



RHINO RESOURCE CENTER

www.rhinoresourcecenter.com

NEWSLETTER #67 JUNE 2022

Dear colleagues and friends,

This is the 67th 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 **26,092**. This is an increase of 250 items in the last quarter. Over 26,000 references are **available** as PDF on the RRC website.

THE RRC IMAGE GALLERY

Regular users will know that the RRC has a fantastic Image Gallery with nearly 5000 pictures of rhinos of all sorts. This is a great resource. The search engine finds any word in the description, or you can browse by species. There are images of old art work, of animals in the wild, rhinos in a wide variety of settings. Unsurpassed.



SUPPORT the RRC
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MORE ON CLARA, THE DUTCH RHINOCEROS – NOW AS A NOVEL

<https://www.uvw.at/produkt/6759/die-silberne-riesin/>

Meighörner, J., 2022. *Die silberne Riesin. Als Maria Theresa das Nashorn traf. Ein historischer Roman*. Innsbruck, Michael Wagner Verlag, pp. 1-342.

* The historical data need updating *





JOHN PAYNE ON THE HAIRY RHINOCEROS - 2022

New book by John Payne who has long been on the forefront of rhino conservation in South-East Asia, especially in Sabah, Borneo.

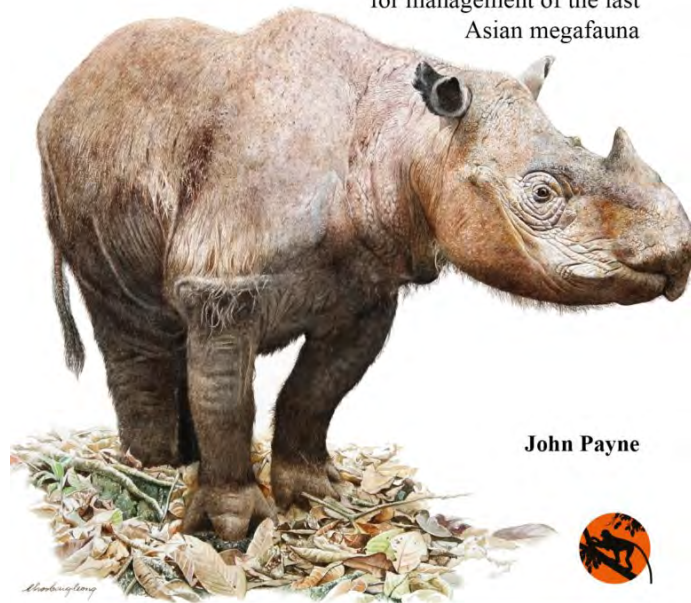
John Payne, also known as Junaidi Payne, is a biologist and permanent resident of Sabah, Malaysia. His PhD degree from Cambridge University was awarded for research done in Krau Wildlife Reserve in Peninsular Malaysia in the mid-1970s. He was appointed a Commander of the Order of Kinabalu by the Governor of Sabah in 2010. He led WWF work in Sabah from 1982 to 1998, spending much of the early years seeking Hairy rhinos, and advocating for captive breeding as well as establishment of Tabin Wildlife Reserve. As the various institutions concerned with this species fragmented globally from 1986 onwards, he moved to other subjects including orangutans, conservation strategy, new protected areas and forest ecology. From 2008, he regained interest in the Hairy rhino, managing a non-governmental organization, Borneo Rhino Alliance, thereafter. The aim was to create a managed international metapopulation, employing the latest advances in reproductive technology to allow every remaining Hairy rhino to contribute its genes to species recovery. After the last two Hairy rhinos in Malaysia died in 2019, he led the re-branding of the Alliance as 'bringing back our rare animals', an avenue to address lessons learned from the extinction of the Hairy rhino in Malaysia.

Order it here at Natural History Publications (Borneo)

<https://www.nhpborneo.com/publication-author/john-payne/>

THE HAIRY RHINOCEROS

History, ecology and some lessons
for management of the last
Asian megafauna



Natural History Publications (Borneo)



IMPORTANT PAPER – WITH STARTLING RESULTS ON RHINO EVOLUTIONARY HISTORY WORLDWIDE

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 – <https://doi.org/10.1016/j.cell.2021.07.032>

PDF [here](#):

Cell

Article

Ancient and modern genomes unravel the evolutionary history of the rhinoceros family

Graphical abstract



Authors

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In brief

The comparison of *de novo* genomes from the white, black, Sumatran, and greater one-horned rhinoceroses with the genomes of a historic Javan rhinoceros and three extinct Pleistocene species resolves the evolutionary relationships within the Rhinocerotidae family and reveals that low genetic diversity is a long-term feature of rhinoceroses.

