

JUSTIN T. FRENCH, PH.D.

PERSONAL DATA

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EDUCATION

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| AUG 2015 TO DEC 2019 | <p>Doctor of Philosophy at Texas A&M University
<i>Wildlife & Fisheries Sciences</i></p> <p>Studied the spatial and movement ecology of coyotes (<i>Canis latrans</i>) in south Texas. This project resulted in publications covering a quantified, mechanistic description of coyote dispersal, the dynamics of coyote activity cycles, and new analytical approaches to explain the dynamics of joint space use. This work was in collaboration with the Robert East Wildlife Foundation, who provided both funding and land access.</p> |
| JAN 2013 TO AUG 2015 | <p>Masters of Science at Sul Ross State University
<i>Natural Resource Management</i></p> <p>Studied diet composition, nutritional intake, and habitat use of pronghorn <i>Antilocapra americana</i> in the Trans-Pecos region of Texas. This project established working standards of pronghorn forage and nutritional requirements and developed a basis for estimating habitat quality for pronghorn in terms of nutrient availability. This was done in collaboration with the Texas Parks & Wildlife Department as a part of ongoing restoration efforts. The project involved extensive field, laboratory, and analytical work and required close working relationships with agency personnel and private landowners.</p> |
| AUG 2008 TO DEC 2012 | <p>Batchelor's of Science at Texas A&M University
<i>Major: Wildlife & Fisheries Science</i>
<i>Minor: Rangeland Ecology & Management</i></p> <p>Emphasis in Wildlife Ecology and Management.</p> |

EMPLOYMENT

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| Jan 2020 - Present | Big Game Specialist and Post-Doctoral Research Scientist at Borderlands Research Institute, Sul Ross State University |
| AUG 2015 - DEC 2019 | Graduate Research Assistant at Texas A&M University |
| JAN 2013 TO AUG 2015 | Graduate Research Assistant at Sul Ross State University |
| DEC 2011 TO DEC 2012 | Student Worker at Texas A&M University AgriLife Extension Service |
| APR 2010 TO AUG 2012 | Maintenance & Custodial at City of College Station Conference Center |
| APR 2007 TO AUG 2008 | Ranch Hand at Texana Ranch - Hunt, TX |

SCHOLARSHIPS AND CERTIFICATES

- 2013 – Houston Safari Club Scholarship (\$5,000)
2008 – Terry Foundation Scholarship (\$80,000)
2008 – Aaron's Rental Company Scholarship (\$2,000)

RESEARCH INTERESTS

I enjoy both applied and basic research on a variety of topics. These include, but are not limited to, animal habitat selection, animal movement, rangeland ecology, community ecology, spatial ecology, wildlife habitat management, and wildlife/habitat restoration. I have a strong interest in quantitative approaches to wildlife research, and am committed to scientific rigor. While I personally favor large mammals, my primary interest is in producing reliable information to guide management and scientific understanding of animals and their habitats, regardless of taxa.

PERSONAL INTERESTS

Study Design, Statistical Analysis, Scientific Philosophy
Electronics, Carpentry, Metal Fabrication, Construction, Mechanics
Hunting, Long-Range Shooting Sports, Gunsmithing

LANGUAGES

ENGLISH: Native Language
SPANISH: Able to converse fairly comfortably

SKILLS

COMPUTER AND DATA MANAGEMENT SKILLS:

Proficient in R, PYTHON, and L^AT_EX. Experienced with VISUAL BASIC FOR APPLICATIONS (VBA). Experienced in database management, particularly with FILE MAKER PRO software, but am actively learning open-source formats. Experienced with data flow automation with ftp-based data sources and satellite telemetry programs. Proficient at integrating multiple software packages and programming languages into a single, streamlined data handling process, permitting real-time analysis capabilities, dynamic reporting, and automatic generation of project deliverables. Also familiar with Microsoft Office programs, particularly Excel in combination with VBA macros for enhanced functionality.

