

Assesment of a GIS model of the non-breeding range of the Cerulean Warbler in South America



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Objective



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To evaluate a GIS-based distributional map of occurrence of Cerulean Warbler through field verification

Objectives

To design field protocols for Cerulean Warbler surveys as well as for vegetation sampling

To apply resulting data to model using techniques of occupancy modeling of MacKenzie et al. 2006



Background

Historical & recent records of Cerulean Warbler (publ. & unpubl. up to 2005)

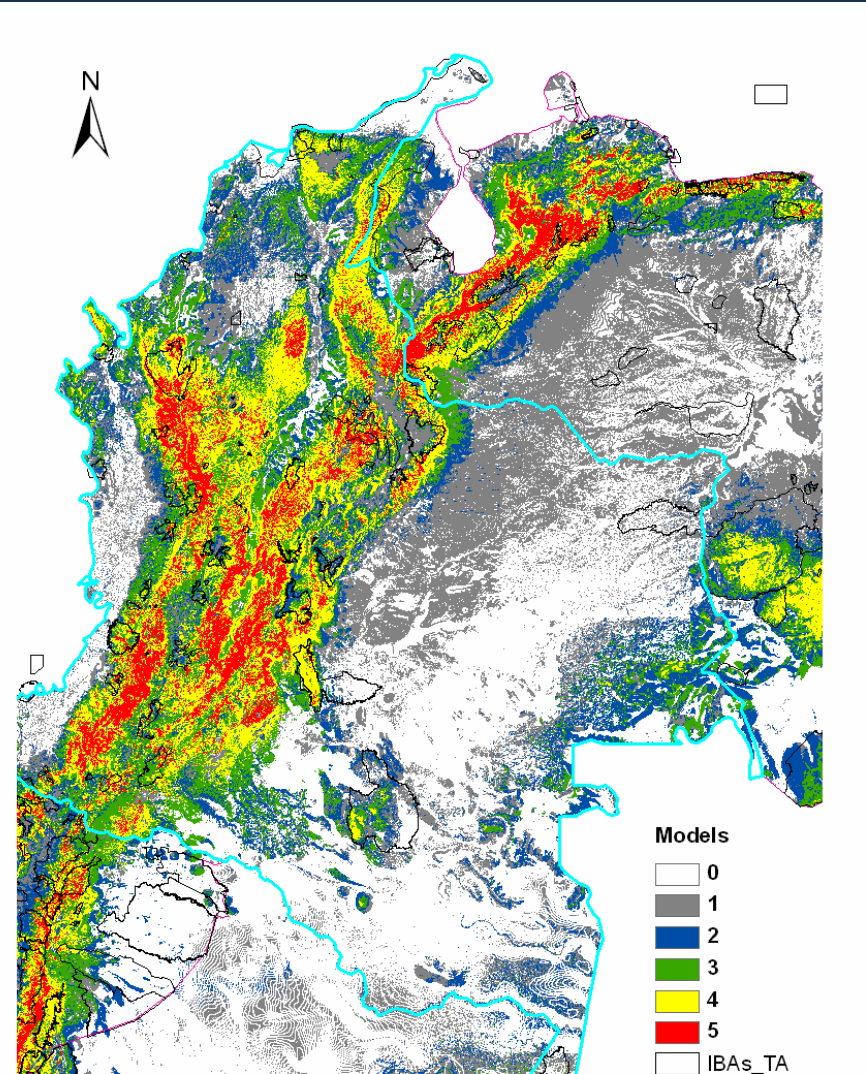


Development of five hypothetical models of potential distribution of the bird in the Northern Andes

