Quantifying edible insect harvests using nighttime satellite imagery

The African edible bush-cricket, *Ruspolia differens*, holds considerable significance in East Africa as one of the most widely consumed and traded edible insects. It is considered a delicacy and an important source of food and nutrition. They are harvested at night using light-harvesting stations, which can catch up to 800–1000 kg per night. In Uganda and other East African countries, there have been significant improvements in the light-harvesting technology and widespread reports of declines in harvest yields in recent years. At the moment, there are no monitoring systems to detect if catches decline steeply, which could enable policies to ensure sustainable harvesting in the long run. The aim of this thesis project is to develop a monitoring tool for light-harvesting intensity and assess spatial and temporal trends in the harvesting effort across East Africa. As source data you will use the Earth Observation Group (EOG) nighttime satellite imagery (VIIRS Nightttime lights).

The thesis can be 60 credits or 30 credits at master's level. **The work is mostly GIS and remote sensing based, thus a prerequisite is a completed GIS or remote sensing course**. The data processing is expected to done in R, so previous experience or willingness to learn R is important.

Interested students should contact Anu Valtonen $\leq anu.valtonen@umu.se>$ and Matthias Siewert $\leq matthias.siewert@umu.se>$.