



Regional outlook

The cover captures a hartebeest (*Alcelaphus bussetopus*) in South Africa. Although maintaining biodiversity is core to sustainable development, policymakers frequently lack context-specific information on the state of biodiversity in a region to help guide their decisions. In this week's issue, [Isabelle Clements](#) and colleagues present an approach that could alleviate this situation. The researchers tapped into the place-based knowledge of 200 African biodiversity experts to perform a comprehensive survey of how intact sub-Saharan Africa's biodiversity is. They — [show all](#)

Cover image: Richard Du Toit/Nature Picture Library.

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This Week

Editorial

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World View

World View

30 Dec 2025

[Put pressure on publishers to follow best practice — external regulation is the answer](#)

Journals that work hard to meet the needs of both authors and readers should be acknowledged publicly — encouraging others to follow suit.

Jennifer A. Byrne

World View

18 Dec 2025

[US–Africa bilateral health deals won't help against diseases that ignore borders](#)

The COVID-19 pandemic, Ebola, mpox and AIDS all show the importance of strengthening Africa-wide surveillance and response systems that protect everyone.

Paul Adegoke

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News in Focus

News

18 Dec 2025

[Science in 2026: the events to watch for in the coming year](#)

The rise of AI scientists, missions to explore the moons of Earth and Mars and a massive ocean-floor drill are among the developments set to shape research in 2026.

Miriam Nasdraf

News

12 Dec 2025

[China leads research in 90% of crucial technologies — a dramatic shift this century](#)

The United States tops the remaining areas in an assessment of 74 technologies.

Xiaoying You

News

17 Dec 2025

[How common is Alzheimer's? Blood-test study holds surprises](#)

A survey of Alzheimer's disease prevalence in Norway confirms earlier estimates and might show how education level relates to risk.

Asher Mullard

News

11 Dec 2025

[Quantum computing 'KPIs' could distinguish true breakthroughs from spurious claims](#)

Researchers are devising ways to make new machines face off, without the hype.

Elizabeth Gibney

News

11 Dec 2025

[Giant 3D map shows almost every building in the world](#)

A database of 2.75 billion buildings could help scientists to monitor urban planning, climate change, disaster risks and even corruption.

Mohana Basu

Features

30 Dec 2025

[Science in 2050: the future breakthroughs that will shape our world — and beyond](#)

Nuclear fusion, people on Mars, artificial general intelligence. These are just some of the advances that could come by the mid-century mark.

David Adam

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Books & Arts

Book Review

31 Dec 2025

[Some of your cells are not genetically yours — what can they tell us about life and death?](#)

A tiny population of cells that are passed across the placenta between mother and baby challenge basic tenets of human immunology.

Sing Sing Way

Arts Review

30 Dec 2025

[Mummies give up their secrets — but not their mystery](#)

A challenging exhibition asks why we are so fascinated with the preserved bodies of our ancestors, and how we should treat them.

Laura Spinney

Book Review

05 Dec 2025

[These are a few of my favourite sounds: Books in brief](#)

Andrew Robinson reviews five of the best science picks.

Andrew Robinson

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Opinion

Comment

29 Dec 2025

[Why academics should do more consulting — and how to make it work](#)

Encouraging academics to act as advisers to outside organizations is the most effective way to serve society's needs.

Louise J. Slater, Weston B. Struwe ... Regent Lee

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Work

News

29 Dec 2025

[Nine books to help shape your science career in 2026](#)

If you've hatched a New Year plan to move abroad, improve your presentations or chase happiness as a 20-something researcher, you'll find advice aplenty in these books.

Aerie Gulland

Where I Work

29 Dec 2025

[Probing pollutants: how I use penguin faeces to measure contaminants in Antarctica](#)

Buse Tugba Zaman is developing a way to track tiny amounts of contaminants — and fulfilled a wish Earth's most remote continent.

Rachael Pells

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Research

News & Views

31 Dec 2025

[How to reduce the environmental impact of wearable health-care devices](#)

A model quantifies the environmental footprint of wearable health-care electronics and identifies strategies to reduce their environmental toll.

Callie Babbitt

News & Views

12 Dec 2025

[Revised estimates of CO₂ sources and sinks improve global carbon accounting](#)

Updated estimates of the worldwide sources and sinks of anthropogenic carbon dioxide provide a firmer basis for monitoring climate action.

Gaten A. McKinley

News & Views

03 Dec 2025

[Primate embryo model leaps across developmental boundaries](#)

A stem-cell-based monkey embryo model that self-organizes into a comprehensive body plan could lead the way to more sophisticated models of early human development.

