



2022 Presentation and Publication Report



Indicates **East Foundation Graduate Student** and **East Foundation Employee**.
Many publications referenced in this report are available for your review at <https://eastfoundation.net/>.



At East Foundation, our cattle operation intersects with research opportunities in a unique way. We advance land stewardship and all things related, including wildlife conservation, rangeland health, and ranch productivity. Students that participate in research on our lands become future scientists and managers who are connected to the land.

Refereed Articles, Book Chapters, Proceedings, and Management Bulletins

Baker, E.C., A.D. Herring, T.S. Amen, **J.E. Sawyer**, J.O. Sanders, C.A. Gill, P.K. Riggs, and D.G. Riley. 2022. Evaluation of post-weaning efficiency in Nellore-Angus crossbred steers through model predicted residual consumption. *Sustainable Agriculture Research* 11:1–46.

Baumgardt, J.A., A.M. Foley, K.M. Sliwa, R.W. DeYoung, J.A. Ortega-S., D.G. Hewitt, **T.A. Campbell**, J.A. Goolsby, and K.H. Lohmeyer. *In Press*. Effects of helicopter net gunning on the survival and movement behavior of nilgai antelope. *Wildlife Research*. (East Foundation Manuscript 077)

Baumgardt, J.A., M.L. Morrison, L.A. Brennan, **H.T. Davis**, **R.R. Fern**, J.M. Szewczak, and **T.A. Campbell**. 2022. Monitoring occupancy of bats with acoustic data: power and sample size recommendations. *Western North American Naturalist* 82:36–49. (East Foundation Manuscript 031)

Downey, M.C., F. Hernández, K.D. Bristow, C.J. Cardinal, M.L. Cline, W.P. Kuvlesky, Jr., K.S. Miller, and **A. Montalvo**. *In Press*. Quails. Pages XX–XX in L.B. McNew, D.K. Dahlgren and J.L. Beck, editors. *Rangeland Wildlife Ecology and Conservation*.

Dressler, E., **J.E. Sawyer**, and M. Rolf. 2022. Novel trait selection to enhance sustainability of beef production systems. *Encyclopedia of Sustainability Science and Technology*. Springer Nature.

Foley, A.M., J.S. Lewis, O. Cortez, M.W. Hellickson, D.G. Hewitt, R.W. DeYoung, C.A. DeYoung, and M. Schnupp. 2022. Accuracies and biases of ageing white-tailed deer in southern rangelands. *Wildlife Research* <https://doi.org/10.1071/WR21050>. (East Foundation Manuscript 053)

French, J.T., N.J. Silvy, **T.A. Campbell**, and J.M. Tomeček. 2022. Divergent predator activity muddies the dynamic landscape of fear. *Ecosphere* <https://doi.org/10.1002/ecs2.3927>. (East Foundation Manuscript 048)

Galán, A.P., S. Hamer, H. Folmar, **T.A. Campbell**, J.E. Light. 2022. Baseline biodiversity assessment of South Texas small mammals and host associated hard ticks with no detection of selected tick-borne pathogens. *Western North American Naturalist* 82:254–270. (East Foundation Manuscript 066)

Gilreath, J., T. Wickersham, and **J. Sawyer**. *In Press*. Comparison of methodologies used to estimate enteric methane emissions and warming impact from 1920 to 2020 for US beef production. *Sustainability*.

Granger, M.M., C.D. Hilton, S.E. Henke, H.L. Perotto-Baldivieso, and **L.R. Schofield**. *In Press*. Scale of effect of vegetation spatial structure for ungulate habitat during the winter in a semiarid landscape. *Landscape Ecology*. (East Foundation Manuscript 090)

Hines, S.L., T.E. Fulbright, J.A. Ortega-S., D.B. Wester, D.G. Hewitt, T.W. Boutton, and **T.A. Campbell**. 2022. Quantifying herbivory in heterogenous environments: methodological considerations for more accurate metrics. *Journal of Arid Environments* 199:104698. <https://doi.org/10.1016/j.jaridenv.2021.104698>. (East Foundation Manuscript 022)

Keith, K.D., **J. Pistone**, **T.A. Campbell**, and G. Voelker. 2022. Avian haemosporidian diversity in South Texas: New lineages and variation in prevalence between sampling sources and sites. *Diversity* <https://doi.org/10.3390/d14050378>. (East Foundation Manuscript 082)

