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News

Changes to *Edentata*—now called *Xenarthra*!

As you certainly know, Edentata is a taxonomically incorrect name for anteaters, sloths and armadillos. We thought now is the right time to correct the name of our Journal and Newsletter to *Xenarthra*.

In addition, starting next year, we will publish articles in their final version, with their corresponding DOIs, as soon as they have been accepted for publication. By speeding up the publication process, we hope to benefit authors and stimulate submissions. Remember, this is your journal and your place to publish all your observations and findings related to the conservation of the Xenarthra!

Many thanks to Gabriela Hidalgo (Scholarly Communications Librarian) and Sarina van der Ploeg (Publications Officer) from IUCN's Knowledge Management and Library Team for their help during the transition process.

New education strategy—welcome to the team, Kenny!

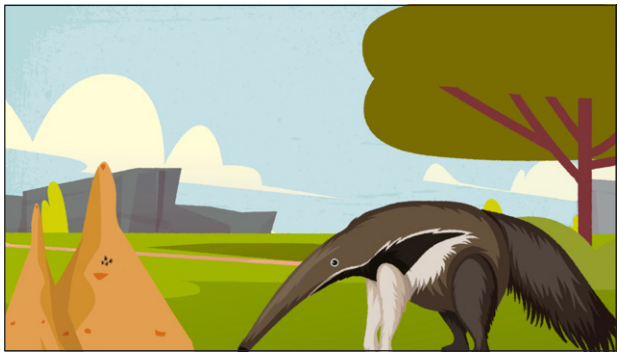
Kenny Coogan earned a BS in Animal Behavior and then worked in the education and animal ambassador departments at zoos and aquariums for twelve years. The animals he cared for ranged from giant Pacific octopus to bald eagles, but his favorites were the Xenarthrans including three-banded and nine-banded armadillos, Hoffman's sloths and vested tamanduas. He then went on to teach biology and agriculture to middle school students. During that time, he happened to say that he loved sloths and then received over 50 plush, plastic, framed, LEGO, and handmade sloth gifts from his students. He recently earned his Master's in Global Sustainability. Kenny is passionate about the planet and the life it supports. He has created educational content for many organizations including TED-Ed where his videos have been viewed over 10 million times.

Kenny was designated Education Coordinator of our Specialist Group in September to help develop a new education strategy. He has increased our presence on social media by scheduling timely posts (*e.g.*, International Sloth Day, World Anteater Day), as well as creating and distributing animated videos and monthly webinars on our new *YouTube* channel. Visit our sites to learn more:

***Instagram*:** https://www.instagram.com/iucn_anteater_sloth_armadillo
***Facebook*:** https://www.facebook.com/xenarthrans
***YouTube*:** https://www.youtube.com/@xenarthrans
Webinars: https://xenarthrans.org/education/webinars-2

Our webinars are perfect for conservationists, zoo professionals, mammalogists and people who love xenarthrans. We have been ecstatic by the number of people who are attending the webinars live. This shows that there is a need for us to be educating the public.

Another aspect of the new education strategy is to engage students in K-12 classes. Kenny is currently working on creating puzzles, mazes, and worksheets for all Xenarthra. They can be viewed on our website at https://xenarthrans.org/kids-corner. Please visit our website regularly to stay informed about new education activities and materials!



Save the dates:

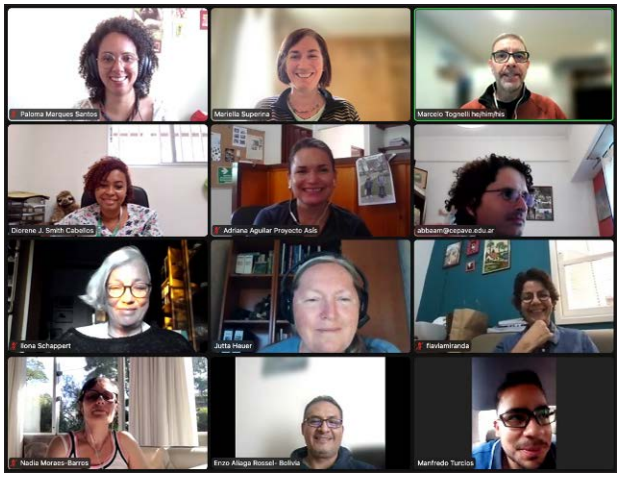
International Armadillo Day: August 13

International Sloth Day: 3rd Saturday of October (date changes year to year)

