

CONTENTS

13 SEPTEMBER 2019 • VOLUME 365 • ISSUE 6458

SPECIAL SECTION

MOUNTAIN LIFE

INTRODUCTION

1092 High living

NEWS

1094 Fire on the mountain *By T. Appenzeller*

▶ VIDEO

1098 Hypoxia city *By M. Enserink*

▶ PODCAST

1104 Sunken summits *By W. Cornwall*

REVIEWS

1108 Humboldt's enigma: What causes global patterns of mountain biodiversity? *C. Rahbek et al.*

1114 Building mountain biodiversity: Geological and evolutionary processes *C. Rahbek et al.*

1119 Above- and belowground linkages shape responses of mountain vegetation to climate change *F. Hagedorn et al.*

1124 A global perspective on tropical montane rivers *A. C. Encalada et al.*

▶ EDITORIAL P. 1061; PERSPECTIVE P. 1074; POLICY FORUM P. 1084; BOOK REVIEW P. 1088

ON THE COVER



Runoff water rushes through the valley below El Altar, Ecuador's fifth-tallest volcano. The Ecuadorian Andes were the cradle of mountain science, pioneered by Alexander von Humboldt. Two centuries on, mountain research continues to build on Humboldt's foundations, with key relevance for human society in the era of rapid climate change. See page 1092. *Photo: Ryan Heffernan/Cavan Images*

NEWS

IN BRIEF

1062 News at a glance

IN DEPTH

1064 ACCUSATIONS FLY OVER THREAT TO RAREST GREAT APE

A new dam on Sumatra poses an existential risk to the Tapanuli orangutan, scientists say *By D. Rochmyaningsih*

1065 CRISPR REVEALS SOME CANCER DRUGS HIT UNEXPECTED TARGETS

Method that generated drug leads may be flawed *By J. Kaiser*

▶ *SCI. TRANSL. MED.* RESEARCH ARTICLE BY A. LIN ET AL. 10.1126/SCITRANSLMED.AAW8412

1066 ROBOT DETECTOR TO MAP COSMOS FOR CLUES TO DARK ENERGY'S FORCE

Upgraded Arizona telescope will survey 35 million galaxies *By D. Clery*

1067 OPEN-ACCESS MEGA JOURNALS LOSE MOMENTUM

Concerns include declining volume, slower publication, and softening citation measures *By J. Brainard*

1068 CHINESE TIES DON'T FAZE EUROPEAN FUNDERS

But in the United States and Australia, worries about China are affecting collaborations *By J. Mervis*

1069 INDIA SPOTS FALLEN MOON CRAFT, FAILS TO MAKE RADIO CONTACT

Glitches dogged nation's first attempt to land on the moon *By S. Kumar*

1070 QUANTUM DARWINISM SEEN IN DIAMOND TRAPS

Concept of survival of the fittest could explain how reality emerges from quantum haze *By A. Cho*

FEATURES

1071 WAR OF NERVES

An emerging relationship between the nervous system and tumor growth suggests new therapies *By K. Servick*

INSIGHTS

PERSPECTIVES

1074 HUMBOLDT FOR THE ANTHROPOCENE

Humboldt's fusion of science and humanism can address contemporary challenges *By S. T. Jackson*

► MOUNTAIN LIFE SECTION P. 1092; EDITORIAL P. 1061; POLICY FORUM P. 1084; BOOK REVIEW P. 1088

1076 AN EXPANDING CONTROVERSY

An independently calibrated measurement fortifies the debate around Hubble's constant *By T. Davis*

► RESEARCH ARTICLE P. 1134

1077 MITOCHONDRIA TEACH RIBOSOME ASSEMBLY

Ribosome assembly factors regulate structure formation to prevent misfolding *By K. Karbstein*

► RESEARCH ARTICLE P. 1144

1079 MAKING PERFECTLY CONTROLLED ARRAYS OF MOLECULES AT REST

Molecular collisions are probed with ultracold optical traps *By S. Kotochigova*

► REPORT P. 1156

1080 EMERGING USES OF DNA MECHANICAL DEVICES

DNA mechanotechnology has applications in biological research and materials science

By A. T. Blanchard and K. Salaita

1082 THE EVOLUTION OF ANTIBIOTIC RESISTANCE

Clinically relevant evolution studies are needed to help fight the spread of antibiotic resistance

By R. C. MacLean and A. San Millan

POLICY FORUM

1084 ACCELERATING THE MOVEMENT FOR MOUNTAIN PEOPLES AND POLICIES

Policies can have impacts extending far downstream *By Y. Makino et al.*

► MOUNTAIN LIFE SECTION P. 1092; EDITORIAL P. 1061; PERSPECTIVE P. 1074; BOOK REVIEW P. 1088

BOOKS ET AL.

