NSF BUDGET JUSTIFICATION:

PI: Justin Yeakel

Project Title: NSF DEB Collaborative Research: Mapping foraging to fitness: quantifying the causes and consequences of resource selection in a desert rodent community

Project Period: 05/01/22 – 04/30/25

1. **SENIOR PERSONNEL:**

Dr. Justin Yeakel receives a 9-month salary from UCM and commits 1 month in years 1-3. He will lead the dynamic foraging modeling and diffusion mapping components of the project based at UCM, which includes mentoring a graduate student.

1. **OTHER PERSONNEL:**

Graduate Student (TBD) support is requested for two semesters (2\*4.5 academic months) and 3 summer months (at 50%) for Years 1-3. The GSR will collaborate with the PI to build multiple foraging models and to use diffusion mapping techniques to compare empirical foraging data with expectations from models and predictions of fitness.

*Salaries are based on current actual salaries and are projected to include a 3% annual cost-of- living adjustment (and merit, if applicable) effective each year, consistent with institutional policy. For the purposes of determining NSF’s 2-month annual effort limit on senior personnel compensation, UC Merced defines a “year” as the organization’s fiscal year that spans from July 1 – June 30.*

1. **FRINGE BENEFITS:**
2. 3.0% benefit rate is used for PI/Co-PIs.
3. 3.0% benefit rate is used for Graduate Student Researchers.

The University of California, Merced Composite Fringe Benefit Rates (CFBR) have been reviewed and federally approved by the Department of Health and Human Services (DHHS) for use by all fund sources for FY21. Rates beyond June 30, 2022 are estimates and are provided for planning purposes only. Future CFBR rates are subject to review and approval by DHHS on an annual or bi-annual basis. Fringe benefits are assessed as a percentage of the respective employee’s salary. *For more information, please see:* <https://bfs.ucmerced.edu/departments/costing-and-policy/cbr>

1. **TRAVEL:**

Domestic**:** Funding is requested for domestic travel for attendance to annual conferences and project meetings for the GSR. Potential annual conferences to attend include the Ecological Society of America, American Naturalist Society, or the Society for Integrative and Comparative Biology. The estimated cost for conferences attended by the PIs is $2100 and GSR is $1450 with the discrepancy in single vs. double room occupancy and conference registration costs. The breakdown of costs for a 5 day conference include: airfare $400, lodging $180/night, meals $60/day, transportation $100, and registration $400 for PIs and $150 for GSR. PIs will attend a conference every year whereas the GSR only attend in Years 2 and 3. There will also be annual summer all-hands meetings that also serve as research exchanges among the project team, which will occur at the PI’s respective institutions in New Mexico, California, and Rhode Island. These weeklong meetings will allow for data synthesis and provide a launching pad for new ideas. The breakdown of costs for a one-week project meeting is $2260 per attendee. The breakdown is: airfare $450/person, lodging $180/day/person, meals $60/day/person, transportation $130/person. Both PI and GSR will attend the all-hands meeting in Years 1-3.

1. **OTHER DIRECT COSTS:**

Publication Costs: Funding is requested for two open access publications in Years 2 and 3 (total $7000).

Other: Computing costs to support the professional development of the PI and GSR are requested. The intensive computational nature of this project warrants purchase of laptops (2 x $2000) in Year 1.

Tuition and fees: The University of California, Merced provides full remission of tuition, all fees, and graduate student health insurance to all graduate students who are employed on-campus at 25% time or greater during the academic year. The rates are based on current graduate fees and are escalated annually in the budget at a rate of 10% per year. Additional information regarding the fee remission program can be found at:

[https://catalog.ucmerced.edu/content.php?catoid=17&navoid=1626#fee\_schedule](https://catalog.ucmerced.edu/content.php?catoid=17&navoid=1626%23fee_schedule)

1. **INDIRECT COSTS:**

Indirect costs are based on University negotiated rates with the cognizant federal authority and are applied at a rate of 55% for the entire project period using the modified total direct cost (MTDC) formula as per the approved rate agreement dated 04/07/2020. Modified total direct costs exclude equipment, capital expenditures, charges for patient care, student tuition remission, rental costs of offsite facilities, scholarships, fellowships, participant support costs, as well as the portion of each subgrant and subcontract in excess of $25,000. For more information, please see:

<https://bfs.ucmerced.edu/sites/bfs.ucmerced.edu/files/documents/ru-7009-18_uc_merced_ra_signed.pdf>