Xiangyu Kong & Thorold W. Theunissen

News & Views

29 Oct 2025

[What changing energy flows reveal about Africa's ecosystems](#)

As the giants of the animal kingdom dwindle in numbers, a new way to assess ecosystem function sheds light on animals' changing ecological contributions.

Wendy Foden

News & Views

19 Nov 2025

[Circular DNA has a ticket to ride chromosomes](#)

How circular extrachromosomal DNA is inherited during cell division is a puzzle. Key sequences enabling this DNA to journey with chromosomes have been identified.

Noah A. Dusseau & Eunhee Yi

Collection: [Cancer at Nature Portfolio](#)

Articles

Article

[Open Access](#)

10 Nov 2025

[A fault-tolerant neutral-atom architecture for universal quantum computation](#)

Reconfigurable arrays of up to 448 neutral atoms are used to implement and combine the key elements of a universal, fault-tolerant quantum processing architecture and experimentally explore their underlying working mechanisms.

Dorot Bluvstein, Alexandra A. Geim ... Mikhail D. Lukin

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31 Dec 2025

[A chiral fermionic valve driven by quantum geometry](#)

Fermionic currents of opposing chirality can be spatially-filtered without the need for a magnetic field using the quantum geometry of topological bands in single-crystal PtGa.

Anvesh Dixit, Pranava K. Sivakumar ... Stuart S. P. Parkin

Article

11 Nov 2025

[High-performance tandem perovskite LEDs through interlayer photon recycling](#)

Stacking perovskite LEDs in tandem structures to combine the luminance of individual units yielded efficiencies greater than the summed efficiencies of equivalent single-unit devices, suggested to result from photon recycling between individual light-emitting elements.

You Ke, Wei Zhu ... Jianpu Wang

Article

10 Nov 2025

[Flexible perovskite/silicon tandem solar cells with 33.6% efficiency](#)

A certified flexible perovskite/crystalline silicon tandem solar cell has efficiencies rivaling its rigid counterparts and demonstrates exceptional mechanical robustness and stability.

Shibo Wang, Wenhao Li ... Xiaohong Zhang

Article

10 Nov 2025

[Flexible perovskite/silicon tandem solar cell with a dual-buffer layer](#)

A flexible perovskite/silicon tandem solar cell making use of a dual-buffer layer comprising a compact SnO₂ layer deposited first followed by a loose SnO₂ layer is described, showing efficiencies rivaling rigid counterparts and good durability.

Zheng Fang, Lei Ding ... Xiaohong Zhang

Article

31 Dec 2025

[Quantifying the global eco-footprint of wearable healthcare electronics](#)

An integrated systems engineering framework based on life-cycle inventories is used to quantify the global eco-footprint of wearable healthcare electronics and identify effective mitigation strategies.

Chuanwang Yang, Bingcheng Wang ... Bozhi Tian

Article

31 Dec 2025

[Random heteropolymers as enzyme mimics](#)

Modulation of random heteropolymers results in globular polymer clusters with catalytic activity mimicking proteins.

Hao Yu, Marco Eres ... Ting Xu

Article

05 Nov 2025

[Myriad aryne derivatives from carboxylic acids](#)

An aryne precursor is designed to overcome the lack of widespread adoption of arynes due to the undesirable means to generate them and harness their synthetic potential that rivals most functional groups.

Chris M. Seong, Sallu S. Kargbo ... Courtney C. Roberts

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12 Nov 2025

[Emerging climate impact on carbon sinks in a consolidated carbon budget](#)

A re-assessment of the global carbon budget shows the natural land sink is substantially smaller than previously estimated, indicating emerging impacts of climate change on the evolution of the carbon sinks.

Pierre Friedlingstein, Corinne Le Quéré ... Hanqin Tian

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29 Dec 2025

[Energy flows reveal declining ecosystem functions by animals across Africa](#)

An ecosystem energetics approach, quantifying trophic energy flows across species, offers a unified framework for linking animal biodiversity loss to changes in ecosystem function and Earth system processes.

Ty Lott, Irma Oliveras Menor ... Yadvinder Malhi

Article

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03 Dec 2025

[A place-based assessment of biodiversity intactness in sub-Saharan Africa](#)

Regional, place-based biodiversity information is used to comprehensively map and quantify biodiversity intactness of sub-Saharan Africa to inform national and global sustainability policies and planning.

Hayley S. Clements, Reineette Biggs ... Andrew L. Skowno

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22 Oct 2025

[Neuroendocrine control of calcium mobilization in the fruit fly](#)

The peptide hormone Capa is responsible for regulating extracellular fluid Ca²⁺ levels in the fruit fly *Drosophila melanogaster*.

