**Improved Laboratory Safety through the Development of *Homo Coprophagus Somnambulus* Management Tools**

***Problem:*** Our laboratory facilities have, to date, neglected the risks of zombie apocalypse (ZA), and as a result we lose approximately 14 students per year to zombie attack, which deleteriously impacts our graduation rate. Worse, the physical properties of zombies, aside from their average velocity, remain unknown. Failure to understand the undead and prepare for the eventuality of ZA puts our students and faculty at mortal risk and leaves the department open to litigation. Furthermore, graduates leaving our department now do so without the zombie management skills that today’s employers demand.

***Project Description:***  Our project will be accomplished in four phases: 1. Develop new undead analytical equipment and assemble database on zombie flash points, tensile strengths, and fugacities; 2. Develop and validate novel hybrid baseball bat/shotgun pacification device based on Phase 1 findings; 3. Assemble a preparedness kit; 4. Test of preparedness kit during a mid-scale assault (10 to 15 walkers).

***Targets:*** Creation of undead property database, zombie SOP, and ZA preparedness kit. Development of a novel and improved zombie pacification device (baseball bat / shotgun hybrid). Lab will be able to endure a mid-scale zombie assault with no more than two fatalities (currently ≈ 14 deaths/year).

***Estimated Costs:***

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| --- | --- | --- |
| Item | Vendor, Model Number | Estimated Cost |
| Ammunition | Cabella’s | $50.00 |
| Baseball Bats (2) | Amazon.com, BT-20W3 | $29.94 (2@$14.97) |
| Zombie Virus Kit | Wal-Mart, XV17-8 | $19.95 |
| Miscellaneous Consumables | Various | $25.00 |
|  | **Total** | **$124.89** |

***Estimated Personnel Needs:***

|  |  |  |
| --- | --- | --- |
| Name | Title | Primary Role |
| Anthony Butterfield | Project Lead | Team management, procurement |
| Rick Grimes | Lead Engineer | Project safety, management & training of freshman team.  |
| Daryl Dixon | Senior Analyst | Experimental design, data analysis, hunting/tracking. |
| Freshman #1 & 2 | Research Technician | 4hr – Data collection. |
| Freshman #3 | Research Technician | 2hr – Feeding and care of undead. 2hr – Data collection. |
| Freshman #4 | Bait | 1hr – Bait. 3hr – Undead test subject. |

***Equipment & Space Required:*** In this work we will use the following laboratory equipment:

* Microscopes (2) & Hemocytometer – Phase 1. Track infection rate
* MIG Welder – Phase 2. Cage construction and installation of iron bars over windows.
* Gas Chromatograph – Phase 1 & 3. Blunt object for bludgeoning experiments.

We will conduct the majority of our research within our Analytical Lab (MEB 3520E). We require 2 m2 of bench top in MEB 3520E for design work and device assembly, and 5 m2 of “zombie arena” space, which may be located in any available space within the Projects Laboratory.

***Primary EHS Concerns:***

1. The virus used in this work is rated biosafety level 4, and must be treated with the utmost care. All infectious material and people will be disposed of according to local governmental regulations.
2. Zombies pose a biting hazard. Walkers will be muzzled and safety glasses will be worn at all times.