

RHINO RESOURCE CENTER

www.rhinoresourcecenter.com

NEWSLETTER #64 SEPTEMBER 2021

Dear colleagues and friends,

This is the 64th issue of the quarterly e-newsletter of the Rhino Resource Center. Edited by Dr Kees Rookmaaker.

The total number of references in the collection of the RRC now stands at **25,555**. This is an increase of 445 items in the last quarter. Over 25,000 references are **available** as PDF on the RRC website.



**SUPPORT the RRC
CLICK ON RHINO**

With apologies for the delay in distributing this newsletter.

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The Rhino Resource Center is a Charity (Registered KvK Utrecht 30185802)

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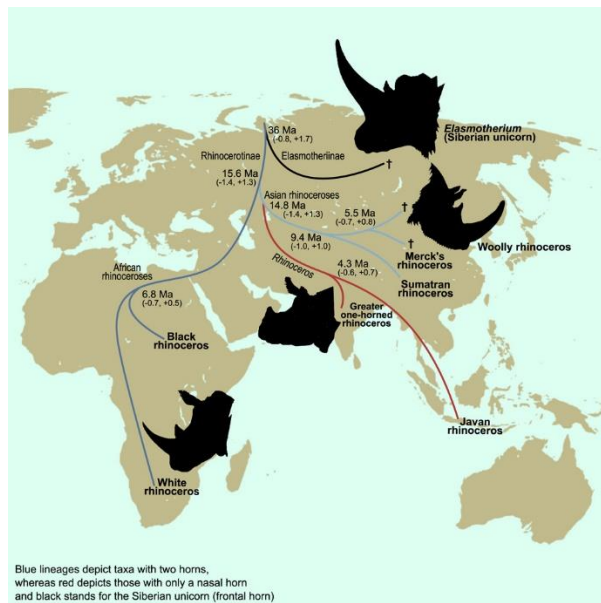
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GENOMES UNRAVEL THE EVOLUTIONARY HISTORY OF THE RHINOCEROS FAMILY

Shanlin Liu and a team of 38 authors have explored the evolutionary history of the rhinoceros. This paper is published, fully open access, by the journal CELL, which has an impact factor of 41.582. It has been an honour for me to have joined such an eminent set of scientists published in a distinguished journal.

[https://www.cell.com/cell/fulltext/S0092-8674\(21\)00891-6](https://www.cell.com/cell/fulltext/S0092-8674(21)00891-6)

Liu, S.; Dalen, L.; Gilbert, T.; Rookmaaker, L.C.; and 35 others, 2021. Ancient and modern genomes unravel the evolutionary history of the rhinoceros family. Cell 184: 4874–4885 - DOI:<https://doi.org/10.1016/j.cell.2021.07.032>



Highlights

Analysis of genomes from all five extant and three extinct rhinoceros species.

Strong phylogenomic support for the geographical hypothesis of rhinoceros evolution.

Basal split between African and Eurasian lineages in the early Miocene (~16 mya).

While all rhinoceroses have low genome diversity, it is lowest in modern-day ones.

Summary. Only five species of the once-diverse Rhinocerotidae remain, making the reconstruction of their evolutionary history a challenge to biologists since Darwin. We sequenced genomes from five rhinoceros species (three extinct and two living), which we compared to existing data from the remaining three living species and a range of outgroups. We identify an early divergence between extant African and Eurasian lineages, resolving a key debate regarding the phylogeny of extant rhinoceroses. This early Miocene (~16 million years ago [mya]) split post-dates the land bridge formation between the Afro-Arabian and Eurasian landmasses. Our analyses also show that while rhinoceros genomes in general exhibit low levels of genome-wide diversity, heterozygosity is lowest and inbreeding is highest in the modern species. These results suggest that while low genetic diversity is a long-term feature of the family, it has been particularly exacerbated recently, likely reflecting recent anthropogenic-driven population declines.



ASSAM – 22 SEPTEMBER 2021

PUBLIC DESTRUCTION OF LARGEST STOCKPILE OF HORNS

OF THE GREATER ONE-HORNED RHINO

On the day, 2479 rhino horns accumulated in the stores of the Assam Treasury will be publicly destroyed by fire. Previous to this, each horn has been measured, weighed and recorded. Most of these horns were retrieved from rhinos which died a natural death, and others from carcasses left by poachers. A full report is expected soon.



One of the longest rhino horns. Length is recorded as 55 cm, weight as shown 1.749 kg.

ABSTRACT OF RHINO HORN RECONCILIATION

1. Rhino horns reconciled	: 2623
2. Rhino horns marked for destruction	: 2479
3. Rhino horns marked for preservation	: 94
4. Horns implicated in Court Cases	: 29
a. Genuine	: 19
b. Fake	: 10
5. Fake Horns reconciled	: 21
6. African Horns reconciled	: 15
7. Longest horn recorded	: 57 cm anterior curvature; 42.5 cm standing height
8. Heaviest horn recorded	: 3.05 kgs.
9. Average standing height recorded	: 13.77 cms
10. Average weight of rhino horns	: 560 gms
11. Average basal circumference	: 43.47 cms
12. Weight of rhino horns for destruction	: 1305.25 kgs
13. Weight of rhino horns for preservation	: 131.05 kgs



