**EcoHealth Alliance Budget Justification:**

**A. PI Salary.**

PI Daszak will commit 1 month per year to this project to oversee project development, publication development and coordinate research. We are only requesting funding for 0.75 month from this grant, at a rate of $17,305.91 p.a.

PI Olival will commit 1 month p.a. to develop and analyze the data regarding viral-host coevolution, as well as the host and viral genetic diversity within their own communities. We are only requesting funding for 1 month for Y1, Y2 and Y3 from this grant, at a rate of $6,804.15 p.a.

PIs will supervise and oversee implementation of all activities including budgetary oversight and students.

**B. Other Personnel.**

Dr. Rostal will commit 1.5 months in Y1 and Y2 and 1 month in Y3 to this project to oversee field work, maintain strong communication between the teams in Mexico and the US, and attend regular meetings with all primary and related personnel. We are requesting compensation for Dr. Rostal at a rate of $8285.38 p.a.

Mr. Zambrana (PhD student) will commit 2 months in Y1, Y2 and Y3 to this project to develop the database for field and laboratory data, assist PI Murray with the development and analysis of biodiversity, virodiversity and cohabitation-coinfection/disease driven ecological theories, develop publications, and attend regular meetings with other personnel. We are requesting compensation for Mr. Zambrana at a rate of $12,259.72 p.a.

During Y1 and Y2 we will support a multidisciplinary post-doctoral position (see post-doctoral mentoring plan). We will support him/her with a base salary both years, at a rate of $40,578 p.a.

**C. Fringe benefits.**

Fringe benefits are calculated at EcoHealth Alliance’s federally negotiated rate of 28.2% of base salary.

**D. Equipment**

N/A

**E. Travel**

In Y1 Dr. Rostal, Mr. Zambrana and PI Murray will travel to Mexico for the first sampling trip, accompanied by the post-doctoral fellow. Rostal, Zambrana and Murray will stay for two weeks (2($854 + $55/day\*14 days)= $3248; $1,500 R/T from London to Mexico City, + $55/day\*14 days = $2,270.00), while the Fellow will stay on for the duration of the sampling trip (30 days) ($854 + $55/day\*30 days = $2504). PI Olival will travel to Mexico for two weeks to accompany the second sampling trip in Y2, accompanied by the Fellow ($854 + $55/day\*14 days = $1624). The post-doctoral fellow will join the team for the duration of the sampling portion of the trip (14 days) ($854 + $55/day\*14 days = $1624). All flights to/from Campeche, Mexico from/to New York City were calculated at $854 round-trip airfare. The per diem for each day in the field is $55 for room and board.

We have budgeted a total of $5,412 for trips for PI Murray (EHA adjunct) to travel to NYC for annual meetings of all collaborators ($1000 for R/T flight from London to the US + 3 days @ $268/day). We have additionally allocated $3,500 for him to travel to NYC and stay for a month in Y3 to assist in the final project analyses (we have calculated a reduced the per diem rate in light of the duration of his trip: $2,000 for one month’s rent for an apartment, $115 for local transit, and $370 for food, plus $1000 R/T flight).

Finally, we are budgeting to allow the US-based post-doctoral fellow and Senior Personnel to attend a domestic scientific society meeting (AMSTH, ESA, AAAS) to present results each year ($2,000 p.a. in Y1, Y2 and Y3). PIs Daszak and Olival will each attend an international conference to present their results, which will cost $3172 in Y2 and in Y3 ($1500 for flight + 4 days at $258 dollars/day, plus $500 for conference registration and $100 for local transportation = $3172).

**F. Participant Support**

We will have 2 REUs (Research Experience for Undergraduates) per year for students from the Ecology, Evolutionary and Environmental Biology Department at Columbia University (where several of our PIs and Senior Personnel are adjunct faculty members). The students’ travel and supplies will be subsidized. Each student will receive $1,624 per year in years 1 and 2 for travel ($854+($55/day\*14) = $ 1624 p.a.) to Mexico to join the team in the field. We have additionally allocated $10,000 in Y1 and $5,000 in Y2 for student project supplies.

We will also support the thesis work of one Masters’ student from Columbia University and two Masters’ students from UNAM. In Y1 we will initiate an application process for first year students at the start of their first semester. One student will be chosen and will be co-advised by his/her Columbia advisor and one of EHA’s PIs or Key Personnel (Daszak, Murray, Olival or Rostal) based on the student’s interests. The student will spend his/her first year developing his/her project, conducting a literature search and meeting with his/her advisors. During the summer of his/her program he/she will have funds to travel to Mexico for the duration of the sampling portion of the field trip (14 days) to collect samples for his/her related sub-study project. Possible projects include a study on bat ectoparasite diversity or investigating bacterial or fungal disease diversity. The student will receive $1624 for travel ($854+$55/day\*14 = $1624) to Mexico. During Y2 and Y3 we will support the thesis work of two UNAM Masters’ students, including funding for travel and room and board for three months in NYC, at a reduced long-term per diem rate ($2,000 for rent, $115 for local transit, and $370 for food per month), to participate in the sample analysis being done in the Columbia University lab, overseen by PI Anthony and Senior Investigator Lipkin and to collaborate with EHA staff on their analyses (2\* (2\*$2,500/month\*3 months = $8354 (one masters student per year in Y2 and Y3)).

**G. Other Direct Costs.**

**G1.** We have requested $45,000 over three years to create an extensive database to hold the massive amount of data that this project will generate (see data management plan), including funds for personnel to develop and populate it. The funds will be used to develop a secure in-house relational and spatial database that is enabled to link in with R for analyses as well as Genbank, TreeBASE, Morphbank, the Cloud and Github.

We have also budgeted for a laptop computer for the postdoctoral fellow in Y1 ($1,200).

**G2.** We have budgeted $5,400 for 4 publications. We plan to submit two publications in Y2 and Y3 respectively ($2,700 per year). The costs are based on the current rates for the average open-access publication of $1,350.

**G3.** No consultancy fees will be paid.

**G4. Software:** We will use an object-relational database management system to store the data (both molecular (e.g., sequences), biodiversity (e.g., species data) and samples (e.g., blood). Based on our previous experience we will use the open source database PostgreSQL. This platform is in continuous development, follows international standards and can be easily expanded to be a spatial database. The R platform will be use to analyze the data and produce figures. Molecular analyses will be performed using the software Mesquite and R when necessary. Any additional software needed for this project will be open source. We budgeted $1,050 p.a. for computer software licenses and services, including ArcGIS, Mathematica, and similar. (Total of $6,000 p.a.).

**G5 Subawards:**

There will be two subawards, Columbia University and Universidad Nacional Autonoma De Mexico. Budget and justification are given following EcoHealth Alliance’s budget (see below).

**H. Total direct costs**

$413,682

**I. Indirect Costs**

Facility and Administrative costs are based on modified total direct costs (direct costs less equipment). The rate is 44.2% for the entire grant period (Y1-Y3) as per EcoHealth Alliance’s Indirect Cost Rate proposal submitted 2-27-2015. We are also requesting our 44.2% indirect cost rate on the first $25,000 of each subcontract in each year. Total indirect costs for Y1-Y3 will be $260,831.37.

**J. Total Direct and Indirect Costs**

$700,947.60

**L. Amount of this Request**

$1,999,982.38