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



Liu et al., 2021, *Cell* 184, 4874–4885
September 16, 2021 © 2021 The Authors. Published by Elsevier Inc.
<https://doi.org/10.1016/j.cell.2021.07.032>

CellPress



ROELANDT SAVERY PAINTING PARADISE (1625) WITH A RHINOCEROS

Robovsky, J.; Rookmaaker, L.C.; Groves, C.P., 2022. Several zoological comments to depictions of jaguar and rhinoceros in the art of Roelandt Savery.

Archivum Trebonense volume 15 (Bestia – Animals in historical context): 78-87

<https://digi.ceskearchivy.cz/539312/>



Roelandt Savery (1576-1639), 'Paradise', dated 1625. There is a small image of a rhinoceros in the middle near the water.

(Download the image [here](#) and enlarge it in your computer)





RHINO IMPACT BOND – NOTE: [Not verified by RRC staff](#)

Rhino Impact Bond launched by IBRD/GEF

<https://www.thegef.org/newsroom/press-releases/wildlife-conservation-bond-boosts-south-africas-efforts-protect-black>

The Wildlife Conservation Bond/ Rhino Impact Bond is a first-of-its-kind, outcome-based, financial instrument that channels investments to achieve conservation outcomes – measured in this case by an increase in black rhino populations. The Rhino Impact Bond tracks population dynamics (biological growth rates) with economic parameters (financial interest rates). If successful, the dividends will benefit both the rhinos and the investors.

The best thing about this Rhino Impact Bond is that it enables policy makers and reserve managers to turn theory into practice. The debates about the trade in rhino horn focuses on the horn only. This Rhino Impact Bond is a new tool which allows one to focus on the Live value of Black Rhino.

The Rhino Impact Bond also goes further and promotes increasing the growth rate of Black Rhino populations in addition to their individual auction value.

In other words, this instrument finally enables one to ‘match’ the values (direct, indirect and non-use/ existence values) inherent in the rhinos themselves. It should help lower the discount rate of the live animals and encourage investment in rhino conservation and their habitats.

This is a great opportunity to secure the conservation of Black Rhino in Addo Elephant National Park and the Great Fish River Nature Reserve.

In the interest of broader rhino conservation, the issuers (Credit Suisse & City bank) could consider also including the involvement of the game ranch sector and private rhino owners in addition to these two protected areas in the eastern Cape.

Participating in the ‘Conservation Success Payments’ could go a long way towards incentivizing rhino custodians, strengthening anti-poaching efforts and consolidating rhino populations in the private sector.

The monitoring bodies (Conservation Alpha and the Zoological Society of London) should best consult the IUCN African Rhino Specialist Group to identify other priorities for Black Rhino sub-populations

For example, in addition to Addo and the Fish River, the reserves and protected areas covered by the WWF Black Rhino Range Expansion Project (such as Phinda Game Reserve, Manyoni Private Game Reserve, Somkhanda Private Game Reserve and Thanda Private Game Reserves) could all receive a boost in their efforts in protecting Black Rhinos at these sites.

These investments in the rhino impact bond could include supporting honest neighbouring communities who are helping to keep an eye out for these animals. This is in line with the objectives of South Africa’s “New Deal for People with Nature” and the “Campaign for Nature” in general. It may also accordingly act as a catalyst for securing nature’s contribution to people through well-managed conservation areas and facilitate the expansion of conservation areas via sustainable rural development and growing the wildlife economy.

NOTE: [Not verified by RRC staff](#)



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



RHINO CARHIRE

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	2021 June	2021 Sept	2021 Dec	2022 March	2022 June	ANNUAL INCREASE
References	25,270	25,555	25,655	x	26,092	+ 822
PDF files	25,240	25,535	25,625	x	26,095 *	+ 855
Images	4,641	4,670	4,675	x	4,818	+ 177

* Some references have more than one PDF attached, mostly due to file size restrictions.

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.

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 30 May 2022)

In this quarter (March to May 2022), we have added 250 new references, to bring the total number of items in the database to **26,092**.