Kuvlesky, W.P., Jr., S.E. Henke, L.A. Brennan, B.M. Ballard, M.J. Cherry, D.G. Hewitt, **T.A. Campbell**, R.W. DeYoung, C.J. Anderson, and F. Hernandez. 2022. Managing populations. Pages 383–413 in P.R. Krausman and J.W. Cain, III, editors. *Wildlife Management and Conservation: Contemporary Principles and Practices*, Second Edition. John Hopkins University Press, Baltimore, Maryland, USA.

Leivers, S.J., **T.A. Campbell**, M.J. Bodenchuk, and J.M. Tomeček. *In Press*. Behavior of wild pigs towards conspecific carcasses: implications for disease transmission in a hot, semi-arid climate. *Transboundary and Emerging Diseases*. (East Foundation Manuscript 092)

Lombardi, J.V., C.J. Anderson, D.B. Wester, **S.B. Carter**, **A. Blackburn**, **A.M. Veals**, **L.R. Schofield**, M.E. Tewes, J.H. Young, Jr., and H.L. Perotto-Baldivieso. *In Press*. Why did the ocelot cross the road: assessment of ocelot road crossing patterns in southern Texas? *Biodiversity and Conservation*. (East Foundation Manuscript 079)

Lombardi, J.V., A.M. Haines, **G.W. Watts**, III, L.I. Grassman, Jr., J.E. Janečka, A. Caso, S. Carvajal, Z.M. Wardle, T.J. Yamashita, W.C. Stasey, A.B. Branney, D.G. Scognamillo, **T.A. Campbell**, J.H. Young, Jr., and M.E. Tewes. 2022. Status and distribution of jaguarundi in Texas and Northeastern México: Making the case for extirpation and initiation of recovery in the United States. *Ecology and Evolution* <https://doi.org/10.1002/ece3.8642>. (East Foundation Manuscript 074)

Lombardi, J.V., H.L. Perotto-Baldivieso, M.E. Tewes, **J.P. Leonard**, D.G. Hewitt, D.G. Scognamillo, and **T.A. Campbell**. 2022. Assessment of appropriate species-specific time intervals to integrate GPS telemetry data in ecological niche models. *Ecological Informatics* <https://doi.org/10.1016/j.ecoinf.2022.101701>. (East Foundation Manuscript 046)

Lombardi, J.V., **M. Sergejev**, M.E. Tewes, **L.R. Schofield**, and **R.N. Wilkins**. 2022. Spatial capture-recapture and LiDAR-derived metrics reveals high densities of ocelots on Texas ranchlands. *Frontiers in Conservation Science* 3:1003044. DOI: 10.3389/fcosc.2022.1003044. (East Foundation Manuscript 088)

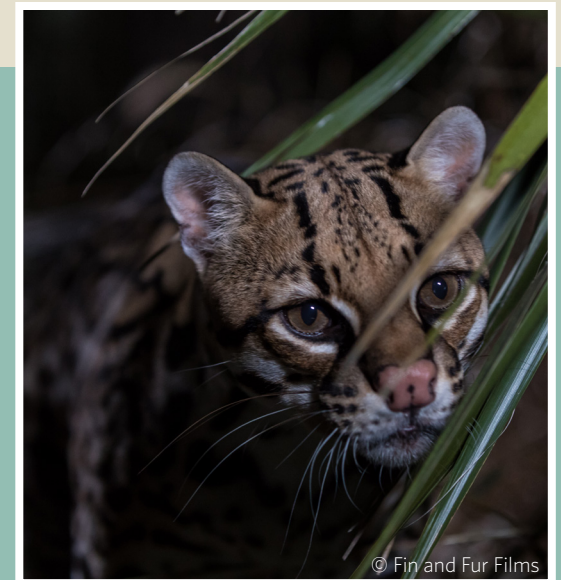
Montalvo, A., L.A. Brennan, M.L. Morrison, E.D. Grahmann, and A.N. Tri. 2022. Distance sampling survey effort to improve density estimates for northern bobwhites. *Wildlife Society Bulletin* <https://doi.org/10.1002/wsb.1303>. (East Foundation Manuscript 065)

