

Proposal 1

How to mitigate climate change!

Climate change is all around us: raising our sea levels, drying our plains, inducing fires in our forests, parching our deserts, melting our ice caps, spreading invasive species, causing extinctions, and affecting the biodiversity of our natural areas! My research will be focusing on ways to mitigate these changes due to climate change to preserve the health of the world.

The forecasting model that I am proposing will create a very detailed map of the world's most extremely threatened ecosystems by climate change, overlaid with degrees of risk assessment based upon the IPCC's most current data. This model can be used by policy makers and citizens to forecast what will be happening to them in their neighborhoods due to climate change. I will make my climate change model on the computer. It will need information like location, state, country, temperature, number of cars (and other greenhouse gas causing things), how deep the water is (if it's the ocean part of the model), how close the nearest forest is (if it's the land part of the model because trees eat carbon dioxide), and IPCC data. I have most of the information already except for some of it and the reason for this proposal is to get money to help me collect the rest of the model information so I can make the model to predict climate change's effects in peoples' neighborhoods.

Climate change is caused because of greenhouse gasses. During the Industrial Revolution and really any time after 1600 A.D., coal was burned in factories and trains and boats and that led to an increase in carbon dioxide, one of the greenhouse gasses, into the atmosphere. Now because we have cars (and cars weren't invented back then) the situation is worse. All that carbon dioxide in the atmosphere traps the heat from the sun on the earth like a greenhouse, hence the name "greenhouse effect." People use to call climate change "global warming" but that's wrong because even though the globe is getting warmer due to the greenhouse effect some places are actually getting colder sometimes which is what my model is going to predict.

Other scientists have tried to predict the effects of climate change in the future but they've failed, in part because they can't agree how much climate change is going to happen which makes skeptics think that climate change isn't real. Climate change is real though. My model will be different than all the others and will be more accurate though because I am taking into account atmospheric conditions, oceanic conditions and terrestrial conditions in a new way that is novel. This exhilarating contribution will help policy makers and citizens to forecast what will be happening to them right in their own backyards and will help people make National Parks to stop the loss of biodiversity in our natural places.

Proposal 2

Human-Animal Conflicts in Kenya

You're walking through the forest in northern India. You're all alone, except for your goats. You just want to get your goats to market so you can sell them and get food for your family. You have 7 children and they are hungry. All of a sudden a tiger leaps out at you! You try to defend the goats but it's too late, the tiger has eaten one of your goats and killed two others. That means less food for you and your family this week.

Many people have been living this story all over the world. Human-wildlife conflict is rampant and a critical part of the everyday lives of millions of people living in developing countries (Smith et al. 1999, 2000a, 2000b). This proposal is focused on human-wildlife conflict having grown up in Kenya. This research will be studying human-wildlife conflict in the savannas of Africa between humans and Lions (Panthera leo) and Leopards (Panthera pardus).

As the ecologists S. Smith and A.T. Smith and Anthropologist, J. Smith have related in numerous publications over the last decade and a quarter, cattle (Bos primigenius) in Kenya often fall prey to lions (Panthera leo) and Leopards (Panthera pardus) (Smith et al. 1999, 2000a, 2000b, 2002, 2003, 2004a, 2004b, 2004c, 2005). This has been a problem because people rely on cattle (Bos primigenius) for their livelihoods (Smith et al. 1999, 2000b, 2002, 2003, 2004c, 2005). The cattle (Bos primigenius) that have been killed by wildlife can no longer be sold and so cease to have value (Smith et al. 1999, 2000a, 2000b). This is unfortunate because the majority of people (Homo sapien sapien) living in this region are living on only about \$15 a week (Smith et al. 2004c, 2005) and a single head of cattle represents a \$300 investment (Smith et al. 1999, 2000a, 2000b, 2002).

This proposal proposes a survey of people who live in this area to see how their lives are affected by wildlife. This proposed research will conduct surveys in villages at [0°22'41.35" S, 36°42'04.22" E], [0°22'41.37" S, 36°42'04.23" E], [0°22'41.42" S, 36°42'04.52" E], [0°22'41.12" S, 36°42'04.97" E], [0°22'41.40" S, 36°42'04.56" E]. I would be speaking Swahili so the surveys would be in the local language and so will be more robust (Smith et al. 1999, 2000a, 2000c).

This project will make a major contribution to this literature because despite the several publications by Smith et al. (Smith et al. 1999, 2000a, 2000b, 2002, 2003, 2004a, 2004b, 2004c, 2005) This research's surveys will be a good additional look at the livelihoods of these pastoralists. This work will have significant broader impacts because there are pastoralists all over the world suffering due to human-wildlife impacts (Scott et al. 2004). Bringing attention to their concerns may have a significant impact on their livelihoods.

Proposal 3

A holistic survey of global lizards in order to understand lizard diversity and the roles lizards play in the ecosystems and to help start a lizard museum

Lizards are the most important species on the planet and in this proposal I'm going to tell you why. Lizards are one of the most diverse species, other than plants, fishes, birds and insects, and they make important contributions to ecosystems all around the world. I will count the lizards in tropical areas to measure diversity and then extrapolate their important roles they have in those ecosystems.

It has been shown that lizards have a larger role in ecosystem processes than some other species (Omar et al. 2006, Shudder 2009, Raleigh 2011). The real story is far more complicated. When you get lots of different lizard species in the same place they eat different things and they go different places which spreads them out over the landscape (Omar and Sandy 2008).

In order to count and accurately study the lizards I will collect all of the lizards I can find in order to identify them right. Furthermore I will hire locals (to support local economics) to find and kill more lizards to bring them back to me to increase the breadth of my samples. They will be killed using proven methods (Samsung 1975) and stored in bottles for the museum my friend is starting. For every lizard I bring back I will get \$0.55 which will help offset some of the costs of my research. I will also find someone to analyze what the lizards have eaten before I killed them in order to understand what the lizards eat in their ecosystem (an important feature of ecological role).

Other studies are egregiously narrow-sighted and stupid because they haven't tried to get a holistic global perspective on these lizard communities. For example, Omar and Sandy (2008, 2009) only studied lizards in South America and Raleigh (and her lab group) only studied lizards in Australia (2000). This lack of perspective leads their conclusions to be totally inaccurate, as opposed to mine which will have a lot more data to support them.

Proposal examples from the blog of Colin Donihue (colindonihue.com), October 10 2012.