PACHYDERM, ON THE RRC

<https://pachydermjournal.org/>

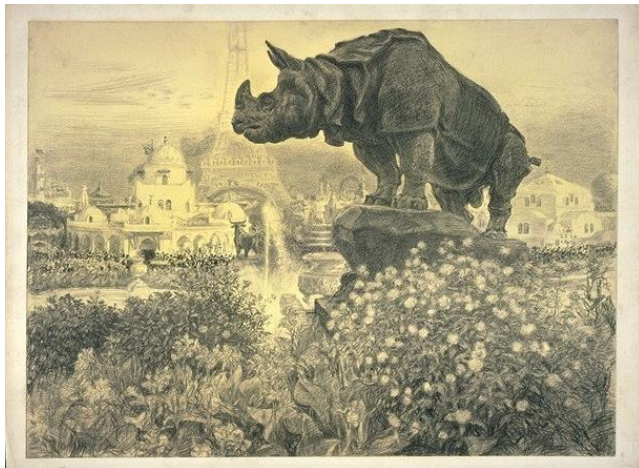
Pachyderm is a bi-annual, international, and peer-reviewed journal that deals primarily with matters related to African elephant and African and Asian rhino conservation and management in the wild. It is also a platform for dissemination of information concerning the activities of the African Elephant, the African Rhino, and the Asian Rhino Specialist Groups of the IUCN Species Survival Commission (SSC).

The next issue to appear this year is no. 62. It will be ready in time for our next newsletter. Previous issues from no. 42 (2007) are available on the journal's website where they can be searched and individual papers downloaded.

As a service to the international conservation community, the RRC has not only all rhino-related papers listed and referenced, now we have added all issues from the first issue of 1983 to no. 41 in full.

In the RRC, search: in the author field African Elephant
 or in the journal field Pachyderm

Feel free to browse. All issues are full of interest.



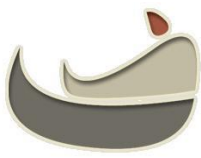
RESOLVED: RRC TECHNICAL PROBLEMS

Regular users of the RRC website will have encountered messages in the last weeks of August and September that it could not be accessed. We moved to a new server which brought some teething problems. The RRC is now back online and is being updated almost daily as we have done over the last 15 years.

We apologise for any inconvenience.

And we thank those people who have written to us how indispensable the RRC has become for their research and their management decisions. The RRC has improved and facilitated projects around the world. We appreciate your trust in our commitment.

Kees Rookmaaker



THE ADVENTURES OF CLARA

Exhibition at the BOWES MUSEUM 17 July - 31 October 2021

<https://www.thebowesmuseum.org.uk/>



Targeted at a family audience, the exhibition has been curated by our Education Coordinator, Julia Dunn, and her team at the museum. *The Adventures of Clara* introduces the fictional narrative of Clara arriving at the Museum in a crate, to Josephine Bowes' delight. Josephine lovingly accepts Clara and introduces her to her new home, The Bowes Museum. Visitors are encouraged to join Joséphine and Clara on their journey around the galleries, where Clara meets animal friends from the collection and reminisces about her travels with Captain Van der Meer. The museum-wide trail concludes in one of our temporary exhibition galleries, the space has transformed by mural artist, Dan Walls into a series of vibrant scenes depicting an Indian jungle, Knappenhof (Captain Van der Meer's ship) and a map outlining the route of the pair's voyage. Alongside the mural, hang the original watercolour illustrations from the storybook, *Clara: The (Mostly) True Story of the Rhinoceros Who Dazzled Kings, Inspired Artists, and Won the Hearts of Everyone... While She Ate Her Way Up and Down a Continent!* by Emily Arnold McCully. They have teamed up with [Helping Rhinos](https://www.rhinoresourcecenter.com) in production and in rhino conservation.



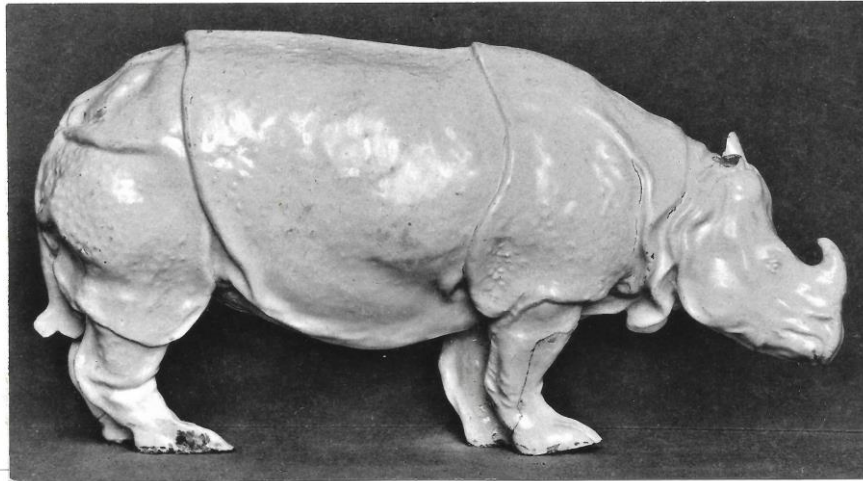
FOR THE DIARY: EXHIBITION AT THE BARBER INSTITUTE

Barber Institute of Fine Art, Birmingham

12 November 2021 to 27 February 2022

<https://barber.org.uk/>

Centred around a bronze rhinoceros in the museum's collection, there will be a curated exhibition about rhinos, accompanied by a full catalogue. More information is expected on the museum's website closer to the date.



THE RHISOTOPE PROJECT

Found on the internet - <https://rhisotope.org/>.

The Rhisotope Project is an initiative between WITS University, Russian State Nuclear Energy Corporation (ROSATOM), Australian Nuclear Science and Technology Organisation (ANSTO), Colorado State University (USA) together with global scientists, Care for Wild (world's largest rhino orphanage), researchers, South African rhino owners and one of the best rhino veterinary surgeons in the world, Dr William Fowlds. The aim of the project is to investigate and establish whether it is possible to place radioactive isotopes into the horn of a rhino to curb rhino poaching and significantly lower demand reduction in places such as Vietnam and China, two of the biggest consumers of rhino horn.