Validation of the model output through field verification

Potential distribution of Cerulean Warbler in the Northern Andes

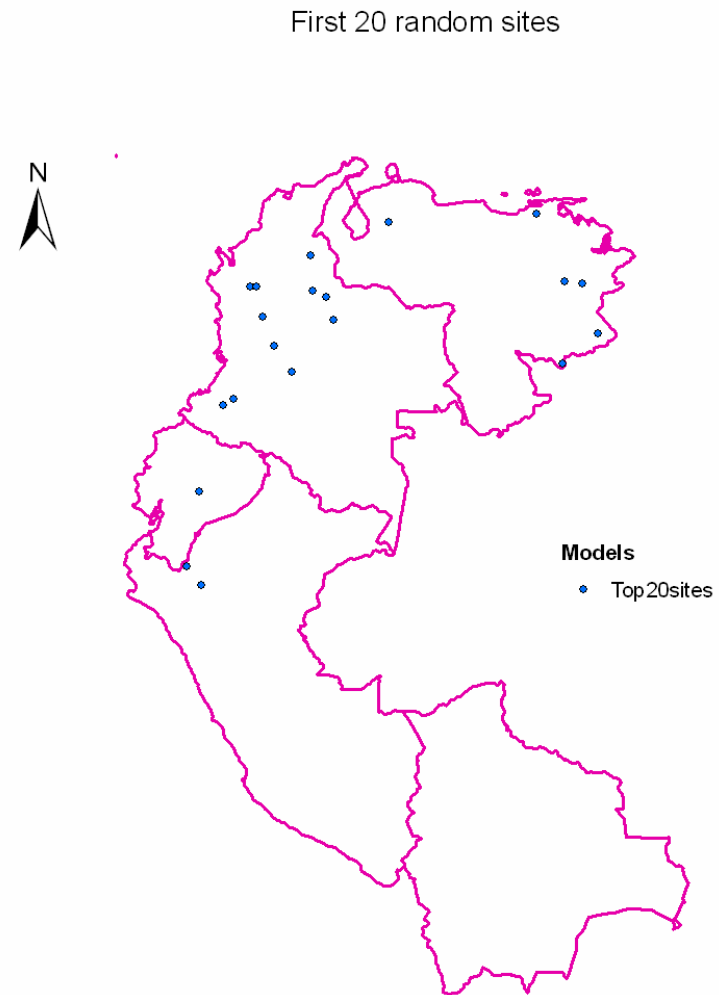
Combination of resulting models into a map for the Northern Andes (Barker et al. 2006)



Survey design

Selection of 20 random locations based on a stratified random design (IBAs)

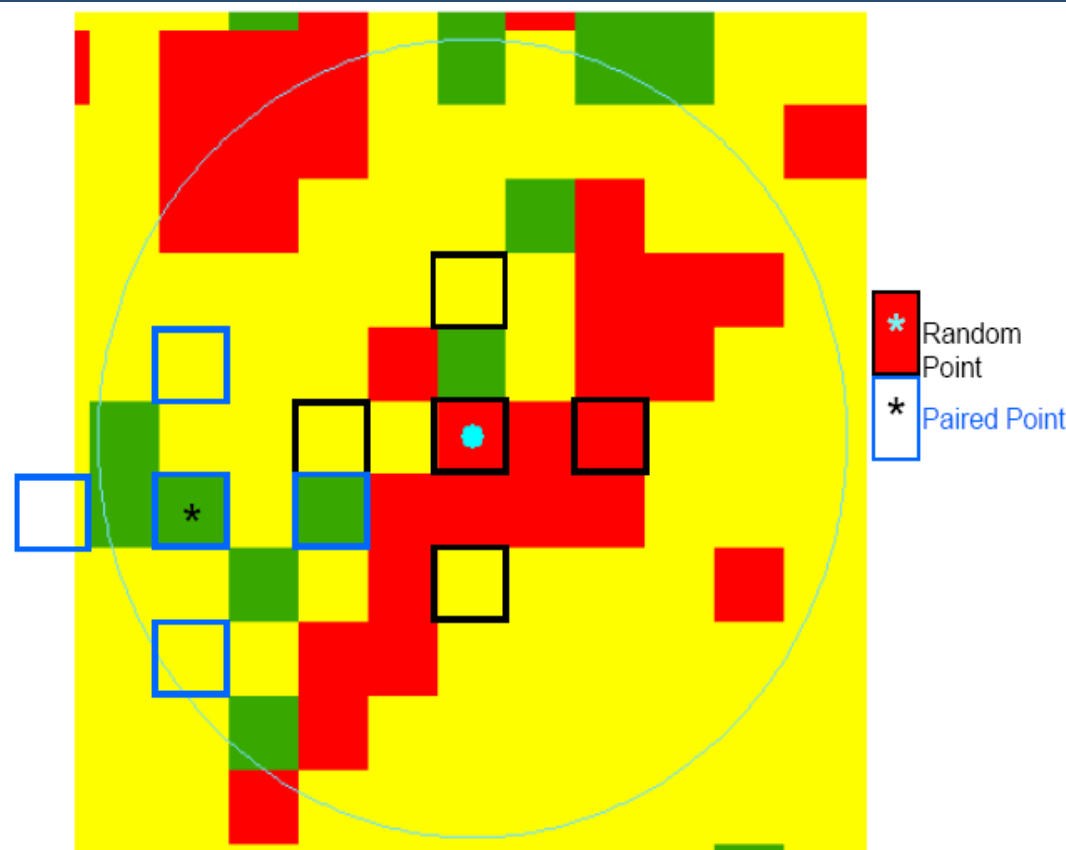
Field assessment of these random points (1 km² pixels) where Cerulean Warbler was predicted to occur by all five models



