



PLANTS PEOPLE  
POSSIBILITIES

## Press information 2010

### Jodrell Laboratory

The Jodrell Laboratory is a central part of the Royal Botanic Gardens, Kew's work as a leader in plant science. Over 80 scientists are based in the facility, using the latest analytical techniques to understand the wide variety of plants so it can be conserved and used sustainably for human benefit, a task never more important during the UN's International Year of Biodiversity.

Research concentrates on plant families or groups of plants that have economic importance or particular biological interest, such as *Poaceae* (grasses), *Orchidaceae*, *Fabaceae* (beans) and *Arecaceae* (palms). Scientists also collaborate in research and conservation in areas with important biodiversity wealth that are the focus for external partners, such as Africa and Madagascar, South East Asia and Latin America, particularly northeastern Brazil.

Studies in the Jodrell Laboratory range across biochemistry, genetics, molecular biology, micromorphology – the study of plant structures at a microscopic level – and mycology, the study of fungi.

Examples of research happening in the Jodrell Laboratory:

- Identifying substances to use in the fight against illnesses such as cancer, malaria and diabetes, and also for use in improved pest control in agriculture and horticulture.
- Investigating plant characteristics and relationships at the molecular level to help plant conservation.
- Studying plant-animal interactions, especially the host selection behaviour of insects.
- Using DNA finger printing techniques to study the genetics of endangered species.
- Improving and re-evaluating our understanding of the interrelationships between flowering plants using genetic studies.
- DNA barcoding for plants, using genetic markers to distinguish between plant species and allow rapid identification by customs officers, forensic scientists, expert and amateur botanists.

Kew's scientific research is aligned with the United Nations Millennium Development Goals to eradicate extreme poverty and hunger, combat HIV/AIDS, malaria and other diseases and ensure environmental sustainability by 2015.

Scientists in the Jodrell work closely with colleagues in Horticulture, the Herbarium and the Millennium Seed Bank Partnership.

## History

- 1877 The first Jodrell Laboratory was built to study the internal form, physiology and chemistry of plants. The cottage-like building had four main rooms for research and an office. It was erected and equipped for a total of £1,500, donated by its namesake Mr T. J. Phillips Jodrell.
- 1892 The first Keeper of the Jodrell Laboratory was appointed.
- 1890s Work on lignin and cellulose by Cross and Bevan started in the Jodrell, leading to the foundation of the man-made fibre industry.
- 1920s When Carter found Tutankhamun's tomb, plant materials were sent to the Jodrell for identification.
- 1934 An artist's studio and dark room were added.
- 1963 The original building, too small and ill-equipped for new areas of study, was demolished.
- 1965 A new laboratory opened on the site of the original, with two floors of laboratory space for physiology, anatomy, biochemistry and cytology.
- 1973 Physiology team moved to Wakehurst Place. Increased seed collection for plant conservation meant they needed more space for storing seed, as well as extra laboratory space for seed physiology work. It has since become the Seed Conservation Department, now located at Kew's Millennium Seed Bank.
- 1993 A new extension was opened by Her Majesty the Queen. The new area provided space for the Molecular Systematics section, which uses DNA data to study the evolutionary relationships of plants, and to accommodate more research visitors and post-graduate students.
- 2006 The Wolfson Wing is opened by Professor Sir Robert May (former President of the Royal Society). The new wing enabled expansion and modernisation of research laboratories, consolidation of several departments and new facilities for Kew's unparalleled fungi collection.
- 2009 The Royal Botanic Gardens, Kew celebrates its 250<sup>th</sup> anniversary.

Scientists from the Jodrell are part of an international team of scientists (the Consortium for the Barcode of Life Plant Working Group) that agree a standard "DNA barcode" for plants that will help boost biodiversity conservation efforts by allowing botanists to identify the world's plant diversity quickly and easily.

APG III, the most comprehensive version of the Angiosperm Phylogeny Group plant taxonomy system, is published. Led by scientists in the Jodrell, The APG III system provides the consensus that will allow plant research and conservation efforts to move forward rapidly. The Angiosperm Phylogeny Group was set up to revise the family tree of plants according to DNA analysis and the first system was published in 1998.

## Ends

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