STATISTICAL ANALYSIS:

Well versed in univariate parametric and nonparametric statistics. Experienced with multivariate ordination techniques, generalized linear mixed models (GLMMs), hierarchical models, maximum likelihood parameter estimation, Bayesian parameter estimation, data cloning, and other methods pertinent to ecology. I am particularly interested in multivariate time-series methods, state-space and Markovian models, and copula regression models as they directly pertain to the analysis of animal movements.

LABORATORY ANALYSIS:

Experienced with histological techniques, particularly with fecal microhistology. Trained and experienced on Perkin-Elmer 2400 Series II CHNS/O Analyzer, oxygen bomb calorimetry, and various sample preparation techniques for nutritional analysis of forages.

FIELD SKILLS:

Extensive experience in vegetation sampling techniques and plant identification in a variety of climates and ecoregions. Extensive experience capturing and handling a range of animals including coyotes, pronghorn, bighorn sheep, and various native and exotic deer and antelopes, among others. Experienced with a variety of animal capture techniques including helicopter captures, drop netting, traditional trapping techniques such as snaring or using leg-hold traps, and chemical immobilization. Experienced with radio telemetry, both from the ground and from aircraft. Able to work safely and efficiently in adverse weather conditions, alone or as part of a team. Able to operate, maintain, and repair field vehicles, including standard transmission and four-wheel drive vehicles.

ANALOG CIRCUIT DESIGN:

Actively design tube-based analog audio circuits, particularly for guitar amplifiers, but also other audio applications. Well versed in triode and pentode circuit design for both preamp and power applications, with particular emphasis on frequency response and gain characteristics (i.e. tonal quality), as well as noise reduction. Familiar with radio circuitry and the theory of superheterodyne receivers as well. Well versed in robust construction and grounding techniques. I build custom guitar amplifiers for myself, and customers on a limited basis.

ADDITIONAL TRAINING

INTRODUCTION TO MIXED (HIERARCHICAL) MODELS FOR BIOLOGISTS USING R (IMBR01) – This 5-day course covered concepts from generalized linear models through Bayesian and frequentist inference of hierarchical models. The course was extensive and hands on. Major outcome was the ability to implement and interpret hierarchical models in both Bayesian and frequentist paradigms using the R programming language and JAGS (Just Another Gibbs Sampler) software. The course provided a firm theoretical understanding as well as extensive "real-world" implementation. ~37 contact hours.

CHEMICAL IMMOBILIZATION SHORT COURSE – This 2-day course covered basic concepts and procedures of chemical immobilization of terrestrial animals. It included classroom instruction on classes of immobilants, their appropriate use, and safe handling, and proper use of dart projectors. The course provided the practical experience of darting sable antelope and a warthog. ~14 contact hours.

MENTORING

Undergraduate Researchers

- JORDON H. JANEKA: Brush Density Selection of Pronghorn in the Marathon Basin, Texas
JILL L. MORGAN: Dietary Overlap among Pronghorn, Cattle, and Prairie Dogs in the Trans-Pecos, Texas
FELICIA ROCHA: Comparison of Epidermal Microstructures Between Same-Species Plants from Different Areas of Trans-Pecos, Texas

Former Technicians

- KEVIN BAIRD: Nutrition lab technician
ELIZABETH OSTER: Field technician
JOHN T. STONE: Field and lab technician

TEACHING

NRM 5302 - THEORY AND ANALYSIS OF ANIMAL MOVEMENT: This class is a point of entry for graduate students in the analysis of animal movement data. The semester is split into 2 parts. The first is a discussion-based introduction to theoretical underpinnings of various movement phenomena, and the tools used to apply them. The second is project-based, where students apply what they have learned to real data and produce a manuscript. All work is done to reproducible standards using the R and LaTeX languages.

NRM 4309 - POPULATION DYNAMICS: This class is designed to introduce undergraduates to the theory of population change over time and space, and extend that theory to practical problems. Students learn concepts underlying single populations, inter-specific interactions, and spatially structured populations. They use simulations to apply models to real-world scenarios using the R language.