Coupled with the tools mentioned above, our aim is to be the largest single reference point for rhino research and data, the "Rhino Almanac" for want of a better term.

Surprisingly, there is little known scientific data that exists on this iconic species. It is one of our goals for The Rhisotope Project to have the most comprehensive research data in the world.

Comment. The last aim has of course already been fulfilled by the Rhino Resource Center where all information about all rhino species in all periods and in all languages can be browsed and freely accessed thanks to our long-term sponsors. The RRC has now well over 25,000 papers on every aspect of rhinoceros biology imaginable. This should be a first stop for everybody starting research or completing a project.



OUR SPONSORS

The board and staff of the Rhino Resource Center gratefully acknowledge the support of our main sponsors:



SOS RHINO



INTERNATIONAL RHINO FOUNDATION



SAVE THE RHINO

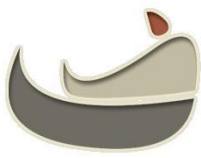


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RHINO CARHIRE

We are grateful to all individuals who show their appreciation by their donation.
Thank you very much.

*The Rhino Resource Center is a registered charity.
We need your assistance to provide our service to all rhino lovers worldwide.*



CONTENTS OF THE RHINO RESOURCE CENTER

The development of the Rhino Resource Center is shown in the table here.

RRC	2020 June	2020 Sept	2020 Dec	2021 March	2021 June	ANNUAL INCREASE
References	24,572	24,728	24,952	25,110	25,555	+ 983
PDF files	24,523	24,682	24,936	25,054	25,535	+ 1012
Images	4,549	4,569	4,589	4,603	4,670	+ 121

Many thanks to everybody who has helped us by sending copies of books and papers, information, data, news, pictures, photographs – all shared across the globe.

RRC VISITORS

During three months September to November 2020, www.rhinoresourcecenter.com the RRC recorded 43,200 total clicks (excluding robots).

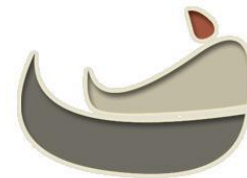
This is 480 per day.

Thank you for visiting the RRC

DONATIONS TO THE RRC

It is really very easy. No problem to the audience of the RRC. To show appreciation of our work and to make future contents even better, a small donation goes a long way. Visits to libraries are no longer necessary, just think of the expensive time gained and research results improved. The button leads to a page with instructions.

[DONATE HERE](#)



The Rhino Resource Center is an essential tool for

- 👉 Information and image supply to media
- 👉 Academic research in biology, conservation studies, art history
- 👉 Education in primary, secondary and tertiary levels
- 👉 Conservation of rhinos both *in-situ* and *ex-situ*
- 👉 Latest information supply of all rhino-related projects
- 👉 Information on all the latest conservation efforts
- 👉 All the historical and most current literature.

YES, YOU CAN HELP:

- 👉 Authors of books, papers and reports can send us a copy after publication.
- 👉 We are always looking for images of all rhinos in books and in the wild
- 👉 We aim to include a picture of every rhino ever kept in captivity
- 👉 Contribute a message to our blog and get into contact with others
- 👉 Place a link on your website to the RRC which will be reciprocated
- 👉 Give us a DONATION when you feel the RRC has helped your work.



NEW LITERATURE (finalized 15 September 2021)

In this quarter (June to August 2021), we have added 445 new references, to bring the total number of items in the database to **25,555**.

Of these, 25,500 or 99 percent are available as PDF and searchable.

Below I have listed new entries published in the 21st century in four categories: General (all species), African rhinos, Asian rhinos and Fossil rhinos.

**Most additions are available on the website.
Search for them on the RRC, it's easy.**

Always check the [RRC website](#) first, many papers are available there.

NEW GENERAL PUBLICATIONS

- Anonymous, 2001. *Endangered wildlife and plants of the world*, vol. 9 RAI-SHE. Terrytown, NY.
- Berg, A. van den, 2021. *De leeuw van Alpi: handel en wandel van een beestenman*. Amsterdam, Antwerpen, Atlas Contact, pp. 1-224.
- Brace, S.; Dean, C., 2021. *Sounding the horn: three years of rhino horn antiques sold at auction in the UK, 2017 to 2019*. London, Save the Rhino International: pp. 1-267.
- Granqvist, E., 2020. How to repair the rhino specimen. *Science Education and Museums* 6: 133-135.
- International Rhino Foundation, 2020. Annual report for 2020. White Oak, IRF, pp. 1-20.
- IRF - International Rhino Foundation, 2021. Rhino Resource Center milestone. <https://rhinos.org/blog/rhino-resource-center-surpasses-major-milestone/>.
- Liu, S. et al. [including Kees Rookmaaker], 2021. Ancient and modern genomes unravel the evolutionary history of the rhinoceros family. *Cell* 184: 4874–4885 - doi.org/10.1016/j.cell.2021.07.032**
- Neushoornstichting Nederland, 2020. *Jaarverslag 2020*. Utrecht, NN, pp. 1-16.
- Proa, M., 2021. Identifying rhinoceroses in museum collections. *Academia Letters* Article 2179: 1-8 - <https://doi.org/10.20935/AL2179>.
- Robin des Bois, 2021. Notes on rhinoceros poaching. *On the Trail* (Information and analysis bulletin on animal poaching and smuggling) no.30: 41-51.
- Robin des Bois, 2021. Information sur braconnage des rhinoceros. *A La Trace* (Bulletin d'information et d'analyses sur le braconnage et la contrebande d'animaux) no.30: 41-51.
- Salvadori, F.B., 1990. *Rare animals of the world*. New York, Mallard Press.



