



# Nonbreeding Season Research and Conservation

El Grupo Cerúleo

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## Our Agenda today



- Review activities conducted since 2002
- Introduce ideas pertinent to conservation in nonbreeding period
- Stimulate interchange

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## West Virginia, 2002



Some of members present at, Shepherdstown, West Virginia, USA, summit of Cerulean Warbler Technical Group

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El Grupo Ceruleo began during the first Cerulean Warbler Summit in 2002. We recognized the nonbreeding grounds as a priority at that time.



**Members of El Grupo Cerúleo,**  
Subcommittee of Cerulean Warbler Technical Group

Represent  
Canada, USA, Venezuela, Colombia, Ecuador, Perú, Bolivia

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[www.srs.fs.usda.gov/egc/](http://www.srs.fs.usda.gov/egc/)



## Shepherdstown Tasks



- A. Natural History: Distribution, Habitats, and Biology
- B. Conservation: Habitat protection, Contaminants
- C. Information Management
- D. Partnerships and Coordination
- E. Outreach and Education

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## Our Charge



- Ignorance of nonbreeding biology huge
- Reduce it!!
  - 1) summarize existing data
  - 2) model with GIS coverages
  - 3) conduct pilot studies

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# Ecuador, 2003



These members came from all countries in the species' range

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It was at this meeting that the group recognized the importance not only of conducting work in the nonbreeding period in South America, but in particular the value of using the GIS technology to develop a model or set of testable models by which we could organize the work of trying to determine where the birds were in South America, and what factors were associated with that distribution, so that we could manage as many of them as we could, in the effort to conserve the species population.

Cerulean Warbler Technical Group

# Quito, 2005



These members came from all countries in the species' range

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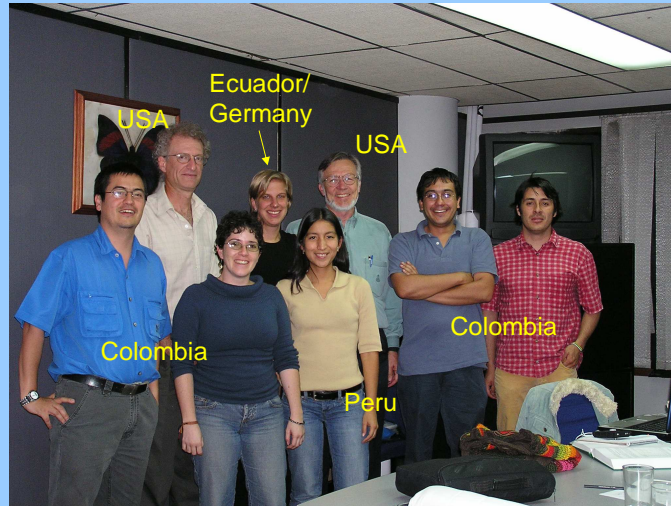


This larger group developed the initial models and screened the existing data sets to assemble a modeling approach to use of the GIS to determine and investigate the nonbreeding range of the Cerulean Warbler



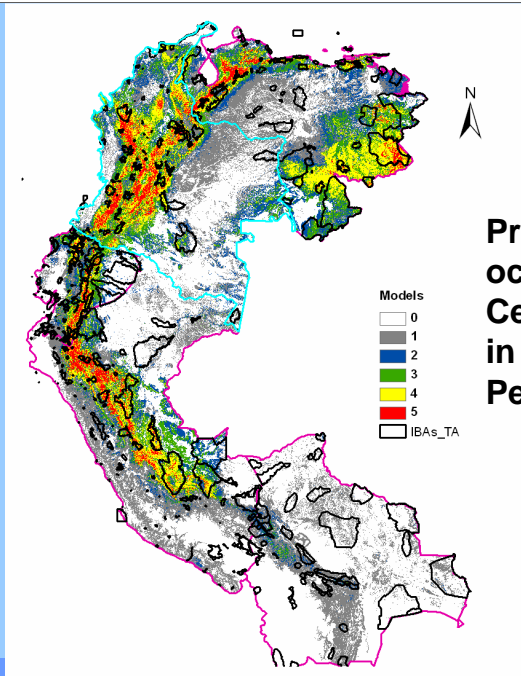


# Bogotá, 2006



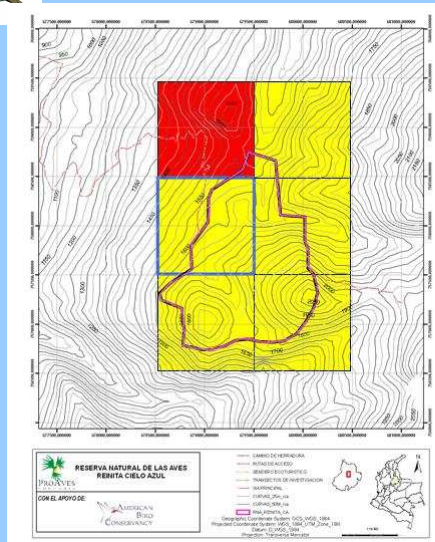
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This is the group of us who took the initial models, and refined them into the final models presented here.



