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Title
Putting invertebrate lactation in context

Permalink
https://escholarship.org/uc/item/1xv2x69r

Journal
Science, 363(6427)

ISSN
0036-8075

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Publication Date
2019-02-08

DOI
10.1126/science.aaw2732

Peer reviewed

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Mato Grosso, Brazil, home to many of the country's protected indigenous lands, suffers from deforestation and other threats.

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Edited by **Jennifer Sills**

Brazil's indigenous lands under threat

Brazil's newly elected president and the National Congress plan to severely weaken environmental safeguards, including constitutionally enshrined legislation regulating the physical demarcation and protection of indigenous lands (ILs) (*1*). Such changes will aggravate the risk to over 300 ethnic groups and the invaluable biological diversity and ecosystem services provided by their territories (*2*).

ILs throughout Brazil are already undergoing severe encroachment from myriad external pressures. In the Amazonian region encompassing eastern Pará, northern Mato Grosso, Rondônia, and Acre, ILs persist as some of the last large intact forest areas (*3*), but they have been embattled by illegal loggers, squatters, gold miners, and large infrastructure projects and have been subjected to high deforestation rates compared with other protected areas (*4*). Outside Amazonia, more market-integrated native Amerindians have been confined to ever-smaller indigenous territories [more than 90% of the area designated as IL is located in Amazonia (*2*)], which are often leased to mechanized farmers and other rural enterprises (*5*).

Land clashes involving ILs are rife (*6*), condemning indigenous peoples to a perpetual cycle of extreme poverty, racial discrimination, and rural violence (*7*). The long-term persistence of indigenous peoples in Brazil as guardians of a wealth of ethnocultural diversity will therefore largely depend on maintaining the protection status of ILs. A series of core budget cuts to FUNAI (the Brazilian Indian agency) (*8*) in recent years has prevented it from fulfilling its constitutional role in managing existing territories, completing the physical demarcation of future ILs, and monitoring uncontacted groups (*9*).

In many parts of Amazonia, ILs remain the most extensive category of protected areas, retaining 25% of all terrestrial carbon stocks of one-half of the world's remaining tropical forests (*10*). Current plans to integrate indigenous peoples into the national economy will likely pave the way to an irreversible combination of widespread environmental degradation and economic dependence, cultural assimilation, and ethno-biased poverty (*11*).

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10.1126/science.aaw3864

A dynamic strategy for EU conservation

The European Union committed to halt biodiversity loss by 2020 through its Biodiversity Strategy (*1*) and other international agreements (*2*). However, as 2020 nears, conservation efforts are falling short of that objective (*3*). The current Biodiversity Strategy focuses on fixed lists of species, defined before the 1990s according to opaque criteria and barely amended since, leaving most threatened species without continental-scale legal coverage (*4*). The next strategy, which is currently under discussion within the European Commission, must be more ambitious and dynamic. It should cover all species and habitats identified as threatened by scientific assessments such

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as the IUCN Red List (*5*) and include a transparent process to regularly update lists as evidence changes.

All those species and habitats must then be managed. Europe is densely populated, and competing land uses limit how many new protected areas can be designated (*4*). Instead, the extant Natura 2000 network of protected areas (*6*) could be adopted as the initial protected area designation. Management plans of individual areas should be revised to include threatened species that are added as the lists are updated.

A truly dynamic list of species would be a step forward, but even that would be insufficient given that climate and land-use changes cause species distributions to shift (*7*). Moreover, a dynamic network in which protected areas constantly change in space to match species movements is unrealistic for socioeconomic reasons. For these reasons, the next strategy must look beyond protected areas.

It would be useful to integrate into the next strategy a platform such as the green infrastructure network, which the European Union is developing to maintain ecosystem services and connect protected areas (*8*). Recognizing that areas in between protected areas also have conservation value will help to achieve the aims of the Biodiversity Strategy (*9*). Conservation in the European Union needs a boost, but resources are limited, and the political climate is difficult. Planning post-2020 will need to be robust and, above all, transparent.