General – continued

- Sass, M., 2021. Liebelei und Fehde: Frühneuzeitliche Pokale aus Rhinozeros-Horn als Wissensobjekte. In: Bauernfeind, R.; Rudolph, P. *Bilder exotischer Tiere. Zwischen wissenschaftlicher Erfassung und gesellschaftlicher Normierung 1500–1800*. Augsburg, pp. 96-124.
- Vigne, L., 2018. Esmond Bradley Martin 1941-2018. *Geographical Journal* 185: 125.
- Vigne, L., 2020. **The rhino horn and ivory trade: 1980-2020. Ph.D. thesis presented to Oxford Brookes University, UK, pp. 1-79.**
- Walsh, M., 2018. Esmond Bradley Martin 1941-2018. *Swahili Coast* 87: 32-33.
- Zhang, Y.; He, L.; Zhang, L.; Xu, Z., 2021. Identification characteristic of rhinoceros horn and its imitation. *Journal of Gems and Gemmology* 23 (1): 48-54.

NEW PUBLICATIONS ON AFRICAN RHINOS

- Aronoff, J.T.; Santymire, R.M.; Gillespie, T.R., 2016. Effects of stress and environmental factors on patterns of infection with gastrointestinal commensals and parasites in the critically endangered black rhinoceros (*Diceros bicornis bicornis*) in Addo Elephant National Park, South Africa. *Proceedings Joint 61st WDA/ 10th biennial EWDA Conference: Convergence in wildlife health*, p. 233.
- Australian Rhino Project, 2021. Project update: significant milestones achieved. *ARP Newsletter* (online) August 2017: 1-9.
- Callender, C., 2021. On the horns of a dilemma: let the northern white rhino vanish or intervene. Working Paper 2021: 1-17 (unpublished).
- Church, J., 2021. Colin Church: public relations executive, conservationist, author and family man (1940-2021). *Swara*, Nairobi July-September 2021: 56-57.
- Coleman, K.M., 2006. *M. Valerii Martialis Liber spectaculorum*. Oxford University Press.
- Eikelboom, J.A.J., 2021. *Sentinel animals : Enriching artificial intelligence with wildlife ecology to guard rhinos*. Dissertation presented to the University of Wageningen, The Netherlands, pp. 1-209.



Cover of *Hornbill* January-March 2019 – Trafficking Wildlife
The popular journal of the Bombay Natural History Society



Black rhinoceros statue in concrete by the artist Terry Matthews, in the compound of the Headquarters of the Kenya Wildlife Service on Road in Nairobi, Kenya (photo: Susannah Goss, 2021)

African Rhinos – continued

Fike, B., 2011. *The demography and population dynamics of a re-introduced black rhinoceros population on the Great Fish River Reserve, Eastern Cape Province*. Thesis presented to Rhodes University, pp. 1-171.

Furstinger, N., 2014. *12 mammals back from the brink*. North Mankato.

Gippoliti, S.; Robovsky, J.; Angelici, F.M., 2021. Taxonomy and translocations of African mammals: a plea for a cautionary approach. *Conservation* 1: 121–136 - doi.org/10.3390/conservation1020011.

Helping Rhinos, 2018. Annual Report for 2018. London, pp. 1-14.

Helping Rhinos, 2019. Annual Report for 2019. London, pp. 1-24.

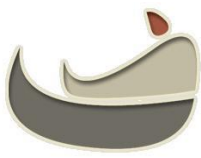
Hua, A.; Martin, K.; Mou, C.; Shen, E.; Chen, N., 2021. Saving the rhino hermes. Report: pp. 1-19.

Humane Society International, 2021. Factsheet: Black rhino, *Diceros bicornis*. Washington, pp. 1-9.