WFSC 408 - TECHNIQUES OF WILDLIFE MANAGEMENT: I taught 3 laboratory sections per semester for 4 semesters. Topics included identification and classification of game birds, population estimation methods, animal capture techniques, elementary data analysis, and radio telemetry.

PROFESSIONAL ACTIVITY

THE WILDLIFE SOCIETY – Member, Biometrics Working Group, Spatial Ecology and Telemetry Working Group

TEXAS CHAPTER OF THE WILDLIFE SOCIETY – Active in the chapter since 2010. I currently serve as part of the student activities committee where I organize and conduct the state Quiz Bowl competition.

AMERICAN SOCIETY OF MAMMALOGISTS – Member

SOUTHWESTERN ASSOCIATION OF NATURALISTS – Member

GRANTS

2017-18 Investigators: John M. Tomecek, Nova J. Silvy, and Justin T. French
Grantor: East Foundation
Title: Spatial and Temporal Behavior of Coyotes Relative to Livestock on the East Foundation's San Antonio Viejo Ranch
Amount: \$177,779

PUBLICATIONS

Yu, S., J. Modarelli, J. M. Tomecek, J. T. French, C. Hilton, and M. D. Esteve-Gasent. 2020. Prevalence of common tick-borne pathogens in white-tailed deer and coyotes in south Texas. *International Journal for Parasitology: Parasites and Wildlife*. 11:129-135.

French, J. T., H.-H. Wang, W. E. Grant, and J. M. Tomecek. Dynamics of Animal Joint Space Use: A Novel Application of a Time Series Approach. *Movement Ecology*. 7:Article 38.

Bromen, N. A., J. T. French, John W. Walker, Nova J. Silvy and J. M. Tomecek. 2019. Spatial Relationships Between Livestock Guardian Dogs and Mesocarnivores in Central Texas. *Human-Wildlife Interactions*. 13:29-41.

Tomecek, J. M., J. T. French, John W. Walker, Nova J. Silvy and N. A. Bromen. 2019. Factors Influencing the Movement of Livestock Guardian Dogs in the Edwards Plateau of Texas: Implications for Efficacy, Behavior, and Territoriality. *Human-Wildlife Interactions*. 13:16-28.

French, J. T., T. O. Garrison, R. O'Shaughnessy, B.J. Warnock, and L. A. Harveson. 2019. Selection of ecological sites by pronghorn in the Trans-Pecos region of Texas. *Southwestern Naturalist*. 63:96-101.

PUBLICATIONS UNDER REVIEW

French, J. T., H.-H. Wang, W. E. Grant, N. J. Silvy and J. M. Tomecek. In Review. Dispersal dynamics of a saturated, spatially structured canid Population: implications for carnivore management. *Ecological Applications*. Submitted 28 October, 2019.

French, J. T., N. J. Silvy and J. M. Tomecek. In Review. Divergent predator activity muddies the dynamic Landscape of Fear. *Ecosphere*. Revised 30 November, 2020.

Locke, J. C., J. T. French, C. E. Gonzalez, L. A. Harveson, B.J. Warnock, and S. S. Gray. In Review. The effects of continuous and rotational livestock grazing on forb quality and quantity: implications for pronghorn habitat management. *Rangeland Ecology and Management*. Revised 23 December, 2020.

PUBLICATIONS IN PREPARATION

J. T. French, T. J. Janke, J. J. Celaya, C. E. Gonzalez, and L. A. Harveson. Unraveling antler progression in desert mule deer: implications for common management practices. Intended outlet: *Wildlife Society Bulletin*.

