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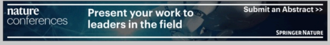

Volume 655 Issue 8123, 16 July 2026

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nature
MEADOWS MAPPED

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Meadows mapped

The cover shows a seagrass meadow in shallow water off the coast of Grand Bahama in the Bahamas. Seagrass makes up a crucial marine ecosystem that supports biodiversity as well as helping to protect the shoreline and sequestering carbon. Despite their wide benefits and potential as a natural mechanism to help combat climate change, seagrass ecosystems are relatively poorly understood. In this week's issue, Jiwei Li and colleagues present a global map of seagrass along with an analysis of how seagrass extent has changed over a four-year period at the start — show all

Cover image: Will Greene, Perry Institute for Marine Science, Arizona State University.

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Why there needs to be a global debate on inequality

Researchers have a responsibility to search for consensus on this crucial issue, both for future generations and the future of our planet.

Last call for summer love
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World View

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Africa's response to this Ebola outbreak shows how to shape global health

Countries elsewhere must learn from the continent's example and combat disease outbreaks by working together, not by closing borders.

Safura Abdool Karim

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Pair of 'super-puff' planets are lighter than candyfloss

Two gas giants circling the same star are among the least dense planets ever found.

Research Highlight
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Found: the toxic killer that caused an ocean catastrophe

Scientists identify an alga species as the culprit behind the deaths of more than one million marine animals.

Research Highlight
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Alpine crossing took a heavy toll on Hannibal's elephants and troops

Pachyderms would have lost substantial amounts of weight traversing the mountains, as would have horses and soldiers.

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News in Focus

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Nobel-winning chemist leaves US to direct AI materials lab in China

Omar Yaghi's move comes amid cuts to US science and a campaign in China to recruit top international talent.

Jenna Ahart & Mohana Basu

News
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Paper mill cancer studies get double the number of citations as genuine papers

Potentially fraudulent papers often cite each other and could be inflating the impact factor of journals in which they are published.

Mohana Basu

Collection: Cancer at Nature Portfolio

News
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Trump has big AI and quantum ambitions: this scientist's job is to make them reality

Darío Gil knows that researchers are sceptical of the massive US artificial-intelligence push — he's asking them to keep an open mind.

Elizabeth Gibney

News
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Ocean floor witnessed splitting apart for the first time — releasing lava

Scientists observed a mid-ocean ridge widen in real time, recording several metres of sea-floor motion and huge lava outflows.

Davide Castelvecchi

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'Humanizer' tool can erase signs of AI-written text — alarming scientists

Tool directs text-generation systems to remove constructions associated with artificial intelligence in research papers and grant proposals.

Edward Chen

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China boosts prestigious grants for young scientists — will it ease competition?

The National Natural Science Foundation of China says it will fund an extra 12,000 projects from this year.

Xiaoying You

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Deep-sea oddities and boatloads of other new species — June's best science images

The month's sharpest science shots — selected by *Nature*'s photo team.

Miryam Naddaf & Dhruv Shenai

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Could this mysterious disappearing organ hold the key to longevity?

Researchers are racing to regrow the thymus, an ephemeral immune organ, in the hope that it will slow ageing.

Edward Chen

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Beyond lithium: how sodium-ion batteries could change the world

Batteries based on sodium ions are entering mass production. Some researchers say they could ultimately be a cheaper, safer alternative to lithium in electric cars and other energy applications.

Davide Castelvecchi

Partner Content
TeleNICU expands access to neonatal care
For critically ill newborns, telehealth enables earlier treatment, coordinated care and fewer ambulance transfers

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Books & Arts

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Rights for rivers and ice cream for all: top reads for the summer holidays

Ten *Nature* contributors share their current book obsessions.

Moriba Jah, Seema Mundoli ... Patience Kiyuka

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The rise of evidence-based medicine and the 'mavericks' who championed it

An impeccably researched account describes how clinical trials have transformed health and social policy.