World Anteater Day: November 19

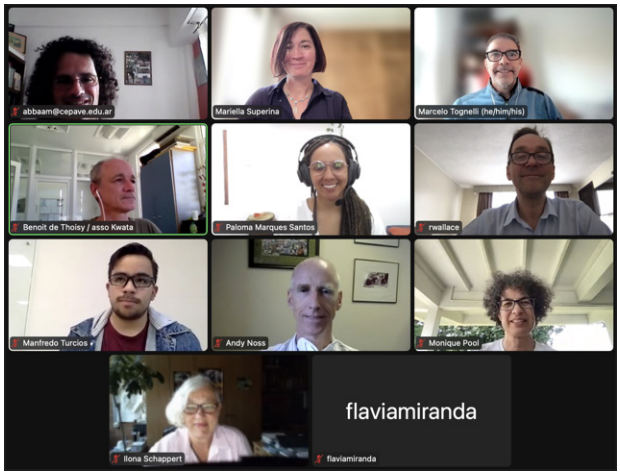
Sloth re-assessments for the IUCN Red List

On 22 April 2022, our Specialist Group held a virtual meeting to conclude the re-assessment process of all sloth species for the IUCN Red List of Threatened Species. The workshop was facilitated by Marcelo Tognelli and Mariella Superina. Fourteen experts actively participated in the discussion of the assessments, whereby we updated the information on sloth distribution, population status, and threats. The population status of all sloth species is now listed as decreasing, mainly due to habitat loss. Four species have been significantly affected by wildfires. No changes have been made to the categories and criteria. Four species are listed as Least Concern, *Bradypus torquatus* as Vulnerable, and *Bradypus pygmaeus* as Critically Endangered. The updated assessments will be included in the December 2022 Red List Update.



Anteater (re-)assessments for the IUCN Red List

In August 2022 our Specialist Group initiated the re-assessment of the two *Tamandua* species and *Myrmecophaga tridactyla*, as well as the assessment of the recently described *Cyclopes* species. As a first step, the available information on the ten anteater species was reviewed and updated by 16 experts. The assessments were then discussed during a virtual meeting held on 28 October 2022, which was attended by nine experts and facilitated by Marcelo Tognelli and Mariella Superina. The assessments will be submitted to the IUCN Red List Unit for their review and inclusion in the Red List at the beginning of 2023.



New conservation initiatives for giant anteaters in Guyana

The South Rupununi Conservation Society (SRCS) is a grassroots conservation organization largely made up of people from indigenous communities in the south of Guyana. The SRCS is proud to announce the creation of the Katoonarib Giant Anteater Community Conservation Zone. Katoonarib is a Wapishana village in the South Rupununi savannas, whose residents were concerned they were not observing as many giant anteaters as they had in the past. Since 2020, 59 camera traps have been used to monitor the land of Katoonarib and 3 other communities, and a strong population of mostly nocturnal and crepuscular giant anteaters has been recorded. More than 80 giant anteaters have been individually identified, based on pelage patterns. In response, Katoonarib Village has declared all of

their Titled Land and Customary Land, totaling approximately 52,500 ha, to be a Community Conservation Zone, where giant anteaters are monitored and protected by community members. The SRCS hopes this is the first of many upcoming interconnected community-owned and managed conservation areas for xenarthrans and other vulnerable wildlife and plants in the South Rupununi.

As part of the SRCS's Environmental Education program in 14 primary and secondary schools across the region, local children now design and set camera trap surveys, and collect and analyze data on their wildlife. They will be using these data, plus the SRCS's raw data from giant anteater and other surveys, to plan and implement further conservation initiatives in their communities. In addition, Giant Anteater Nature Fairs were held in two villages, and hundreds of community members, from the youngest to the oldest, celebrated their ongoing roles in anteater research and conservation by creating art, planting trees, playing games and "making friends" with their local anteaters. The SRCS is grateful for the support of their partners: the Sustainable Wildlife Management Programme, the GEF Small Grants Programme, the South Rupununi District Council and the communities of the Rupununi. Find out more at https://www.srcs-gy.com.