Montalvo, A., L.A. Brennan, M.L. Morrison, E.D. Grahmann, and A.N. Tri. 2022. The efficacy of video cameras to account for northern bobwhites flushed, but undetected during aerial surveys. *National Quail Symposium Proceedings* 9:210–216. <https://doi.org/10.7290/nqsp09YLSE>. (East Foundation Manuscript 071)

Montalvo, A., J.T. Edwards, and B.W. Kubečka. *In Press*. Techniques for estimating quail abundance. Pages XX–XX in L.A. Brennan and F. Hernandez, editors. *Texas Quails*. Second Edition. Texas A&M University Press, College Station, USA.

Murray, S.A., A.C. Holbert, K.N. Norman, S.D. Lawhon, **J.E. Sawyer**, and H.M. Scott. 2022. Effects of a direct-fed microbial and feedlot pen environmental change on phenotypic resistance among enterococci isolated from beef cattle feces. *Antibiotics* 11:106.

Fewer than 80 recorded ocelots live in the United States and most of these live on private ranches in South Texas. Together with our research partners, East Foundation collects data on ocelot population size, survival and mortality, movements and activity, prey abundance and food habits, habitat use, and competition with other carnivores to help solidify recovery strategies.



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Peterson, M.K., A.M. Foley, A.N. Tri, D.G. Hewitt, R.W. DeYoung, C.A. DeYoung, and **T.A. Campbell**. 2022. Aerial surveys for large mammals in South Texas: Are conventional surveys good enough? *East Foundation Management Bulletin* No. 6.

Rankins, S.T., R.W. DeYoung, A.M. Foley, J.A. Ortega-S., T.E. Fulbright, D.G. Hewitt, **L.R. Schofield**, and **T.A. Campbell**. *In Press*. Regional copper deficiency in white-tailed deer and other mineral abnormalities. *Open Journal of Ecology*. (East Foundation Manuscript 064)

Rice, A., M.T. Nadler, I.T. Grosner, M. Gerverni, L. Parr, M.L. Morrison, and **A. Montalvo**. 2022. First photographic record of albinism in *Baiomys taylori* (Rodentia: Cricetidae). *Mammalia* <https://doi.org/10.1515/mammalia-2021-0120>. (East Foundation Manuscript 069)

Ritzell, A.D., F. Hernández, J.T. Edwards, **A. Montalvo**, D.B. Wester, E.D. Grahmann, D. Rollins, K.G. Stewart, R.A. Smith, **D.A. Woodard**, and L.A. Brennan. 2022. Quail and rain in semiarid rangelands: does management matter? *Journal of Wildlife Management* <https://doi.org/10.1002/jwmg.22209>. (East Foundation Manuscript 063)

Sawyer, J. 2022. Toward climate positive beef: An analysis of proposed actions. *Beef Improvement Federation Proceedings*, Las Cruces, NM.

Sawyer, J.E. 2022. Don't gamble on stocking rate: Knowing the odds makes for better bets. *East Foundation Management Bulletin* No. 7.

Sawyer, J.E. 2022. Systems assessment of beef sustainability. *Veterinary Clinics: Food Animal Practice* 38:209–217.

Sawyer, J.E., D.S. DeLaney, D.P. Anderson, T.E. Lashmet, and C.P. Mathis. 2022. Should I sell carbon credits? A decision guide for ranchers. King Ranch® Institute for Ranch Management. Texas A&M University-Kingsville, Kingsville, TX.

Sergeyev, M., J.D. Holbrook, **J.V. Lombardi**, M.E. Tewes, and **T.A. Campbell**. 2022. Behaviorally mediated coexistence of ocelots, bobcats, and coyotes using hidden Markov models. *Oikos* <https://doi.org/10.1111/oik.09480>. (East Foundation Manuscript 080)

Veals, A.M., J.D. Holbrook, **A. Blackburn**, C.J. Anderson, R.W. DeYoung, **T.A. Campbell**, J.H. Young, Jr., and M.E. Tewes. 2022. Multiscale habitat relationships of a habitat specialist over time: the case of ocelots in Texas from 1982 to 2017. *Ecosphere* 13(8):e4204. <https://doi.org/10.1002/ecs2.4204>. (East Foundation Manuscripts 050 and 068)