**Predicted  
occurrence of  
Cerulean Warbler  
in Nonbreeding  
Period**

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**Reserva Natural de las aves  
Reinita Cielo Azul, near  
San Vicente de Chucurí,  
Santander Province,  
Colombia**

**ProAves, Colombia**

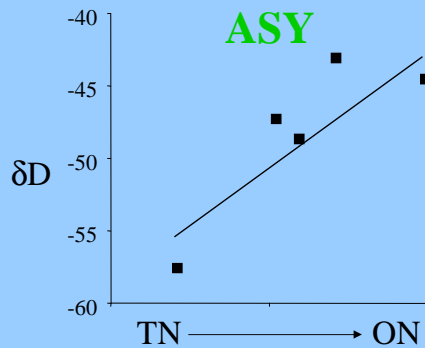
Boundaries approximate  
P. Hamel, 25 Jan 2007

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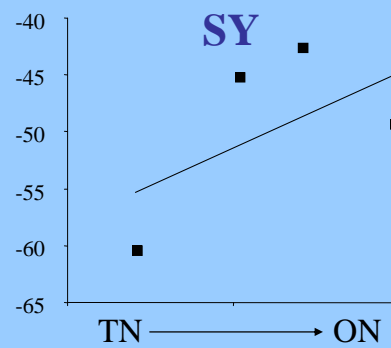
This site was not part of the training data set. The model that caused the only 4 concurring, was MAXENT. It did not predict the areas in yellow.



## A hint of connectivity



$$y = -92.9 + 0.009x$$
$$F = 34.56, P < 0.001$$



$$y = -87.5 + 0.007x$$
$$F = 9.15, P = 0.005$$

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Girvan. 2003. M.Sc. Queen's University

deltaD of crown feathers indicative of winter signature

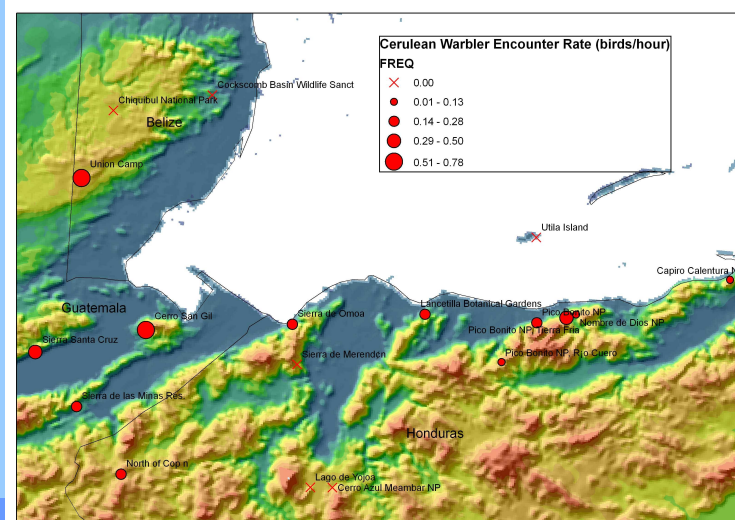
high negative values indicate south winter range, low negative values indicate north winter range

No sampling location exhibited significant differences between ASY and SY signature, implying no age-based segregation of males.

Sample size limitations with SY analysis, despite high F and low P



# Surveys for migrating Cerulean Warblers in northern Mesoamerica



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## Invitees unable to attend



- Paolo Ramoni-Perazzi
- Universidad de los Andes, Merida, Venezuela
- Tomas Valqui
- Louisiana State University, Lima, Peru

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## Our Agenda today



- Sebastian Herzog and Victor Hugo Garcia
- Asociación Armonía – BirdLife International, Santa Cruz de la Sierra, Bolivia
- Investigations in the southern part of the nonbreeding range in Bolivia and Peru

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## Our Agenda today



- Esteban Guevara
- Aves&Conservacion, Quito, Ecuador
- Investigations in the northern part of Ecuador

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## Our Agenda today



- David Caro
- Fundacion ProAves, Bogota, Colombia
- Activities of the Cerulean Warbler team of ProAves, Colombia

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## Our Agenda today



- Diego Calderon-Franco
- Universidad de Antioquia, Medellin, Colombia
- Behavioral Ecology of the Cerulean Warbler in Colombia

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## Our Agenda today



- Jorge Botero
- Cenicafe, Manizales, Colombia
- Cerulean Warbler in the Coffee-growing Region of Colombia
- Gloria Lentijo worked with Jorge

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## Our Agenda today



- Tomás Cuadros
- Sociedad Antioquena de Ornitología, Medellín, Colombia
- Management suggestions for silvopasture in the Colombian Andes

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## Our Agenda today



- Gabriel Colorado
- Universidad Nacional de Colombia, Medellin, Colombia
- Evaluating the GIS predictive model of Cerulean Warbler occurrence in South America

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## Our Agenda today



- Pablo Andrade
- Fundación Socio Cultural Don Bosco, Loja, Ecuador
- Investigations in the southern part of Ecuador

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Unfortunately, Dr. Andrade's travel was interrupted and he was unable to arrive in time to make a presentation to the Summit.