Naoki Okamoto, Yosuke Mizuno ... Ryusuke Niwa

Article

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29 Oct 2025

[A pan-genome and pan-transcriptome of hexaploid oat](#)

A pan-genome of oat assembled from 33 wild and domesticated oat lines sheds light on the evolution and genetic diversity of this cereal crop and will aid genomics-assisted breeding to improve productivity and sustainability.

Raz Arni, Nadia Kamal ... Martin Mascher

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19 Nov 2025

[Shared and language-specific phonological processing in the human temporal lobe](#)

The human superior temporal gyrus processes acoustic-phonetic properties of speech regardless of whether the language is familiar to the listener, but only encodes word boundaries and language-specific sound sequences if the language is known.

Ilina Bhaya-Grossman, Matthew K. Leonard ... Edward F. Chang

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[Genetic elements promote retention of extrachromosomal DNA in cancer cells](#)

A combination of genome-wide functional screening, imaging and chromatin profiling identifies a new class of highly prevalent genomic elements that help retain extrachromosomal DNA copies in dividing cells and persist across generations.

Venkat Sankar, King L. Hung ... Howard Y. Chang

Article

03 Dec 2025

[Modelling late gastrulation in stem cell-derived monkey embryo models](#)

An optimized 3D culture system enabled a stem cell-derived monkey blastod to develop to day 25, recapitulating key events of primate late gastrula and demonstrating notable similarity to natural embryos.

Jie Li, Jie Li ... Zhen Liu

Article

29 Oct 2025

[Multiple LDLR family members act as entry receptors for yellow fever virus](#)

The low-density lipoprotein receptor family members LRPI, LRPI and VLDLR are entry receptors for yellow fever virus.

Zhenlu Chong, Sean Hui ... Michael S. Diamond

Article

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05 Nov 2025

[Atomically accurate de novo design of antibodies with RF diffusion](#)

The combination of computational design, laboratory-based screening and biophysical validation enables the de novo generation of variable heavy-chain antibody fragments and antibodies that precisely target chosen disease-related molecules.

Nathaniel R. Bennett, Joseph L. Watson ... David Baker

Article

26 Nov 2025

[Inhibitory PD-1 axis maintains high-avidity stem-like CD8⁺ T cells](#)

PD-1 blockade interferes with the selective expansion and maintenance of high-avidity TCR stem-like clones that have a critical role in effective checkpoint blockade therapy.

Jyh Liang Hor, Edward C. Schrom ... Ronald N. Germain

Article

06 Aug 2025

[NSD2 inhibitors rewire chromatin to treat lung and pancreatic cancers](#)

A highly potent and selective small-molecule catalytic inhibitor of the protein lysine methyltransferase NSD2 shows therapeutic efficacy in preclinical models of KRAS-driven pancreatic cancer and lung cancer.

Junho Jeong, Simone Hausmann ... Or Gozani

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26 Nov 2025

[NSD2 targeting reverses plasticity and drug resistance in prostate cancer](#)

Inhibition of the histone methyltransferase NSD2 and the androgen receptor in preclinical models can reverse lineage plasticity to suppress tumour growth and promote cell death in multiple subtypes of castration-resistant prostate cancer.

Jia J. Li, Alessandro Vasciaveo ... Michael M. Shen

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05 Nov 2025

[Secretome translation shaped by lysosomes and lunapark-marked ER junctions](#)

Live-cell imaging of mRNA encoding secretome proteins and translated nascent peptide markers show that secretome translation occurs at endoplasmic reticulum junctions near lysosomes, requires lunapark protein and is modulated by nutrient status.

Hegazi Choi, Ya-Cheng Liao ... Jennifer Lippincott-Schwartz

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03 Dec 2025

[Computational enzyme design by catalytic motif scaffolding](#)

A hybrid machine learning and atomistic modelling strategy enables one-shot design of efficient enzymes to catalyse diverse biological and non-biological chemical transformations.

Markus Braun, Adrian Tripp ... Gustav Oberdorfer

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03 Dec 2025

[Computational design of metallohydrolases](#)

A generative artificial intelligence-powered method enables de novo design of highly active enzymes based on information about the geometry of residues in the active site, without requiring protein backbone or sequence information.

Donghyo Kim, Seth M. Woodbury ... David Baker

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Amendments & Corrections

Author Correction

04 Dec 2025

[Author Correction: Activity of Caspase-8 determines plasticity between cell death pathways](#)

Kim Newton, Katherine E. Wickfield ... Vishva M. Dixit

Publisher Correction

08 Dec 2025

[Publisher Correction: CRISPR activation for SCN2A-related neurodevelopmental disorders](#)

Serena Tamura, Andrew D. Nelson ... Kevin J. Bender

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