

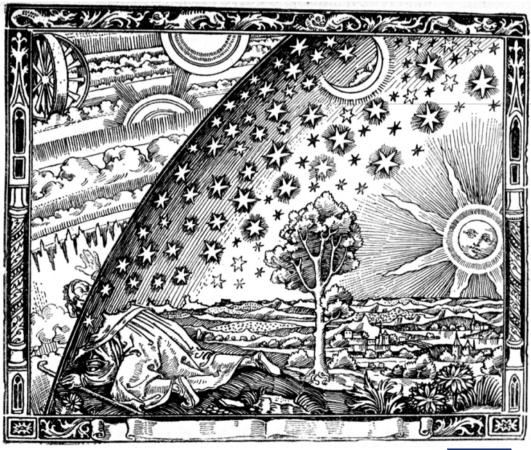
Ostriches or visionaries?

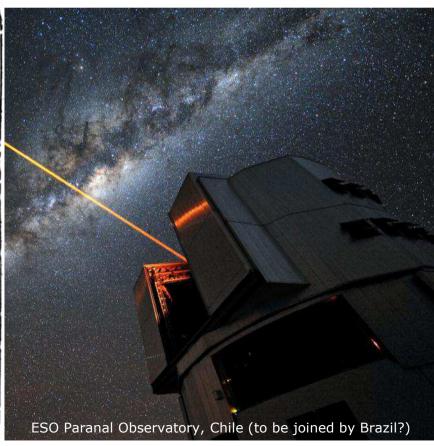
Professor Anne Glover CBE

Chief Scientific Adviser to the President of the European Commission



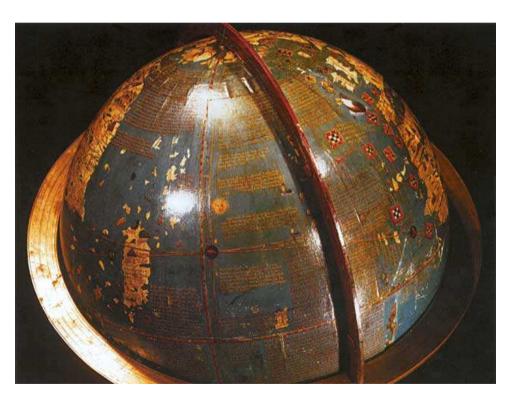
Curiosity is in our genes - science is what makes us *homo sapiens*