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10.1126/science.aaw3615

Putting invertebrate lactation in context

In their Report "Prolonged milk provisioning in a jumping spider" (30 November 2018, p. 1052), Z. Chen *et al.* describe a spider that provides milk until offspring reach sexual maturity and call for deeper evolutionary examination of extended maternal care and lactation-like systems across the animal kingdom. The addition of a milk-provisioning spider lineage is an important contribution. However, it requires the proper context not only in relation to mammalian lactation but also to nutrient provisioning in other arthropods.

Many invertebrates produce milk-like substances to nourish offspring. Examples include members of the superfamily Hippoboscoidea (containing tsetse flies), other fly lineages, cockroaches, and earwigs (*1*, *2*), in addition to other arachnids [e.g., pseudoscorpions (*3*)]. Chen *et al.* make brief mentions of some examples but dismiss them as distinct phenomena. Beyond lactation, the transfer of nutrient liquids (referred to as trophallaxis) and other forms of food provisioning have undergone extensive study across arthropod taxa, such as in earwigs, burying beetles, bees and wasps, and ants (*3*–*5*). Finally, hypotheses that predation and uncertain, complex, and harsh environments serve as drivers of parental care in invertebrates date back 44 years to E. O. Wilson's classic work (*4*, *6*).

The accumulating evidence for convergent evolution of mammalian lactation and invertebrate lineages with milk-like substances challenges mammalian-centric concepts of lactation. Contextualization and comparison of these systems provides a window into the evolution of maternal care and lactation across the animal kingdom. The discovery by Chen *et al.* adds a fascinating example, but we are much further down the road than they suggest.

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10.1126/science.aaw2732

TECHNICAL COMMENT ABSTRACTS

Comment on "Friction at the bed does not control fast glacier flow"

Brent M. Minchew, Colin R. Meyer, Samuel S. Pegler, Bradley P. Lipovsky, Alan W. Rempel, G. Hilmar Gudmundsson, Neal R. Iverson

Stearns and van der Veen (Reports, 20 July 2018, p. 273) conclude that fast glacier sliding is independent of basal drag (friction), even where drag balances most of the driving stress. This conclusion raises fundamental physical issues, the most striking of which is that sliding velocity would be independent of stresses imparted through the ice column, including gravitational driving stress.
Full text: dx.doi.org/10.1126/science.aau6055

Response to Comment on "Friction at the bed does not control fast glacier flow"

Leigh A. Stearns and Cornelis van der Veen

Minchew *et al.* take issue with our main conclusion that friction at the glacier bed does not control fast glacier flow. In this response, we further justify our methodology. We also point out that numerical studies referred to by Minchew *et al.* rely on inversions that are based on a sliding relation in which sliding speed is proportional to basal drag. Furthermore, observational studies referred to by Minchew *et al.* apply to glaciological settings that do not correspond to the terminal regions of Greenland outlet glaciers that we studied.
Full text: dx.doi.org/10.1126/science.aau8375

ERRATA

Erratum for the Report "PI3K pathway regulates ER-dependent transcription in breast cancer through the epigenetic regulator KMT2D" by E. Toska *et al.*, *Science* **363,** eaaw7574 (2019). Published online 25 January 2019; 10.1126/science.aaw7574

Erratum for the Report "Activation of surface lattice oxygen in single-atom Pt/CeO_2 for low-temperature CO oxidation" by L. Nie *et al.*, *Science* **363,** eaaw5872 (2019). Published online 25 January 2019; 10.1126/science.aaw5872

Erratum for the Editorial "Examining author gender data" by J. Berg, *Science* **363,** eaaw5839 (2019). Published online 11 January 2019; 10.1126/science.aaw5839

Downloaded from http://science.sciencemag.org/ on February 19, 2019

Published by AAAS

Science

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Science **363** (6427), 593.
DOI: 10.1126/science.aaw2732

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