

NSF- Budget justification

Collaborative Research: Biomass burning smoke as a driver of multi-scale microbial teleconnections

PI: L. N. Kobziar, University of Idaho

Salaries and Wages – Senior Personnel. The Principal Investigator, Dr. Kobziar, will work full time (100% effort) on the project for 1 month every summer of the three-year project period. Her compensation is calculated on the basis of her base academic salary of \$84,637.11. She will be responsible for overall project direction and coordination, for assuring successful project completion, including submission of progress reports, as required. Dr. Kobziar will be responsible for leading the field sampling campaign, the combustion laboratory experiments, and the soil incubation study. She will also participate in the interpretation of metagenomic results and will lead in manuscript preparation for at least two manuscripts, along with science delivery and outreach. She will serve as the mentor for the post-doctoral researcher, and the Major Professor for 2-3 Master of Natural Resources students conducting term projects each year.

Year 1: \$9,381

Year 2: \$9,381

Year 3: \$9,381

The **Post-Doctoral Researcher** will devote 12 months in the first and second years of this proposed project. The PDR will help lead the lab combustion and soil incubation experiments, and will participate in data analysis, manuscript preparation, and mentoring the undergraduate student technician (s). The PDR salary is based on an annual salary of \$47,900. The PDR will supervise lab activities of the undergraduate student technician(s) and interns, as well as Master of Natural Resources students completing their final projects.

Year 1: \$47900

Year 2: \$47900

Salaries and Wages – Other Personnel: A total of \$40,000 for two years is requested to fund one MS student as a laboratory/ field technician: 50% effort during academic year and 100% effort during the summer from a base salary of \$24,000. The student will be involved in the collection of data in the field and the combustion lab, processing of samples, and analysis of data. The student will also be a co-author on at least one scientific publication.

Year 1: \$20,000

Year 2: \$20,000

In the first and second years of the project, an Environmental Science undergraduate student will be funded for three months from an annual base of \$23,000 during the summer to participate in the experimental and laboratory burns. They will analyze and present a sub-set of results for final projects for their degree programs.

Year 1: \$7667

Year 2: \$7667

Fringe Benefits: Fringe rates to calculate the projected fringe rates for FY21 are: Faculty 30.7%; staff: 41.8%; students 2.1%. The total fringe for the project is:

Senior Personnel:

Year 1: \$22,902

Year 2: \$22,902

Year 3: \$2,880

Other personnel:

Year 1: \$581

Year 2: \$581

Total Fringe: Year 1: \$23,483

Year 2: \$23,483

Year 3: \$2880

Permanent Equipment: N/A

Travel: Domestic Travel: Out of state travel costs are based on current average round trip airfare on domestic air carriers and the per diem rate for hotel, meals, and expenses.

Conference Travel:

Travel for one person to one scientific conference is included in year 2 and in year 3 at an estimated cost of:

Registration \$500

Flight \$600

Lodging (five nights at \$100/night = \$500)

Per Diem (five days at \$55/day) = \$275

Total \$1,875

Year 1: n/a

Year 2: \$1875

Year 3: \$1875

Field Site Travel Costs:

For year 1 and year 2, three travelers will make two trips for field sampling: one trip from closest major airport (Spokane, WA) to Manhattan, KS. Costs per traveler per person will be: Airfare = \$350

Lodging (seven nights at \$25/night) = \$175

Per diem (UI per diem out of state rate = \$55/day) x 8 days (travel included) = \$440

Sub-Total: \$965 per traveler per year

For three travelers, yr 1 and 2: \$2895 x 2 years = \$5790

Shared costs: Car rental for seven days @ \$45/day = \$315

Gas for rental car, approximately 150 miles at 20 miles/gallon and \$3.00/gallon = \$22.50

Sub-Total: each year: \$337.5 or \$675 for two years.

For year 3, the PI will travel to the field site to participate in the Konza Environmental Education Program and will offer a field tour for K-12 school children through this program:

Airfare = \$350

Lodging (five nights at \$25/night) = \$125

Per diem (UI per diem out of state rate = \$55/day) x 6 days (travel included) = \$330

Rental Car @ \$45/day for six days, plus one gas fillup: \$270 + \$35 = \$305

Total: \$1110

Year 1: \$3233

Year 2: \$3233

Year 3: \$1110

Total Field Site Travel Costs: \$7575

Foreign Travel: NotApplicable; Participant Support Costs: NotApplicable

Stipends: NotApplicable; Travel: Not Applicable; Subsistence: Not Applicable

Other: Not Applicable

Publication Costs/Documentation/Dissemination: A total of \$2000 is requested for publishing two papers in peer-reviewed journals at approximately \$1000 ea. Other publications will be at no-cost to NSF.

Other Direct Costs

User fees: Standard user fees include:

Konza Prairie Biological Station annual fee year 1: \$2470 and year 2: \$2113= \$4583

Uldaho IFIRE Combustion Lab: annual fee year 1: \$500 and year 2: \$500= \$1000

Uldaho Optical Imaging Core: 40.5 hours year 1 and year 2 at \$35/hour = \$1418

TOTAL User Fees: \$7001

Tuition/ Fee Remission: One graduate student tuition support will be provided in years 1 and 2: \$9876/ year to support a MS student who will focus on the colonization experiment.

Total: \$19752

Materials and Supplies: A total of \$37,613 is requested for as detailed below.

Kobziar Supplies details	Year 1	Year 2	Year 3
Field and Lab Bioaersol Sampling			
Button samplers	2200		
Leland pumps	7325		
Filters (100 x polycarbonate, 0.8um)	183		
PTFE filters for Sioutas (250 ct)	325		
Sioutas size partitioning sampler for ground sample	679		
Field supplies (tubing, aluminum cages for UAS)	500		
DNA/RNA Shield Lysis Tubes	225	225	
Subtotal	11437	225	
Soil incubation and Combustion Lab supplies			
Li-Cor 830	1475		
Jars, septa tops, syringes, tubing, lab supplies	500	300	
Thermocouple wires, Type J 30 gauge	460		
Soil analyses lab costs (C and N)	1458	1458	
Subtotal	3893	1758	
Genomics analyses, years 1 and 2			
PCR analyses- field samples	5100	5100	
PCR analyses- combustion lab	2550	2550	
Metagenomics	2500	2500	
Subtotal	10150	10150	
TOTAL	25480	12133	

Total Direct Costs \$306,815

Indirect Costs: Indirect costs are calculated at 47.5% of salaries and other direct costs as outlined in UI's grants and contracts manual. Tuition is not subject to indirect costs. Indirect totals \$136,355 over the three years.

Total Direct and Indirect Costs: \$443,170

Residual funds:None Cost Sharing: none

Amount of this Request: \$443,170