Veals, A.M., J.D. Holbrook, M.J. Cherry, **A. Blackburn**, **T.A. Campbell**, J.H. Young, Jr., and M.E. Tewes. 2022. Landscape connectivity for an endangered carnivore: habitat conservation and road mitigation for ocelots in the US. *Landscape Ecology* <https://doi.org/10.1007/s10980-022-01569-8>. (East Foundation Manuscript 076)

VerCauteren, K.C., T.L. Johnson, and **T.A. Campbell**. *In Press*. Diseases and parasites. Pages XX–XX in M.J. Cherry, R.W. DeYoung, and D.G. Hewitt, editors. *Biology and Management of White-tailed Deer*, second edition. CRC Press, Boca Raton, Florida, USA.

Woodard, D.A., L.A. Brennan, F. Hernández, H.L. Perotto-Baldivieso, and **R.N. Wilkins**. 2022. Spatial and temporal analyses of northern bobwhite hunting dynamics. *National Quail Symposium Proceedings* 9:244–254. <https://doi.org/10.7290/nqsp09Wlia>. (East Foundation Manuscript 072)

Woodard, D.A. 2022. Designing quail lanes to increase huntable acreage and distribute hunting pressure. *East Foundation Management Bulletin* No. 8.

Woodard, D.A., L.A. Brennan, F. Hernández, H.L. Perotto-Baldivieso, **R.N. Wilkins**, and **A. Montalvo**. 2022. Evaluating the harvest rate recommendation for northern bobwhites in South Texas. *National Quail Symposium Proceedings* 9:225–243. <https://doi.org/10.7290/nqsp09fGm6>. (East Foundation Manuscript 073)

Zoromski, L.D., R.W. DeYoung, J.A. Goolsby, A.M. Foley, J.A. Ortega-S., D.G. Hewitt, and **T.A. Campbell**. 2022. Animal use of fence crossings in southwestern rangelands. *Ecology and Evolution* 12, e9376. <https://doi.org/10.1002/ece3.9376>. (East Foundation Manuscript 055)

Zoromski, L.D., R.W. DeYoung, J.A. Goolsby, A.M. Foley, J.A. Ortega-S., D.G. Hewitt, and **T.A. Campbell**. 2022. Latrine ecology of nilgai antelope. *Journal of Mammalogy* <https://doi.org/10.1093/jmammal/gyac056>. (East Foundation Manuscript 049)

Selected Presentations

Texas Chapter of The Wildlife Society, Horseshoe Bay, February 2022

Correia, R., **B.D. Spencer**, **M.L. Hopper**, M.J. Cherry, and **A. Montalvo**. Evaluating Use of Brush Canopy Cover at White-tailed Deer Birth Sites in South Texas.

Dykes, J.L., A.K. Killam, B.R. Green, C.D. Hilton, E.P. Tanner, M.J. Cherry, and R.W. DeYoung. Quality or Quantity? Ambient Temperature Influences Selection for Shade Quality in A Large Herbivore.

Kiel, C. Avian Productivity in South Texas Rangelands.

Leivers, S.J., A.C. Racey, G. Daugherty, **T.A. Campbell**, and J.M. Tomeček. Scavenger Guild Diversity and Carrion Use During a Mass Mortality Event.

Lombardi, J.V., C.J. Anderson, D.B. Wester, **S.B. Carter**, **A Blackburn**, **A.M. Veals**, H. Perotto-Baldivieso, **L. Schofield**, J.H. Young, and M.E. Tewes. Response of Ocelots to Paved and Unpaved Roads in Ranchland and Fragmented Systems in Southern Texas.

Montalvo, A., C. Endler, and **J. Sawyer**. Evaluating the Use Of the “Rangeland Analysis Platform” in Large-scale Stocking Rate Decisions in South Texas.

Sergeyev, M., J.D. Holbrook, **J.V. Lombardi**, M.E. Tewes, and **T.A. Campbell**. Identifying Behavioral States of Ocelots, Bobcats, and Coyotes Using Hidden Markov Models.

Simonds, B.L., **M.A. Thornley**, and M.L. Morrison. The Effects of Investigator Disturbance on Nesting White-Tailed Hawks in South Texas.

