvesChile (an NGO) subscribed to an agreement to strengthen the SNAA. AvesChile was charged to manage the banding data reports and submissions from banders, to promote the SNAA activities, and to look for funding and capacity building.

- Currently SAG is the only institution actively operating the SNAA

Current status of the banding system

- **Strengths** 1) there is legislation supporting bird banding in Chile, 2) SAG distributes free bands, 3) There is a good distribution of banders.
- **Opportunities:** 1) There have been recent changes in the government with a new vision, ideas and projects. 2) There is a official environmental agreement between Chile and Canada (CONAMA). 3) There are Chilean banders who have received international training. 4) Inclusion of Chile at the *Organización para la Cooperación y el Desarrollo Económicos* (OCDE)
- **Weaknesses**: 1) There is lack of legislation on specific issues related to the SNAA, 2) SNAA is not a top priority for SAG, 3) There are relaively few banding data, 4) There are no long term monitoring stations, 4) with few banders, there is relatively low capacity to band, 5) Among the banders there is a low rate of data reporting from banders to the official database.
- **Threats:** 1) A change in responsibilites of SAG, 2) lack of funds and low priority for the government.

CORBIDI Bird-banding Program – PERU

Thomas Valqui (Corbidi) - www.corbidi.org

Introduction

- There have been research projects involving bird banding in Peru since 1950, but only a few and isolated ones.
- Without any coordination or a data management plan, the knowledge collected stays with the project and may be lost as projects disband or go defunct.
- CORBIDI, is starting the development of a Bird Ringing Program for Perú (PAC - by its abbreviations in Spanish) with the support of two British Organizations: The Wetland Trust andand Porzana Ltd. and a 2010 grant of the Neotropical Migratory Bird Conservation Act.

Objectives

- To improve understanding of migratory and non-migratory birds occurrence, distribution, biology and behavior throughout Peru.
- To standardize the use of marks and methodologies with wild birds in Peru.
- To start the development of permits for banding birds in Peru. At present one only needs to ask for a research permit.
- To help provide bands to researchers,
- Training banders according to the international standards.
- To initiate a Ringing Database for Peru, with open access to people from Peru or elsewhere

Bands and marks

- We have received 58 000 bands from Porzana
- The bandsa re made from 3 materials: alloy (small-medium passerines and non-passerines), incoloy (waders) and steel (big raptors). From 2 mm to 26 mm
- Factory: PORZANA Ltd. England - United Kingdom
- Letters engraved (Ex. from above): PERU CONTACTO: WWW.CORBIDI.ORG Fooooo4 – The webpage includes an icon showing where you can report the recovery.

Bird Banding Courses

- Taricaya Banding Course by MUSA, Tarcaya Privaye Reserve, hosted the first International Banding Course in 2009 and has been a banding site since 2005
- CORBIDI and Fauna Forever (a conservation non-profit organization) started to build Peruvian bird banding capacity, with two bird banding courses already done in April and June 2010 in the Tambopata Region.
- CORBIDI with the support of The Wetland Trust will hold the third Banding course from February 1 to 7 2011 in the Piura Region.
- The Program Coordinator being trained in England for 3 month with support of The Wetland Trust and Porzana LTD.
- Meeting in Peru in November 2011 in conjunction with the IX Neotropical Ornithological Congress

Current Projects :

- Tricaya Banding Station
- The West Peru Banding Station
- The Wetlands Waders Monitoring Program
- Tumbes (Northwest) Banding Station

Health and Safety during Bird Banding

- We follow the North American "Banders Code of Ethics" while bird banding is going on.
- We try to follow some rules during bird banding sessions:
  - The Life of the Bird comes FIRST,
  - Always use the correct grip for the species of bird,
  - Hummingbirds: always are given a mix of sugar and water, just in case.

Partnerships and support

- Neotropical Migratory Bird Conservation Act (NMBCA)
- Coordination with Museo de Historia Natural de la Universidad Nacional San Austin de Arequipa (MUSA)
- Porzana

COSTA RICA Bird Banding Scheme

Pablo Elizondo/ INBio (Instituto Nacional de Biodiversidad) and C. John Ralph / US Forest Service

Background

- The history of Costa Rica banding began on 70's with F. G. Stiles who conduct banding projects for 20 years.
- In 1994 a long term monitoring started with the Tortuguero Integrated Bird Monitoring Program.
- Our principal objective is to avoid data loss from any banding and censusis efforts across the country and make the data available for research and decision making.

The Purpose

To implement a fully interactive Costa Rican Bird Monitoring Network, emphasizing constant-effort mist-netting through the organization Red de Anilladores de Aves de Costa Rica. This goal is ambitious and exciting, but quite doable, with the players in place, the quality training well underway, and the materials being made available.

Objectives we adoped in 2007:

- Hold one meeting of the Network by September 2008
- Arrange free bands for resident birds by July 2008
- Have a North American Banding Council certification session by November 2008
- Recruit at least 20 Network members trained in following a standardized constant-effort protocol
- Arrange bands at no cost for resident birds by April 2009
- By April 2009 have a minimum of 10 stations contributing data to LaMNA (Landbird Monitoring Network of the Americas)
- Have a home location through a NGO with good infrastructure in Costa Rica for distribution of bands.

Establishment of the CR Banding Network

Projects to date

- Nine banding stations established, 30+ netting sites.
- Lack of banding stations in the north side of the country.
- 10.000 Resident bands have been distributed
- ~15.000 banded birds (residents and migrants) per year
- ~250-300 bird species per year.

Partnerships

- We have established an agreement between US Forest Service, Klamath Bird Observatory and the Instituto Nacional de Biodiversidad (INBio). INBio, located in San Jose, has agreed to serve as host for the Costa Rican banding scheme. INBio is a center for the research and management of the biodiversity, established in 1989.

- The Network members not only include organizations with monitoring projects, it also includes conservation initiatives as: INBio, US Forest Service, Klamath Bird Observatory, CATIE, San Vito Bird Club, Universidad Nacional de Costa Rica, Asociacion Ornitologica de Costa Rica, The Cornell Lab of Ornithology, Partners in Flight, National Aviary , Kekoldi, Stanford University, among others.

Bands

- With the support of Porzana and The Wetland Trust who donated 40.000 bands, the Costa Rica Banding System was able to freely distribute bands across the country.
- Resident bands (7 sizes, 2.0-5.25 mm), plus hummingbird bands. The bands has the inscription: www.avescr.org with the size letter and the unique number.
- Migrants are banded mostly with USGS bands

Communications

- Website. www.avescr.org includes information on how to obtain research permits and bands, various protocols (such as the North American Banding Council manuals), as well as various articles, etc.
- Using a List-Serv, we have established communication between members.
- Establsihed a web Forum on a webpage to broadly communicate.

Capacity building

- In 2008 representatives for many monitoring projects in Costa Rica met in the highlands at Madre Selva in the Cerro de la Muerte to begin the discussions towards more coordinated long -erm monitoring initiatives in the country.

We have established three training facilities (at Tortuguero, INBio and Madre Selva) where people continuously receive banding training throughout the year.

Data management

- A band administration database developed by the US Forest Service's Redwood Sciences Laboratory and PRBO Conservation Science that easily allows management of permits, band inventory and contacts.
- The banding data are submitted to the Landbird Monitoring Network of the Americas (LaMNA)

Permits

- The Costa Rica Bird Banding Network does not issue permits, we only give bands to projects that have a research permit from the government that has a bird banding component.

Challenges ahead

- Data reporting: is complicated and remain as a challenge as banders are slow in reporting banding
- Funding: We can use increased funding to build capacity through banding courses and to promote the Network.
- The quality of data and safety of the birds is a principal component of the our banding scheme.
- Increased communication for the integration of different projects and initiatives throughout the country.

Who bands birds in COLOMBIA?

Maria Isabel Moreno (SELVA)

Status of bird banding programs in Colombia

- Between 2003 and 2010 ProAves and partners have been banded at least 80.000 birds.

- Lack of funds is reducing the capacity of ProAves staff to continue banding at the same rate.

- The uses of ProAves bands is currently limited, because the banding program is not accepted throughout Colombia as the principal initiative.

- Between 2007 and 2009 the government (environmental ministry), World Wide Fund for Nature and Asociacion Calidris was leading a participative initiative to regulate marks on all migratory species in Colombia. Recent changes in governmental employees has delayed the priority of this initiative.

- The following are a list of organizations that have been conducting banding projects in Colombia.

Organization	Birds groups	Period	Bands provided by
Calidris	Shorebirds	2004	USGS
	Passeriformes (Calidris)	2003- 2004	ProAves
	Passeriformes (MoSi x1)	2009 – present	USGS
ProAves	Passeriformes	2003 – present?	ProAves
	Parrots	2007 - present	A.C. Hughes
	Hummingbirds	2003 – 2006	USGS
	Seabirds	2006 - present	ProAves
Fundacion Colibri	Hummingbirds	2005 - 2006	Fundacion Colibri
Aves Internacionales	Passeriformes	2009- present	ProAves
SELVA	Passeriformes	2009-present	ProAves

Bands and marks

- ProAves bands: Aluminum Metal bands [A, B, C, D, E, F, G, H, J, K, L] from 2.0 mm to 19 mm, Hummingbirds and parrot bands
- US Bands: MoSI stations of the Institute for Bird Populations and shorebird projects conducted by Asociacion Calidris in Colombia are using North American bands for Neotropical migrants.
- There are some projects that have been using radio transmitters

Permits

- With the establishment of the "Sistema de Información Ambiental" in 1993, there was a law that regulates scientific research in Colombia (DECRETO 309 DE 2000) when capture and manipulation of wildlife is involved.
- The scientific research permit given by the government is not related to any bird banding permit.
- In order to receive bands from ProAves, people must have a research project that justifies why it is necessary to band birds and two references that can certify their banding experience.
- People banding with bands from USGS, must have bands under a subpermit from USGS.

