





# Francisco Xavier Castellanos Insuasti

I am a **Master of Science in Biology student** at the Ray Lab, skilled in cellular and molecular biology, bioinformatics and fieldwork. My research encompasses studies from the evolution of Transposable Elements and the innate immune response of **bats**, to the Ecology, behavior and habitat occupancy of **large mammals**. Andean bears, tapirs and Andean foxes, using GPS data collected in several National parks in Ecuador.

## EDUCATION

- Present  
|  
2021
- **MS Student, Biology**  
Texas Tech University. The Ray Laboratory.  Lubbock, USA
- 2020
- **BS Genetics**  
Laboratorio de Genética Evolutiva, Universidad Nacional de Misiones  Posadas, Argentina
    - Thesis: Cytogenetic and molecular studies in some species of the Genus *Myotis* (Chiroptera: Vespertilionidae: Myotinae) in Northern Argentina.

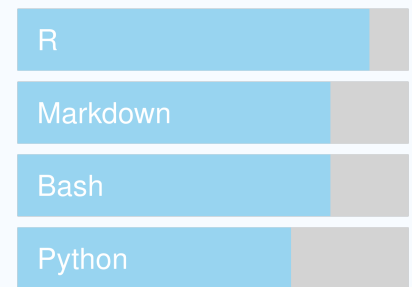
## RESEARCH EXPERIENCE

- Present  
|  
2021
- **Collaborator**  
The Ray Laboratory, Texas Tech University  Lubbock, USA
    - RAPID: Immunological adaptations in bats to moderate the effect of coronavirus infection.
    - RoL: FELS: EAGER: Collaborative Research: Genomics of exceptions to scaling of longevity to body size.
- Present  
|  
2015
- **Research Assistant**  
Andean Bear Foundation  Quito, Ecuador
    - As part of the Large Mammals Project in Parque Nacional Cayambe Coca, I assist in ecotourism projects and tracking of mammals when I am in the country.
    - Research-wise, our Foundation works along INABIO in several projects related to home range estimation of mammals habitats and behavior patterns using GPS data.
- Present  
|  
2020
- **Associated Researcher**  
**INABIO**  Quito, Ecuador
    - I use novel bioinformatic methods, to understand how mammals make use of their natural habitat and what resources may have an impact on how they move across their home ranges.

## CONTACT

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🌐 [frcastel.com](http://frcastel.com)  
🐙 [github.com/Xacfran](https://github.com/Xacfran)  
in [linkedin.com/frcastel](https://linkedin.com/frcastel)  
📍 Lubbock, Texas

## TECH SKILLS



My experience includes but is not limited to:

- Bioinformatics scripts development
- Genome annotation
- TE Characterization
- Gene and protein structure prediction

## LAB SKILLS

Cytogenetics and cellular biology:

- C-banding
- NOR
- DAPI/CMA<sub>3</sub>
- FISH
- PCR
- Human cell cultures

Made in R w/ [pagedown](#)  
Source code: [Github repo](#)  
Last updated on 2022-09-04



## INTERNSHIPS

- 2022

● **A cytogenetic and genomic approach to unravel phylogenetic discrepancies in a bat genus**

Integrative Biology Department, University of California, Berkeley

• *Upcoming*: December 2022

📍 Berkeley, USA
- February 2020

● **Karyological analyses as a tool for clinical diagnosis of human hereditary diseases**

Hospital Carlos Andrade Marin, Genetics and Molecular Unit

📍 Quito, Ecuador
- 2019  
|  
2018

● **Herpetology data base enhancement project**

Laboratorio de Genética Evolutiva, Universidad Nacional de Misiones

📍 Posadas, Argentina



## PROFESSIONAL EXPERIENCE

- 2021

● **Thesis Evaluating Committee**

Universidad Distrital Francisco José de Caldas

• Undergraduate Thesis: "Biological knowledge status of the subfamily Stenodermatinae (Gervais, 1856): a cytogenetic revision within an evolutionary framework"

📍 Bogotá, Colombia
- 2018  
|  
2015

● **Field Assistant**

Laboratorio de Genética Evolutiva, Universidad Nacional de Misiones

• I was part of collection campaigns which goal was to obtain biological samples from bats for several Genetic and Ecological Projects.

