

# THE RAS AL KHAIMAH BIODIVERSITY PROJECT

## **Dr. Brigitte Howarth<sup>1</sup> & Dr Anne-Lise Chaber<sup>2</sup>**

### Affiliation:

<sup>1</sup> Natural Science and Public Health - College of Sustainability Sciences and Humanities, Zayed University, Dubai, UAE. E-mail: [brigitte.howarth@zu.ac.ae](mailto:brigitte.howarth@zu.ac.ae)

<sup>2</sup> Wildlife Consultant L.L.C, Al Ain, UAE. E-mail: [alchaber@hotmail.com](mailto:alchaber@hotmail.com)

### PROJECT AIMS

This project funded by RAK bank follows a double aim: wildlife research and public education.

1) Terrestrial biological surveys as an element of biodiversity protection.

Biodiversity and ecological surveys will give valuable data on wildlife populations. The first year of the program will focus on mammals (i.e.: Caracal, Arabian Tahr); amphibians; reptiles; insects; and birds species.

2) Education: Public awareness and data sharing. Long-term wildlife protection must include all levels of society. The project will include stakeholders from traditional land users to their leaders.

Using the information collected during the field surveys a series of fact sheets in English and Arabic will be produced. Focusing on one specific species per month, these fact sheets will be distributed to the universities, tourist attractions, Governmental agencies, community leaders and the public in general as well as all free magazines.

## SCIENTIFIC OUTLINES OF THE PROJECT

### **Faunal Survey of the Ras Al Khaimah (RAK) Mountains**

The complexity of food webs and food chains are generally poorly understood the World over, and especially in the UAE. Currently we have built up an insect inventory through a variety of work that has been carried out (e.g. Howarth and Gillett, 2008; van Harten, Vol 1-5, 2008-2014). With every new study, species new to the UAE and new to science are being discovered, meaning that we are still working on baseline data. Without good knowledge of all the species present, it is exceedingly difficult to strategically plan conservation projects as the ecological requirements and interactions have yet to be studied, and the inventory completed.

Mountain areas are usually rich in biodiversity as they hold a variety of more ancient undisturbed habitats and areas difficult to reach. Therefore, the value of a detailed biodiversity survey of the RAK mountains is an important addition to the knowledge so far gained, which will then lead to further in depth studies of ecosystems and their diversity.

To most accurately capture species biodiversity, it is essential to use a variety of techniques as the behaviour and niche utilization of each species varies. The techniques outlined below would be used over a period of a year, with some passive traps left in place throughout the year and visited once a week by the team leader.

A survey of the terrestrial ecological resources would include an assessment of the geomorphology and habitats on the site, identification of flora and fauna present and a qualitative assessment of their status in terms of abundance and diversity. Also essential are night surveys for nocturnal animals, and various trapping surveys for small mammals, insects and other arthropods. Any rare or endangered species of special conservation interest that are likely to be impacted by the development will be identified.

### FLORA

All plants will be identified to species level where possible, a digital photographic record would be maintained including GPS coordinates recorded for all survey positions visited. Plant associations and dominant species would also be recorded.

### FAUNA (large)

Fauna, particularly mammals (including bats) and reptiles, would be surveyed by direct and indirect observation with identification to species level wherever possible. Small mammals would be assessed by setting a trap line of Sherman live-catch traps, with trapped mammals being released at their capture point after identification. Bats would be recorded using a bat detector and direct observations. Indirect survey will involve identification of tracks and signs, such as droppings, burrows and carcasses.

### FAUNA (small)

#### INVERTEBRATE SURVEYING

Arthropod groups would also be surveyed by direct and indirect observation. A powerful mercury vapour light running off a portable generator would be employed to sample nocturnal insects. The light is sited on a tripod about one meter above two white cotton sheets laid out on the ground. An automated climate station recording wind speed, relative humidity and air temperature would also be set up in the vicinity of the light.

Insects are attracted to the light and land on the sheets where they can be observed. Most would be photographed and a sample would be collected for pinning and identification.

Diurnally, a malaise flight interception trap would be erected to collect insects in flight as well as a SLAM trap. This combination will ensure that insects that fly near the ground as well as those in the canopy of trees are accounted for. Two malaise traps would be deployed for the whole year and regularly visited. This would also add value to understanding seasonal changes.

Diurnally, sweep netting from vegetation would also be employed. This often complements the fauna collected by the flight interception trap.

Other incidental observations of insects and other invertebrates would also be recorded during diurnal and nocturnal searches, with the occasional use of complementary techniques such as pitfall traps and/or water traps.