Ethics and safety

- Most of the people working with birds don't have the capacity and equipment necessary to capture and bands birds. They are not easy to get or buy in Colombia.
- There is no control concerning mist netting acquisition, but some vendors do ask for a research permit, in order to verify that there is no bad intentions behind the work.

Data management and sharing

Databases available:

- ProAves Online Database
- SIB – Instituto Humboldt
- DATAves/AverAves
- Projects databases

Capacity building

- Seven banding courses have been conducted since 2004, with more than 300 people trained (ProAves)
- International cooperation: Klamath Bird Observatory, Institute for Bird Populations, The Wetland Trust, British Trust of Ornithology and others (ProAves)
- International participation from different Latin-American countries (Peru, Chile, Ecuador, Panama, Venezuela, and Costa Rica)(ProAves)

- MoSi – 3 day workshop, Cali- Colombia (Asociacion Calidris)
- Internships at Institute for Bird Populations, US National Park Service -- Park Flight and Klamath Bird Observatory., Since 2006 at least seven Colombians have been trained and certified as banders and trainers following the NABC criteria.

How the NGOs involved in bird banding could help the Colombian Bird Banding System

- Provide technical advice
- Promote ethical banding
- Promote banders training and skills development
- Promote international cooperation and partnerships
- Support migratory bird conservation
- Support ornithological and conservation research
- Maintain high data quality and report them to a database available online
- Sharing information about recoveries and recaptures

How the government could help?

- Developing a policy to mark birds in Colombia
- Providing banding permits and bands
- Coordinate auxiliary markers
- Provide a central repository for data
- Process data request

Discussion 1: CAPACITY BUILDING – Organizational support. Expectations for the Network. How can the Network support or improve your projects or your banding program?

Chile – Ana Maria Venegas – AvesChile – We need more training and database support (database for bands distribution and banding data).

Brazil - Raquel Lacerda (CEMAVE) - From Brazilian point of view, there are four essential points to start a National Banding Program.
First, a regulation of banding that establishes the process about permits, field methodology, bands distribution, data sharing and management.
Second, it is necessary that a governmental institution be involved, because the priority of programs or projects from NGO's could change over the time. It is important to have a centralized control around banding issues in the country.
Third, to establish a unique inventory of bands for the country, with a free distribution, and enough amounts that could be available for banders.
Fourth, a strategy for training banders must to be implemented once the first three points are established.
We need to make an arrangement to work with the government to bring together all interested parties.

Bolivia - Ana Maria Mamani - Museo Historia Natural Noel Kempff Mercado - In Bolivia there are many researchers working with banding, but there is a lack of regulation. The museum has a stock of bands with the name of the institution, which has has been distributed to researchers without a strict documentation about who has which bands. Also the banders haven't reported the banding data. We need to start from the beginning.

Colombia – Katherine Certuche – (Grupo Observacion de Aves del Tolima - GOAT) - In Colombia we need unification between all people and organizations that are banding birds. This includes ProAves, the environmental ministry (MAVDT), and the Red Nacional de Observadores de Aves, RNOA. There is a strong banding capacity in Colombia. RNOA is an association of 32 organizations that includes a lot of people trained by ProAves courses and/or international internships.

Mexico – Maria del Coro Arizmendi (UNAM) – Similar to the other Latin-American countries, in Mexico we don't have a banding scheme. Because a lack of a centralized governmental organization, lots of people are working in isolation. For that reason many researchers use different bands to mark birds. Some work with USGS bands, others with their own aluminum bandsor with color bands. There is a governmental interest to establish a national banding program, but nothing new has happened recently.

Brazil - Raquel Lacerda- CEMAVE - Perhaps we in RAAHO need to organize a meeting with the governments that are lacking banding programs to work on policies about banding.

RAAHO– Maria Isabel Moreno – SELVA – One idea is for RAAHO to write a documentto explicitly outline the importance of establishing a well-organized banding system based on governmental regulations. An official communication from RAAHO, with all steps identified to implement a proper banding system, which the representatives from participant countries could urge the governments to implement a banding scheme.

Aves Internacionales - Marvin Morales - University of Florida– I Agree with Raquel about the importance of the four steps to implement a banding scheme. In my opinion training is the most needed, we need well prepared people to do banding activities and all things that are related. A country with bands and a bird banding permit system, needs a standardized training program to help to improve data quality for data sharing among individuals and countries.

Argentina - Alex Jahn Universidad de Buenos Aires – I think one important issue is the standardization of how and which data is taken. For example biometrics data are important to assess neotropical birds and bill length as taken in Colombia, is different than that measurement taken in Argentina. It is important to find the most efficient way to train people with standardized criteria in order to take in the same way the same data.

United States - C.J. Ralph - U.S Forest Service– There is a different issues between a banding scheme run by government and/or NGO. I feel that governments should usually be the permitting source. In distribution and accounting of bands and data, there aregood models of this being done by governments. But there are also good models of this being done by NGOs, such as the British Trust for Ornithology in the UK. It is up to the country to decide which model is the best to implement.

Canada - Charles Francis Canadian Wildlife Service –Just a few comment on training and permits, we need both at the same time, not one first and then the other one. If you have trained banders and no bands it doesn't help, nor if you have bands and no trained banders. We can readily work out a model of training; the permits are more challenging because is a governmental issue. About international cooperation of several contries with a common banding scheme, I am less certain. International agreements are very difficult to implement, but it works some times.

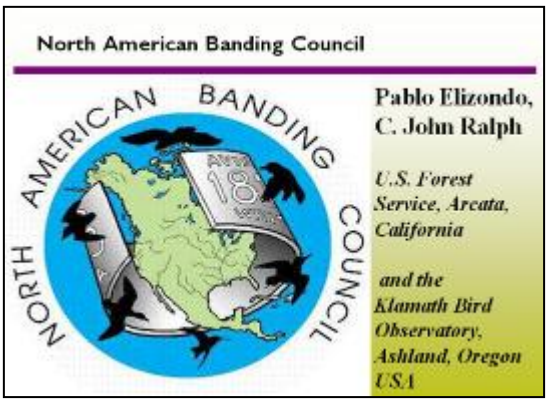
Mexico – Maria del Coro Arizmendi (UNAM) – In Mexico we have a lot of training from people in the US and Canada. We don't have a governmental structure. As in Colombia, Peru and other countries you don't need to have a specific permit to band birds. In Mexico you need to have a permit to collect, to kill the bird, but not to band. So, it's difficult to have a standardized methods and a database, as regulations have to be first.

Aves Internacionales - Marvin Morales - University of Florida - These should be a lot of ideas, and a lot of challenges over standardizing. What is needed is to establish banding programs in the countries. We should establish an online discussion and a forum about the need to establish a national banding system, and
In order to find what the problems are and implement the solutions.

Training and certification

North American Banding Council: Experiences on training and certification across the region

Pablo Elizondo (Instituto Nacional de Biodiversidad (INBio), Heredia, Costa Rica andand C. John Ralph (US Forest Service, and(Klamath Bird Observatory, Arcata, California USA)



NORTH AMERICAN BANDING COUNCIL AND Landbird Monitoring Network of the Americas

- NABC is a collaboration of ornithological societies andand governments.
- ...promotes standards, methods, and communication.
- LaMNA is a Network of banders and institutions...
- .provides data, infrastructure analysis/visualization tools
- LaMNA enables NABC standards and maintains DIVERSITY OF DATA

North American Banding Council

- Non-profit and non-governmental organization
- Consists of representatives of ornithological societies and promotes sound and ethical banding principals and techniques

NABC Representatives

American Ornithologists' Union, Raptor Research Foundation, Association of Field Ornithologists, Cooper Ornithological Society, Society of Canadian Ornithologists, Waterbird Society, Eastern Bird Banding Association, Western Bird Banding Association, Western Hemisphere Shorebird Reserve Network, Ontario Bird Banding Association, Inland Bird Banding Association, Association of Fish andand Wildlife Agencies, Wilson Ornithological Society,

- Ex-officio Representatives from the Mexican, Canadian, and U.S. Bird Banding Offices and organizations
- Encourage participation from all North American banders
- Discussion ongoing to include representatives from all of the Americas or to encourage Latin American organizations

NABC Background

- Organizational Meeting in California, March 1995
- Identify needs: training, evaluation, certification, and ethics
- Discussions: permitting policies; bander training in all countries of the Americas
- North American Banding Council established in 1996

What is NABC doing?

- Publications, current manuals in English, Spanish, and French languages are available

  - North American Banders' Study Guide
  - Instructors' Guide to Training Banders in North America
  - Manual for Banding Hummingbirds
  - Manual for Banding Raptors
  - Manual for Banding Passerines and Near Passerines
  - Manual for Banding Shorebirds
  - Manual for Banding Waterfowl

  Being prepared:
  - Manual for Banding and Public Outreach
  - Manual for Seabirds
- International Programs
  - Manual translations
  - NABC guidelines for training in Neotropics
  - NABC contributes input to resident banding programs

- Bander training and certification program
  - Integrate NABC publications and guidelines into training programs and workshops
  - Recent and Upcoming NABC Training programs in: Caribbean Region, El Salvador, Peru and Costa Rica – November 2010!

Bander Certification Levels
- **Assistant**: competence in handling and banding birds under direct supervision.
- **Bander**: competence in all aspects of banding, including the design and carrying out of meaningful studies that involve the capturing, handling, identifying, ageing, sexing, banding, and measuring of birds; recording of data; and accurate and timely completion of banding schedules.
- **Trainer**: banders with exceptional experience, knowledge, skill, and demonstrated teaching ability. Trainers will certify banders.