New sloth species described: *Bradypus crinitus*

Flávia R. Miranda and colleagues published an article in which they present a taxonomic revision of maned sloths, subgenus *Bradypus* (*Scaeopus*). This taxon is endemic to the Brazilian Atlantic Forest. Until recently, it was composed of a single species, the Vulnerable *Bradypus torquatus*. Their review is based on coalescent species delimitation analyses using two mitochondrial and three nuclear genes, morphological analyses, and field observations. Their integrative approach demonstrates that two species of maned sloth can be recognized: the northern maned sloth (*Bradypus torquatus* Illiger, 1811) occurring in the Brazilian states of Bahia and Sergipe, and the southern maned sloth (*Bradypus crinitus* Gray, 1850), occurring in Rio de Janeiro and Espirito Santo states. The two species are estimated to have diverged in the Early Pliocene and are allopatrically distributed. The IUCN SSC Anteater, Sloth and Armadillo Specialist Group's Taxonomy Subcommittee has carefully evaluated the proposed taxonomic change. Based on the evidence presented in this integrative taxonomic review, the subcommittee members have decided that the two distinct species of maned sloths should be recognized. The new conservation status of both maned sloths will be assessed as soon as possible.

Miranda, F.R., G.S.T. Garbino, F.A. Machado, F.A. Perini, F.R. Santos & D.M. Casali (2022). Taxonomic revision of maned sloths, subgenus *Bradypus* (*Scaeopus*), Pilosa, Bradypodidae, with revalidation of *Bradypus crinitus* Gray, 1850. Journal of Mammalogy: gyac059. https://doi.org/10.1093/jmammal/gyac059

Thesis abstracts

Riqueza, abundância e uso do habitat de Xenarthras na Amazônia brasileira

A Floresta Amazônica compreende uma das mais ricas biodiversidades do planeta, mas vem sofrendo com o constante risco de degradação. Entre seus habitantes está a magna Ordem dos Xenarthras, que inclui os tatus (Ordem Cingulata), preguiças e tamanduás (Ordem Pilosa). Essas espécies possuem morfologia e fisiologia peculiares e algumas delas correm risco de extinção. Apesar da importância do grupo, os estudos sobre estes animais em florestas contínuas ainda são escassos. O objetivo deste trabalho foi estudar a riqueza de espécies de Xenarthras, os padrões de atividade e as preferências de habitat através de anos de levantamentos de dados com câmeras traps, e assim obter informações sobre a ecologia básica dessas espécies na Floresta Amazônica brasileira. Cinco áreas protegidas inseridas no Bioma Amazônico foram contempladas pelo Protocolo TEAM de monitoramento de fauna e resultaram nos dados utilizados neste trabalho. Os registros utilizados foram obtidos entre os anos de 2015 a 2019, totalizando 4.044 registros independentes de Xenarthras, obtidos a partir de um esforço amostral de 57.805 dias/câmeras traps. Através destes dados, foi possível descrever a riqueza de espécies de Xenarthras, a taxa de detecção, a proporção de registros e o padrão de atividade das espécies identificadas. Registros com intervalos de uma hora foram considerados eventos independentes. Os padrões de atividade foram obtidos através do pacote *Overlap* em ambiente R. Espécies ameaçadas de extinção estiveram presentes em todos os locais pesquisados e um total de sete espécies de Xenarthras foram identificadas. Para as espécies *Priodontes maximus*, *Myrmecophaga tridactyla* e *Tamandua tetradactyla*, também foram realizados estudos sobre o uso do habitat, através de modelos de ocupação do tipo *single season* (estação única), utilizando os dados do ano de 2018. O pacote *Unmarked* foi utilizado como base para a execução dos modelos e todas as análises foram realizados no software *RStudio*. Foram observadas diferenças nas taxas de detecção entre as áreas. Os padrões de atividade encontrados foram semelhantes aos encontrados para outros Biomas, com exceção do *M. tridactyla*, que apresentou atividade diurna bem marcada. Poucas das variáveis testadas demonstraram influenciar no uso do habitat pelas espécies-alvo dos modelos, sendo que o *P. maximus* demonstrou maior probabilidade de ocupação em áreas com maior altura de dossel, o *M. tridactyla* apresentou correlação com menores níveis de altitude e para o *T. tetradactyla* não foi identificada uma variável significativa na escolha do habitat. Para todas estas espécies houve uma grande diferença entre a probabilidade de detecção e ocupação, demonstrando o fator da detecção imperfeita dos modelos de ocupação, especialmente para o *T. tetradactyla*. Sabe-se que algumas espécies de Xenarthras podem alterar seu padrão de atividade e escolha de habitats diante da temperatura e das ameaças. Conhecer essa característica ecológica pode contribuir para um melhor entendimento de como esses animais ocupam a Floresta e podem responder a diferentes alterações na paisagem na região. Neste estudo, um número relevante de registros de Xenarthras foi analisado, fornecendo conhecimentos básicos sobre a ecologia dessas espécies no Bioma Amazônia.

