



**University of
Zurich** ^{UZH}

JOB DESCRIPTION

JOB TITLE:	ZURICH-ALDABRA ATOLL PROJECT OFFICER (PO)
PROJECT:	Giants of Aldabra – a multi-disciplinary collaboration to reconstruct the past and manage the future of a key World Heritage Site
SALARY:	EURO €1000 pcm
WORKING WITH:	Aldabra Scientific Coordinator (ASC), the Aldabra research and monitoring team, Science Programmes Officer (SPO), ZARP researchers
REPORTING TO:	Zurich-Aldabra Research Platform (ZARP), SIF Projects Programme Coordinator (PPC)

1. BACKGROUND AND CONTEXT

Aldabra Atoll, part of the Seychelles archipelago in the Western Indian Ocean, is a UNESCO World Heritage Site and Ramsar wetland site of international importance. The atoll has been managed and protected by a public trust, the Seychelles Islands Foundation (SIF), since 1979. Aldabra has no permanent human population and the only residents are a rotating team of 10–14 SIF staff and associated researchers. The atoll is managed entirely for research and conservation with very limited and strictly controlled ecotourism. Aldabra, at 35 x 15 km in size, is the second largest raised coral atoll in the world and consists of four main islands surrounding a vast central lagoon. The atoll hosts the largest population of giant tortoises worldwide, one of only two remaining species of giant tortoise globally. The approximately 100,000 giant tortoises on the atoll are a key part of Aldabra's unique ecosystem and regular basic population monitoring is undertaken across the atoll by SIF research staff. Despite the charisma and ecological significance of the giant tortoise, no other recent scientific research has been undertaken on the species. There are therefore many outstanding research questions which are important to answer to improve understanding of both the species and its role in Aldabra's ecosystem.

The PO will play a key role in the exciting start-up phase of the recently established collaboration between SIF and the Zurich-Aldabra Research Platform (ZARP), a multi-disciplinary collaboration between four researchers from the University of Zurich in Switzerland. ZARP researchers aim to combine basic and applied ecological and evolutionary research to provide the best possible scientific input to SIF for the future management of Aldabra's unique ecosystem. The group currently consists of four researchers from the Institute of Evolutionary Biology and Environmental Studies, University of Zurich, who have complementary skills and expertise: Erik Postma is an evolutionary geneticist, Gabriela Schaeppman-Strub is a remote-sensing ecologist, Lindsay Turnbull is a community ecologist, and Dennis Hansen is a conservation ecologist. The project aims to provide the foundations to start bridging the knowledge gaps and initiate and support additional ecological and evolutionary research on this unique island giant.

2. MAJOR OBJECTIVES:

The Zurich-Aldabra Project Officer (PO) is a two-year field ecologist position that focuses on establishing the infrastructure needed for long-term terrestrial ecological and evolutionary studies on Aldabra. The PO will be stationed on Aldabra Atoll for approximately 18 months of the two years (over two field seasons of 8–9 months each) to collect the data necessary to meet several short-term objectives, and to establish the infrastructure required to address longer-term objectives. The 2-year establishment phase of the collaboration has three specific foci:

1) Intensive marking and sampling of giant tortoises in a sub-population on Picard.

Picard is the third-largest of the four main islands of Aldabra, the site of the permanent SIF research station, and hence is the most suitable for intensive population studies. In the late 1960s the tortoise population on Picard was described as sparse, consisting only of occasional individuals. However, in a 1973–1974 population census, 1300 animals were found on Picard, in the 1997 census, this number had increased to 2000 and it is expected to have increased further since then. Hence, this population has exploded from a relatively small number of founding animals. The PO will individually tag as many of the tortoises on Picard as possible, spreading out from the research base to eventually cover the whole population on the island. In addition to tagging, a number of traits will be recorded and measured for each tortoise, including sexual features, size, physical condition. Samples to evaluate the presence of parasites will be collected (blood, faeces). Some of the processing of samples will be done by the PO on Aldabra where there is basic lab equipment; e.g. blood smears will be scanned for blood parasites and faecal samples will be processed. Further samples will be shipped to Zurich for additional analyses.

With a comprehensively marked and measured population of tortoises, we will have an ideal foundation to address many outstanding questions about breeding systems, behaviour, and ecology—currently the subject of intensive investigations in many mammal and bird populations, but not yet for a population of large reptiles.

2) Giant tortoise population dynamics and genetics.

The Aldabra tortoises passed through a population bottleneck of unknown magnitude around 120–150 years ago when they were exploited for human consumption and the current very large population of around 100,000 tortoises is probably descended from only a small number of founders, some of which potentially survive to this day. It is unknown whether today's genetic diversity is greatly reduced compared to the recent past. The PO will conduct widespread blood sampling of tortoises for DNA analysis to build an atoll-wide comprehensive picture of the genetic diversity present in the current population. This sampling will take place gradually over the two years and be co-ordinated with the current SIF Aldabra Science Coordinator and the rest of the SIF team based on Aldabra.

3) Linking tortoise densities and behaviour to vegetation dynamics.

Tortoise densities on Aldabra are extremely high and herbivore biomass per unit area thus generally exceeds that typically found in ecosystems dominated by large mammalian herbivores. Their density, coupled with their generalist feeding habits, make it likely that tortoise activity shapes the vegetation on the atoll, and yet the links between vegetation dynamics and tortoise numbers are poorly understood. To directly measure the impact of tortoise feeding on vegetation the PO will establish tortoise exclusion plots around the atoll, and collect and analyse faecal samples to quantify tortoise diets. There are several databases of vegetation and tortoise populations available, as well as a recently constructed vegetation map of Aldabra (based on satellite imagery). To support the project's

use of these resources, the PO will collate additional archived vegetation and tortoise transect data on Aldabra and carry out ground-truthing work as required.