Bander Certification
- Group and Individual Evaluations –
- Written Exams
- Field Evaluation - comprehensive assessment of skills
  - Safe capture techniques
  - Biometrics
  - Identification, ageing, and sexing

NABC and Opportunities
- For banders to establish standards for banding
- To make knowledgeable decisions in bander training
- For collaboration in research
- To continue learning

NABC - Banding in Bird Studies
Bird studies will benefit from:
- Increased number of competent banders
- More reliably accurate data
- More opportunities for collaborative studies
- Birds will benefit from a safer, more effective, banding program in the Americas
- Banding Offices can recognize certification as evidence of qualifications for a federal banding permit
- Integration of data with LaMNA will result in fantastic analyses!

Discussion 2 -- CAPACITY BUILDING – Training and certification

Certification

Canada – Charles Francis – Canadian Wildlife Service - We need to change the name – American Banding Council. That is something to think about of course, right now the idea is to permit of North America Banding Council standards for developing certification in Latin America and the Caribbean.

Training opportunities

Brazil - Raquel Lacerda – CEMAVE – Does NABC have funding for programs trainers to go to the countries and train?

Costa Rica – Pablo Elizondo – (INBio, Costa Rica) – I helps coordinate such activities, and it has been more an initiative of quality assurance and cooperation.

US - CJ Ralph – US Forest Service – The Klamath Bird Observatory, Western Bird Banding Association, and Costa Rica Bird Observatories are always looking for money to bring people for training. They can come to North America with a scholarship and they get to participate in an evaluation session. Right now there are six Latin Americans that are receiving training at KBO with six months of training and certification. The intern program gives airfare, visa, stipend and accommodation. It usually last between 3-6 months.

Costa Rica – Pablo Elizondo – INBio, Costa Rica – We are organizing an NABC evaluation session and training to happen in Costa Rica this year.

Brazil - Raquel Lacerda – CEMAVE –Could be useful to centralize this kind of experience in regional training centers.

Canada – Charles Francis – Canadian Wildlife Service – One thing is the opportunities for training, the other is the standards of training. NABC, WHBBN and others do or can develop standards. Meetings - RAAHO website can tell about opportunities of internships, a trainers list that could carry out training in their region, and training centers and banders.

RAAHO - Maria Isabel Moreno – SELVA – Currently there is a list of bilingual trainers at the RAAHO web page that needs to be updated.

Partnership

Bird Ringing: an European perspective

Dr Rob Robinson (British Trust for Ornithology – BTO [bto.org])

Bird ringing in Britain

In Britain each year are banded at least 800.000 birds by more than 2.500 banders, and the numbers are increasing over the last fifty years . Towards the end of the 90's the numbers were decreasing.

In Britain: 2,500 ringers

Comparing, Britain has one ringer for each 23.000 people in population and Brazil has one bander for each 170.000 people. In terms of area, Britain has one ringer in every 110 km^2 , while Brazil has one bander every 7,700 km^2

What can we do with banding?

- Identification of individuals (e.g. behaviour studies)
- Morphology (e.g. weight, moult)
- Movements and dispersal (one hundred years of information give a good understanding of movements and migration in the UK).
- Survival (and productivity)

Movements

- Simple recoveries
- Avian Influenza – movement analysis.

Survival (and productivity)

- Why do populations change?
- It is important for not only monitoring the population trends over the time, but also the survival rates. For example to evaluate the impact of habitat loss

Understand population change
As an example, the Song Thrush *Turdus philomelos*

- Population declining from 4.0 millon in 1970 to 1.5 millon in 2000
- Survival rate (adults, first-year and post-fledging) varies through time
- Combination between population estimated and survival is most useful

However recoveries are…

- Reliant on public involvement
- Unstructured, so good for large scale, but not smaller, habitat scales
- There is a declining rate of reports because there is a postal address to report. The next step is to put a web address.

To understand population change in more depth.

- Use mark-recapture studies

What makes a good survival study?

- Equal encounter rates is a key assumption
- Consider number of recaptures
- Consistency of catching
- Site differences
- Dispersal of individuals?
- Two examples in Britain – Constant Effort Sites and Retrapping Adults for Survival

'Constant Effort' Sites (CES)

- Twelve visits between May and August; spread evenly over breeding season and avoids main migration periods
- Put up the same number of nets in the same positions on each visit and from one year to the next
- Start at dawn (usually) and band for around 6 hours on each visit
- Regular habitat management to minimize change
- No tape lures or artificial food

Measure site differences

- For monitoring stations evaluate the habitat quality in order to measure site differences in relation with the survival of species populations.

Look at population changes

- Adult abundance
- Productivity
- Survival

Re-trapping Adults for Survival (RAS) for particular species

Aim to:

- Have all adults in a discrete population marked
- Recapture (or resighting) all birds each year – typically 30-50
- Ideally, consistent effort each year
- Some idea of population size

Overall: 5-10 studies for each species

Relate survival to environment

- Evaluate the relationship of survival vs. climatic environmental variables (e.g. Adult survival vs. African rainfall for a swallow (*Delichon urbicum*)

Examples of programs/projects at regional level

Hummingbird Monitoring Network - Why hummingbirds need a special monitoring program?.

Maria del Coro Arizmendi (Universidad Nacional Autónoma de México)

http://www.hummonnet.org/

Family Trochilidae (Apodiformes)

Diverse American Family

338 species: 64 Mexico, 15 USA and 5 Canada

- They have unique flying abilities
- They are small birds with very short feet
- Their weight is low
- All the above made them hard to trap and detect

The **Hummingbird Monitoring Network** is a non-profit conservation organization that supports projects to improve hummingbird's ability to survive and reproduce.

- To maintain long term monitoring sites to promote research on hummingbird abundances, population trends, life history and breeding conditions.
- Starting with two monitoring sites in 2002, now there are seven monitoring sites (2010).
- As an example the Network support studies in population trends and migration routes of *Selasphorus rufus* and longevity of Eugenes fulgens.
- At NAOC 2009, the Hummingbird Monitoring Network expanded monitoring sites to Mexico including 5 new stations. This new field work (2009-2010) shows significant results about wintering and migration routes south of the species' breeding range.
- The Network we hope contributes with science based information, to preserve hummingbird populations in North America, and be the root of a wider partnership all across America....

Red Aves Internacionales: Research across New World bird migration systems

Alex Jahn (Departamento de Ecología, Genética y Evolución Universidad de Buenos Aires)

http://www.biology.ufl.edu/centers/migration/aves/overview-sp.html

Why Aves Internacionales?

- There is currently no long-term initiative to simultaneously study multiple New World bird migration systems (i.e., Nearctic-Neotropical, austral, intratropical)
- Overcoming obstacles to bird migration research that spans the New World requires a consolidated Network of collaborators across countries, disciplines and institutions.
- It is a question based Network

History

2002 - First meeting at the II North American Ornithological Conference, New Orleans, Louisiana, USA to propose a Network
2004 - Met at the IV Neotropical Ornithological Congress in Chile to discuss research priorities
2008 - Received funding from National Geographic to simultaneously monitor bird migration in Argentina, Bolivia and Colombia for one year
2009 - Meet in Argentina to discuss standardizing protocols across countries
2010 - 25th IOC: Expanding Network to North America and Brazil

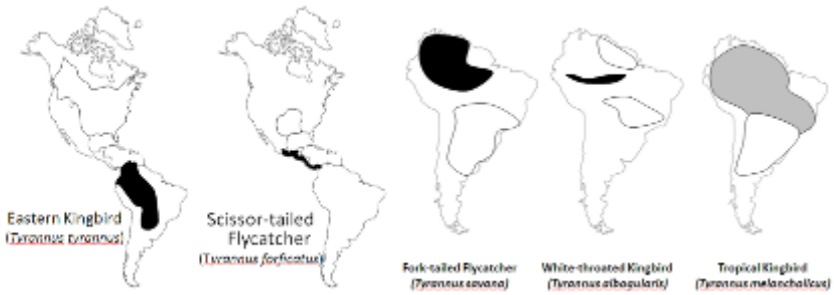
Some of the objectives of Aves Internacionales:

1. Test in the Southern Hemisphere theories about migration strategies primarily developed in the Northern Hemisphere.
2. Use the comparative method to study the mechanisms driving migratory strategies across New World migratory systems.

Genera shared between Nearctic-Neotropical and Neotropical austral migration systems

Accipiter Agelaius Anas Anthracothorax Anthus Botaurus Buteo Butorides Camptostoma Caprimulgus Carduelis Cathartes Ceryle Chaetura Charadrius Circus Coccyzus Columba Columbina Contopus Cygnus Dendrocygna Elanoides Empidonax Falco Fulica Gallinula Gelochelidon Haematopus Ictinia Larus Legatus Myiarchus Myiodynastes Nycticorax Oxyura Pachyramphus Passerina Phalacrocorax Piranga Podiceps Porphyrula Progne Pyrocephalus Rhynchops Stelgidopteryx Sterna Sturnella Tachycineta Thalasseus Theristicus Troglodytes Turdus ***Tyrannus*** *Vireo Zonotrichia*

Tyrannus



The future?: Major number of monitoring stations across the America, requires, among other things:
1. Data ownership by those who collect the data.
2. Methods standardization.
3. Effective ways to communicate across countries (e.g., with 13 countries, South America may be more of a challenge than North America).
4. Long-term funding!

Thanks to: School of Natural Resources and Environment – University of Florida, South-east Alliance for Graduate Studies and the Professoriate – University of Florida, American Ornithologists' Union National Geographic Society , National Science Foundation and Optics for the Tropics.