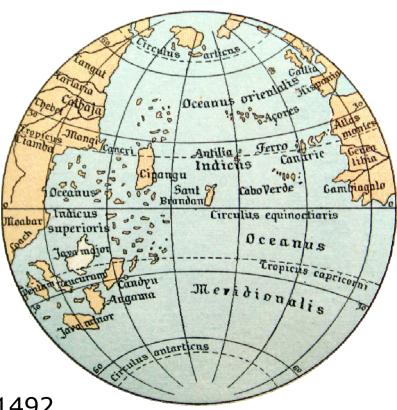






Sometimes discoveries come as a surprise

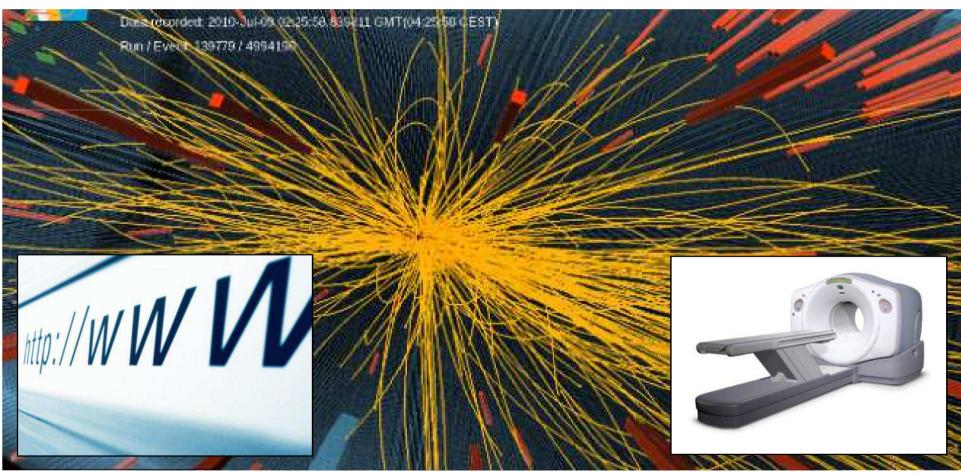




Martin Behaim's "Erdapfel", Nuremberg 1492



Science charts the unknown – and often delivers unexpected results





These results are increasingly being generated through global collaboration

Hyperdominance in the Amazonian Tree Flora

Hans ter Steege,^{1,2}* Nigel C. A. Pitman,^{3,4} Daniel Sabatier,⁵ Christopher Baraloto,⁶ Rafael P. Salomão,⁷ Juan Ernesto Guevara,⁸ Oliver L. Phillips,⁹ Carolina V. Castilho,¹⁰ William E. Magnusson, ¹¹ Jean-François Molino, ⁵ Abel Monteagudo, ¹² Percy Núñez Vargas, ¹³ Juan Carlos Montero, ¹⁴, ¹¹ Ted R. Feldpausch, ^{9,15} Eurídice N. Honorio Coronado, ¹⁶, ⁹ Tim J. Killeen, ¹⁷ Bonifacio Mostacedo, ¹⁸ Rodolfo Vasquez, ¹² Rafael L. Assis, ^{11,19} John Terborgh, ³ Florian Wittmann, ²⁰ Ana Andrade, ²¹ William F. Laurance, ²² Susan G. W. Laurance, ²² Beatriz S. Marimon,²³ Ben-Hur Marimon Jr.,²³ Ima Célia Guimarães Vieira,²⁴ Iêda Leão Amaral,²⁵ Roel Brienen, Hernán Castellanos, 26 Dairon Cárdenas López, 27 Joost F. Duivenvoorden, 28 Hugo F. Mogollón, 29 Francisca Dionízia de Almeida Matos, 11 Nállarett Dávila, 30 Roosevelt García-Villacorta, 31,32 Pablo Roberto Stevenson Diaz, 33 Flávia Costa, 11 Thaise Emilio, 11 Casilla 6204, Santa Cruz, Bolivia. 15 College of Life and En-Carolina Levis, 11 Juliana Schietti, 11 Priscila Souza, 11 Alfonso Alonso, 34 Francisco Dallmeier, 34 Alvaro Javier Duque Montoya, 35 Maria Teresa Fernandez Piedade, 11 Alejandro Arauio-Murakami. 36 Luzmila Arrovo. 36 Rogerio Gribel. 37 Paul V. A. Fine. 8 Carlos A. Peres. 38 Marisol Toledo. 39 Gerardo A. Aymard C., 40 Tim R. Baker, Carlos Cerón, 41 Julien Engel, 42 Terry W. Henkel, 43 Paul Maas, Gabriel René Moreno, Facultad de Ciencias Agrícolas, Santa Pascal Petronelli, 44 Juliana Stropp, 45 Charles Eugene Zartman, 11 Doug Daly, 46 David Neill, 47 Marcos Silveira, 48 Marcos Ríos Paredes, 49 Jerome Chave, 50 Diógenes de Andrade Lima Filho. 11 Peter Møller Jørgensen, 51 Alfredo Fuentes, 52,51 Jochen Schöngart, 20 Fernando Comeio Valverde, 53 Anthony Di Fiore, 54 Eliana M. Jimenez, 55 Maria Cristina Peñuela Mora, 55 Juan Fernando Phillips, 56 Gonzalo Rivas, 57 Tinde R. van Andel, Patricio von Hildebrand, 56 Bruce Hoffman, Eglée L. Zent, 58 Yadvinder Malhi, 59 Adriana Prieto, 60 Agustín Rudas, 60 Ademir R. Ruschell, 61 Natalino Silva, 62 Vincent Vos, 63 Stanford Zent, 58 Alexandre A. Oliveira, 64 Angela Cano Schutz, 33 Therany Gonzales, 65 Marcelo Trindade Nascimento, 66 Hirma Ramirez-Angulo, 67 Rodrigo Sierra, 68 Milton Tirado, 68 María Natalia Umaña Medina, 33 Geertje van der Heijden, 69,70 César I. A. Vela, 71 Emilio Vilanova Torre, 67 Corine Vriesendorp, 4 Ophelia Wang, 72 Kenneth R. Young, 73 Claudia Baider, 64,74 Henrik Balsley, 75 Cid Ferreira, 11 Italo Mesones, 8 Armando Torres-Lezama, 76 Ligia Estela Urrego Giraldo, 35 Roderick Zagt, 77 Miguel N. Alexiades, 78 Lionel Hernandez, 26 Isau Huamantupa-Chuquimaco, ⁷⁹ William Milliken, ⁸⁰ Walter Palacios Cuenca, ⁸¹ Daniela Pauletto, ⁸² Elvis Valderrama Sandoval, ^{83,84} Luis Valenzuela Gamarra, ¹² Kyle G. Dexter, ⁸⁵ Ken Feeley, ^{86,87} Gabriela Lopez-Gonzalez,9 Miles R. Silman88