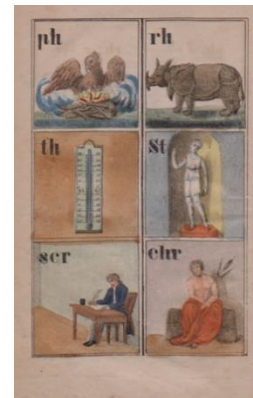
African Rhinos – continued

- Kenya Wildlife Service, 2021. *National wildlife census 2021 report*. Nairobi, KWS, pp. 1-132.
- Kgopa, A.H., 2009. *Molecular and biochemical analysis of the diet of the black rhinoceros*. Thesis presented to Rhodes University, pp. 1-155.
- Koot, S., 2021. Enjoying extinction: philanthrocapitalism, jouissance, and 'excessive environmentourism' in the South African rhino poaching crisis. *Journal of Political Ecology* 28 (1): 1-19 - <https://doi.org/10.2458/jpe.2984>.
- Le Roux, N.; Ferreira, S., 2021. Rhino birth recovery and resilience to drought impact. *African Journal of Ecology* 59: 544–547 - doi: 10.1111/aje.12854.
- Lewis-Williams, J.D., 2006. The evolution of theory, method and technique in Southern African rock art research. *Journal of Archaeological Method and Theory* 13 (4): 343-377, 4 figs [doi: 10.1007/s10816-006-9022-0].
- Li, P.J., 2021. South Africa moves to end captive breeding of wildlife: some thoughts from the Chinese experience. *WellBeing News* 3 (6): 1-5.
- Madliger, C.L., 2021. Horn today, gone tomorrow—dehorning as an anti-poaching practice for white rhinos. *Conservation Physiology* 9 (1) : 1-2.
- Marais, H.J.; Glyphis, Z.G.; Cremers, N.A.J., 2021. Medical grade honey: Hope for wounded white rhinos. *Veterinary and Animal Science* 13 (100196): 1-8.
- Nasr, M.; Meyer, L.C.R.; Buss, P.; Fabregas, M.C.; Gleed, R.D.; Boesch, J.M.; Pohlin, F., 2021. Muscle tremors observed in white rhinoceroses immobilised with either etorphine–azaperone or etorphine–midazolam: An initial study. *Journal of the South African Veterinary Association* 92 (a2142): 1-3.
- Nhleko, Z.N., 2014. *The demography, spatial ecology and reproductive success of the black rhinoceros, Diceros bicornis, in Hluhluwe-iMfolozi Park, Kwazulu-Natal, South Africa*. Thesis presented to Rhodes University, pp. 1-116.
- Nieman, W.A.; Wilgen, B.W. van; Radloff, F.G.T.; Leslie, A.J., 2021. A review of the responses of medium- to large-sized African mammals to fire. *African Journal of Range & Forage Science* 2021: 1-15 - doi.org/10.2989/10220119.2021.1918765.
- Okita-Ouma, B.; Pettifor, R.; Clauss, M.; Prins, H.H.T., 2021. Effect of high population density of eastern black rhinoceros, a mega-browser, on the quality of its diet. *African Journal of Ecology* 2021 - early view: 1-16 - <https://doi.org/10.1111/aje.12893>.
- Parsons, M., 2015. *The development of biological tools to aid in the genetic investigation of the black (Diceros bicornis) and white (Ceratotherium simum) rhinoceros mitochondrial genomes*. Thesis presented to Rhodes University, pp. 1-108.
- Reiners, J., 2021. *Untersuchungen zur Sauerstoffsättigungskurve des Breitmaulnashorns (Ceratotherium simum) sowie Evaluierung von Pulsoximetriesensoren für Unpaarhufer (Breitmaulnashorn und Pferd)*. Thesis presented to Tierärztliche Hochschule Hannover , pp. 1-40.
- Sanchez-Barreiro, F.; Gopalakrishnan, S.; Ramos-Madrigal, J.; Westbury, M.V. ; et al., 2021. Historical population declines prompted significant genomic erosion in the northern and southern white rhinoceros (Ceratotherium simum). *Molecular Ecology* 2021 (special issue): 1-15 - <https://doi.org/10.1111/mec.16043>.



African Rhinos – continued

- Stratford, K.J.; Guerier, A.S.; Crawford, S.J.; Stratford, S.M.C.; Schmidt-Kuentzel, A.; Bishop, J.M., 2021. Female southern white rhinoceros can select mates to avoid inbreeding. *Journal of Heredity* 2021: 385-390 - doi:10.1093/jhered/esab028.
- Trivedi, S.; Burnham, C.M.; Capobianco, C.M.; Boshoff, C.; Zheng, Y.; Pettiglio, J.W.; Ange-van Heugten, K.; Bissell, H.D.; Minter, L.J., 2021. Analysis of blood biochemistry of free ranging and himan-managed southern white rhinoceros (*Ceratotherium simum simum*) using the i-STAT Alinity v®. *Veterinary Medicine International* 2021 (2665956): 1-6.
- Truter, A., 2021. *The reproductive performance, demography and spatial ecology of an extralimital white rhinoceros population*. Thesis presented to Rhodes University, pp. 1-111.
- Willis, D., 2021. Nairobi National Park marks 75th anniversary. *Swara*, Nairobi July-September 2021: 31-34.
- Witter, R., 2021. Rhinos as “The Mine” and the fugitive meanings of illegal wildlife hunting. *Conservation and Society* 19 (3): 139-149.



Abécédaire Français. Stockholm 1839

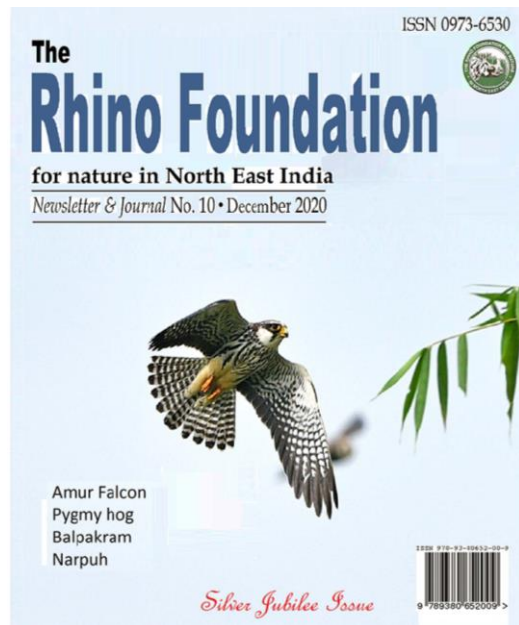
NEW PUBLICATIONS ON ASIAN RHINOS

- Attamimi, F.I., 2020. *Study of behavior and food preference of Sumatran rhinoceros (Dicerorhinus sumatrensis) at Suaka Badak Kelian, Kalimantan (in Indonesian)*. Thesis presented to State Islamic University Syarif Hidayatullah, Jakarta, pp. 1-79.
- Bahadur, R., 2021. Peril and pachyderms: Memories from Nepal’s rhino survey. Blog - The Third Pole website.
- Bautze, J.K., 1993. German private collections of Indo-Islamic paintings. In: Haase C.P; Kröger J.; Lienert U., *Oriental splendour: islamic art from german private collections*. Hamburg, pp. 247-294.
- Bloom, R., 2021. Gracious hospitable city. *Luxury* 8 (1): 11-12.
- Bloom, R., 2021. The night the rhinos came. *Luxury* 8 (1): 163-164.
- Bostock, S., 2021. Clara in Qatar: a new life for a Meissen porcelain rhinoceros. *Luxury* 8 (1): 59-75 - <https://doi.org/10.1080/20511817.2020.1864598>.
- Chatterjee, A.; Bhattacharyya, S., 2021. Assessing the threats facing wetland mammals in India using an evidence-based conservation approach. *Mammal Review* 51: 385-401.