1087 EVOLVING EMOTIONS

An eminent fear researcher argues for an about-face in how we conceive of emotions *By D. C. Van Essen*

1088 TALES OF A GLOBE-TROTTERING NATURALIST

A vivid biography of Alexander von Humboldt enlightens, but lacks greater historical context *By S. Rebok*

► MOUNTAIN LIFE SECTION P. 1092; EDITORIAL P. 1061; PERSPECTIVE P. 1074; POLICY FORUM P. 1084

LETTERS

1089 GERMANY'S WOLVES IN THE CROSSHAIRS

By C. Kiffner et al.

1089 PROTECT AFRICAN VULTURES FROM POISON

By A. Margalida et al.

1090 WASTE ON THE ROOF OF THE WORLD

By W. Peng

1090 TECHNICAL COMMENT ABSTRACTS

RESEARCH

IN BRIEF

1131 From *Science* and other journals

RESEARCH ARTICLES

1134 COSMOLOGY

A measurement of the Hubble constant from angular diameter distances to two gravitational lenses *I. Jee et al.*

► PERSPECTIVE P. 1076

1138 INORGANIC CHEMISTRY

Synthesis of a copper-supported triplet nitrene complex pertinent to copper-catalyzed amination *K. M. Carsch et al.*



1144 STRUCTURAL BIOLOGY

Mitoribosomal small subunit biogenesis in trypanosomes involves an extensive assembly machinery *M. Saurer et al.*

► PERSPECTIVE P. 1077

1149 STRUCTURAL BIOLOGY

Cryo-EM structures capture the transport cycle of the P4-ATPase flippase *M. Hiraizumi et al.*

REPORTS

1156 COLD MOLECULES

An optical tweezer array of ultracold molecules *L. Anderegg et al.*

► PERSPECTIVE P. 1079

1159 NANOMATERIALS

Shape regulation of high-index facet nanoparticles by dealloying *L. Huang et al.*

1163 TOPOLOGICAL OPTICS

Non-Hermitian topological light steering *H. Zhao et al.*

1167 ALLOSTERY

Time-resolved crystallography reveals allosteric communication aligned with molecular breathing *P. Mehrabi et al.*

1171 IMMUNOLOGY

N⁶-methyladenosine RNA modification-mediated cellular metabolism rewiring inhibits viral replication *Y. Liu et al.*

1177 NEONICOTINOID IMPACTS

A neonicotinoid insecticide reduces fueling and delays migration in songbirds *M. L. Eng et al.*

1180 NEUROSCIENCE

Behavioral and neural correlates of hide-and-seek in rats *A. S. Reinhold et al.*

► PODCAST

DEPARTMENTS

1061 EDITORIAL

A Humboldtian view of mountains *By Christian Körner and Eva Spehn*

► MOUNTAIN LIFE SECTION P. 1092; PERSPECTIVE P. 1074; POLICY FORUM P. 1084; BOOK REVIEW P. 1088

1214 WORKING LIFE

The parent trap *By Riley Galton*

New Products 1184
Science Careers 1185

SCIENCE (ISSN 0036-8075) is published weekly on Friday, except last week in December, by the American Association for the Advancement of Science, 1200 New York Avenue, NW, Washington, DC 20005. Periodicals mail postage (publication No. 48446D) paid at Washington, DC, and additional mailing offices. Copyright © 2019 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic individual membership, including subscription (12 months): \$165 (\$74 allocated to subscription). Domestic institutional subscription (51 issues): \$1971. Foreign postage extra: Mexico, Caribbean (surface mail) \$55; other countries (air assist delivery): \$98. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request. GST #R125488122. Publications Mail Agreement Number 1069624. Printed in the U.S.A. Change of address: Allow 4 weeks, giving old and new addresses and 8-digit account number. Postmaster: Send change of address to AAAS, P.O. Box 96178, Washington, DC 20090-6178. Single-copy sales: \$15 each plus shipping and handling; bulk rate on request. Authorization to reproduce material for internal or personal use under circumstances not falling within the fair use provisions of the Copyright Act can be obtained through the Copyright Clearance Center (CCC), www.copyright.com. The identification code for Science is 0036-8075. Science is indexed in the Reader's Guide to Periodical Literature and in several specialized indexes.

Science

365 (6458)

Science **365** (6458), 1061-1214.

ARTICLE TOOLS

<http://science.sciencemag.org/content/365/6458>

PERMISSIONS

<http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. The title *Science* is a registered trademark of AAAS.

Copyright © 2019 The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works.