Below I have listed all new entries since 2000 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](http://www.rhinoresourcecenter.com) first, many papers are available there.

NEW GENERAL PUBLICATIONS

- Abraham, J.O.; Upham, N.S.; Damian-Serrano, A.; Jesmer, B.R. , 2022. Evolutionary causes and consequences of ungulate migration. *Nature Ecology and Evolution* 2022: 1-13t.
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- CITES Secretariat, 2022. Report on Rhinoceroses (Rhinocerotidae spp.). CITES 74th meeting of the Standing Committee (Lyon, France, 7-11 March 2022) SC74 Doc. 37: 1-9.
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- Housecroft, C.E., 2022. Horns, Scales, Beaks: The versatility of keratin. *Chimia* 76: 262-263.
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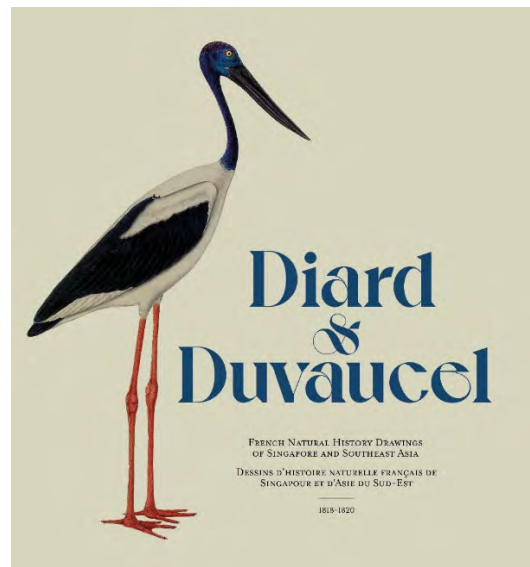
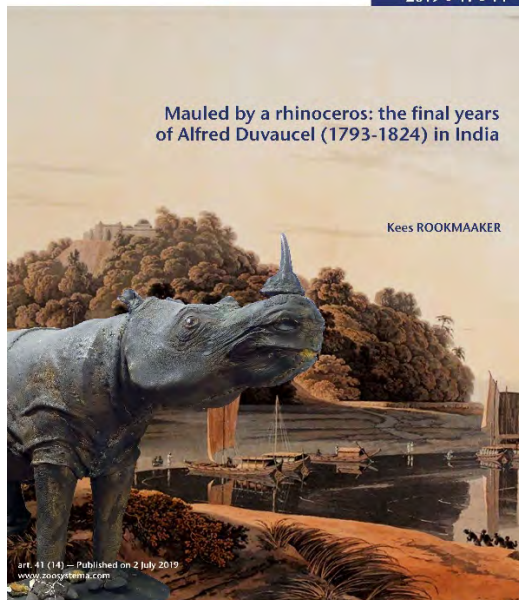


