

Environment & Ecology

- The WGEEP (Western Ghats expert Panel) designated entire Western Ghats as an Ecologically Sensitive Area. The panel in its report classified the 142 taluks in the Western Ghats boundary into Ecologically Sensitive Zones (ESZ) 1, 2 and 3.
- Scientists discovered a fossil of a tail-bone belonging to a titanosaur on Antarctica. The new specimen was discovered on James Ross Island. Their remains were found around the world but this is the first evidence to support the fact that they roamed Antarctica.
- The Senate of Brazil on 7 December 2011 approved the bill that reforms rules on the amount of land farmers must preserve as forest. Brazilian senators voted by 59 to seven to approve the legislation.
- The Cabinet Committee on Economic Affairs (CCEA) on 1 December 2011 approved 1656 crore rupees scheme for phase-3 of Yamuna Action plan. Under this project, the sewage treatment plants situated in Kondli, Rithala and Okhla will be rehabilitated. At present, the project is operational in 21 cities of Uttar Pradesh, Delhi and Haryana. The Indian government will execute the phase-3 of Yamuna Action Plan with help from Japan International Cooperation Agency (JICA). JICA is providing financial help since 1993.
- The National Green Tribunal on 30 March 2012 suspended the environment clearance granted to Posco's mega steel project in Orissa in January 2011. The tribunal comprising Justice C V Ramulu and Devendra Kumar Agarwal held that the clearance given to Posco's mega steel project in Jagatsinghpur district of Orissa will remain suspended till the environment ministry reviews it afresh.
- IUCN (International Union for Conservation of Nature) on 10 November 2011 released the red List of threatened species, which includes 14 species of birds from India. These birds are critically endangered. The endangered birds include, Indian Vulture, Red-headed Vulture, Pink-headed Duck, Sociable Lapwing, Jerdon's Courser, Siberian Crane, White-bellied Heron, Christmas Frigatebird, Bengal Florican, Forest Owlet, Spoon-billed Sandpiper, Himalayan Quail, and White-rumped Vulture.
- A new frog species was found by researchers in the second week of March 2012 at Mawphlang, about 25 kilometre from Shilong, capital of Meghalaya. The new species was named *Fejervarya Sengupti* in honour of Saibal Sengupta. Sengupta was the head of Aryavidyapeeth College and one of the pioneers of amphibian research. The new species was different from all congeners in terms of body size and call characteristics.
- The Government of Niger, in the first week of March 2012, declared the whole area-*the Termit Massif and Tin Toumma desert*- to be a national nature and culture reserve. Significantly, the area is home to some critically endangered species. It is now the largest single protected area in Africa.
- The Indian Black Eagle was spotted in the Aravali Biodiversity Park after a gap of 90 years. The bird was last seen in 1920-21 by Basin Edwardes.
- The Manas Wildlife Sanctuary also known as Manas National Park on 20 February 2012 got four rhinos from Kaziranga, which has the largest number of one-horned rhinos in the world. The translocation of rhinos has been done under the programme Indian Rhino Vision 2020.