Peter John

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Opinion

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'Climate free fall': why the biggest risk to our economies is yet to be recognized

Increasing instability of the ocean, ice and atmosphere threatens farming, finance and society. We all need to wake up to that fact.

Anders Levermann

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AI models: one country's fears become everyone's constraint

Zaheer Allam

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Bird flu H5N1 in Australia: protect Australian species from bird flu virus

Euan G. Ritchie & Marissa L. Parrott

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The Enhanced Games and the normalization of doping: a public health concern

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Academia should recognize community partnerships as having societal impact

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The surprising career parallels between footballers and researchers

Sarah Blackford reflects on how early-career scientists and professional football players share similar motivations, pressures and challenges.

Sarah Blackford

Career Column
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How AI can crack open the 'hidden curriculum' for neurodivergent students

Marisa Chrysochoou and Keivan Stassun argue that AI tools could help students to navigate academia's unwritten rules.

Marisa Chrysochoou & Keivan Stassun

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Epigenetic editing makes its mark

Researchers are rewriting the chemical tags on DNA and chromatin to tune gene expression.

Amber Dance

Collections: Epigenome editing NatureTech

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Nuclear weapons lurking in space could be tracked down by satellites

A nuclear weapon orbiting Earth would emit neutrons through its interactions with the planet's space radiation environment, and these could be detected by satellites.

Angela Di Fulvio

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Seeking universal malaria-vaccine targets

Evolutionarily conserved targets have been identified that are shared across malaria-parasite species and their life stages and are recognized by the human immune system.

Denise L. Doolan & Carla Proietti

News & Views
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Tiny hubs of metabolic activity optimize nitrogen use in maize

Structures called plastoglobules organize the enzymes that turn nitrogen into compounds needed for plant growth, offering lessons for sustainable agriculture.

Yiting Shi & Shuhua Yang

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Tall and small trees are equally vulnerable to drought

The water-transport system of tropical giants called dipterocarps has evolved to defy the effects of gravity and resist water stress.

Holly Smith

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Sea-floor spreading captured by undersea observatory

A sea-floor monitoring experiment observed oceanic crust being created between two tectonic plates — the first *in situ* measurement of this phenomenon.

Ingo Grevemeyer & Lars H. Ruepke

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How the calendar came to be

The development of time-keeping, and a book that brings an immune cell back in vogue, in this week's pick from the *Nature* archive.

News & Views
24 Jun 2026

A global map of seagrass ecosystems

Combining satellite imagery and machine learning has created the first comprehensive map of seagrass meadows, in a boost for the conservation of these crucial ecosystems.

Carlos M. Duarte & Dorte Krause-Jensen

Articles

Article
08 Jul 2026

Verification of the Outer Space Treaty with cosmic protons

By observing the neutrons induced by spallation from protons in the inner Van Allen radiation belts using widely available sensor technologies, the detection of a thermonuclear weapon carried by a space satellite is possible.

Areg Danagoulian

Article
15 Jul 2026

Universal gates from braiding and fusing anyons on quantum hardware

A 54-qubit realization of non-Abelian S_3 topological order demonstrates that combining anyon braiding with fusion enables universal topological quantum computation.

Chiu Fan Bowen Lo, Anasuya Lyons ... Mohsin Iqbal

Article
Open Access
15 Jul 2026

People use fast and flat simulation to reason about new games

Large-scale behavioural studies show that people approach a new game systematically and adaptively rationally. A cognitive model called the 'Intuitive Gamer' offers insights into this process and may inform the design of more flexible AI systems.

Katherine M. Collins, Cedegao E. Zhang ... Joshua B. Tenenbaum

Article
08 Jul 2026

Observation of Floquet rotational super-radiance

A Floquet regime of rotational super-radiance has been observed in a spatiotemporally modulated ring network of resonators.

Hadiseh Nasari, Hady Moussa ... Andrea Alù

Article
01 Jul 2026

Isomeric multi-hydrogen-bonding enables blue perovskite LEDs

Hydrogen-bonding networks engineered with isomeric molecules enable stable, saturated blue perovskite LEDs with record external quantum efficiencies up to 22.0%, advancing high-performance full-colour display technologies.

