

JAMES RENNIE BEQUEST

REPORT ON EXPEDITION/PROJECT/CONFERENCE

Expedition/Project/Conference Title: IAESTE placement at the Institute of Plant Physiology and Genetics

Travel Dates: 27th June – 2nd August 2007

Location: Dushanbe, Tajikistan

Group Member(s): Olivia Mozley

Aims: Research the genome of a local goat grass, Aegilops

OUTCOME (not less than 300 words):-

Over the summer, I worked on a placement for five weeks at the Institute of Plant Physiology and Genetics in Dushanbe, Tajikistan. The placement was organised by IAESTE, the International Association for the Exchange of Students for Technical Experience. IAESTE works in over 80 countries around the world and arranges work placements abroad for students on science and engineering courses.

The Institute of Plant Physiology and Genetics is a small research laboratory, led by Professor Firuza NasYROVA and belonging to the Tajik Academy of Sciences.



Three colleagues outside the Insitute.

The laboratory was working on project T-1105, "Genome Analysis of Cereal Crops and their Relatives in Tajikistan". The project was funded by the ISTC, The International Science and Technology Centre, which is a Russian funding body and in the past funding has been obtained from the World Bank and the United States government.

The aim of the project was to identify genes from wild species of the goat grass, *Aegilops*, for hybridization into cultivated wheat crops to improve their success. Samples of *Aegilops* were collected from around Tajikistan, and in different growing environments as regards climate, soil salinity and altitude (93 percent of Tajikistan is mountainous.) The species collected were *A. tauschii* (closely related to the common wheat *Triticum aestivum*), *A. triuncialis*, *A. cylindrical* and *A. crassa*.



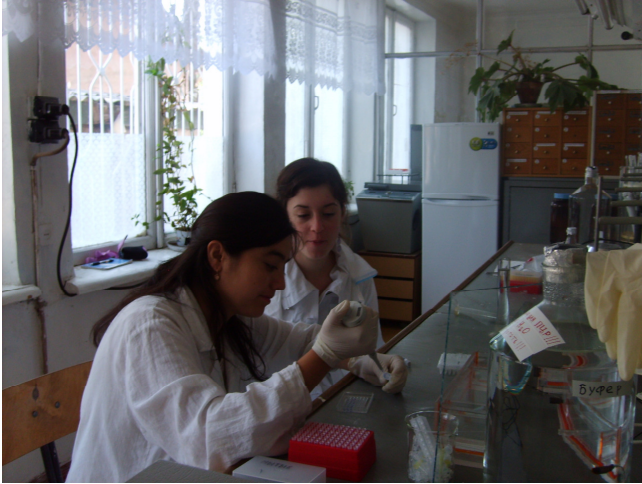
Hills on the way to Kuylab from Dushanbe.



The Nurek Dam

In the laboratory we also worked on isolating and analysing DNA from the *Aegilops* shoots. Seeds of different species were allowed to germinate in an incubator and after seven days the shoots were homogenised with buffer and centrifuged. The PCR mix was then made up and the reactions left over night.. In the morning the PCR products were run on agarose gels and the gels were photographed with a UV camera.

There were problems analysing the images as the laboratory had no money left for the gel electrophoresis software. There were some free programmes available to download on the internet but they were not quite suitable for the task. Eventually a 30 day free trial was downloaded with all the images ready for analysis.



Zubaida and me in the laboratory

My other jobs at the Institute included editing English drafts of letters and reports and giving English lessons to my colleagues.

IAESTE Tajikistan organised a cultural programme for the interns and every weekend there was a trip organised to places out of the city. We went to Kuylab in the South, the Nurek dam, and two spa resort, each about an hour out of the city.



IAESTE cultural programme

Living in Dushanbe for five weeks was an amazingly insightful experience to a different culture. Tajikistan is a very poor country, suffering from post colonialism and the aftermath of a civil war and the infrastructure is relatively basic. Tajikistan has a secular society, but Islam plays a very large part in the culture, and there is also a Russian influence from the Soviet era.

I learnt a huge amount over the five weeks, not just science, but to appreciate the value of living in a liberal, enlightened culture. I would like to thank the James Rennie Bequest for making the experience financially feasible.