Lastly, with recently awarded GEF funding, SIF is aiming to improve management of Aldabra and better integrate monitoring, including tortoise monitoring (and that of many other species), into management. This involves, within the next few years, feeding back tortoise monitoring and research results into the management system and management plan for Aldabra. ZARP and the PO will be committed to ensure the project is integrated with the parallel GEF project and results are available for feeding back into management. The PO will assist with a reassessment and modification of the current monitoring programme with the ASC and PPC.

The contract may be extendable depending on performance and available project funding. Additionally, if mutually agreed upon, there are excellent opportunities for the PO to develop a strong MSc or PhD project together with ZARP and SIF, to commence after project completion.

3. WORK DUTIES:

This position encompasses wide-ranging tasks, with a need to produce high quality standardised data and regular reports. It should be noted that the outlined project foci and responsibilities are broad but not all-encompassing; in the establishment phase of the long-term work, unplanned duties that are not possible to predict or describe here will inevitably arise, and others may change over time. Thus, great flexibility and continuous liaison with ZARP and the SIF Projects Programme Coordinator is of utmost importance for the success of the work.

- Liaise closely with ZARP, the SIF ASC, and the SIF PPC regarding activities throughout the project.
- Set up and manage major field components of ZARP's research projects on Aldabra according to the project proposal in the two-year initial upstart phase.
- Ensure that the research and monitoring is carried out efficiently according to approved procedures, is standardised and produce high quality data.
- Depending on additional funding becoming available, members of ZARP and/or their students will spend extended periods of time on Aldabra; during such periods, the PO will provide logistical support on the atoll and assist in supervision of students (and assistants where required), and ensure that the implementation of their projects are of a high standard.
- Maintain and update all records and data (electronic and hard copies) and ensure that they are kept organised, easily accessible, regularly backed up and sent to ZARP and the PPC.
- Submit bi-monthly reports summarising details of the research activities and any other activities.
- Maintain project equipment and order new equipment and materials in good time, in close liaison with ZARP and SIF PPC.
- Maintain samples in good order; prepare relevant samples for shipment to Zurich.
- Train SIF research staff in the techniques used under the project and their rationale, e.g. tagging, sample collection, experimental methods (SIF staff already proficient at measuring and sexing)
- Wherever possible, integrate ZARP's projects with the work carried out by SIF staff on the island as discussed with the ASC; e.g. assist with tortoise monitoring transects and data entry and analysis and database management.
- Design and give presentations including (1) introduction to project and previous experience on Mahé; (2) introductory and background to Aldabra staff and residents upon arrival; (3) work output/project status presentations on departure to Aldabra and Mahé staff; (4) project progress and achievements at

the University of Zurich; and (5) other opportunities as they arise including possibilities to present ZARP's work on Aldabra to tourists and national and at international meetings/conferences.

- Contribute short articles or summaries about the project on request to SIF publications including annual reports, newsletters and website.
- Contribute to routine tortoise monitoring across the atoll and assessment of this programme; where possible, incorporate applicable results into management and monitoring and ultimately integrate these into the management plan for Aldabra, in synergy with the parallel overall GEF project aiming to improve management and monitoring on the atoll.
- -Accompany camping trips to other parts of the atoll as approved by the ASC, primarily for tortoise but also other monitoring work as applicable.
- Assist in all Aldabra group work activities as requested by the ASC, including research meetings, clearing paths, beach clean-ups, fishing and fish processing, and cleaning communal areas as outlined in the monthly schedule.
- Fit into the research team of Aldabra and help out where necessary with other monitoring, administrative and IT tasks from time to time, ensure that other monitoring activities are not compromised by the project.

4. DELIVERABLES

The following deliverables are expected:

1. Bi-monthly progress reports throughout the project.
2. Final project report.
2. Regularly updated and backed up excel dataset of all tortoises tagged on Picard with all data collected, including location, date and time, measurements, sexing traits, samples collected and results of screening.
3. Majority of the Picard tortoise population tagged and measured.
4. Photographic record of the project, including high resolution (min: 300 dpi) images of all activities and staff in the field.
5. At least four presentations across the two-year period to different audiences.
6. Short articles for SIF annual reports, newsletters and website on request

5. TIME-FRAME

The PO will be stationed on Aldabra Atoll for approximately 18 months of the two years (over two field seasons of 8–9 months each). In the approximately 3 months each year, when the PO is not stationed on Aldabra, 1-2 weeks are expected to be spent on Mahé to liaise and work with SIF Head Office staff, and the remaining time will be spent in Zurich. There are funds available to cover travel from Seychelles to Zurich and a small extra-allowance for stays in Zurich, as Switzerland is an expensive place to live. Note that Aldabra is remote and transport options there are extremely limited. Transport for this project must therefore fit in with existing SIF schedules so the exact time to be spent on Aldabra is not yet fixed and may be subject to changes of up to a month on either side.

6. QUALIFICATIONS AND SKILLS REQUIRED

- BSc or MSc in biology or a related field
- Minimum of two year's experience with hard fieldwork in remote areas (if at BSc-level, extended additional field experience is highly desirable)
- Experience of field work on islands working with small teams of people away from civilisation for several months is preferable

- Experience with reptile handling, measuring and surveying, ideally with tortoises
- Computer proficient with, e.g. MS software package including Word, Excel, Powerpoint, required. Experience with statistical software would be beneficial
- Experience with large datasets and data management and processing skills
- Flexibility and adaptability
- Problem solving skills and positive attitude essential
- Good verbal and written communication skills
- Ability to work in a team and cooperate with all team members is essential
- Must be physically very fit and able to withstand months of fieldwork in tropical heat and difficult terrain