- An international team of scientists on 13 February 2012 found that how the bees shook their abdomens when bee-eating hornets approached. This signal triggered the hornet to retreat. The researchers described how all the guard bees simultaneously vibrated their abdomens from side-to-side for a few moments when a hornet approached the colony.
- In Madagascar, one of the world's tiniest lizards called *Brookesia micra* was found by German researchers on 14 February 2012. It reaches a maximum length of 29mm. The researchers also found three new species in the north of the island. During daytime, the lizards mostly live in the leaf litter in the day and at night climb up. The lizards were limited to very small ranges and they are at risk from habitat disturbance. This discovery could help scientists explain the reason behind island dwarfism.
- Scientists rediscovered a large grey monkey-the Miller's grizzled langur- in the dense jungles of Indonesia. The monkey was believed to be extinct. The monkey has black face framed by a fluffy, Dracula-esque white collar. It has hooded eyes and a pinkish nose and lips. The animal one roamed the north-eastern part of Borneo, as well as the islands of Java and Sumatra and the Thai-Malay peninsula.
- Indian Meteorological Department on its 137th foundation day (15 January 2012), installed C-Band Polarimetric Doppler Radar system at Mausam Bhawan, New Delhi. This system uses advanced data to give information in severe weather condition like rain, hailstorms and dust storms.
- The researchers identified a new species of earthworm in Port Blair, the capital of Andaman and Nicobar islands. The species was named *Moniligaster ivaniosi*, after the name of the college. The new species has unique features, which includes three pairs of genital apertures and a black line running along the middle region.
- UK scientists discovered new crab species on the Southern Ocean floor. The new crab species was named the Hoff because of its hairy chest. The Hoff lives around volcanic vents off South Georgia. The animal has yet to be formally classified. It is, however, a type of yeti crab.
- An Australian study published in the journal *Science* on 27 April 2012 revealed that climate change has accelerated the rainfall cycle. The study conducted by Australian and US scientists looked at ocean data from 1950 to 2000 and found that salinity levels had changed in oceans around the world over that time.
- According to a study report published in the journal *Nature Geoscience* on 22 April 2012, the Arctic Ocean could be a significant contributor of methane, a powerful greenhouse gas. The researchers found concentrations of the gas close to the ocean surface, especially in areas where sea ice had cracked or broken up.
- A study published in the journal *Public Library of Science One* on 23 April 2012, described that the diversity is the mammal's best defense when it comes to adapting climatic changes.
- NTCA (National Tiger Conservation Authority) said in a reply to the RTI Query that 337 Tigers lost their lives in India in the last decade. NTCA elaborated that 58 tigers were found dead in 2009 and 56 in 2011. While in 2008, the number was 36 and 28 each in 2007 and 2002. As per the DATA released By NTCA, as many as 68 tigers were killed due to poaching during the period. While others died of natural causes like old age, accidents, starvation.

- The Union ministry of environment and forests (MoEF) on 16 April 2012 banned the use of live animals in dissection and other experiments in educational and research institutions. The ban is based on the prevention of cruelty to Animals Act (1960).
- Scientists in the first week of April 2012 unearthed fossilized bones of a foot in Ethiopia which they believe could be of a new species of human that roamed the planet some three million years ago and could offer insight into how man evolved to walk on two feet. The shape of the bones shows that the creature could walk upright at times.
- The Supreme Court of India on 10 May 2012 directed the union government to put off its decision to reintroduce the Cheetah in India. The big cats faced extinction in the sub-continent nearly a decade ago. The government was planning to import Cheetah from Africa, while the plan was not discussed with the National Board for Wildlife, a statutory body for the enforcement of wildlife laws in India.

Science and Technology

- China on 23 December 2011 launched a high-speed bullet train in Qingdao, Shandong province. Its speed can reach up to 500 kilometres per hour. The train was launched by China's largest rail vehicle maker, CSR Corp. Ltd. The six-car train has a maximum tractive power of 22800 kilowatts, compared with 9600 kilowatts for the CRH380 trains. The train is made from plastic materials reinforced with carbon fibre. It is designed to resemble an ancient Chinese sword.
- A team of neuroscientists found a gene that turns on when memories are stored in the brain. This discovery could help trace the exact locations of memories in the brain. It could help in creating and altering memory. The gene is called Npas4, which is very active in the hippocampus. The animal is known to have a brain structure critical in forming long-term memories.
- Scientists discovered a way to transform ordinary tissue into beating heart muscle cells. It could pave the way for new therapeutic approaches for making a damaged heart to repair itself. Scientists used a zebrafish system to develop a small and robust molecule, which can transform stem cells into beating heart muscle cells.
- NASA's Kepler mission on 20 December 2011 discovered the first Earth-size planets orbiting a sun-like star outside our solar system. The planets, called *Kepler-20e* and *Kepler-20f*, are too close to their star to be in the so-called habitable zone where liquid water could exist on a planet's surface, but they are the smallest exoplanets ever confirmed around a star like our sun.
- Scientists invented the Oncotype DX test to detect breast cancer. It will help those women who are in the early stages of breast cancer. It will save them the trouble of undergoing chemotherapy.
- NASA (National Aeronautics and Space Administration) built a prototype capable of launching test harpoon tips across a distance of a mile (1.6km). It would be safer to collect comet material using the space harpoon before landing on the celestial bodies.