Color-banding Purple Martins (*Progne subis*) in North America

John Tautin / Purple Martin Conservation Association (PMCA)
http://purplemartin.org/

Coded markers are superior
Martins are easy to capture
Martins are easy to handle
Martins are easy to observe
PUMA color –banding protocol
The basics:

- Highly visible colors with contrasting characters
- Combination of one letter and three numbers, e.g. A123
- Two-letter state or provincial code on band, e.g., PA, ON
- Not required by banding offices, but recommended

Advantages:

- Several colors available within a state
- Same colors may be used among states, e.g., purple in PA and NJ
- No practical limit on combinations
- Anyone familiar with protocol can read anyone else's bands
- Easy to report sightings and reference banding data

15 protocol sites in North America
PMCA Color-banding Study
17,000 color-banded since 1995
21,000 observations since 1995
Works completed

- Stutchbury, B. J. M., S. A. Tarof, T. Done, E. Gow, P. M. Kramer, J. Tautin, J. W. Fox, and V. Afanasyev. 2009. Tracking long-distance songbird migration using geolocators. Science 323: 896.
- Stutchbury, B. 2010. The Bird Detective. Harper Collins, Toronto
- Stutchbury, B. J. M., J. R. Hill III, P. M. Kramer, S. A. Rush and S. A. Tarof. 2009. Sex and age-specific annual survival in a Neotropical migratory songbird, the Purple Martin (*Progne subis*). Auk 126: 278-287.

Works in progress

- Silverio, C. Does parasitic infection affect reproductive success and survival in Purple Martins?
- Kramer, P. M. The benefits of extra-pair mating in Purple Martins
- Tarof, S. A. Effects of male age on mating success in Purple Martins
- Tarof, S. A. *et al.*, Fledgling and juvenile survival in a neotropical migratory swallow, the Purple Martin

- Stutchbury, B.J.M., *et al.,* Continuing studies of Purple Martin migration using geo-locators

CEMAVE: Field work

Isaac Simão Neto / CEMAVE-ICMBio

http://www4.icmbio.gov.br/cemave/

The beginnings: Lagoa do Peixe National Park

- Lagoa do Peixe: CEMAVE pointed out the importance of the site to migrant birds.
- 1986: creation of the Lagoa do Peixe National Park

- 230 bird species were registered (42 migrants)
- From 1984 to 2008: 10.677 birds (50 species) were captured
- 535 recoveries: 356 from North America

Taim Ecological Station: working with the Anatidae.

CEMAVE´s Endangered Marine Birds Monitoring Project

- Reproductive activity and nest monitoring within Brazilian islands (2010 results – so far!: 69 nests of *Puffinus lherminieri, Phaeton lepturus* and *P. aethereus* mapped and 37 endangered marine birds banded);
- Marine bird censusing on islands within marine protected areas (PARNAMAR FN, REBIO Arvoredo – monthly since March 2010);
- Marine birds population health assessment on the coast of Santa Catarina State and also on birds monitored in islands (Avian Influenza, West Nile Virus, NC, Salmonella, Mycoplasma, Chlamydophila, hemoparasites, pollutants and histopathology) – samples from 83 birds in 2010 (more birds examined weekly...).

Terra do Meio (PA)

- 2 Protected areas: Terra do Meio Ecological Station and Serra do Pardo National Park
- 289 species were identified;
- 3 are endangered (MMA 2003, SEMA 2007): Crax fasciolata pinima, Anodorhynchus hyacinthinus, Deconychura longicauda zimmeri

Anodorhynchus leari

- From 60 on 1979 pass to 1060 in 2009. Proposed or reclasified from CR to EN.

Proposing new National Park

Ornithology Journal

Frontiers of Neotropical Bird Banding: Challenges of Consistency

Jared Wolfe Louisiana State University / USFS Redwood Sciences Laboratory
Help synthesize ageing data -jwolfe5@tigers.lsu.edu

Standardizing Banding Methodologies

- Should we strive for standardized methodologies?
- - Not necessarily. Wing-chord vs. flattened wing? Both are perfectly useful
- - Importance of continuity in historical data collection.
- Data that should be completely standardized
  - Identifying correct species
  - Collect effort

Advantages of Consistent Methodologies

- Information exchange, data quality, increased capacity and large-scale analysis
  - Age categorization is important to demographic analysis and generally not standardized in the Tropics.

- Two systems of age categorization
  - Calendar year age classification system (HY/SY AHY/ASY)
  - Inherent inconsistencies
  - Eruptive breeding patterns (e.g. Lesser Antilles)
  - Year-round breeding (e.g. lowland equatorial regions)
  - Breeding season overlap with January 1st
  - Breeding status (immature/adult)
  - Inherent loss of data because post-juvenile birds in formative plumage often breed (sexually an adult) but obviously predefinitive (plumage not definitive)
  - Sex differences in plumage maturation (e.g., manakins)

The Cycle-Based Age-Classification System for Tropical Species

- 3-tiered system
  (1) Determine molt-cycle
  (2) Determine molt-cycle phase
  (3) Assign age-bracket
- Cycle-Based Age-Classification coding makes intuitive sense when using Howell modified terminology

More Problems with Ageing in the Tropics

- Different molt systems (Howell et al. vs. H-P)
- Lack of knowledge
  - Skull ossification
  - Timing of Molt

However… we are approaching a synthesis of knowledge and documenting phylogenetically conserved patterns

Phylogenetic patterns and ageing

- Turdidae, Pipridae
  - Greater coverts
    - Primary coverts, rectrices

Synthesis in action

- Costa Rican bird ageing/sexing
- Tropical family molt review
- Central Amazonian ageing/sexing
- Cycle-system being implemented

References

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- Wolfe, JD, P Pyle, and CJ Ralph. 2009. Breeding seasons, molt patterns, and gender and age criteria for selected northeastern Costa Rican resident landbirds. The Wilson Journal of Ornithology 121(3):556–567 **(PDF)**
- Wolfe JD, TB Ryder, and P Pyle. 2010. Using molt cycles to categorize age in tropical birds: an integrative new system. Journal of Field Ornithology 81: 186-194. **(PDF)**
- Ryder TB, and JD Wolfe. 2009. The current state of knowledge on molt and plumage sequences in tropical birds: a review. Ornitologia Neotropical 20:1-18. **(PDF)**

Development of a web-based Bird Bander Ageing/Sexing Training Tool

Charles M. Francis/ Canadian Wildlife Service -- Environment Canada

Bander Training Tool Objectives

- Provide a central database for banders to post, view and study photos of birds (e.g., close-ups of wings and tails) to study ageing and sexing and in-hand identification
- Intended to complement existing materials such as Pyle

Bird Identification Training tool:

www.natureinstruct.org/dendroica

- Dendroica – photos and songs

Bird-bander training tool using same platform

- to be released early 2011

Bander Training Tool:

- users can see thumbnails of existing photographs
- can view or compare photographs
- can submit new photographs

Browsing Images:

- Can see enlarged images of each bird
- Compare images for two different birds
- Compare different images – wings, tails, etc. (if available)
- Users will be able to comment on images to add new information or correct mistakes (e.g., if believe age or sex not correct)
- Program will allow display of text summarizing key features for determining age/sex of each species - but text will have to be provided by banders

Quiz Feature
- Program will also provide a "quiz" feature for training
- Users see a randomly selected photo from their list of species
- try to determine species/age/sex

Contribution of Images:
- any bander can submit photographs
- may require a system to review and check photos

Issues:
- www.natureinstruct.org/dendroica
  - Currently has a species list for North America (USA, Canada, Mexico). Could add other countries

- Languages:
  - available in English, French and (soon) Spanish
  - Note: will be a challenge to translate text submitted by banders in bird-bander module

- Expansion/Discussion?
  - Is this of interest to other RAAHO countries?
  - Are there people who want to follow-up?

PERMIT ISSUES

A review of different ways to obtain banding permits across the region

(Patricia Serafini – CEMAVE)

What is necessary to have a specific permit for marking birds?
- Experience, skills
- Knowledge (anatomy, ecology, physiology)
- Species identification
- Ethics in handling birds

Banding Permit vs. Research Permit: What's the difference in Brazil?

- **Research permits:** *Sistema de Autorização e Informação em Biodiversidade - SISBIO*, Federal legislation :IN Nº 154 de 2007, All taxa and federal protected areas are covered and work with this permitting system

- **Bird banding permits:** *Sistema Nacional de Anilhamento de Aves Silvestres – SNA*, Federal legislation: IN Nº 27 de 2002

Types of bird banding permits in Brazil
Bander Permit is permanent (although can be suspended, inactivated or canceled)
- Age ("Sweet 16, for *Juniors*");
- Experience (documented by curriculum vita, and letters);
- Recommendation letters.

CEMAVE Banding permit system

I-Junior Bander Category: for those working in projects conducted by experienced banders, e.g., during the training process. This category does not allow banders to conduct their own banding project. The junior bander must be older than 16 years.

II- Senior Bander Category: for those with at least one year of experience in bird banding techniques, bird species identification, and bird capture methods. This category does allow banders to conduct their own banding projects and they can request free bands from the federal government. It is mandatory that the bander presents two recommendation letters provided by experienced banders who must be already registered and authorized by SNA CEMAVE, or can prove extensive experience in bird banding, identification and capture techniques. The senior bander must be older than 18 years.

Table 1. Estimated number of banders per country

Country	Banding Center	Since	Number banders
United States and Canada	BBL(*)	1902	5.500
UK	BTO(**)	1908	2116
Spain	SEO/Birdlife	1930	> 8 thousand
Argentina	Centro Nacional de Anillado de Aves	1986	500
Chile	Servicio Agricola y Ganadero	2007	5
Brazil	CEMAVE	1977	951

Strengths of the CEMAVE bird banding permit system

- All services are online (permit requests and analysis, bird banding project analysis and authorization, report of the banding activities);
- SNA analyses are made by governmental employees linked to CEMAVE within four offices around the country;
- Bands are standardized and provided by CEMAVE;
- Distinction between bander register in SNA (permit to band birds) and authorization to accomplish a bird banding project in Brazil (annual);
- a CEMAVE banding permit is also a legal requirement for anyone banding birds, even if the bander plans to use not only the standardized CEMAVE bands but also or only another type of band (colored, flags, etc.).