¹Naturalis Biodiversity Center, Leiden, Netherlands, ²Ecology and Biodiversity Group, Utrecht University, Netherlands. Center for Tropical Conservation, Nicholas School of the Environment, Duke University, Durham, NC 27708, USA, 4The Field Museum, 1400 South Lake Shore Drive, Chicago, IL 60605-2496, USA. SInstitut de Recherche pour le Développement. UMR Architecture. Fonctionnement et Evolution des plantes, Montpellier, France, ⁶Institut National de la Recherche Agronomique, UMR Ecologie des Forêts de Guyane, French Guiana. Ministério da Ciência, Tecnologia e Inovação/Museu Paraense Emílio Goeldi-Cordenadoria de Botânica, Belém, Brazil. ⁸Department of Integrative Biology, University of California, Berkeley, CA 94720-3140, USA, School of Geography. University of Leeds, Leeds LS2 9T, UK. 10 Embrapa Roraima, Boa Vista, RR, Brazil. 11 Instituto Nacional de Pesquisas da Amazônia, Manaus, AM, Brazil. 12 Jardín Botánico de Missouri, Oxapampa, Peru. 13 Universidad Nacional de San Antonio Abad del Cusco, Cusco, Peru. 14BOLFOR (Bolivia Sustainable Forest Wanagement Project), Cuarto Anillo, esguina Av. 2 de Agosto. ¹⁶Instituto de Investigaciones de la Amazonía Peruana, Av. José A. Quiñones km. 2.5, Iquitos, Peru. 17World Wildlife Fund (WWF), Washington, DC 20037, USA. 18 Universidad Autónoma Cruz, Bolivia. 19 Department of Ecology and Natural Resource Wanagement, Norwegian University of Life Sciences (UMB), Aas, Norway. 20 Max Planck Institute for Chemistry, Biogeochemistry, Mainz, Germany, 21 Instituto Nacional de Pesquisas da Amazônia, Projeto Dinâmica Biológica de Fragmentos Florestais, Manaus, AM, Brazil. 22Centre for Tropical Environmental and Sustainability Science (TESS) and School of Mafine and Tropical Biology, James Cook University, Cairns, Queensland, Australia. 23 Universidade do Estado de Mato Grosso, Nova Xavantina, MT, Brazil. 24 Museu Paraense Emílio Goeldi, Belém, PA, Brazil. 25 Projeto TEAM (Tropical Ecology Assessment and Monitoring)-Manaus. Instituto Nacional de Pesquisas da Amazônia (INPA), Manaus, AM, Brazil. 25 Universidad Nacional Experimental de Guayana, Puerto Ordaz, Bolivar, Venezuela. ²⁷SINCHI (Instituto Amazónico de Investigaciones Gentíficas) Herbario Amazónico Colombiano, Calle 20 No. 5, 44 Bogotá, Colombia. 28 Institute of Biodiversity and Ecosystem Dynamics, University of Amsterdam, Amsterdam, Netherlands. 29 Endangered Species Coalition, 8530 Geren Road, Silver Spring, MD 20901, USA, 30 Universidade Estadual de Campinas, Campinas,

