BUDGET JUSTIFICATION

1. **Senior Personnel ($0)**

No funds are requested for Senior Personnel.

1. **Other Personnel ($153,775)**

Funds are requested to support a postdoc for 12 months per year, for all three years of the proposal with a base salary of $44,556 and a 4% increase per year. The postdoc would lead the population genetic analysis of GBS and sequence data of introgression and maize-teosinte hybridization.

Funds are requested for the first two years of the grant for two calendar months of support for a technician (Assistant Specialist I) to extract DNA and prepare GBS and genomic sequencing libraries, facilitate genotyping/sample prep for collaborating labs, and coordinate the undergraduate laboratory outreach. The base salary for this position is $43,408 with an increase of 3% per year.

1. **Fringe Benefits ($31,543)**

Fringe benefits are applied to personnel salaries using the university approved rates. The benefits for the postdoc are calculated at 18% of gross salary in year one, 18.5% in year two, and 19.1% in year three. The benefits for the technician are calculated at 38.5% of gross salary in year one, 39.7% in year two, and 40.9% in year three.

1. **Equipment ($0)**

No funds are requested for equipment.

1. **Travel ($9,000)**

Travel for two travelers (the P.I. or Sr. personnel and the postdoc) for domestic or international conference travel is budgeted each year at $3,000.

1. **Participant Support Costs ($0)**
2. **Other Direct Costs ($67,507)**
3. Materials and supplies ($18,000)

In each of the three years of the grant, $5,000 is requested in materials and supplies for library prep for whole genome sequencing and DNA extraction and preparation for GBS. This also includes funds for standard project supplies (paper and toner for project-related printing) and computer supplies (extra storage for the cluster, backup drives for lab members). An additional $1,000 each year is requested to support undergraduate-led research projects as part of our broader impacts.

1. Publication Costs ($3,200)

$1,600 per year is requested in years two and three for publication fees to an open access journal.

1. Other ($49,307)

Whole Genome Sequencing: The genomes of each of eight teosinte will be resequenced to a depth of 30X using 13 lanes of paired end 150bp reads on an Illumina HiSeq 3000. Current lane costs are approximately $2,500 per lane, and library preparation costs are approximately $75, for a total cost of $14,146 for two *Zea mays* ssp. *huehuetenangensis* and two *Zea mays* ssp. *mexicana* in year one and $18,761 for the larger *Zea luxurians* and *Zea diploperennis* genomes in year two.

GBS: Genotyping-by-sequencing will be performed for our introgression analyses admixture population genetic analyses. GBS will be performed at the institute for Genomic Diversity at Cornell on a purchase order basis. Current prices are $34 per sample to run samples at 96-plex. We will genotype 288 individuals in year one for a cost of $9,840 and 192 individuals in year two for a cost of $6,560.

1. **Total Direct Costs ($261,825)**

Total direct costs are $94,584 in year one, $100,244 in year two, and $66,997 in year three.

1. **Indirect Costs ($149,240)**

Indirect costs are calculated at modified total direct costs using F&A rates approved by the U.S. Department of Health and Human Services. Indirect costs are calculated at 57.0% of modified total direct costs with no direct cost items exempted.

1. **Total Direct and Indirect Costs** **($411,065)**

Total costs are $148,497 in year one, $157,383 in year two, and $105,185 in year three.