Survey design

✓ Each of the random points is paired with a nearby randomly selected point (paired point) defined to have been selected by 3 or fewer of the 5 models.

✓ Around each of these is a systematically arrayed grid of 4 additional survey sites.

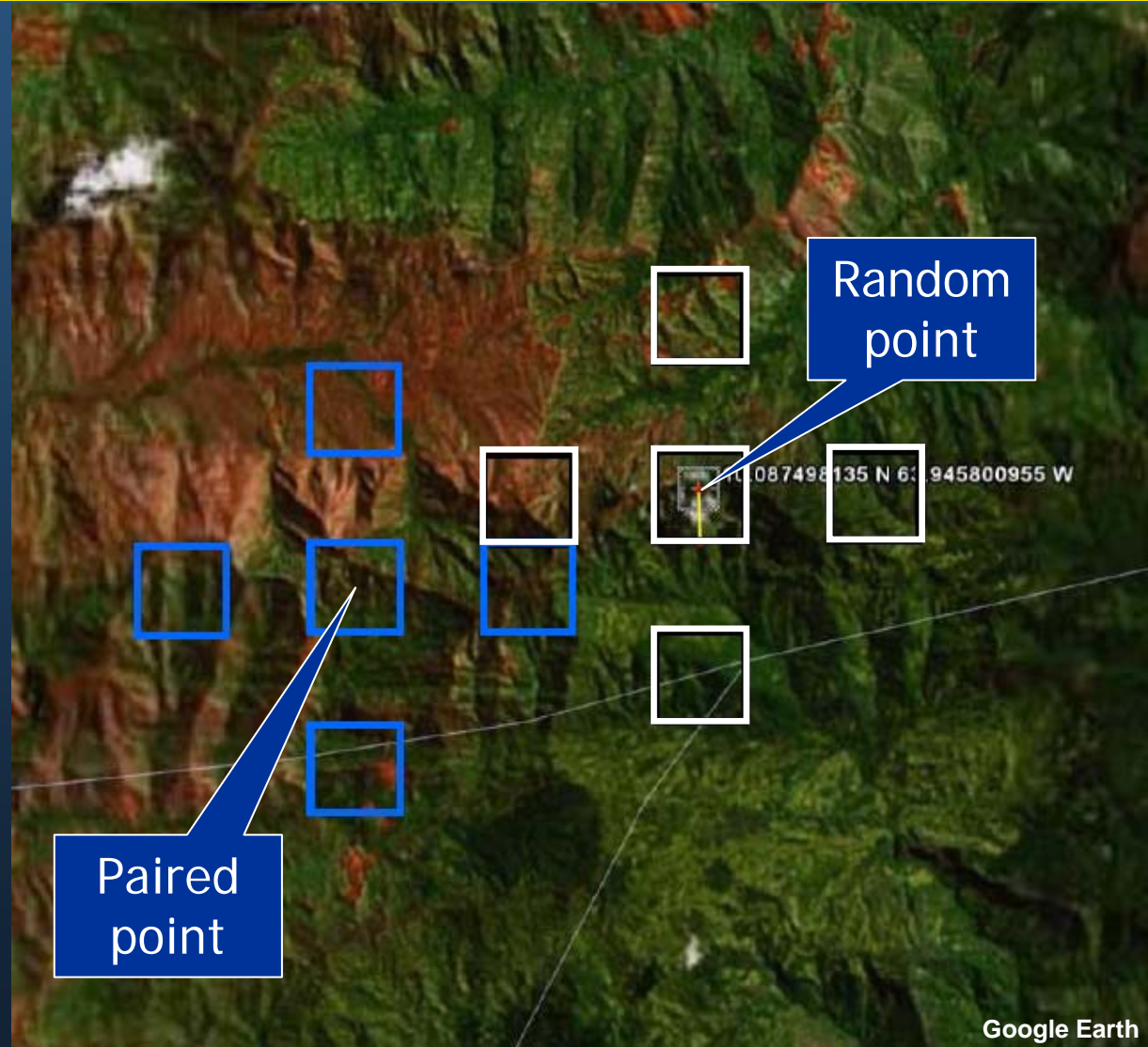


Pt 36, R01, Pixel 56, 4.123106 km @ 255.9637 from random pt.