- Scientists developed a hydrogel that regenerated healthy and scar-free tissue on skin damaged by severe burns. The hydrogel helps in formatting of new blood vessels and skin including hair follicles. The injured soldiers, fire victims and people with third degree burns can avail of the gel. Third-degree burns typically destroy the top layers of skin down to the muscle.
- Scientists claimed that now a simple test could diagnose breast cancer in women in eight seconds. They claim to have developed it from a technology that is used to detect land mines. The new screening tool, called *MARIA*, is safer and more comfortable than traditional mammogram X-rays. It can be used on women of any age, unlike current technology.
- A team of researchers from NASA's Kepler Mission discovered a habitable earth-like planet, called *Kepler-22b*. This newly discovered planet orbits around a sun-like star 600 light years away from the planet earth. The star is located near the constellations of Lyra and Cygnus.
- An international team of scientists led by Prof Richard Harvey of the University of New South Wales and colleagues at Victor Chang Cardiac Research Institute discovered a new population of adult stem cells in the heart. The findings were published following recent reports that stem cells harvested from human hearts during surgery show promise for reversing heart attack damage.
- India successfully test-fired its nuclear capable Agni-I strategic ballistic missile on 1 December 2011 from the test range at Wheeler Island off Odisha coast, as part of the Indian Army's user trial. It was test-fired from a mobile launcher, from launch pad-4 of the Integrated Test Range (ITR). The Strategic Force Command (SFC) of the Army, as part of their training exercise, executed the trial with logistic support provided by Defence Research Development Organisation (DRDO) at the ITR. The trajectory of the missile, which had an operational strike range of 700 km, was tracked by sophisticated radars and electro-optic telemetry stations located along the sea coast and ships positioned near the impact point in the downrange area.
- Scientists discovered the biological clue to male baldness. It increased the chances of a treatment to stop or even reverse hair-loss. They found that most men go bald in middle age. About 80 percent of men have some hair loss by the age of 70. The male sex hormone testosterone as well as genetic factors cause the hair follicles to shrink, which leads to the appearance of baldness. A key protein's presence (called prostaglandin D synthase) is increased in the cells of hair follicles which can be located in bald patches on the scalp, but not in hairy areas.
- A scientist from Iran developed a gas-filled aspirin that can enhance the cancer-fighting ability of the drug. The new Aspirin was dubbed NOSH, which stands for Nitric Oxide and Hydrogen Sulphide. The new Aspirin reduces the harmful side effects of taking aspirin. Aspirin is effective against Cancer. But it can also cause bleeding in the gut and ulcers.
- Scientists identified at least two genes, NACP and MAPT linked to Parkinson's disease, a finding which may pave the way for better treatments for the second most prevalent neurological condition after dementia. The two genes are related to protein accumulation in the brains of people with Parkinson's disease and can indicate how quickly the disease will progress in a person.

- India on 26 April 2012 launched its first indigenous all-weather Radar Imaging Satellite (RISAT-1). The satellite, whose images will facilitate agriculture and disaster management, was launched successfully on board the PSLV-C19 from Sriharikota in Andhra Pradesh.
- Scientists are building a human brain. For that they are using the world's most powerful supercomputer. It will stimulate the entire human mind to fight against Alzheimer's and other brain diseases.
- Scientists recently discovered a combination of proteins involved in prostate disorders. This could pave the way for effective and better treatments. In fact, scientists identified the G protein-coupled receptors, which enable cells to respond to neurotransmitters and hormones. G protein-coupled receptors are essential proteins on the outside of cells that enabled signals from hormones and neurotransmitters to be transferred into the cell.
- Italian Scientists in the second week of April 2012 found an intestinal parasite in pigs called *Dientamoeba Fragilis*, which also causes diarrhoea in humans. This discovery will help scientists understand its transmission better and find effective treatment.
- Scientists identified two genes called OLFM4 gene and HOXB5 that increase the risk of common childhood obesity. The early Growth Genetics (EGG) Consortium made this finding. This finding will pave the way for preventive interventions and treatments for children based on their individual genomes.
- A three-man team on 15 May 2012 blasted off from Russia's Baikonur cosmodrome in Kazakhstan on board a Russian-made Soyuz craft for a half-year stay at the International Space Station. Nasa astronaut Joseph Acaba and Russian cosmonauts Gennady Padalka and Sergei Revin set off from the Baikonur facility as scheduled.