📍 Posadas, Argentina



## TEACHING EXPERIENCE

- Fall 2021  
& 2022

● **BIOL 1403 (BIOL I)**

Department of Biological Sciences, Texas Tech University

• Laboratory Teaching Assistant.

• Lab course designed to develop scientific skills in Biology Major students.

• Guided students to perform microscopy, spectrophotometry, and fermentation experiments.

📍 Lubbock, USA
- Spring 2022

● **BIOL 1403 (BIOL II)**

Department of Biological Sciences, Texas Tech University

• Laboratory Teaching Assistant.

• Lab continuation for BIOL1403 for Biology Major students.

• Dissection labs are performed besides an independent investigation project in which students present a scientific article draft as a final project.

📍 Lubbock, USA

Summer  
2022

- **BIOL 3416 (Genetics)**  
Department of Biological Sciences, Texas Tech University 📍 Lubbock, USA
  - Laboratory Teaching Assistant.
  - Topics covered from Mendelian genetics, cross of flies to replicate Thomas Morgan's experiments, and Chi-square as a statistical mean to understand statistical significance of expected and observed breeding results.

Spring  
2021

- **Introduction to Telemetry and Ecology of Large Mammals**  
Andean Bear Foundation 📍 Online
  - Basic level covered introduction to R language, basic Statistics and data visualization.
  - Intermediate-level students were introduced to home range estimation methods using the adehabitat package.
  - Advanced students learned to visualize animal movement with the movevis package and to estimate home ranges using the Convex Hull method with T-LoCoH.



## PUBLICATIONS

2022

- **The search behavior of terrestrial animals (In preparation)**  
Michael J. Noonan,, Ricardo Martinez-Garcia, Christen H. Fleming, ... **Castellanos, F. X.** .. , William F. Fagan, and Justin M. Calabrese.(2022). The search behavior of terrestrial animals. To be submitted to Science.

2022

- **How relevant are cytogenetics studies in Myotis? New evidence on chromosomal data reveals differential heterochromatic patterns in Argentinian myotine bats (In preparation)**  
**Castellanos, F. X.**, Ferro, J.M., Baldo, D. and Sanchez, M. How relevant are cytogenetics studies in Myotis? New evidence on chromosomal data reveals differential heterochromatic patterns in Argentinian myotine bats. To be submitted to Acta Chiropterologica.

2022

- **Home range and utilization of landscape of the Andean bear *Tremarctos ornatus* in the Ecuadorian Andes (In preparation)**  
**Castellanos, F. X.**, Jackson, D., Kays, R., Van Gestel, N., Brito, J. and Castellanos, A. Home range and utilization of landscape of the Andean bear *Tremarctos ornatus* in the Ecuadorian Andes. To be submitted to PLOS Biology.

2021




- **A pilot study on the home range and movement patterns of the Andean Fox *Lycalopex culpaeus* (Molina, 1782) in Cotopaxi National Park, Ecuador**  
Castellanos, A., **Castellanos, F. X.**, Kays, R. and Brito, J. (2021). *A pilot study* on the home range and movement patterns of the Andean Fox *Lycalopex culpaeus* (Molina, 1782) in Cotopaxi National Park, Ecuador. *Mammalia* 86(1), 22-26. <https://doi.org/10.1515/mammalia-2020-0195>

2020

- ***Tapirus pinchaque* in Western Ecuador**  
Castellanos, A., Brito, J. and **Castellanos, F. X.** (2021). *Tapirus pinchaque* in Western Ecuador. *Museum of Zoologic Research IASA, Technical Bulletin, Zoologic Series* 16:1-4. Online access: <https://journal.espe.edu.ec/ojs/index.php/revista-serie-zoologica/article/view/1629>

