

THE SEED HUNTERS

With a quarter of the world's plants set to vanish within the next 50 years, Doug Alexander reports on the scientists working against the clock to preserve the earth's botanical heritage

They travel the four corners of the globe, scouring jungles, forests and savannahs. But they're not looking for ancient artefacts, lost treasure or undiscovered tombs - just seed pods. It may lack the romantic allure of archaeology, or the whiff of danger that accompanies going after big game, but seed hunting is an increasingly serious business. Some seek seeds for profit - hunters in the employ of biotechnology firms, pharmaceutical companies and private corporations on the lookout for species that will yield the drugs or crops of the future. Others collect to conserve, working to halt the sad slide into extinction facing so many plant species.

Among the pioneers of this botanical treasure hunt was John Tradescant, an English royal gardener who brought back plants and seeds from his journeys abroad in the early 1600s. Later, the English botanist Sir Joseph Banks who was the first director of the Royal Botanic Gardens at Kew and travelled with Captain James Cook on his voyages near the end of the 18th century - was so driven to expand his collections that he sent botanists around the world at his own expense.

Those heady days of exploration and discovery may be over, but they have been replaced by a pressing need to preserve our natural history for the future. This modern mission drives hunters such as Dr Michiel van Slageren. He and three other seed hunters work at the Millennium Seed Bank, which is an £80 million international conservation project that aims to protect the world's most endangered wild plant species.

The group's headquarters are in a modern glass-and-concrete structure on a 200-hectare estate at Wakehurst Place in the West Sussex countryside in the UK. Within its underground vaults are 260 million dry seeds from 220 different countries, all stored at -20°C to survive for centuries. These stored seeds can be used in various ways, including the restoration of damaged environments, or in scientific research to find new benefits to society - in medicine, agriculture or local industry. Among the 5,100 species represented at the seed bank are virtually all of Britain's 1,400 native seed-bearing plants, the most complete such collection of any country's flora.

Overseen by the Royal Botanic Gardens, the Millennium Seed Bank is the world's largest wild-plant depository with over 24,000 species in its collection. The reason is simple: thanks to humanity's efforts, an estimated 25 per cent of the world's plants are on the verge of extinction and may vanish within 50 years. We're currently responsible for habitat destruction on an unprecedented scale and, during the past 400 years, plant species' extinction rates have been about 70 times greater than those indicated by the geological record as being 'normal'. Experts predict that during the next 50 years a further one billion hectares of wilderness will be converted to farmland in developing

countries alone. The implications of this loss are enormous. Besides providing staple crops for human consumption, plants are a source of many medicines, and the principal supply of fuel and building materials in many parts of the world. They also protect and improve the quality of the soil and help regulate the climate. Yet, across the globe, plant species are being driven to extinction before their potential benefits are discovered.

The World Conservation Union has listed 5,714 threatened plant species worldwide, but it admits this is only scratching the surface. With only four per cent of the world's described plants having been evaluated, the true number of threatened species is sure to be much higher. In the UK alone, 300 wild plant species are classified as endangered. The Millennium Seed Bank aims to ensure that even if a plant becomes extinct in the wild, it won't be lost for ever.

Seed banks are an 'insurance policy' to protect the world's heritage for the future, explains Dr Paul Smith, another Royal Botanic Gardens seed hunter. "Seed conservation techniques were originally developed by farmers," he says. "Storage is the basis of what we do, conserving seeds until we can use them - just as in farming." Smith says there's no reason why any plant species should become extinct, given today's technology. But he admits the biggest challenge is finding, naming and categorising all the world's plants. And someone has to gather these seeds before it is too late. 'There aren't a lot of people out there doing this,' he says. 'The key is to know the flora from a particular area, and that knowledge takes years to acquire.'

When in the field, Royal Botanic Gardens collectors are guided by a target list, generally provided by the host country, of the seeds they need. Priorities are determined by economic importance, endangered status and distribution - although they will deviate from the list if the chance arises to gather an unknown plant they've stumbled upon.



Questions 1-6

Complete the summary below.

Choose **NO MORE THAN THREE WORDS** from the passage for each answer.

Write your answers on your answer sheet.

Seed Hunting

Apart from the processing need to collect seeds in an effort to protect certain plants from **1**, seed hunting also makes an important contribution to the development of potential **2** or

Botanists and gardeners were some of the **3** in the hunt for seeds. One of these, called **4**, was so keen that he personally provided funding for trips to collect seeds.

Present-day seed hunters employed by the Millennium Seed Bank bring back seeds which are then stored in the **5** beneath the bank's headquarters at Wakehurst Place. These seeds play a vital role in the re-construction of **6** and also in various fields of scientific research.

Questions 7-12

Do the following statements agree with the information given in Reading Passage 1?

For questions 7-12, write

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

Write your answers on your answer sheet.

7 The reasons for collecting seeds have changed over the years.

8 The Millennium Seed Bank was the first wild plant repository to be set up.

9 A major threat to plant species is posed by the increasing spread of farmland.

10 The World Conservation Union has been restricted in its work by lack of resources.

11 The methods of seed conservation resemble those used in agriculture.

12 Seed banks will only be successful if the technology improves.

Question 13

For question 13, choose **TWO** letters, **A-E**.

Write the correct letter on your answer sheet.

Which **TWO** of the following uses of plants are mentioned by the writer?

A to improve air quality

B as a source of energy

C to enhance our understanding of nature

D to provide food

E to discover more about species that have died out