Present limitations of bird banding permits in Brazil

- inability to properly evaluate abilities by recommendations alone,
- access to data (for distribution, occurrence, etc.),
- low number of banders compared to other countries and compared to our potential,
- lack of field checking of permits and banding project authorizations.–
- Brazilian Environmental Law (LCA 9605).

Accessing permits for non-residents

Requirements for permit issuance in other countries

Legal requirements by federal government institutions:

- BBL, Canadian Wildlife Service and CEMAVE/SNA (Brazil);

Most of the other WHBBN countries: involve generic scientific research permits:

- Chile – Servicio Agrícola y Ganadero (permitting system)
- Mexico – CONABIO/SEMARNAT (permitting system)
- Argentina - Centro Nacional de Anillado de Aves Argentinas (CENAA)

Other countries in the Americas have no established central banding programs identified... but do issue scientific research permits.

The North American Bird Banding Program Shared program since 1923

Share

- Birds
- Program objectives
- Bird bands
- Reporting
- Data format
- Database
- Some policies
- Auxiliary marker coordination

Separate

- Administration
- Permits
- Band issuance
- Some policies
- Bander training and outreach

Scientific permit to capture and band migratory birds - Canadian Wildlife Service Permits

Types

- Master
- Station
- Subpermit

Issuance

- Application form
- Prove of qualification and competence
- Two testimonials
- Project description

Authorizations

- Species groups
- Mist net use
- Cannon or rocket nets
- Capture using drugs
- Colour marking
- Auxiliary markers
- Radio or satellite transmitters
- Species at risk
- Location

BBL (Bird Banding Laboratory)-United Sates Department of the Interior (USGS)

In USA banding birds is controlled by the Migratory Bird Treaty Act of 1918, which requires that a Federal Government agency controls the activities

Permits

- Evaluated case by a team of four BBL biologists
- Project and activities that will be accomplished description
- Don't actually have any published list of standards

- Each applicant is considered based on what they propose. If they are only planning to work with a small number of species in small volumes, for example, they might require less experience and training, and usually issue a permit limited to those species alone.

Bander training and permitting systems

- Standardized bander training: this is a crucial support for a permitting system, that links certification programs and permitting in each country.
  - Definition of a minimum requirements for new banders and also for instructors;
  - Registration of regionally certified instructors
  - Identification of demands for number of potential banders in each region/country
  - Determination of research needs and band uses (Migrants, breeding seasons, use of other type of bands)
  - Bander permit system
- The skills necessary to become a bander can only be learn by practice under the close supervision of experienced banders; that is, effectively an apprenticeship.
- Essential skills include the safe and efficient catching and handling of birds, identification, ageing, measuring and record keeping.

NEXT STEPS ON PERMITS:

- Participation with WHBBN
- Keep encouraging the training of new banders as a requirement for permits;
- Increase the education about banding techniques and its scientific potential, increase the number of permits issued every year;
- Increase the role of senior banders on training new banders, new permits.

Discussion 3- Permit issues

- Charles Francis, Rob Robinson and Jared Wolfe established a very interesting discussion about permit and suggested the benefits of permit issuances being related to an evaluation system to investigate the ability of bird banders after training.

- The RAAHO have the potential to be a reference on establishment of standards for training material and evaluation systems for banders after training, the group discussed how to measure the ability to band before issuing a permit. The members of the network agreed to work together to improve evaluation methods.

- The whole group talked about constant effort programs of training for banders, even after permit is obtained.

BANDER ETHICS AND BIRD SAFETY

The importance of bander ethics and bird safety

Charles Frances and Lesley Howes – Canadian Wildlife Service

The importance of ethical standards

Although different cultures often have different ethical standards, shared ethical standards for RAAHO are important to ensure:

- bird safety
- scientific integrity of the results
- credibility of the program, Network, and associated conservation activities
- acceptance by animal welfare and animal rights groups

Bird Safety

- When planning a research project that requires the use of wild birds, it is important to understand that careful treatment of the study subject is not only an ethical consideration but improves the scientific validity of the research data as well.
- Ways to enhance bird safety:
  - Ensure techniques, equipment, band sizes, etc. that are appropriate for species
  - Develop banding protocols with clear limits:
    - maximum handling time, conditions (e.g., weather, too many birds, etc.) when nets/traps should be closed; frequency of net checks etc.
  - Identify and minimize potential causes of bird stress or discomfort
  - Minimize disturbance that can lead to nest desertion, abandonment of territories, interruption of feeding, disruption of social structures and alteration of predator prey relationships
- Researchers should be prepared to abandon a study if adverse conditions arise

Scientific integrity

- Careful treatment of the study subject improves the scientific validity of the research data
- The data obtained from a compromised bird may not be scientifically reliable; scientific studies of survival, movement or behavior assume that marked birds are representative of the broader population. If marking affects the behavior or survival of the birds the results may be misleading or useless.
- Procedures likely to have lasting negative effects on a population, or that place a population at risk, should not be undertaken except under extraordinary and well justified circumstances
- Methods and approaches should be reassessed whenever injury or mortality occurs

Improving scientific integrity

- Before starting, determine whether capture and marking is justified for the study – one should always use the least invasive practical procedures required to achieve the study objectives
- Pilot studies can strengthen the project's results by reducing errors
- Data gathered must be accurate and complete
- Maximize the information obtained during handling while reducing the impacts on the individual bird
- Publish innovations in marking, capture and handling techniques
- Educate prospective banders and trainers

Credibility of Network

- Credibility within wildlife conservation context. If birds are harmed during the process, banders may not be viewed as supporting conservation.
- Need to ensure that use of data justifies any potential risks to birds; it is unethical to collect data with no intention of using them
- Need to ensure that data are shared, so that information gained from one study can benefit birds everywhere; it is unethical to collect data and not share them

Animal welfare and animal rights

- Animal welfare groups are concerned with the avoidance of abuse and exploitation of animals by humans through the maintenance of appropriate standards … and the assurance of freedom from harassment and unnecessary discomfort and pain
- Included are concerns about how animals are used in research
- Targeted campaigns can shut research down
- Techniques should be acceptable to animal rights and welfare groups
  - Animals are not harmed or compromised
  - High ethical standards in research
  - Research and techniques are justified
- Important to document ethical considerations of research projects
  - Training of field staff
  - Conduct ethical reviews of the research project
  - Have ethical standards of the Network or program
  - Ensure all permits and permissions are in place

Addressing Cultural Diversity

- Cultural values vary among countries around the world
- Ethical standards must be broad, and not focused solely on standards of one or a few cultures
- RAAHO ethical standards must include respect for birds, science, conservation, as well as local people and host country regulation and policies. They should also promote education and training, high data quality, sound scientific methodology, cooperation and sensitivity.

Ethics at all levels

- Network: set and promote ethical standards and develop training tools
- Programs: ensure that all banders have adequate training before issuing permits
- Projects: abide by ethical standards, ensure all permits and permissions are in place before beginning field work
  - Training: Achieving high ethical standards requires incorporating ethical discussions into all bander training

Goals for this Network:

- Develop a bander code of ethics
- Develop a Network ethics statement
- Discussions on ethics to be part of all bander training
- Network members agree to abide by ethical standards

Discussion 4 - Bander ethics and bird safety
Charles Frances – Canadian Wildlife Service

- The RAAHO must review the bander code ethics and establish an ethics stament, discussing the entire ethics component. The members of the Network are agreeing to abide by the ethical standards.

- The questions that one can solve with banding should be thought about in terms of scale and scope, such as constant effort programs.

-Banding birds just looking for recoveries is not a justification. There are new technologies that serve to evaluate migratory routes. Recoveries are not a way to do this.

BAND AND MARKING ISSUES

Coordination of program bands

(Charles Francis and Lesley Howes / *Canadian Wildlife Service Environment Canada)*

Suggested goal on Strategic Plan posted on the website (www.raaho.info). Partial agreement was reached in 2006:

All Latin-American and Caribbean countries / organizations will have access to bands with their country codes and there will be an interregional coordination of bands and markers for migrant and non-migrant birds.

Is this still appropriate and, if so, what is the best way to achieve this? Some countries have several schemes in their own country; other countries are coordinated less fully.

Consider three possible options:

Option 1: Shared bands among countries (could be only for some countries)
Advantages:

- Easy coordination of band numbers (Country code easy to identify)
- less confusion about the origin of bands
- Common reporting address (e.g., a web address) to facilitate international encounters
- Reduced overall costs

  - shared band design and layout costs,
  - bulk production of bands,
  - shared encounter reporting and data management software
- all programs and projects can have access to bands
- facilitates sharing of banding and encounter data and software, such as program database management, and band management software for bander use and data submission

Challenges:

- Need to agree on system for national identity on bands
- Need to agree on a band supplier
- Who is responsible for band inventory, management and distribution?

Option 2: Coordinated band numbers, but separate bands in each country

Advantages:

- reduce risk of mix-up of bands from different schemes with same number
- could potentially identify band to country based on number, even if address not read
- each country responsible for own band order and management
- can use a common or a country specific reporting address

Challenges:

- requires a coordinating body within each country
- requires an overall coordinator for band numbers
- Does not have advantages of shared design, reduced costs of band production, etc.

Option 3: no coordination

Advantages:

- programs and projects purchase bands as required – does not require international agreements

Challenges:

- greater risk of duplicated numbers, including mix up with U.S. / Canada bands which lack addresses or country codes
- Confusion for countries that do not have their own bands
- Researchers may have to produce and pay for their own bands
- May use US/Canada bands (for migrants) or bands originating from European countries.
- Or may not be able to get bands, thus hindering research and conservation
- Need to ensure different address on each band for proper reporting; greater risk that addresses could change over time (e.g., lost web domain)
- Complicates data sharing

Discussion 5 – Coordination of program bands

Canada - Charles Francis – The Issue is the number of bands made and how we can try to standardize codes and addresses. In those countries that have their own banding scheme that's fine, but in some countries there is interest in cooperation. We all need to think about how to move this forward. We discuss this every workshop but I don't know if we have a solution yet. Porzana is doing some of this for us, by coordinating and providing bands.