- 2020 ● **First report of Canine distemper in the Andean Fox (*Lycalopex culpaeus*) in Ecuador**  
Castellanos, A., Brito, J. and **Castellanos, F. X.** (2022). First report of Canine distemper in the Andean Fox (*Lycalopex culpaeus*) in Ecuador. Museum of Zoologic Research IASA, Technical Bulletin, Zoologic Series 16:1-4. Online access: <https://journal.espe.edu.ec/ojs/index.php/revista-serie-zoologica/article/view/1628>
- 2019 ● ***Glyphonycteris*, O. Thomas, 1896 (Chiroptera: Phyllostomidae: Glyphonycterinae), a new genus of bats for Argentina, with commentary on its karyotype**  
Sánchez, M.S., Labaroni C.A., **Castellanos, F. X.** and Baldo, D.J. *Glyphonycteris*, O. Thomas, 1896 (Chiroptera: Phyllostomidae: Glyphonycterinae), a new genus of bats for Argentina, with commentary on its karyotype. Mastozología Neotropical, 26(2):420-429. <https://doi.org/10.31687/saremMN.19.26.2.0.12>
- 2019 ● ***Panthera onca***  
Castellanos, A., **Castellanos, F. X.**, and Vallejo, A.F. 2019. *Panthera onca* In: Brito, J., Camacho, M. A., Romero, V. Vallejo, A. F. (eds). Mamíferos del Ecuador. Version 2018.0. Zoology Museum, Pontificia Universidad Católica del Ecuador. Online access: <https://bioweb.bio/faunaweb/mammaliaweb/FichaEspecie/Panthera%20onca>
- 2019 ● ***Artibeus lituratus***  
Sánchez, Mariano S., **Castellanos, F. X.**, Sandoval, María Leonor (2019). *Artibeus lituratus*. (2019). Categorization of mammals in Argentina according to their risk of extinction. Argentine mammal's Red List. Digital version: <https://cma.sarem.org.ar/es/especie-nativa/artibeus-lituratus>
- 2019 ● ***Carollia perspicillata***  
**Castellanos, F. X.**, Sánchez, Mariano S., Sandoval, María Leonor (2019). *Carollia perspicillata*. (2019). Categorization of mammals in Argentina according to their risk of extinction. Argentine mammal's Red List. Digital version: <https://cma.sarem.org.ar/es/especie-nativa/carollia-perspicillata>

## CONFERENCES & TALKS

- August 2022 ● **deAMplifying the Immune Response: Antimicrobial Peptides Evolution in Chiroptera**  
Poster presentation: 19<sup>th</sup> IBCR - 50<sup>th</sup> NASBR. [\[Abstract PDF\]](#)  Austin, USA
- April 2021 ● **De lo básico a lo complejo: ¿Qué causa el Síndrome de Prader Willi?**  
Invited speaker: From the basics to the complex: What causes Prader-Willi Syndrome?  Online  
Fundación Prader-Willi Ecuador.
- October 2018 ● **Chromosomal studies in some species of the genus *Myotis* (Chiroptera: Vespertilionidae) from Northern Argentina.**  
Poster presentation: XXXI Argentine Conference of Mastozoology.  La Rioja, Argentina  
[\[Abstract PDF\]](#)



## AWARDS

2019



### **Science and Technology Scholarship**

Laboratorio de Genética Evolutiva, Universidad Nacional de Misiones

📍 Posadas, Argentina

Fall 2022



### **Study Abroad Competitive Scholarship**

The Ray Laboratory, Texas Tech University

📍 Lubbock, USA

Summer  
2022



### **General Fellowships for New and Continuing Graduate Students**

The Ray Laboratory, Texas Tech University

📍 Lubbock, USA