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Search  ok

[Directories](#) | [French version](#)

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**About CNRS**

[Overview](#)

[Organizational Chart](#)

[Join CNRS](#)

[Key figures](#)

[Transfer to industry](#)

[Awards](#)



# CNRS

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[Print](#) 

[Back issues of CNRS Magazine](#) 

**Media**

[Press releases](#)

[CNRS news briefs](#)

[CNRS international magazine](#)

[Archives](#)

[PRESS CONTACTS](#)

[PHOTO LIBRARY](#)

[VIDEO LIBRARY](#)

[In brief](#)

**SUPERPOWERED LASER**

One for the scientific Guinness book of records! Yet you might not had had the time to witness this laser beam that shot above the city of Bordeaux for one thousandth of one billionth of a second during the nights of February 2 to March 10, 2006. It is the first time that such a powerful laser (30 terawatts)<sup>1</sup> was emitted into the atmosphere. The beam can travel up to 15 kilometers, reaching the stratosphere. As soon as it comes in contact with air, the beam becomes visible forming a white, electrically charged ray that looks like a straight thread. Eventually, this type of laser could be used as a conductor to guide lightning to the ground or as a way of measuring atmospheric pollution. This experiment has brought together scientists from CNRS, Lyon-I University, the CEA, and Geneva University.

1. 1 terawatt = 1012 watts.

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**A SISTER PLANET**

In recent years, many gaseous exoplanets (extrasolar planets) have been discovered. But researchers involved in the international PLANET project,<sup>1</sup> have just discovered the first solid exoplanet ever identified.<sup>2</sup> Located 22,000 light years from our solar system, its mass is five times that of the Earth, and this exoplanet takes ten years to orbit around its star (at a distance three times that of the Earth to the Sun). Its force of gravity is about one-and-a-half times ours. Although these characteristics mean that it belongs to the same family of planets as the Earth, its temperature—about 50 Kelvins (-220°C)—and its likely make-up of rock and ice do not make it a likely candidate for sustaining forms of life.

1. *Probing Lensing Anomalies NETwork: It brings together 32 astronomers from 10 different countries and is based on observations from eight telescopes, all located in the Southern hemisphere* (<http://planet.iap.fr>).

2. J.P. Beaulieu et al., *Nature*, 439 (7075): 437-40, 2006.

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**DEFORESTATION PRIMARY KILLER OF ORANGUTANS**

Deforestation is the main cause for the disappearance of orangutans from the island of Borneo. Scientists from CNRS and the University of Cardiff, UK, have demonstrated this by analyzing the genetic material of 200 orangutans on the island.<sup>1</sup> Their results clearly show that the genome of the only great ape found in Asia carries evidence of a major demographic collapse in the course of the 20th century. This collapse coincides with logging and deforestation of the jungle, which began in the 1890s. Notwithstanding, the scientists are fairly optimistic. There are still about 11,000

**COVER STORY**

[Riding the nano waves](#)

**EDITORIAL**

[Nanoscience, a priority for CNRS](#)

**FRENCH RESEARCH NEWS**

[Nominations](#)

**LIVE FROM THE LABS**

[Turning the tables on parasites](#)

[Innate math skills ?](#)

[Napoleon's plagued retreat](#)

[New galactic discoveries](#)

[Genetic assets to resist tuberculosis](#)

[Photochemistry Unearthed](#)

[Nanoscale vision](#)

[The sky is no limit](#)

[Bloom or Bust ? Diatoms Decide](#)

[Towards compact proton therapy ?](#)

[A cosmic accelerator in the Milky Way](#)

[Old desert, new knowledge](#)

[Unraveling coral's secrets](#)

[Catherine Jeandel : Aquatic journey](#)

**In brief**

**IN IMAGES**

[Revisiting planet Earth](#)

**AROUND THE WORLD**

[Inter-cultural communication](#)

[Rethinking mathematics](#)

[French at heart](#)

[Word Doctor](#)

[The science of good relationships](#)

**INNOVATION**

[Knowing what to do with knowledge](#)

[The Surgeon's GPS](#)

[The new bacterial frontier](#)

**CNRS NEWSWIRE**

[The facts and figures](#)

[Crossing borders](#)

**In Brief**

[Making foreign researchers feel at home](#)

[CNRS in brief](#)

**AMAZING IMAGES**

[DNA ribbons](#)

**CNRS OFFICES ABROAD**

[CNRS offices](#)

orangutans living in the northeast of Borneo. To protect these orangutans, the priority is to favor their movement between isolated "islands" of forest, some of which are home to just a dozen.

1. B. Goossens et al., *Genetic signature of anthropogenic population collapse in orangutans*. *PLoS Biol.* 4 (2): e25. 2006.

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### THE DOMESTICATION OF WILD WHEAT

Agriculture may have started to develop between 12,000 and 10,500 years ago in the Near East, a theory corroborated by two researchers working on remains of ancient wheat recovered from archaeological sites.<sup>1</sup> They found that 9250

years ago, fields were composed of both wild (i.e., plants which shatter and lose their grains when mature) and domestic (non-shattering) varieties. The latter increased progressively until 7500 years ago, while wild varieties remained competitive. It is this slow evolution, combined with other evidence, that allowed researchers to hypothesize that the earliest cultivated wild wheat may date back to soon after hunter/gatherers adopted a sedentary existence, some 12,000 years ago.

1. K. Tanno and G. Willcox, *Science*. 311 (5769): 1886. 2006.

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[Top](#) 