Yuanzhi Wang, Chengxi Zhang ... Xuyong Yang

Article
08 Jul 2026

Single-phase gradient-solvation-electrolyte-stabilized Li metal batteries

A targeted ligand anti-solvent is incorporated into an anion-rich ether-based electrolyte and used to achieve lithium metal batteries with a long cycle life, high energy density and high capacity retention.

Wujie Yang, Jianfeng Cai ... Haoshen Zhou

Article
01 Jul 2026

Dendrite initiation and deflection in biaxially stressed solid electrolytes

By deflecting dendrite propagation, in-plane biaxial compression provided direct evidence that dendrite initiation occurs within the interior of garnet solid electrolytes during long-term cycling.

Teng Cui, Sunny Wang ... X. Wendy Gu

Article
01 Jul 2026

Moderate volcanic eruptions and extreme wildfires humidify the stratosphere

Observations and modelling show that volcanic eruptions and extreme wildfires have systematically increased stratospheric water vapour since 2005, revealing that these episodic aerosol perturbations are a previously overlooked driver of stratospheric water vapour variability.

Yifeng Peng, William Randel ... Pengfei Yu

Article
Open Access
15 Jul 2026

Rising dust pollution across Europe in a changing climate

A database of daily dust metals in Europe is established and a machine learning model shows that transported dust intrusion events over the past decade are linked to changes in atmospheric circulation, while an ice core shows that the increase in dust since pre-industrial times is governed by increasing aridity in North Africa..

Petros N. Vasilakos, Abhishek Upadhyay ... Kaspar R. Daellenbach

Article
Open Access
08 Jul 2026

Anatomy of a seafloor spreading event captured by in situ seismogeodesy

By combining hydroacoustic, direct-path ranging and bottom-pressure measurements, in situ observations of a rifting event at a segment of the Southeast Indian Ridge are reported, providing insight into seafloor spreading events on yearly timescales.

Jean-Yves Royer, Jean-Arthur Olive ... L. Testut

Article
24 Jun 2026

Global high-resolution mapping of seagrass to support conservation

Global high-resolution mapping shows widespread seagrass loss and degradation since 2019, with most meadows outside protected areas, highlighting urgent conservation and climate-policy needs.

Jianghai Peng, Jiwei Li ... Gregory P. Asner

Article
20 May 2026

Early fossil eukaryotes were benthic aerobes

Integrated palaeontological, sedimentological and geochemical analyses of ancient rocks from Australia show that early eukaryotes were largely restricted to oxygenated benthic habitats, probably possessed mitochondria by 1.75 billion years ago, and may have expanded into planktonic habitats much later, perhaps during the Neoproterozoic era.

Maxwell A. Lechte, Leigh Anne Riedman ... Margaret Whelan

Article
Open Access
27 May 2026

Distinct genetic architecture in the tails of complex traits

Genome-wide analyses in multiancestry and European cohorts show that in complex traits, rare alleles have disproportionately large effects at the tails of the phenotypic spectrum compared with common alleles.

T. Souaiaia, H. M. Wu ... P. F. O'Reilly

Article
13 May 2026

State media control influences large language models

Government-controlled media influences the output of large language models via their training data, and models queried in the languages of countries with lower media freedom show a stronger pro-regime valence than models queried in the languages of countries with higher media freedom.

Hannah Waight, Eddie Yang ... Joshua A. Tucker

Article
13 May 2026

Developmental gene expression patterns driving species-specific cortical features

Machine learning analysis of cell-type-specific gene expression in mouse and human neocortex and human cortical organoids reveals human-specific cell-type and temporal variations in expression controlled by JUNB.

Awais Javed, Lucía Gómez ... Esther Klingler

Article
Open Access
13 May 2026

Long-term editing of brain circuits using an engineered electrical synapse

Connexin proteins found in white perch fish were used to engineer synthetic electrical synapses, enabling precision circuit editing in mammals.