Prestes Margarido, M. 2022. Riqueza, abundância e uso do habitat de Xenarthras na Amazônia brasileira. Master's thesis, Programa de pós-graduação em ciência animal, Universidade Estadual de Santa Cruz, Ilhéus, Bahia. Advisor: Flávia R. Miranda. E-mail: mairaprestesmargarido@gmail.com

Saúde e prevalência de parasitos em preguiça-de-coleira (*Bradypus torquatus*) Illiger, 1811

A preguiça-de-coleira (*Bradypus torquatus*, Bradypodidae, Pilosa, Xenarthra) é uma espécie endêmica da Mata Atlântica, reconhecida atualmente como vulnerável (VU). Estudos envolvendo a espécie são escassos e dependendo da temática, inexistentes. O *Amblyomma varium* é um carrapato encontrado quase que exclusivamente em mamíferos da superordem Xenarthra, e apesar de existirem estudos significativos envolvendo a sua descrição, ainda há discordância entre autores sobre algumas características. Além disso, não há estudos publicados relatando doenças transmitidas por *A. varium* envolvendo a espécie *Bradypus torquatus*. A análise bioquímica e hematológica é considerada o método de avaliação de saúde mais comum em animais silvestres, sendo essencial para avaliar a condição de indivíduos e populações. Apesar disto, infelizmente ainda não há nenhum estudo publicado envolvendo valores bioquímicos em *B. torquatus* e há apenas um estudo sobre valores hematológicos com um número baixo de indivíduos de preguiça-de-coleira. Ademais, o contato de indivíduos com humanos e animais domésticos aumenta a possibilidade de disseminação de agentes parasitários para novos ambientes e espécies silvestres, tornando imprescindível o estudo da saúde e circulação de agentes em populações de animais silvestres, principalmente em espécies ameaçadas de extinção. Com isso, o objetivo deste estudo é relatar as novas descobertas do carrapato *Amblyomma varium* Koch, 1844 encontrado parasitando preguiças-de-coleira de vida livre da Mata Atlântica do nordeste e sudeste do Brasil (Capítulo 1), apresentar valores hematológicos de preguiças-de-coleira de vida livre e fornecer os primeiros valores bioquímicos publicados para