Survey design

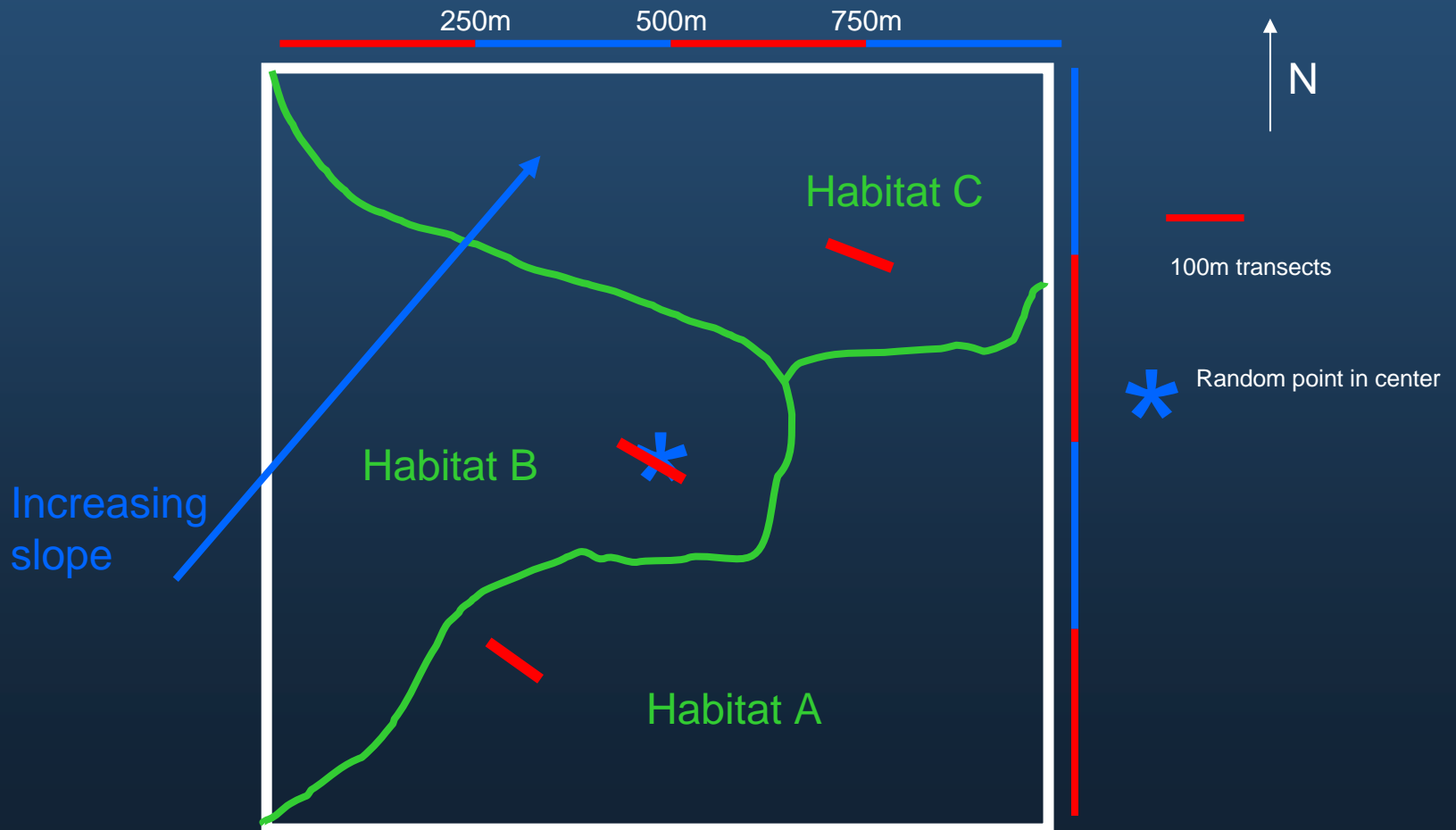
10 survey sites per location
based on 20 random points:

- ✓ 110 for Colombia
- ✓ 60 for Venezuela
- ✓ 10 for Ecuador
- ✓ 20 for Peru



Survey design

Basic field sampling



Vegetation survey

(*sensu* James & Shugart 1970)



*

Vegetation sample is 11.3m radius circle, centered on selected point, 1 through 6, but not overlapping adjacent point

Composition

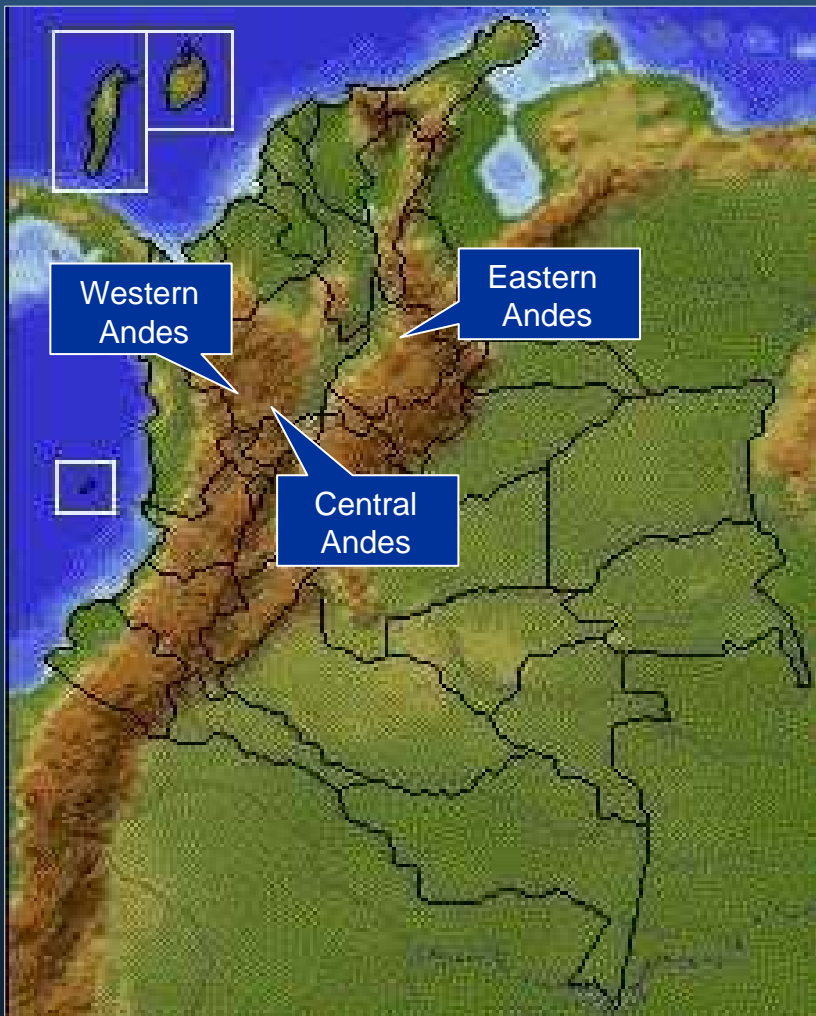
Structure

Frequency

Cover



Other research activities



Monitoring stations in every Cordillera

Detection probability information in areas of known occupancy

Data based on captured birds (i.e. site fidelity, body condition, telemetry)

Ecological information on a regional level (i.e. mixed-species flock studies).

Preliminary results

- ✓ Monitoring stations: seven individuals have been captured since December 2006 (canopy mist nets)
- ✓ Six pixels have been visited in Colombia starting in January 2007; four have been successfully surveyed, and CERW has been detected in one location (Southern Colombia, Cauca province)
- ✓ Training of new field crews build capacity for next years)



Gabriel Colorado

Challenges to the project

- ✓ Public disorder (i.e. ilegal army groups, ilegal mining)
- ✓ Access to points
- ✓ Time constrains
- ✓ Potential vs. available habitat (remaining habitat)



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