Asian Rhinos – continued

- Chen, K.Y.; Song, Z.; Liu, Y.; Anderson, M., 2020. Seven rhinos captured. In: Reading of Shang Inscriptions. doi.org/10.1007/978-981-15-6214-3_78.
- Choudhury, A., 2021. Fauna conservation in North-East India. *Newsletter and Journal of the Rhino Foundation of Nature in North-East India* no. 10: 1-87.
- Choudhury, A., 2021. Obituary: Colin Peter Groves. *Newsletter and Journal of the Rhino Foundation of Nature in North-East India* no. 10: 39.
- Choudhury, A., 2021. Rhino census: Assam, West Bengal and Nepal. *Newsletter and Journal of the Rhino Foundation of Nature in North-East India* no. 10: 36.



- Collier, P., 2021. Counter wildlife trafficking digest: Southeast Asia and China, 2020. *USAID Wildlife Asia* 4: 1-80.
- Dackerman, S., 2011. Dürer's indexical fantasy: the rhinoceros and printmaking. In: Dackerman, S. *Prints and the pursuit of knowledge in early modern Europe*. Yale University Press, pp. 164-171.
- Das, A.K., 1995. Notes on an Aurangzeb period album of birds and animals. In: Goswamy B.N.; Bhatia U., *Indian painting, essays in honour of Karl J. Khandalavala*. New Delhi, pp. 71-85.
- Das, A.K., 1999. The elephant in Mughal painting. *Marg* 1999: 36-54.
- Das, Syamali, 2010. The Mughal scenic animal carpet in the National Gallery of Art, Washington, DC. *Marg* 61 (4): 56-61.
- Dickenson, J., 2021. “The circle of life is endless”: Shih Li-Jen’s “King Kong Rhino” in Venice and beyond. *Luxury* 8 (1): 145-161.
- Divyabhanusinh, 1999. Hunting in mughal painting. In: Verma S.P., *Flora and fauna in mughal art*. Mumbai: pp. 94-108.
- Dutta A.; Das D. , 2020. Rhinoceros unicornis in India since prehistoric times. *Indian Journal of Archaeology* 5 (2): 1-23 (study with care).

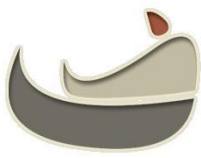


Asian Rhinos – continued

- Enekel, K.A.E., 2017. Camerarius's Quadrupeds (1595): A Plinius Emblematicus as a mirror of princes. In: Enekel, K.A.E.; Smith, P.J., *Emblems and the natural world*. Leiden, pp. 91–148.
- Foerschler, S., 2017. Das Horn des Nashorns: Objekt der Parzellierung, Ästhetisierung und Wissensgenese. In: Cremer, A.C.; Mulsow, M. (eds.), *Objekte als Quellen der historischen Kulturwissenschaften: Stand und Perspektiven der Forschung*. Köln: pp. 195–207.
- Gokkon, B., 2021. Two new Javan rhino calves spotted in the species' last holdout. www.mongabay.com 16 June 2021: 1-5.
- Gommans, J.J.L. & Hond, J.de, 2015. Willem Schellinks en India: tussen werkelijkheid en illusie. In: Bange P., J. Geurts (eds), *Onbegrensd perspectief: cultuurhistorische verkenningen*. Amersfoort, pp. 69-96.
- Hanafiah, J., 2021. Development of third Sumatran rhino sanctuary advances to save species. www.mongabay.com 25 June 2021: 1-4.
- Hanafiah, J., 2021. Never too late to save Earth: Q&A with Leuser forest guardian Rudi Putra. www.mongabay.com 17 June 2021: 1-12.
- Harris, T., 2014. *The world of endangered animals: South and Central Asia*. Tucson, Brown Bear Books.
- Hwang, J., 2021. Conservation treatment and characteristics of the belt with rhinoceros-horn ornaments at the National Hangeul Museum. *Conservation Science in Museum* 25: 51-62.
- Indrawan, M., 2021. Menyelamatkan Badak Sumatera. Internet blog: Kompas Indonesia 16 August 2021.