B. torquatus da Mata Atlântica (Capítulo 2) e identificar pela primeira vez, hemoparasitos (*Hepatozoon* spp., *Anaplasma* spp., *Babesia* spp., *Ehrlichia* spp., *Mycoplasma* spp. e *Rickettsia* spp.) em amostras de sangue de preguiças-de-coleira da Reserva Ecológica da Sapiranga, nordeste do Brasil. No Capítulo 1, observa-se que mais de 50% dos indivíduos capturados estavam parasitados por adultos ou ninfas de *A. varium*, e apenas um espécime de *B. torquatus* apresentou parasitismo simultâneo pelos dois estágios de *A. varium*. Ainda neste capítulo, a variação no comprimento dos espinhos na coxa IV em machos de *A. varium* é confirmada e esta característica é relatada pela primeira vez no nordeste do Brasil. No Capítulo 2, amostras de sangue de 30 indivíduos foram submetidas a análises hematológicas e 8 a análises bioquímicas. Os resultados somam aos dados divulgados anteriormente na literatura, permite comparações adicionais entre os resultados, auxilia na avaliação da saúde de preguiças-de-coleira de vida livre e fornece os primeiros valores bioquímicos publicados para *B. torquatus* da Mata Atlântica. No Capítulo 3, 29 amostras de preguiças-de-coleira de vida livre foram testadas para *Hepatozoon* spp., *Anaplasma* spp., *Babesia* spp., *Ehrlichia* spp., *Mycoplasma* spp. e *Rickettsia* spp. por reação em cadeia da polimerase (PCR). Do total de amostras, 11 foram positivas para *Hepatozoon* spp. Não houve positividade para *Anaplasma* spp., *Babesia* spp., *Ehrlichia* spp., *Mycoplasma* spp. e *Rickettsia* spp. neste estudo. As informações aqui compartilhadas contribuem como dados importantes para o fortalecimento dos estudos voltados à Medicina da Conservação dos Xenarthras envolvendo a preguiça-de-coleira.

Simas Bernardes, F.C. 2022. Saúde e prevalência de parasitos em preguiça-de-coleira (*Bradypus torquatus*) Illiger, 1811. Master's thesis, Programa de pós-graduação em ciência animal, Universidade Estadual de Santa Cruz, Ilhéus, Bahia. Advisor: Flávia R. Miranda. E-mail: bernardes.fernandasimas@gmail.com

In memoriam
Gustavo Alberto Bouchardet da Fonseca (1956–2022)

I was in Sinop in the northern part of the state of Mato Grosso on August 31, 2022, attending the 19th Congress of the Brazilian Primatological Society. It was a warm sunny morning, and we were having a really pleasant productive event. However, everything suddenly changed when I got an email message from my good friend Claude Gascon from the Global Environment Facility. He said it was urgent. I asked what it was, and he replied that he had to tell me in person and not via email. I quickly called, and had one of the biggest shocks of my life—Gustavo Fonseca, my great friend of nearly 40 years, had suddenly passed away in his sleep earlier that

morning. I couldn't believe it. How was that possible? He had just been at meetings the previous several days, and he seemed to be in vibrant good health and very actively engaged in his work as the Director of Programs at the Global Environment Facility where he had been a key figure for the past 15 years. But sadly, it was true. Gustavo, only 65, had left us. I am still trying to come to grips with this tragedy. It is almost incomprehensible.

For those of you who might not have known him as well as I did, Gustavo was a force of nature, a real leader, a world class biologist, and an astute politician. I first met him in 1983 at Fazenda Montes Claros, the famous research site for the northern muriqui monkey (*Brachyteles hypoxanthus*) in the Brazilian state of Minas Gerais. Like me, Gustavo was a primatologist who had started out working on the black-pencilled marmoset (*Callithrix penicillata*) in the Brasilia area and was carrying out a short-term project on the muriqui. We immediately hit it off and began a friendship that lasted for the next four decades.

Gustavo had a very long list of major accomplishments. Born in the state of Minas Gerais, he grew up in Brasilia at a time when Brazil's new capital was being built. He studied Biology at the University of Brasilia, graduating in 1978, and then went to the University of Florida, Gainesville to do his Masters and Ph.D. from 1982 and 1988. He specialized on the primates and small mammals of

Brazil's Atlantic Forest, one of the world's highest priority biodiversity hotspots, and was instrumental in putting the Atlantic Forest on the international conservation map. After finishing his doctorate, he moved to the Federal University of Minas Gerais in Belo Horizonte, becoming a professor at the Department of Zoology in the Institute of Biological Sciences, working closely with another great pioneer, Prof. Celio Valle. Very quickly, he created a Graduate Program there in Ecology, Management and Wildlife, in part modelled on the program that he had been in at the University of Florida. This was the first course of its kind in Brazil. In part because of Gustavo, we based our WWF-funded work on the primates of the Atlantic Forest at the university in Belo Horizonte and worked closely with students there to carry out our program over the decade of the 1980s. While in Minas Gerais, he also was instrumental in 1988 in the founding of the Fundação Biodiversitas, long one of the leading conservation NGOs in the country.