São Paulo, Brazil. 31 Institute of Molecular Plant Sciences, University of Edinburgh, Mayfield Rd, Edinburgh EH9 3]H, UK. 32 Royal Botanic Garden of Edinburgh, 20a Inverleith Row. Edinburgh EH3 5LR, UK, 33 Laboratorio de Ecología de Bosques Tropicales y Primatología, Universidad de los Andes, Bogotá DF, Colombia. 34Smithsonian Conservation Biology Institute, National Zoological Park MRC 0705, Washington, DC 20013. USA. 35 Universidad Nacional de Colombia, Departamento de Ciencias Forestales, sede Medellín, Colombia, 36 Museo de Historia Natural Noel Kempff Mercado, Santa Cruz, Bolivia. 37 Instituto de Pesquisas Jardim Botânico do Rio de Janeiro, Rio de Janeiro, RI, Brazil. 38 School of Environmental Sciences, University of East Anglia, Norwich, UK, 39 Instituto Boliviano de Investigación Forestal, Universidad Autónoma Gabriel René Moreno, Santa Cruz, Bolivia. 40 UNELLEZ (Universidad Nacional Experimental de los Llanos Occidentales Ezekiel Zamora)-Guanare Programa de Ciencias del Agro y el Mar Herbario Universitario (PORT), estado Portugesa, 3350 Venezuela. ⁴¹Herbario Alfredo Paredes (OAP), Universidad Central del Ecuador, Ap. Postal 17.01.2177, Quito, Ecuador. 42CNRS, UMR Ecologie des Forêts de Guyane, French Guiana, 43 Department of Biological Sciences, Humboldt State University, Arcata, CA 95521, USA. 44 La Recherche Agronomique pour le Développement (CIRAD), UMR Ecofog, Kourou, French Guiana. 45Land Resource and Management Unit, Joint Research Centre of the European Commission, Via Enrico Fermi 2749,TP 440, I-21027 Ispra (VA), Italy. 46New York Botanical Garden, Bronx, New York, NY 10458-5126, USA. 47 Universidad Estatal Amazónica, Puvo, Ecuador, 48 Museu Universitário, Universidade Federal do Acre, Rio Branco, AC Brazil. 49 Servicios de Biodiversidad EIRL, Iquitos, Peru. 50 CNRS and Université Paul Sabatier, UMR 5174 EDB, 31000 Toulouse, France. 51Missouri Botanical Garden, Post Office Box 299, St. Louis, MO 63166-0299, USA. ²Herbario Nacional de Bolivia, Casilla 10077 Correo Central, La Paz, Bolivia. 53 Andes to Amazon Biodiversity Program, Madre de Dios, Peru. 54Department of Anthropology, University of Texas at Austin, Austin, TX 78712, USA, SS Grupo de Ecología de Ecosistemas Terrestres Tropicales, Universidad Nacional de Colombia Sede Amazonia, Leticia, Amazonas, Colombia. ⁵⁶Fundación Puerto Rastrojo, Cra 10 No. 24-76 Oficina 1201, Bogotá, Colombia, 57Wildlife Ecology and Conservation and Quantitative Spatial Ecology, University of Florida, Gainesville, FL 32611, USA. 58 Laboratory of Human Ecology, Instituto Venezolano de Investigaciones Científicas, Ado 20632, Caracas 1020-A, Venezuela, 59 Environmental Change Institute, School of Ge-