RAAHO – Pablo Elizondo - I think that we should at some point designate a responsible entity to compile the information on country codes and addresses and publish it on the web.

Canada – Charles Francis – This is a good start, but at some point we need a discussion at a higher level of those countries that are interested in trying to use or share a banding scheme. And what band manufacturing companies can produce bands at the same time for different countries. Should we be involved or just let each

country communicate about band numbers. It is something to think about, if you are working with an organization that get the permits and produce the bands in their country

RAAHO – Maria Isabel Moreno - Inventory bands **-** We need from each country a band inventory of all bands used in the country. Including the inscription on the band de size and the codification to be posted at the webpage.

Topics for further discussion:

- What system(s) will work best for RAAHO?
- Coordination of band production? Is there interest in coordinating band production?
- Do we need standardized web addresses for reporting?
- Coordinated of numbering systems
- Numbering systems for new schemes should not conflict with existing banding schemes
- Do we want to / need to develop a system for managing the band inventory for Western Hemisphere?
- First step would be to develop an inventory of band series already in use
- Recommendations for band quality and design
- Recommended band sizes and band design for different species

Coordination of auxiliary marker use in the Americas

(Charles Francis and Lesley Howes / *Canadian Wildlife Service Environment Canada)*

In many studies it is desireable to put something additional to the bands to identify a bird:

Types of Markers

1. **Visual markers:** Enable identifying a bird from a distance without recapturing it, using binoculars, telescopes, etc.

2. **Electronic markers:** E.g., Radios, satellite transmitters, pit tags, data loggers, geolocators

Visual Markers

- Visual markers can be a valuable tool for many types of behavioural studies to identify individuals or cohorts without recapturing them.
- There are many considerations for choosing an appropriate marker type for your study species and project:
  - Study design and objectives
  - Safety of the birds.
- It is something that are you read yourself, or it is something to others to read?. Are you trying to get long distance information? Or just for local study? Depending also on the species and the type of study you need coordination. .
- Markers may require regional, national, or international coordination to avoid conflicts, or order to avoid duplicate marks.

Visual Markers – Study Design
Considerations

- Are auxiliary markers really needed for the study?
- Will sufficient effort be put into resighting to justify markers?
- Adds cost and potential risk to birds – only use if really needed

Selection of markers

- Purpose of the study – when and for how long do markers have to be visible?
- Does study desire resightings from public or only from research team?
- Will markers be readily visible and distinguishable at the planned time of resighting?
- Will markers persist for duration of the study?

Visual Markers – Bird Safety

- Marker should not impede movement, hinder, and/or irritate the bird
- Marker should have a negligible impact on reproductive success, social interactions, longevity, migration, or vulnerability to predation (e.g., bands not compromise the bird's camouflage)
- Marker must take into account seasonal changes in bird's plumage or behaviour and growth in juveniles
- Marker can be applied quickly, and will cause minimal pain, risk of infection or tissue damage

Marker types:

Paint and dye

- Temporary marker that is lost often with next moult; some fade over time
  - must be non-toxic as the bird may ingest it while preening
  - must not interfere with social signals
  - must not compromise waterproofing
  - examples:
    - felt-tip markers,
    - lacquers,
    - commercial hair bleaches,
    - colouring dyes,
    - tattoo inks,
    - Picric Acid,
    - Rhodamine B
    - Malachite Green

Colour Bands

- Most common method of individually marking birds,
- Unique colour combinations identify individuals without recapturing,
- Several coloured bands can be put on the legs of most birds,
- Number of bands varies with species,
- UV resistant plastic comes in a variety of colours.
- Not appropriate for all species or all studies
  - Birds with short tarsus can only take one band per leg
  - Birds that have feathered legs or that sit on their legs may not display the colour bands for easy identification
  - Colour bands can be lost or fade over time.

Markers with letters or numbers

- More combinations and less risk of mistakes than when using combinations of colour bands
- However, colours and codes must be easy to read
- Often can only be used on larger bird species
- Generates accurate sightings from the public, provided colours are easily recorded
- Can be applied to the neck, legs or wings

Electronic markers:

Radio-transmitters

- The attachment of small transmitters to free-living birds has become a routine way of monitoring the location and movements of free living birds in studies of avian physiology, behaviour, habitat use, survival, and movement.
- Radio transmitters, satellite transmitters,
  - Shape and size (<5% body mass, including battery and markers)
  - Attachment method, placement and duration:
    - Harness, glue or surgery
    - Back, legs, tail
    - Permanent or biodegradable attachment
    - Battery life
    - Data retrieval
  - Archiving data

Satellite and GPS transmitters

- effective for tracking birds for long distances
- detailed information on individual movements
- battery or solar powered
- use is limited to larger birds
- the smallest transmitters are about 19 g and are expensive
- Transmitters should drop off when the bird moults or be recovered by recapturing the bird.
- records movements several times daily
- Data are downloaded to an orbiting satellite every few days and sent directly to your computer.

PIT tags and data loggers

- Passive Integrated Transponders (PIT-tags) contain an individual digital code,
  - Can be applied to a band or under the skin
  - To read them, a scanner is passed over the bird's body
  - useful for some research projects, e.g., to automatically identify birds in nest boxes or on weigh stations
- Data loggers
  - Attach to the bird (e.g., on a band) and record data such as depth of a dive, temperature, heart rate, etc.
  - To retrieve the data need to catch the bird

Geolocators (type of data logger)

- under 1.5 g, this archival tag records day length, light level information, wet/dry information, sea surface temperature and can provide information such as location, flight times, patterns, stopovers and speed
- small, low weight, low drag, long lasting and cost effective
- they can be attached to leg bands of larger birds or fixed using harnesses on smaller birds,
- not as accurate as GPS or satellite transmitters
- birds must be recaptured and the geolocator retrieved in order to collect the data

Discussion 6: Forum topic 3 . Coordination of Visual Markers

- Coordination: may be required at regional, national, or international level to prevent duplicates
  - Local behavioural studies may only require local coordination. Use of same marker combinations in different projects is OK
  - Migration studies – require international coordination to ensure markers are not duplicated
- Develop Internet Tools
  - Coordination of marker use
  - Reporting of encounters
- Sharing of standards:
  - Share information on appropriate markers and attachment methods for different species (e.g., links to published studies)
  - Guidance document and international standards for marker use?

Discussion 7: - Management of Electronic Markers forum topic 4.

- Can we develop central storage of these data? They are not currently managed by most banding schemes
- Requires different data base structure:
  - Multiple locations for each bird (could be daily, hourly…)
  - Varying accuracy and changing algorithms (e.g., for geolocators)
  - (Can LaMNA do this?)
- Also requires banders to submit these data!
  - Can this be built into permitting?

UK - Dr Rob Robinson - British Trust for Ornithology – BTO – Learn from other initiatives, such as the Panamerican Shorebird Program, where there is a coordinated color marking between countries, how color marks works, and on electronic markers there are many initiatives and national collection data centers. Researchers and volunteers follow the birds, with a webpage online to summarize the data.

Australia – Judit Sabo – Have unique flagging showing the country.

Brazil – Raquel Lacerda – CEMAVE - There was an initiative in Brazil to mark birds with flags; the problem was to find the flags to mark the birds.

Canada – Charles Francis – Canadian Wildlife Service – It would be advisable to share information about different types of tools for markers and sources of these.

RAAHO – Pablo Elizondo – An approach for the website would be to have information on these auxiliary markers. The Forum could exchange experiences., I also have a suggestion to compile all manufactures, banding, equipment and accessories and put it on the web site.

DATA MANAGEMENT AND SHARING

Integrating LaMNA (Landbird Monitoring Network of the Americas) and the Western Hemisphere Bird-Banding Network

C. John Ralph (US Forest Service, California)
Pablo Elizondo (INBio, San José, Costa Rica)
http://www.klamathbird.org/lamna

What is LaMNA?

- Organized in 2000 as the Migration Monitoring Working Group of Partners In Flight
- LaMNA is a Network of banders and institutions that play many roles to bring together data, increase communication and to provide many tools to bird banders and banding organizations.
- Major direction comes from the North American Banding Council, North American Bird Conservation Initiative, and the Canadian Migration Monitoring Network, and other organizations throughout the Americas.
- Principal idea of LaMNA is not to lose any banding data. About half of data that people take of bird banding and bird census activities are lost every five years without some backups
- For example, we are entering data for F. G. Stiles, taken in the 1970's from Colombia. And we are working with partners on landbirds throughout Mexico and elsewhere in Latin America.
  - We are enabling NABC standards and maintain the **full diversity of data as it was taken, under the motto: *"No Data Left Behind!!"***

Who are LaMNA?

- Paid personnel: from several bird observatories, NGOs, etc. (e.g., PRBO, Klamath Bird Observatory, Bird Studies Canada, Cornell Laboratory of Ornithology, USFS Redwood Sciences Laboratory)
- All together the organizations spend on this project a budget of more than $750,000 in 2010
- Personnel: include full and part time people: a data base manager, GIS specialist, two analysts, banding data coordinator and others. Assistance from web designers, programmers
- Completed objectives in last two years): to provide tools (online or stand-alone) for
  - Entering data in the lab and the field.
  - Checking validity of species and attributes
  - Data displays and visualizations
- …AND…. LaMNA IS ALSO MADE UP OF ALL OUR COLLABORATORS AND DATA DONORS!
- LaMNA not just a hyper-Network of collaborators, but a variety of applications and tool developments in a WIKI-style using R-program (http://www.r-project.org/).
  - Open-source (free)
  - Peer-to-peer
  - Collaborative

LaMNA Organization and Goals

Governance based on model of "Partners in Flight". That is….. *"If you show up, you are a part!"*

Goals are:

- Establish and maintain the list of Partners and Data Donors
- Maintain communication
- Provide data-handling tools
- Provide visualization tools
- Enable data storage and security

What is "Visualization?"