Elizabeth Ransey, Gwenaëlle E. Thomas ... Kafui Dzirasa

Article
Open Access
03 Jun 2026

Plastoglobules compartmentalize nitrogen assimilation in maize

Chloroplast plastoglobules act as nitrogen-assimilation hubs in maize, with key enzymes enhancing nitrogen-use efficiency and offering new strategies for developing high-yield, sustainable crops.

Di Chen, Lulu Gao ... Yongcai Huang

Article
Open Access
01 Jun 2026

Passive heart-rate monitoring during smartphone use in everyday life

A machine-learning model that uses smartphone cameras to measure heart rate in the background during normal daily phone use and subsequently estimate resting heart rate could make it easier for people to monitor heart health.

Shun Liao, Paolo Di Achille ... Ming-Zher Poh

Article
Open Access
03 Jun 2026

A natural depsipeptide antibiotic binds the E-site of the bacterial ribosome

Improved fractionation strategies can identify antibiotics with previously unseen scaffolds and mechanisms, exemplified by manikomycin from *Streptomyces rimosus*, which acts by targeting the E-site of the bacterial large ribosomal subunit.

Manpreet Kaur, Dmitrii Y. Travin ... Gerard D. Wright

Article
01 Jul 2026

Identification of cross-stage, cross-species malaria CD8$^+$ T cell antigens

An immunopeptidomics analysis identifies numerous *Plasmodium* T cell antigens that are conserved across malaria parasite species and expressed at several phases of the parasite's life cycle, with possible applications in the development of a malaria vaccine.

Camila R. R. Barbosa, Luna B. de Lacerda ... Caroline Junqueira

Article
10 Jun 2026

A first-in-class pulsatile FXR agonist for bile-acid-related liver diseases

Linafexor is a rapidly cleared FXR agonist designed to mimic natural bile acid signalling, achieving transient receptor activation with strong efficacy and reduced toxicity in preclinical and early clinical studies.

Yi Zang, Jingjing Shi ... H. Eric Xu

Article
Open Access
10 Jun 2026

A prognostic human brain network for diffuse midline glioma

Tumour network mapping of diffuse midline glioma (DMG) defines a conserved and prognostically important brain network in children with DMG, consistent with the hypothesis that DMGs exploit otherwise healthy brain circuits to promote tumour growth.

Jai Sidpra, Valentina Lind ... Darren R. Hargrave

Article
Open Access
10 Jun 2026

Molecular glue degraders of HuR suppress BRAF-mutant colorectal cancer

Molecular glue degraders of the RNA-binding protein HuR have therapeutic potential for BRAF-mutant cancers.

Xiaocui Lu, Xiuyun Wang ... Yong Cang

Article
Open Access
27 May 2026

αKG-mediated carnitine synthesis drives DNA repair via histone acetylation

The metabolite αKG promotes carnitine synthesis and increases site-specific histone acetylation, thereby promoting homologous recombination-mediated DNA repair, which has potential implications for chemoresistant cancers.

Apoorva Uboveja, Baixue Yang ... Katherine M. Aird

Article
Open Access
27 May 2026

Substrate selectivity of the human RNA m^{5}C methyltransferase NSUN2

NSUN2 is an enzyme that adds a small chemical mark to RNA molecules and uniquely selects its targets based on specific sequence patterns and structural features.

Jacob Canepa, Victor M. Ruiz-Arroyo ... Yunsun Nam

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24 Jun 2026

Author Correction: cBAF complex components and MYC cooperate early in CD8$^+$ T cell fate

Ao Guo, Hongling Huang ... Douglas R. Green

Publisher Correction
25 Jun 2026

Publisher Correction: In situ nanocrystal confinement for efficient blue perovskite LEDs

Shaocheng Liu, Mike Pols ... Huanping Zhou

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Technology Feature

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15 Jul 2026

Epigenome editing

Gene editing systems allow researchers to inactivate genes with surgical precision.

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