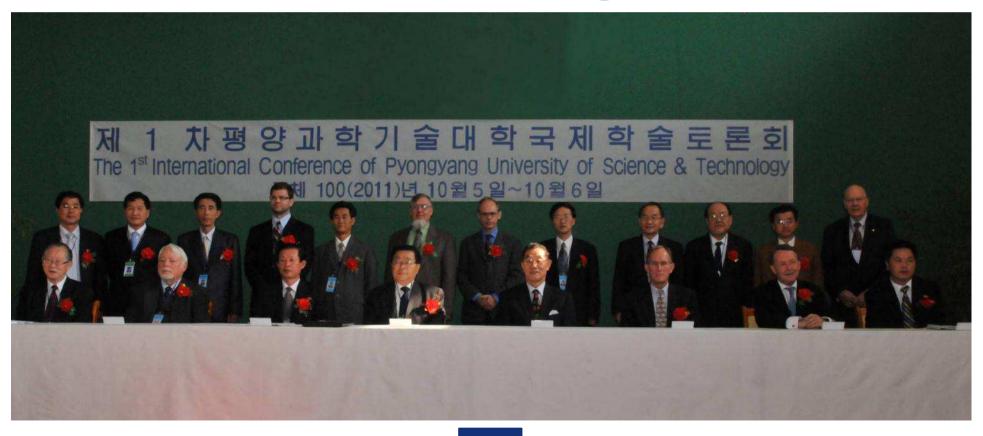
ography and the Environment, University of Oxford, Oxford, UK. 60 Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá, Colombia, 61 Embrana Amazônia Oriental. Belém, PA, Brazil, 62UFRA (Universidade Federal Rural da Amazônia). Belém. PA. Brazil. 63 Universidad Autónoma del Beni, Riberalta, Bolivia. 64 Universidade de São Paulo, Instituto de Biociências, Departamento Ecologia, Cidade Universitária. São Paulo, SP, Brazil. 65 Amazon Center for Environmental Education and Research Foundation, Iirón Cusco No. 370, Puerto Maldonado, Madre de Dios, Peru. 66Laboratório de Ciências Ambientais, Universidade Estadual do Norte Fluminense, Campos dos Govatacazes, RI 28013-620, Brazil, 67 INDEFOR (Research Institute for Forestry Development). Universidad de los Andes. Mérida, Venezuela. 68 Geoinformática y Sistemas, Cia. Ltda. (GeoIS), Quito, Ecuador. 69 Department of Biological Sciences, University of Wisconsin-Milwaukee, Milwaukee, WI 53202, USA, 70 Smithsonian Tropical Research Institute, Apartado Postal 0843-03092, Panama City, Panama. 71 Facultad de Ciencias Forestales y Medio Ambiente, Universidad Nacional de San Antonio Abad del Cusco, Jr. San Martín 451, Puerto Maldonado, Madre de Dios, Peru, 72 Northern Arizona University, Flagstaff, AZ 86011, USA. 73 Geography and the Environment, University of Texas, Austin, TX 78712, USA. 74The Mauritius Herbanium, Agricultural Services, Ministry of Agro-Industry and Food Security, Reduit, Mauritius, 75 University of Aarhus, Aarhus, Denmark, 76Universidad de los Andes, Mérida, Venezuela. 77Tropenbos International, Wageningen, Netherlands. 78School of Anthropology and Conservation, Marlowe Building, University of Kent, Canterbury, Kent CT2 7NR, UK, 79 Herbario CUZ, Universidad Nacional San Antonio Abad del Cusco, Cusco, Peru. 80 Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, UK. 81 Universidad Técnica del Norte/Herbario Nacional del Euador, Quito, Ecuador. 82 Servico Rorestal Brasileiro, Santarém, PA, Brazil, 83 Department of Biology, University of Missouri-Saint Louis, R 102 Research, St. Louis, MO 63121, USA. 84 Facultad de Biología, Universidad Nacional de la Amazonía Peruana, Pevas 5ta cdra, Iquitos, Peru. 85 School of Geosciences, University of Edinburgh, 201 Crew Building, King's Buildings, Edinburgh EH9 3JN, UK. 86Department of Biological Sciences, Florida International University, Miami FL 33199, USA. 87 Fairchild Tropical Botanic Garden, Coral Gables FL 33156, USA, 88 Biology Department and Center for Energy, Environment and Sustainability, Wake Forest University, Winston-Salem, NC 27106, USA.

*Corresponding author, E-mail: hans.tersteege@naturalis.nl

World Science Forum, Rio de Janeiro, 25 November 2013



Science can go where others cannot go - it is a currency which we should use much more often at global level





But how can we ensure that the knowledge generated reaches...



Politicians - Citizens - Industry?



1) By creating the conditions for business to engage with science



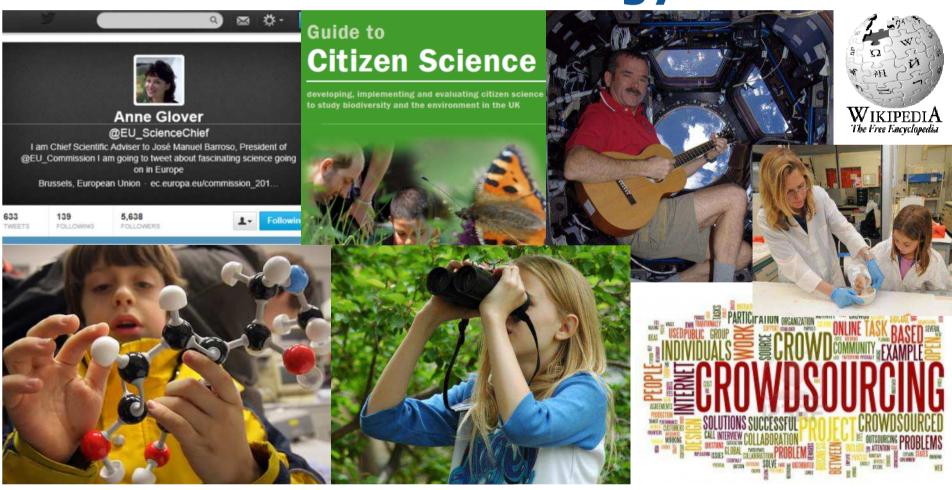


2) By engaging in political dialogue, increasingly also at global level!





3) By creating public ownership for science and technology



World Science Forum, Rio de Janeiro, 25 November 2013



We owe it to science





Thank you for your attention!



E-mail: <u>ec-csa@ec.europa.eu</u>
Twitter: EU_ScienceChief