Simple (easy) and rapid way to "see" your data. It helps you understand what the birds are trying to say to you about their life styles and needs, providing you with information for land managers and politicians to show what the birds requirements are.

Graphs and summaries allowing for data filters (choose sub-sets of data) –

- Over time, e.g., by month or year
- By local stations, or regional compilation of several stations
- Subdivisions of any of the data by age/sex, condition, breeding status, etc.

For:

- Capture rates (abundance of residents, birds moving or staying)
- Health status (e.g. fat, wing vs. weight, etc.)
- Breeding status (e.g. brood patch, condition)
- Skull ossification rates
- Molt types and strategies

The taxonomy challenge: what is a species? Authorities for taxa?

- LaMNA adopted the eBird list (eBird.org) as the taxonomic authority for the Americas (it associates "common names" to taxa)
- Most banders record common name, thus facilitating conversion of these to the appropriate taxonomic definitions when revisions are made

There is a heiracrcy of bird names, based on eBird
group (e.g. "sparrows")
genera
super species (e.g., "flicker")
species
super-subspecies (e.g., red Fox Sparrows)
or subspecies

Data standardization challenges

LaMNA uses Avian Knowledge Network (Cornell University, et al.), an "exchange schema" that compiles datasets, including banding data. We have learned that there is a definite need for standards of references and definitions for each variable.

At least two ways to handle the challenge:

1. Unified Standards (essentially impossible!) vs. 2. Metadata collection

...both approaches when possible

Needed for sharing and analyses… especially of very valuable historical data

Body fat example:

- Several measurement methodologies as shown in the table below for different locations of fat
- Several scoring methods even at one location such as the furculum.
- In many cases no simple one-to-one translation to a universal methodology or scoring method

Bander 1	Bander 2	Bander 3
Furculum	Abdominal	Total
None	None	No
<30%	Slight	Yes
30-60%	Abundant	
>60%		

Unified standards vs. flexible variables

- Unified Standards (everybody the same):
  - Little processing needed, BUT
  - Historical data makes up vast majority and we can't easily unify these!
  - People want to take special data, such as flight feather molt in more detail
  - Unified could make constraints on creativity and exploration?

- flexible variables: The solution– to this is to embrace the diversity and map the data and variable "domains" (categories) by being flexible with the data definitions.
  - Include all variables from all methods
  - Allow varying definitions for variables
  - Provide flexibility for historic and future(!) variables

Specific and standard variables

for example: A variable called "TailMeasurementLength"
Contains two fields, one for description of the method, other is the measurement's value.
Example of description of the method used and the units measured in would be:
Tail Length: "Length of outer tail feather; Method specified, but usually measured from the insertion of the central two feathers to the longest tail feather to the nearest mm.| millimeter"

Non-standard variables

For variables not common to many banding stations, special-project data, e.g., for molt, bill, and other measurements Three groups of fields can be used to describe these variables, …
One field names the variable, another describes how it is taken, and the third measures it

How we do it? LaMNA Three Steps in Data Processing:

Step I: Cooperator sends full dataset in any format
Each "dataset" ideally should comprise 4 data files:

- Banding data
- Effort data
- Location data
- Sampling protocol

Step II -- LaMNA data "migration"

- LaMNA experts process datasets into Avian Knowledge Network (AKN) format. Ultimate output is: a single flat table holding cooperator data in AKN data exchange format (515 fields!)

Step III -- LaMNA data "federation" –

- Matching variables and fields to make it universally available to cooperators

LaMNA current status

- Data Universe: (30.000.000 banding records have been taken)
- Data files received: effort, birds, location curated "as is" (~ 1,350,000 records)
- Data reviewed by LaMNA (864,180 records)
- Data processed: all data properly linked into single table "view"(683,600 records)
- Data processed: formatted to fit AKN's data exchange format (502,621 records)

- Dataset fully documented, curated and posted in web-based access system (484,266 Bird records)

Tools Now Available at the website
- Band Inventory Tracking Tool
- Banding Data Entry Program
- Exploration Tools
- Analysis Tools (Programming in R)

Our goal is help you properly document preserve and make available every banding dataset
Our work has just begun. We need YOUR HELP We are inviting you to join our effort!!

Discussion 8 - DATA MANAGEMENT AND SHARING

Argentina Alex Jahn – There is a plan to expand Monitoring Avian Productivity and Survivorship (MAPS) program to South America. I think that this probably will not happen soon. Aves Internacionales wants to enter data into LaMNA, because we want to compare its data with North American data of survivorship and productivity. We need a standardized way to enter data on the Network to compare data.

United States - C.J. Ralph - U.S Forest Service -All the data that collected from LaMNA are totally comparable with the MAPS data from the Institute for Bird Populations LaMNA is developing tools for survivorship programmed by "R" (www.r-project.org). It doesn't matter what the origins of the data are, you can do mark-recapture with your own data.

Chile – Ana Maria Venegas – AvesChile – In Chile, the majority of the researchers have a commitments with their projects' sponsors, and they aren't willing to give the data to the database. When they share information it is only about the migratory birds.

Costa Rica -Pablo Elizondo – INBio, Costa Rica **-** It is important to note that LaMNA has five security or access levels for outsiders. To learn about these levels, visit: http://www.avianknowledge.net/content/about/data-access-levels**.** Any contributor could decide which level best fits their needs, and also they can change their security level over time.

Brazil - Raquel Lacerda- CEMAVE – How could be send the data?.

United States - C.J. Ralph - U.S Forest Service -- You can send the information to LaMNA in any possible form, paper, electroinic files, etc. The most important thing is that data has the fourth component files (Location, Effort, Banding data, and Protocols). Any country could be a node for funneling the data in, so far you can create your node.

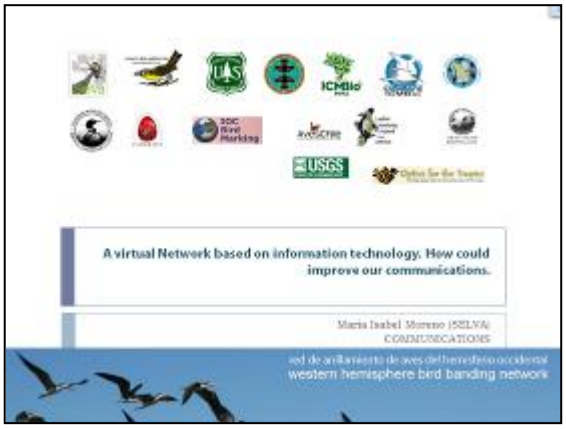
Colombia - Maria Isabel Moreno - SELVA – In Colombia there is a Sistema de Información de Biodiversidad, managed by the Instituto Humboldt, which is likely to be similar to many other Latin American countries. One possibility is to send the information to the official place in Colombia and also to the LaMNA, so it is possible to have the information access and the analysis capabilities at LaMNA.

Costa Rica -Pablo Elizondo – INBio, Costa Rica – In order to avoid duplicate data being reported, LaMNA could establish contact with other nodes and Initiatives to share the information.

MECHANISMS FOR COMMUNICATION

A virtual Network based on information technology: How could we improve our communications?

Maria Isabel Moreno – SELVA: Research for conservation in the Neotropics for RAAHO (WHBBN).



Goal: A Network of communication, coordination, and collaboration across the Western Hemisphere established with a commitment to support the members.

Activities

- Develop an on-line "contact list" for programs and persons across the hemisphere, for leads on "who to call" when one doesn't know where to start.
- Develop a web page (www.raaho.info) to post information relevant to the Network (Training information, ethics code, and list of contacts for reporting data.
- Make the web page available in the four main languages of the Americas
- Define the purpose and rules to set up list-serve.
- To organize the upcoming meetings.

Webpage - www.raaho.info - www.raaho.net - www.raaho.org

Communications between WHBBN and

- General public
- banders and trainers
- researchers
- members <registered members could have access to specific information posted that are restricted for members, as special sections of interest>

List-serve - email

- WHBBN List-serve to all people interest on bird banding activities at the Western Hemisphere
- Country contacts with major banding programs and banding schemes coordinators
- WHBBN Committees, communications about a specific topics

List serve guidelines

The RAAHO List Serve is an email bulletin board devoted to disseminating information on bird banding in the Western Hemisphere. RAAHO List Serve is multilingual; most postings are in English or Spanish, but Portuguese and French also welcomed. RAAHO List Serve is open to anyone interested in issues related of banding birds in the region. Frequent general subjects of postings include requests for information on capacity building, permit issues, bander ethics and bird safety, bands and marking issues, encounter/recovery reporting, data management and sharing and banding research. The only rules are: (1) be polite, (2) do not distribute attachments to the list, because attachments are the primary vectors for viruses, (3) in replying to a message, to keep message bulk at a minimum please include only that part of the original message necessary for understanding the reply (not the entire message), (4) avoid sending personal messages to the entire list and (5) show your identity.

Newsletter <e-bulletin>

- Periodically send information to all members and interested people about WHBBN updates posted at the webpage. Needed is a responsible person

Forums – Blogs - Wikipedia

- Ringers and trainers
- Managers of banding centers
- Links to initiatives (Canada)

Promotion

- Database of academics, banding observatories, programs, governments, regional initiatives (ie. WHIMSI, WHSRP.).
- Emails ...@raaho.info available for official communications.
- To invite to join to he Network,
- To send newsletters
- To specific information of interest.

