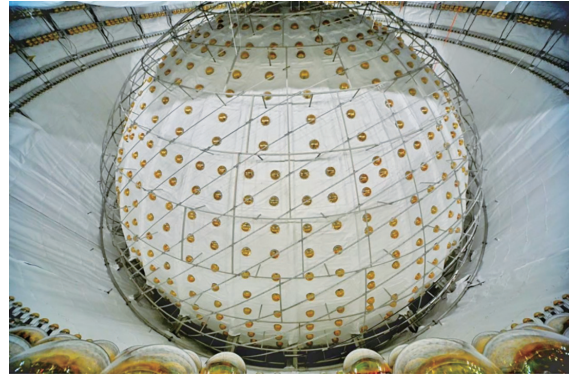


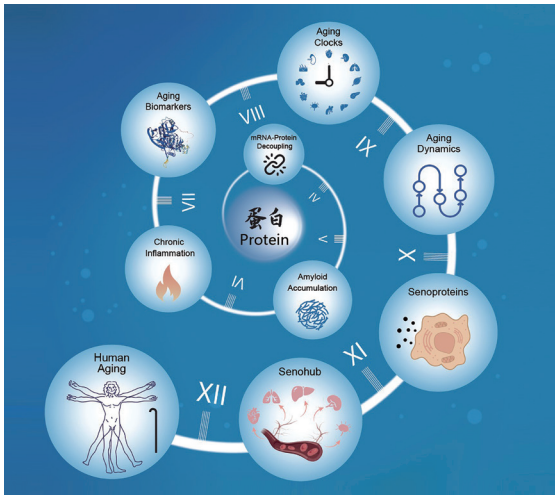
INFOCUS | JUNO Formally Comes into Operation

A new-generation large-scale neutrino experiment, the Jiangmen Underground Neutrino Observatory (JUNO) formally came into operation and started collecting data in late August. Located near to two nuclear plants in Guangdong Province of southern China, this colossal instrument can intercept the neutrinos produced by the nuclear plants and measure their spectra with record precision. It will also closely observe the oscillation of the neutrinos, aimed at determining the mass order of the three types of neutrinos. Read more on page 145.



(Image credit: IHEP)

HIGHLIGHTS | Cracking the Protein Code of Human Aging



Credit: CAS

Aging isn't just about wrinkles and gray hair—it's a molecular story unfolding inside our tissues. A recent study published in *Cell* on July 25, 2025, led by scientists from the Institute of Zoology, the China National Center for Bioinformation and Beijing Institute of Genomics, together with West China Hospital of Sichuan University, charts the most comprehensive proteomic atlas of human aging to date.

By analyzing more than 12,000 proteins across 13 tissues over a 50-year span, the team uncovered a universal loss of proteostasis—the cell's ability to keep proteins properly made and managed—leading to harmful build-ups and declining cellular efficiency. They also identified the aorta as a “senohub” that actively releases pro-aging proteins, sending senescence signals throughout the body.

For further insights, please refer to page 149.

HIGHLIGHTS | New Phylogenetic Positioning of Mysterious Crania: Not *Homo erectus*, but *Homo longi*

Two human crania from central China—seriously damaged and even crushed—have long puzzled paleoanthropologists. To what clade should this human species named Yunxian Man be assigned? How closely was it connected to our early ancestors? Restoration and reconstruction of the internal characters of the crania have been challenging, therefore previous research positioned it with *H. erectus*, based on its antique age of about one million years ago, leaving its position on the family tree of humanity under dispute.

Lately a team led by Prof. NI Xijun from the Institute of Vertebrate Paleontology and Paleoanthropology (IVPP), Chinese Academy of Sciences restored and reconstructed the crania with better accuracy, and made a high-resolution anatomic analysis.

Combining their phylogenetic analysis with Bayesian tip-dating and strict statistical analysis, the team determined that Yunxian Man should be placed in a phylogenetic clade much more advanced than *H. erectus* — the *H. longi*, revising the family tree of diverse fossil and extant human beings, including *H. sapiens*, or the nowadays humanity. Turn to page 153 for detail.



Credit: IVPP

ARTICLE | Mainstreaming Biodiversity Preservation across Government and Society

To meet the goals underscored in the Kunming–Montreal Global Biodiversity Framework, efforts of biodiversity reservation need to penetrate through different governmental and societal sectors. Yet, mainstreaming of biodiversity remains among the most persistent gaps in global environmental governance. Aiming at reconciling biodiversity outcomes with equitable human well-being, China's national park reforms offer a large-scale empirical test of mainstreaming in practice.

Turn to page 157 to see how policy researchers move beyond conservation enclaves to build integral policy ecologies, and more.



(Photo by ZHANG Dongxiao)

ARTICLE | Population Recovery of Yangtze Finless Porpoise



(Photo by GAO Baoyan)

The population of the Yangtze finless porpoise, a critically endangered freshwater dolphin, saw its first rise in 2022 after decades of continuous losses. Looking back, the establishment and management of nature reserves have played a key role in the population development; and further, scientists are looking at sustained growth in the population, via both *in-situ* and *ex-situ* preservation approaches.

Turn to page 165 for more.

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PERSPECTIVE | Greening the Edge of the Sahara

The African “Great Green Wall” is one of the world's most ambitious ecological projects, aiming to halt desertification, restore degraded lands, and improve livelihoods across the Sahel region. Yet, progress has been slow, hindered by funding gaps and technical challenges.

Researchers from the Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences, are bringing hard-won lessons from China's Three-North Shelterbelt Program to Africa. From straw checkerboards stabilizing dunes in Mauritania, to rotational grazing restoring Ethiopia's grasslands, to agroforestry reducing wind erosion in Nigeria, China-Africa cooperation is reshaping landscapes and livelihoods.

For further insights, please refer to page 173.



Credit: CAS

PERSPECTIVE | Get along with Elephants

Human-elephant conflict poses an urgent challenge in Yunnan, home to China's last 300 wild Asian elephants. To safeguard both villagers and elephants, the National Forest Ecosystem Research Station of China based in Xishuangbanna has developed the Elephant Early-warning System (EEWS)—a pioneering framework built on real-time monitoring and rapid response. Using AI, drones, and community networks, Xishuangbanna builds a model for safe human-wildlife coexistence.

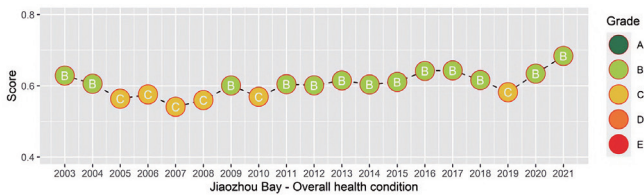
For further insights, please refer to page 178.



Credit: CAS

PERSPECTIVE | Turning Marine Science into Ocean Sustainability

Researchers at the Shangdong Jiaozhou Bay Marine Ecosystem National Observation and Research Station (Institute of Oceanology, Chinese Academy of Sciences) have turned four decades of long-term ecological monitoring and research into ocean sustainability.



Credit: CAS

Their integrated platform—combining *in-situ* observation networks, biodiversity studies, ecological disaster research, microplastic monitoring, and ecosystem health assessment—has not only advanced marine science but also guided policy, public awareness, and international co-operation. From predicting jellyfish blooms to designing green tide defenses, the Station's work demonstrates how local ecological insights can ripple outward into global solutions.

For further insights, please refer to page 187.