PRESENTATIONS

- FEB 2020 Texas Chapter of The Wildlife Society Annual Meeting, Corpus Cristi, TX
Title: Dispersal Dynamics of a Saturated, Spatially Structured Coyote Population
Authors: Justin T. French, Hsiao-Hsuan "Rose" Wang, William E. Grant, Nova J. Silvy, John M. Tomecek, and Tyler A. Cambell
- Nov 2019 The Wildlife Society Annual Meeting, Reno, NV
Title: A Novel Approach to the Analysis of Dynamic Animal Space Use Interactions From Telemetry Data
Authors: Justin T. French, Hsiao-Hsuan "Rose" Wang, William E. Grant, John M. Tomecek, and Tyler A. Cambell
- FEB 2019 Texas Chapter of The Wildlife Society Annual Meeting, Montgomery, TX
Title: A Novel Approach to the Analysis of Dynamic Animal Space Use Interactions From Telemetry Data
Authors: Justin T. French, Hsiao-Hsuan "Rose" Wang, William E. Grant, John M. Tomecek, and Tyler a. Cambell
- FEB 2019 Texas Chapter of The Wildlife Society Annual Meeting, Montgomery, TX
Title: Spatial and Temporal Behavior Patterns of Coyotes in South Texas
Authors: Justin T. French, John M. Tomecek, and Tyler A. Campbell
- NOV 2018 Sul Ross State University, Alpine, TX
Title: Behavior and Movement Ecology of Coyotes in South Texas
Authors: Justin T. French and John M. Tomecek
- OCT 2018 The Wildlife Society 25th Annual Meeting, Cleveland, OH
Title: Spatial Ecology and Landscape-Scale Behavior of Coyotes in South Texas
Authors: Justin T. French and John M. Tomecek
- JUNE 2018 98th Meeting of the American Society of Mammalogists, Manhattan, KS
Title: Spatial Ecology and Landscape-Scale Behavior of Coyotes in South Texas
Authors: Justin T. French and John M. Tomecek
- FEB 2018 Texas Chapter of The Wildlife Society Annual Meeting, Dallas, TX
Title: Spatial Ecology and Landscape-Scale Behavior of Coyotes in South Texas
Authors: Justin T. French and John M. Tomecek
- FEB 2018 Texas Chapter of The Wildlife Society Annual Meeting, Dallas, TX
Title: The Influence of Livestock Protection Dogs on Mesocarnivore Activity in the Edwards Plateau of Texas
Authors: Nick Bromen, John M. Tomecek, and Justin T. French
- FEB 2016 Texas Chapter of The Wildlife Society Annual Meeting, San Antonio, TX
Title: Pronghorn diet, nutrition, and carrying capacity in Trans-Pecos, Texas
Authors: Justin T. French, Louis A. Harveson, Ryan O'Shaughnessy, Bonnie J. Warnock, and Shawn S. Gray
- AUG 2015 Borderlands Research Institute 1st Annual Undergraduate Research Symposium, Alpine, TX
Title: Comparison of Epidermal Microstructures Between Same-Species Plants from Different Areas, Trans-Pecos, Texas
Authors: Felicia Rocha, Justin T. French, and Ryan S. Luna

- AUG 2015 Borderlands Research Institute 1st Annual Undergraduate Research Symposium, Alpine, TX
 Title: Dietary Overlap Among Pronghorn, Cattle, and Prairie Dogs in Trans-Pecos, Texas
 Authors: Jill L. Morgan, Justin T. French, and Ryan O'Shaughnessy
- FEB 2015 Clarence Cottam Awards Presentation: Texas Chapter of The Wildlife Society
 Annual Meeting, Corpus Christi, TX
 Title: Estimating capacity of available forage to sustain pronghorn in the Trans-Pecos
 Authors: Justin T. French, Louis A. Harveson, Ryan O'Shaughnessy, Bonnie J. Warnock,
 Brian Campbell, and Shawn S. Gray
- MAY 2014 26th Biennial Pronghorn workshop
 Title: Habitat Selection of Translocated Pronghorn in the Trans-Pecos, Texas
 Authors: Justin T. French, Louis A. Harveson, Ryan O'Shaughnessy, Bonnie J. Warnock,
 and Shawn S. Gray
- MAY 2014 26th Biennial Pronghorn workshop
 Title: Brush Density Selection of Pronghorn in the Marathon Basin, Texas
 Authors: Jordon H. Janeka, Justin T. French, Louis A. Harveson, Ryan O'Shaughnessy,
 Bonnie J. Warnock, and Shawn S. Gray

REFERENCES

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