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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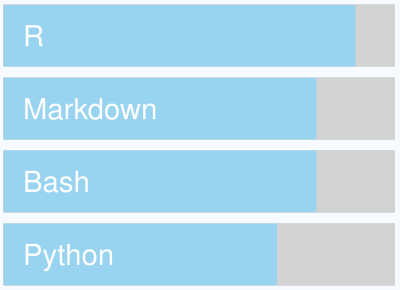
frcastel.com

github.com/Xacfran

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_3
- 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 — Berkeley, USA

- *Upcoming:*: December 2022

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 — Bogotá, Colombia

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

2018 | 2015

Field Assistant
Laboratorio de Genética Evolutiva, Universidad Nacional de Misiones — Posadas, Argentina

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

TEACHING EXPERIENCE

Fall 2021 & 2022

BIOL 1403 (BIOL I)
Department of Biological Sciences, Texas Tech University — Lubbock, USA

- Laboratory Teaching Assistant.
- Lab course designed to develop scientific skills in Biology Major students.
- Guided students to perform microscopy, spectrophotometry, and fermentation experiments.

Spring 2022

BIOL 1403 (BIOL II)
Department of Biological Sciences, Texas Tech University — Lubbock, USA

- 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.

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 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*. 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. Mastozoología Neotropical, 26(2):420-429. htt ps://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: http://doi.org/10.31687/SaremLR.19.064

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: http://doi.org/10.31687/SaremLR.19.059

CONFERENCES & TALKS

August 2022

deAMPlifying the Immune Response: Antimicrobial Peptides Evolution in Chiroptera

Poster presentation: Castellanos, F. X., Moreno-Santillán, D., Corthals, A., Martin, K., Moore, M.S., Lim, M., Lama, T.M., Paulat, N., Sipperly, N., Davalos, L.M., Ray, D.A. 19th IBCR - 50th NASBR.

Austin, USA

April 2021

De lo bàsico a lo complejo: ¿Qué causa el Síndrome de Prader WIlli?

Invited speaker: From the basics to the complex: What causes Prader-Willi Syndrome? Fundación Prader-Willi Ecuador.

Online

October 2018

Chromosomal studies in some species of the genus *Myotis* (Chiroptera: Vespertilionidae) from Northern Argentina.

Poster presentation: Castellanos, F. X., Labaroni C.A., Ferro, J.M., Taffarel, A., Baldo, D.J, and Sánchez, M.S. XXXI Argentine Conference of Mastozoology.

La Rioja, Argentina

AWARDS

2019

Science and Technology Scholarship

Laboratorio de Genética Evolutiva, Universidad Nacional de Misiones

Posadas, Argentina

- Granted $190 American Dollars

Fall 2022

Study Abroad Competitive Scholarship

The Ray Laboratory, Texas Tech University

Lubbock, USA

- Granted $150 American Dollars

Summer 2022

General Fellowships for New and Continuing Graduate Students

The Ray Laboratory, Texas Tech University

Lubbock, USA

- Fellowship covered tuition costs over the summer period for around $4,000 American dollars and granted me with $2,200 American Dollars for research.