Sinner, M.T. Fire and Mice: The Effects of Prescribed Burns on Rodent Communities.

Smith, K.E., **M.A. Thornley**, and M.L. Morrison. Parental Behavior and Time Budgets of Nesting White-tailed Hawks.

Spencer, B.D., D.G. Hewitt, R.W. DeYoung, J.A. Ortega-S., A.M. Foley, **T.A. Campbell**, **L.R. Schofield**, and M.J. Cherry. Effects of Cattle Stocking Rate on White-tailed Deer Home Range Areas.

Thornley, M.A. Effects of Prescribed Fire on White-tailed Hawk Nesting Locations at El Sauz Ranch.

Zerlin, R., S. Rideout-Hanzak, D.B. Wester, R. Patrock, **T. Campbell**, **L. Schofield**, and J. Elissetche. Effects of Prescribed Burning on Butterfly Populations in Coastal South Texas.

Zerlin, R., S. Rideout-Hanzak, D.B. Wester, R. Patrock, **T. Campbell**, **L. Schofield**, and J. Elissetche. Extreme Weather Effects on Butterflies — it's Snow Laughing Matter.

White-tailed deer are an important component of rangelands and a major economic resource in Texas. Billions of dollars are spent annually on white-tailed deer management and hunting. East Foundation's ranches are home to abundant and healthy deer populations that reflect a more natural state, largely free of human involvement. Our lands are the ideal laboratory to answer questions relating to white-tailed deer populations. Outcomes from these studies often pertain to the region, the state, and in many cases the entire nation.



Texas Section Society for Range Management, Denton, TX, October 2022

Swaim, C., **A. Montalvo**, and **J. Sawyer**. In Progress, in Perpetuity: Evaluating Rangeland Response to Fire and Grazing on a Tanglehead-dominated Pasture.

Texas Society of Mammalogists, Virtual, 2022

Sergeyev, M., J.D. Holbrook, **J.V. Lombardi**, M.E. Tewes, and **T.A. Campbell**. Using Hidden Markov Models to Identify Behavioral States of Ocelots, Bobcats, and Coyotes.

Southeast Deer Study Group, Virtual, 2022

Dykes, J. Quality or Quantity? Ambient Temperature Influences Selection for Shade Quality in a Large Herbivore.

Spencer, B. Disentangling the Competitive Interactions of Cattle and White-tailed Deer.

The Wildlife Society, Spokane, WA, November 2022

Dykes, J., T. Fulbright, D.G. Hewitt, J.A. Ortega-S., A.M. Foley, C.A. DeYoung, **T.A. Campbell**, and R.W. DeYoung. Resource Selection and Interactions of Deer and Cattle on Southern Rangelands.

Hopper, M.L., **B.D. Spencer**, R.W. DeYoung, A.M. Foley, J.A. Ortega-S., **L.R. Schofield**, **T.A. Campbell**, and M.J. Cherry. Timing of Rainfall Influences Offspring Quality of a Large Herbivore in a Semi-arid Environment.

Spencer, B.D., D.G. Hewitt, R.W. DeYoung, J.A. Ortega-S., A.M. Foley, **T.A. Campbell**, **L.R. Schofield**, and M.J. Cherry. Disentangling the Competitive Interactions of Cattle and White-tailed Deer.

Society for Range Management, Albuquerque, NM, February 2022

Likins, J., **J. Sawyer**, R. Teague, H. Leggette, and U. Kreuter. An Instrument for Objectively Characterizing Livestock Grazing Management Systems.

Invited Presentations

Sawyer, J.E. 2022. Managing for Optimal Reproductive Performance. KRIRM Managing the cow-calf business lectureship. Kingsville, TX.

Sawyer, J. 2022. Climate Neutral Beef: Where do we go from here? Beef Improvement Federation Annual Meeting. Las Cruces, NM.

Sawyer, J. 2022. The carbon conundrum: Technical limitations and opportunities. Beef Improvement Federation Annual Meeting. Las Cruces, NM.

Sawyer, J.E., D.S. DeLaney, D.P. Anderson, T.E. Lashmet, and C.P. Mathis. 2022. Should I sell carbon credits? A decision guide for ranchers. King Ranch® Institute for Ranch Management. Virtual.