When I moved from WWF-US to become president of Conservation International in 1989, Gustavo was a strong ally in helping me to create a Brazil Program for that organization, and a couple of years later I invited him to become the Executive Director of our program there. Under his leadership, it grew rapidly to become our largest field program, and we later promoted him to lead our entire South America program, overseeing activities throughout the continent.

Gustavo shared with me a love for the work of IUCN. During the 1990s and the early part of the 2000s, we served together on the Steering Committee of the Species Survival Commission, and he was a member of the World Commission on Protected Areas as well. He also was the Chair of the SSC Anteater, Sloth and Armadillo Specialist Group, which was originally called the Edentate Specialist Group, from 1991 to 2008. Among others, he initiated the Specialist Group's newsletter *Edentata* in 1994.

In 1999, Conservation International was awarded a very generous gift from Gordon Moore, co-founder of Intel and a CI board member, to create a new Center for Applied Biodiversity Science (CABS). CI's CEO Peter Seligmann and I had a quick discussion about who might best lead this center, and we almost immediately settled on Gustavo as the obvious choice. Soon thereafter, he moved to Washington, DC and within the next few years turned CABS into one of the world's leading organizations for conservation science, with a publication record comparable to or exceeding that of the best university programs in the world. As if that weren't enough, we also put him in charge of all conservation field programs and science at CI, a real tribute to his intellect and his capacity.

In 2007, a great opportunity presented itself for Gustavo to move to the Global Environment Facility, one of the products of the great Rio 92 Earth Summit (which Gustavo himself had participated in) and the biggest funding mechanism in the world for biodiversity conservation. There he took on the role of Director of Programs, reporting to then CEO Monique Barbut. At the GEF, Gustavo transformed the organization from a siloed funder of environmental projects focused separately on climate change, land degradation, and biodiversity, to a funder of integrated projects and programs aimed at arresting the drivers of environmental degradation, and, in so doing, producing multiple benefits in protecting species and habitats, mitigating climate change by securing carbon in tropical forests, and creating landscapes where land and soil quality could sustain rich biodiversity as well as other productive uses. He occupied this key position under three GEF CEOs, most recently under our great friend Carlos Manuel Rodríguez from Costa Rica, and it was this position that Gustavo held at his untimely death on August 31.

Gustavo had hundreds of publications to his credit and a number of books, several of which we coauthored, and he received a number of prizes, among them the Rodolfo von Ihering Award from the Brazilian Mammalogical Society (1988), the Order of the Golden Ark from the Dutch government (2001), the University of Florida's Distinguished Alumnus Award, and the Florida Museum of Natural History's Oliver Austin Award for outstanding research in the natural sciences.

I had the great privilege of working closely with Gustavo from the early 1980s through the 1990s and 2000s and made many international trips with him. These included visits to Botswana, Samoa, Indonesia, the Andean countries, and of course many visits to Brazil. He was always an amazing friend who pushed everyone around him to expand their thinking on a wide variety of issues and to not just accept established ideas. I learned a great deal from him, and always enjoyed his company. In the many different positions he held, he was able to save species, create many new protected areas, influence public policies, and move large amounts of funding to places that needed it most. What is more, he helped to train many students while in his university positions, and they continue to carry his legacy forward today.

Gustavo was truly a unique individual, a great leader, and a loyal friend. I will miss him, as will many other people whose lives he influenced in so many ways. Gustavo is survived by his mother Marisa, his sister Anna, his wife Glaucia, his three sons, Bruno, Lucas and Caio, and a grandson, Bernardo.

Russell A. Mittermeier
Chief Conservation Officer, Re:wild
Chair, IUCN SSC Primate Specialist Group
September 14, 2022