Meetings

- The commitment of the Network is to meet in conjunction with the major Ornithological meetings.
- Neotropical Ornithological Congress (Peru 2011)
- North American Ornithological Congress (Canada 2012)
- Exclusive meetings could be prepared if needed and there is available funds to support them.

Speaker points:

- Webpage
- Forum
- List serve
- Next meeting
- Newsletter

IV. CONCLUSIONS AND FUTURE DIRECTIONS FOR THE NETWORK

After the presentations of each topic, discussions sessions about the key themes to be addressed by the Network were discussed. The main conclusions, needs and findings from these sessions are as follows and should be integrated into the new and updated action plan (see "WHBBN-Strategic Plan 2006-2010 Version 2.0.doc".).

1. CAPACITY BUILDING

Organizational support

- In order to establish a Banding System is important to get the following steps:
  First, a regulation of banding process that establishes the process about permits, protocols, bands distribution, data sharing and management, etc.
  Second, it is necessary that an institution is involved as a place to centralize around the banding issues in the country.
  Third, to define a unique inventory of bands for the country, with a free distribution, and in an adequate amount that could be available for the banders.
  Fourth, training should to be implemented once the first three steps are established

Training and certification

- It is important develop a bird banding training model or standardization, in order that all kind of data are properly taken to guarantee their accuracy.

- Many countries without a well organized banding system need support on training and/or training possibilities, not only for new banders but also for advanced banders.

Partnership

- It is important to use the webpage and other mechanisms of communication to share information about current Networks in order to cooperate.
- There are important experiences that other organizations across the globe have had so that the banding programs of the Western Hemisphere could learn about their process and activities.

2. PERMIT ISSUES

- In the majority of countries in Latin America there is not a requirement for a bird banding permit.
- Banders only need a research permit in order to trap and band birds.
- There is no a mechanism to demonstrate bird banding abilities.
- There is a necessity to link the permit issues with a bander and trainer certification program.
- Permits should to be linked to issues involving bird safety, the data quality, and the commitment to report the information to the centralized database.
- It is not important that a permit issuance be solely related to the number of birds banded by a person.

3. BANDER ETHICS AND SAFETY

- RAAHO should review the existing bander's code of ethics and establish an ethics statement, discussing the entire ethics component.
- The members of the Network should agree to abide by the ethical standards.
- The question to solve with banding programs first is to think about a program in terms of scale and scope, i.e., constant effort programs.

4. Banding birds for soley getting for recoveries is not a justification for a permit for landbirds. There are new technologies that better serve to evaluate migratory routes. **BAND AND MARKING ISSUES**

Banding system requirements- metal bands:

- The number of sizes and materials of the bands depends on the target species.
- A unique codification by size
- A stock available of bands (for free or paid by banders)
- A system of reporting, with a domain and a web page guaranteed to be online forever for recoveries)
- A person or organization responsible for coordination of the distribution of bands and manage inventory.
- A database where banders could submit their records (with all data associated with each bird, effort, location and protocols) For data management and data sharing.

Coordination among countries - Requirements

- A unique letter code for each country, probably 2-letter.
- A band supplier

Coordination among countries - Advantages

- reduce risk of mix-up of bands from different schemes with same number
- could potentially identify band to country based on number (or code), even if the address is not read
- Reduced overall costs

Auxiliary marks

- It is important to organize coordination about the activities that involve auxiliary marks in the Western Hemisphere.
- It is always important to evaluate the implications of using auxiliary marks related to the scope and duration of the study.

5.

6. DATA MANAGEMENT AND SHARING

- It is important that any bird banding initiative properly document each "dataset" that comprises the four data files that are involved: 1) banding data itself, 2) effort data, 3) location data, and 4) sampling protocol.
- The protocol should describe how the data were taken with references to the specific measurements. This allows the data to be relatively uniform in the way they are represented on the data forms, and makes the information more comparable between stations.
- The standardization should also be related to the specific methods used in taking the data. What kind of datataken would, of course, depend on the project's scope.
- It is important that any bander and the institution involved have the commitment to store the data in a long-term centralized database in order to avoid to loss of information.
- It is important to understand that storing data in a centralized database is a way to maintain the information integrity, but doesn't mean that they are necessarily available to anyone. Each bander/institution should decide which security and sharing level they want for the data, from no restriction to complete privacy.
- The security levels are not fixed, and can change at any time, as the owner decides.
- If there are similar databases in different storage locations, it is important to establish communication between these in order to be aware of and to avoid duplications.

7. ENCOUNTER/RECOVERY REPORTING

- It is important that any band shows a method to report if there is an encounter or recovery. A web address is the best way, but the institution in charge of managing the bands and/or database should guarantee that the domain it is available permanently..
- The recovery webpage should have the following information related to the recovery: Where when, Who, How.
- It is important that banders report frequently their banding data to the centralized database in order that the information about the first capture is available.
- It is important to document all the retraps and recoveries in a database.

8. MECHANISMS FOR COMMUNICATION

- There are many tools ready to be used
- We need a communications strategy in order to move the Network participation forward .

V. TASKS AND RESPONSIBILITIES - LIST OF PARTICIPANTS/VOLUNTEERS:

A series of priority tasks was identified volunteers to work on them. If you are interested in cooperating with the Network please don't hesitate to contact us.

a. CAPACITY BUILDING

Organizational support:

1 **PHILOSOPHIES OF GETTING BANDING PROGRAMS, The four points: 1) Regulation, 2) governance, 3) bands supply and 4) training.** Charles Francis (Canadian Wildlife Service), Fernando Spina (Italia Ringing Center), Mauricio Ugarte (Universidad Nacional de San Agustín – Peru).

2 **DESCRIPTION OF EACH COUNTRY'S SCHEME POSTED AT THE WEBPAGE**; A representative of each country's scheme to send information to Maria Isabel Moreno (SELVA)

Training and certification:

3 **AN UPDATED TRAINERS DATABASE AVAILABLE AT THE WEBPAGE. A request needs to go out to** trainers to send their information to Maria Isabel Moreno (SELVA)

b. BAND AND MARKING ISSUES

4 **CREATING FILE WITH TYPES OF BANDS AND WHERE BANDS ARE OBTAINED**: Raquel Lacerda (Brazil), Alex Jahn (Aves Internacionales), Maria Isabel (SELVA)

5 **AUXILIARY MARKERS AND A WEBSITE TO HELP ON IT:** Charles Francis (CWS), Andrei Roos (CEMAVE), Alex Jahn (Aves Internacionales)

6 **INTEREST IN BAND MANUFACTURING:** Pablo Elizondo (Costa Rica Banding Program), Marvin Morales (University of Florida)

c. MECHANISMS OF COMMUNICATION

7 **MODERATOR FOR THE LIST-SERV AND COMMUNICATION:** Create a web group for discussions (in each group): Maria Isabel Moreno (SELVA)

8 **COMMUNICATION STRATEGY:** Maria Isabel Moreno (SELVA), Maria Flávia Nunes (CEMAVE), Ana Carneiro (Brazil) (translations), Jared Wolfe (Louisiana State University), Alex Jahn (Universidad de Buenos Aires), Marvin Morales (University of Florida), Stu Mackenzie (Bird Studies Canada), Manuella Andrade (CEMAVE) and Nataly Hildago (Brazil).

d. PERMITS

9 **TESTING FOR PERMITS AND GENERAL TESTING:** Patricia Serafini (CEMAVE), Mauricio Ugarte (Universidad Nacional de San Agustín – Peru).

e. DATA SHARING AND MANAGEMENT

10 **MECHANISMS TO SHARE DATA AND VISUALIZATIONS:** Pablo Elizondo (Costa Rica Banding Program), C. J. Ralph (US Forest Service), Ana Paula Bertoldi Carneiro (Brazil)

11 **STANDARDIZATION OF THE DATA COLLECTION:** Jared Wolfe (Louisiana State University) , Mauricio Ugarte (MUSA – Peru), Ana Maria (Bolivia), Jose Ignacio Giraldo (Aves Internacionales), Aurelea Mäder (Brazil). C. J. Ralph (US Forest Service),

PROJECTS AND PROTOCOLS

12 **A DATABASE WITH BANDING AND MARKING PROJECTS IN THE WESTERN HEMISPHERE, INCLUDING A MAP WITH LOCATIONS POSTED AT THE WEBPAGE:** a request for each banding project coordinator to send information to Maria Isabel Moreno (SELVA).

f. STRUCTURING THE NETWORK

13 **MECHANISM OF UPDATING THE STRATEGIC PLAN:** Charles Francis and Lesley Howes (CWS), Maria del Coro Arizmendi (UNAM), Patricia Serafini (CEMAVE), Thomas Valqui (CORBIDI) and Maria Isabel Moreno (SELVA). Evaluate the points and identify which are already agreed to, or ones not relevant anymore, including the new ones.

14 **DOES THE NETWORK NEED STRUCTURE AND GOVERNANCE IN PARTICIPATION?:** discussion to formalize the participation (if is it necessary or not) – Pablo Elizondo (Costa Rica Banding Program, Stu Mackenzie (Bird Studies Canada), Maria Isabel Moreno (SELVA)

15 **V RAAHO WORKSHOP: IX NEOTROPICAL ORNITHOLOGICAL CONGRESS – November 7 2011.** Thomas Valqui (Corbidi), Evelying Tavera (Corbidi), Mauricio Urgate (MUSA) Pablo Elizondo (Costa Rica Banding Program) and Lesley Howes (CWS).

APPENDIX I. PARTICIPANTS

List of participants who attended WHBBN meeting at 25th International Ornithological Congress in Compos do Jordão, Brazil - August 22 2010

	Country	Name	Institution	Correo-e
1	Argentina	Alex Jahn	Universidad de Buenos Aires	alexjahn77@yahoo.com
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25	Colombia	Maria Isabel Moreno	SELVA – www.selva.org.co	maria.i.moreno@selva.org.co
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	Country	Name	Institution	Correo-e
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