Clara in Versailles depicted by Emily Arnold McCully - www.RMichelson.com



Asian Rhinos – continued

- International Rhino Foundation, 2021. Newsletter: News from Indonesia. Email news June 2021: 1-4.
- Jenuit, M.; Zainuddin, Z.Z.; Payne, J.; Ahmad, A.H.; Yusof, A.M.; Isa, M.L.M.; Ibrahim, M., 2021. Establishment and cryopreservation of fibroblast cell line from Sumatran Rhinoceros (*Dicerorhinus sumatrensis*). *Journal of Sustainability Science and Management* 16 (4), 85-98.
- Johnson, L., 2021. Re-inventing magnificence: gaining status from contribution not consumption. *Luxury* 8 (1): 117-143.
- Jong, H.N., 2020. Indonesian environment ministry ends WWF partnership amid public spat. www.mongabay.com 29 January 2020: 1-7.
- Kovesi, C., 2021. Gigi Bon, the rhinoceros, Venice, and the unbearable heaviness of being. *Luxury* 8 (1): 13-39 - <https://doi.org/10.1080/20511817.2020.1864596>.
- Kovesi, C., 2021. Luxury's fragile frontier: The rhinoceros and Venice - an introduction to a special edition. *Luxury* 8 (1): 1-6.
- Kumar, A.; Das, A.; Kullu, S.S.; Durge, S.M.; Sharma, A.K., 2021. Utilization of macro-nutrients and minerals in captive greater one-horned rhinoceros fed season-specific diets. *Journal of Animal Physiology and Animal Nutrition* 105: 406-417.
- Kumar, V., 2019. Catalogue of antiquities of State Archaeological Museum, Lucknow, U.P. India. Part- I: Jain (from Kankali Tila, Mathura & other places of Mathura), Baudha (from Mathura) & Gandhar antiquities. *Indian Journal of Archaeology* 4 (4): 62-1167.
- Kumar, V., 2020. Catalogue of Terracottas kept at State Museum, Lucknow: Part-II: Terracottas dateable from Gupta to Modern Period. *Indian Journal of Archaeology* 5 (4): 1-2942.
- Losty, J., 2005. Towards a new naturalism: portraiture in Murshidabad and Avadh, 1750-80. *Marg* 53 (4): 34-55.
- Magazzino Gallery, 2018. Rhinoceros: Luxury's Fragile Frontier. Exhibition catalogue. Venice, pp. 1-102.





Asian Rhinos – continued

Mahato, G.P.S.; Dahal, A., 2021. Boris Lissanevitch and Nepali tourism: history revisited. *Journal of Tourism and Himalayan Adventures* 3: 11-22.

Nardelli, F., 2021. The Sumatran rhinoceros conservation to be a classified status of emergency and a protocol applied accordingly. Privately issued: pp. 1-2.

Nardelli, F., 2021. The sumatran rhinoceros *Dicerorhinus sumatrensis* ex situ conservation status: past, present and future. *Academia Letters* no. 983: 1-6 - <https://doi.org/10.20935/AL983>.

Nepal - National Trust for Nature Conservation, 2021. *Nepal rhino count 2021*. Kathmandu - NTNC website.

752 rhinos counted in Nepal in 2021

Neushoornstichting, 2021. [Various notes on rhinos, in Dutch]. *Nieuwsbrief*, Summer 2021: 1-3.

Ridley, G., 2021. One of a kind: Clara the rhinoceros in eighteenth-century Venice and the tale of a missing horn. *Luxury* 8 (1): 41-58
<https://doi.org/10.1080/20511817.2020.1864597>.



Black rhino with Clemente Onelli in Buenos Aires 1908

Schaffer, N., 2006. *Tanjung Reproductive Post-Mortem Report to Sabah Wildlife Department. SOS Rhino, pp. 1-8. – Report unique to RRC*

Seyller, J.; Mittal, J., 2019. *Central Indian paintings in the Jagdish and Kamla Mittal Museum of Indian Art*. Hyderabad.

Strasser, T., 2016. *Das Indische Panzernashorn in Naturwissenschaften und Mythos*. Thesis presented to the University of Vienna, Austria, pp. 1-184.

Vaughan, P., 1999. Mythical animals in mughal art: images, symbols, and allusions. *Marg* 1999: 55-68.

Wang, D.; Qi, X.; Li, C.; Liu, H.; Ma, L.; Yang, X., 2021. Research on the species Identification of rhinoceros horn in Bezoar Angong pill of Korea based on DNA Bar-coding Technique. *Journal of Liaoning University (Natural Sciences)* 48 (1): 46-52.



Asian Rhinos – continued

- Wang, F.; Duan, J.; Qian, D.; Li, Y., 2007. Searching for substitutes for Cornu Rhinoceri Asiatici and Cornu Saigae Tataricae and evaluation (II). *Journal of Nanjing TCM University* 23 (1): 36-39.
- Yang, Y.; Chen, F., 2021. Imaginary world: Image distortion of rhinoceros in Ming Dynasty. *Journal of Dialectics of Nature* 43 (7): 78-84.
- Zurfluh, A., 2021. The last sacrifice: the potential of a revived Venetian world. *Luxury* 8 (1): 105-116 - <https://doi.org/10.1080/20511817.2020.1864599>.

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Section edited by Emmanuel Billia, Dan Ziegler and Athanassios Athanassiou.

- Bellucci, L.; Palombo, M.R.; DeMiguel, D.; Strani, F.; Alberdi, M.T., 2021. New taxonomical, biochronological and palaeoenvironmental data from the Middle Pleistocene site of Cúllar de Baza 1 (Granada, Spain). *Quaternary Science Reviews* 261: 16 pp. - [10.1016/j.quascirev.2021.106932](https://doi.org/10.1016/j.quascirev.2021.106932).
- Brezina, J.; Alba, D.M.; Ivanov, M.; Hanáček, M.; Luján, À.H., 2021. A middle Miocene vertebrate assemblage from the Czech part of the Vienna Basin: Implications for the paleoenvironments of the Central Paratethys. *Palaeogeography, Palaeoclimatology, Palaeoecology* 575, 110473.
- Deng, T.; Lu, X.; Wang, S.; Flynn, L.J.; Sun, D.; He, W.; Chen, S., 2021. An Oligocene giant rhino provides insights into Paraceratherium evolution. *Communications Biology* 4, Article number: 639: 1-10 - doi.org/10.1038/s42003-021-02170-6.
- Dominici, S.; Bellucci, L.; Cioppi, E.; Fantoni, L.; Moggi Cecchi, V., 2021. Geology in the inventories of the Museum of Natural History of Florence. *Museologia Scientifica - Memorie* 2021: pp. 46-55, 9 figs, ISBN 978-88-908819-5-4.
- Dong, Wei; Bai, Wei-Ping; Zhang, Li-min, 2021. The first description of Rhinocerotidae (Perissodactyla, Mammalia) from Xinyaozi Ravine in Shanxi, North China. *Vertebrata Palasiatica* 2021: 1-22 - DOI: [10.19615/j.cnki.2096-9899.210715](https://doi.org/10.19615/j.cnki.2096-9899.210715).
- Hullot, M.; Laurent, Y.; Merceron, G.; Antoine, P.O., 2021. Paleoecology of the Rhinocerotidae (Mammalia, Perissodactyla) from Béon 1, Montréal-du-Gers (late early Miocene, SW France): Insights from dental microwear texture analysis, mesowear, and enamel hypoplasia. *Palaeontologia Electronica* 24 (2): a27: 1-26 - <https://doi.org/10.26879/1163>.