Sawyer, J.E. 2022. Carbon Sequestration: Considerations from a Landowner's Perspective. San Antonio Livestock Exposition Seminar. San Antonio, TX.

Sawyer, J. 2022. Purposeful Range Management. University Lands Grazing Lessee Conference. Midland TX.

Sawyer, J.E. 2022. Understanding carbon credits – Benefits and Risks. AgriLife Extension/Beefmaster Breeders United. Floresville, TX.

Sawyer, J.E. 2022. Carbon Sequestration: Considerations from a Landowner's Perspective. Texas State Soil & Water Conservation Board Directors Convention. Galveston, TX.

Schofield, L.R. 2022. Parenthood in the Field: Challenges and Advice for Raising Your Own Brood. The Wildlife Society. Spokane, WA.

Woodard, D.A. 2022. Careers in Wildlife: TAMUK Chapter of TWS. Kingsville, TX.

Woodard, D.A. 2022. Sustainable Harvest of Northern Bobwhites: Phase I Overview. Texas Wildlife Association, Quail Masters. Hebbbronville, TX.

Woodard, D.A. 2022. Project Update: Aspects of Hunting on Northern Bobwhite Population. South Texas Quail Coalition. Kingsville, TX.

Woodard, D.A. 2022. East Foundation Quail Research and 2022 Quail Trends. Starr County Fall Ranchers Program. San Isidro, TX.

Woodard, D.A. 2022. Quail Trends and Key Research Findings. Duval County Deer Seminar. Benavides, TX.

Woodard, D.A. 2022. East Foundation Quail Research Program. East Foundation's Veterinarian Science Day Camp. Hebbroville, TX.

Popular Press, Podcasts, and Radio

Machen, R., and **J.E. Sawyer**. 2022. The Value of Reproduction. *Progressive Cattle*. August.

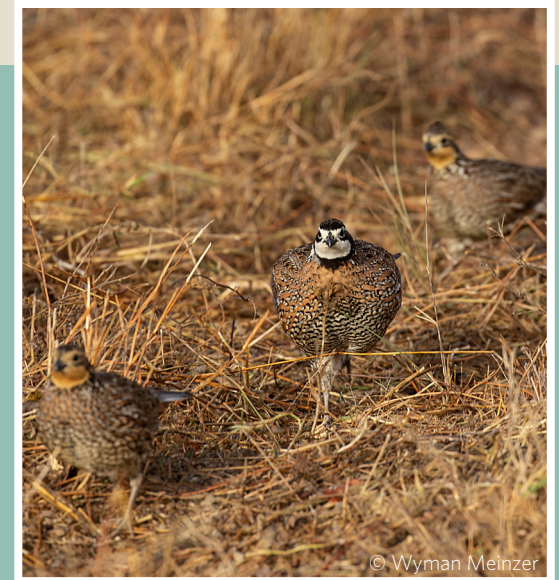
Sawyer, J.E., D.S. DeLaney, D.P. Anderson, T.E. Lashmet, and C.P. Mathis. 2022. Should I Sell Carbon Credits? *Directions*. National Cattlemen's Beef Association. Fall.

Machen, R., **J. Sawyer**, S. Bevers and C. Mathis. 2022. Measuring Economic Sustainability at the Ranch Level. *Directions*. National Cattlemen's Beef Association. Fall.

Mathis, C.P., **Sawyer, J.E.**, and T.E. Lashmet. 2022. Should I Sell My Carbon Credits? Episode 85. Working Ranch Radio Show.

Woodard, D.A. 2022. How Research Informs Bobwhite Management and Hunting Recommendations. *Project Upland*. October.

In the last century, northern bobwhites have experienced widespread population declines across their range. One area that has remained stable is the South Texas Sand Sheet. Bobwhite conservation is also a major driver of the rural economies of South Texas. Annual lease revenues for bobwhite hunting can yield up to \$20 per acre, generate more than \$75 million in income, and create over 1,600 jobs. A primary concern for landowners and sportsmen is the sustainability of our management practices, including harvest. To address these concerns, the East Foundation has implemented several long-term research projects that focus on evaluating the effects of harvest and land management practices. Our investigations occur on over 60,000 acres of East Foundation property and provide data on bobwhite abundance and management at an operational scale and inform future quail management





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