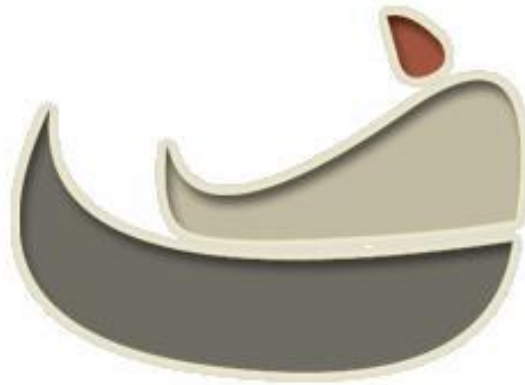
Fossil Rhinos – continued

- Mecozzi, B.; Bellucci, L.; Giustini, F.; Iannucci A.; Iurino, D.A.; Mazzini, I.; Strani, F.; Sardella, R., 2021. A reappraisal of the Pleistocene mammals from the karst infilling deposits of the Maglie area (Lecce, Apulia, Southern Italy). *Rivista Italiana di Paleontologia e Stratigrafia* 127 (2): 355-382.
- Mecozzi, B.; Iannucci, A.; Mancini, M.; Sardella, R., 2021. Redefining Ponte Molle (Rome, Central Italy): an important locality for Middle Pleistocene mammal assemblages of Europe. *Alpine and Mediterranean Quaternary* 34 (1): 1-24.
- Pandolfi, L.; Calvo, R.; Grossman, A.; Rabinovich, R., 2021. Rhinocerotidae from the early Miocene of the Negev (Israel) and implications for the dispersal of early Neogene rhinoceroses. *Journal of Paleontology* 2021: 1-12.
- Plint, T.; Magill, C.R., 2021. Large mammal tracks in 1.8-million-year-old volcanic ash (Tuff IF, Bed I) at Olduvai Gorge, Tanzania. *Ichnoss* 2021: 1-11 - doi.org/10.1080/10420940.2021.1930540.
- Puzachenko, A.YU.; Levchenko, V.A.; Bertuch, F.; Zazovskaya, E.P.; Kirillova, I.V., 2021. Late Pleistocene chronology and environment of woolly rhinoceros (*Coelodonta antiquitatis* (Blumenbach, 1799)) in Beringia. *Quaternary Science Reviews* 263 (106994): 1-19 - doi.org/10.1016/j.quascirev.2021.106994.
- Reidinger, M.M., 2011. *Fossilien im Volksglauben: Das Einhorn. Materialanalyse der verwendeten Fossilien*. Thesis presented to the University of Vienna, Austria, pp. 1-78.
- Saarinen, J.; Oksanen, O.; Zliobaite, I.; Fortelius, M.; DeMiguel, D.; Azanza, B.; Bocherens, H.; Luzón, C.; Solano-García, J. ; Yravedra, J.; and many Others, 2021. Pliocene to Middle Pleistocene climate history in the Guadix-Baza Basin, and the environmental conditions of early Homo dispersal in Europe. *Quaternary Science Reviews* 268 (2021), 107132: 1-18.
- Schellhorn, R., 2019. Stiffening in the carpus of *Prosantorhinus germanicus* (Perissodactyla, Rhinocerotidae) from Sandelzhausen (Germany). *PalZ (Paläontologische Zeitschrift)* 2021: 1-6 - https://doi.org/10.1007/s12542-021-00574-7.
- Tissier, J.; Antoine, P.-O.; Becker, D., 2021. New species, revision, and phylogeny of *Ronzotherium Aymard, 1854* (Perissodactyla, Rhinocerotidae). *European Journal of Taxonomy* 753: 1-80 - doi.org/10.5852/ejt.2021.753.1389.





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Dr Kees Rookmaaker has actively worked on the biology and history of the rhinoceros for 50 years. He is a member of the IUCN-SSC Asian Rhino Specialist Group, and advisor to the EAZA Rhino TAG and to the International Rhino Foundation. He is the editor of the rhino section of *Pachyderm*. Author of eight books on African and Asian exploration and on the rhinoceros, as well nearly 250 shorter publications, many in peer-reviewed journals. Until 2015, he worked as a Senior Research Fellow on Darwin Online and Wallace Online at the National University of Singapore. He was Secretary of the International Commission on Zoological Nomenclature (ICZN) for a short period in 2015. The Society for the History of Natural History awarded him their Founder's Medal, and he served in the Council for several years.

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-  Pictures of any rhinoceros in art or alive in Indian subcontinent
-  Historical photographs of rhinos hunted or seen before 1970
-  Data on trophies and specimens in museums and private collections

All contributions are always welcome

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