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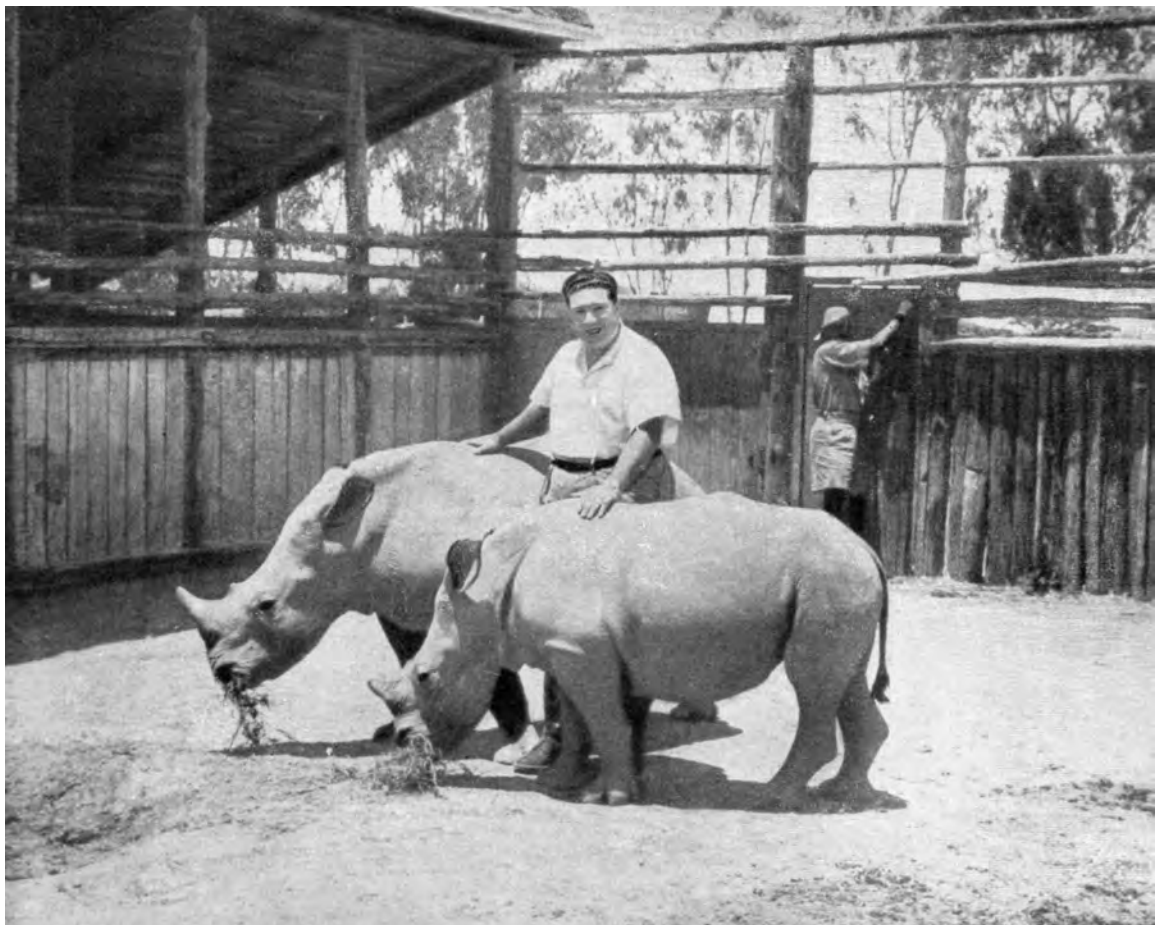


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- Barbour, T.; Porter, M.D., 1935. Notes on South African Wild Life Conservation. American Committee for International Wild Life Protection Special Publication #7: 1-34, 5 images, 2 maps.
- Bruin, M. de; Schmitz, P.M.U., 2021. The application of forensic geomorphology in rhinoceros poaching investigations in Africa. *South African Geographical Journal* 103: 43-63 - <https://doi.org/10.1080/03736245.2020.1835700>.
- Chileshe, J., 2021. Identification of immunological biomarkers for detection of *Mycobacterium bovis* in African Rhinoceros. Doctor of Philosophy (Molecular Biology) Dissertation presented to Stellenbosch University , pp. i-xix, 1-144, 9 figures, 9 tables, Appendix I & II w/supplementary table.



Angelo Lombardi of Italy with 2 white rhinos caught in southern Ethiopia. From: Lombardi, A., 1956. L'amico degli animali racconta.



African Rhinos – continued

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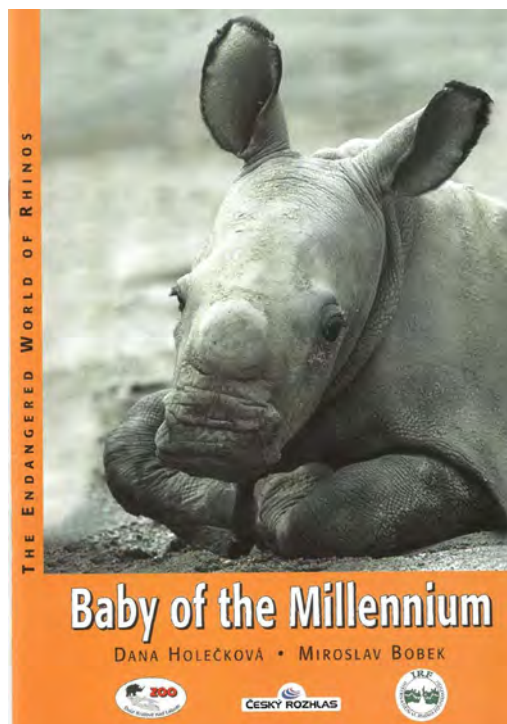


Black rhinoceros in the Zoologischer Garten of Berlin. Photo by Michael Amend, May 2015



African Rhinos – continued

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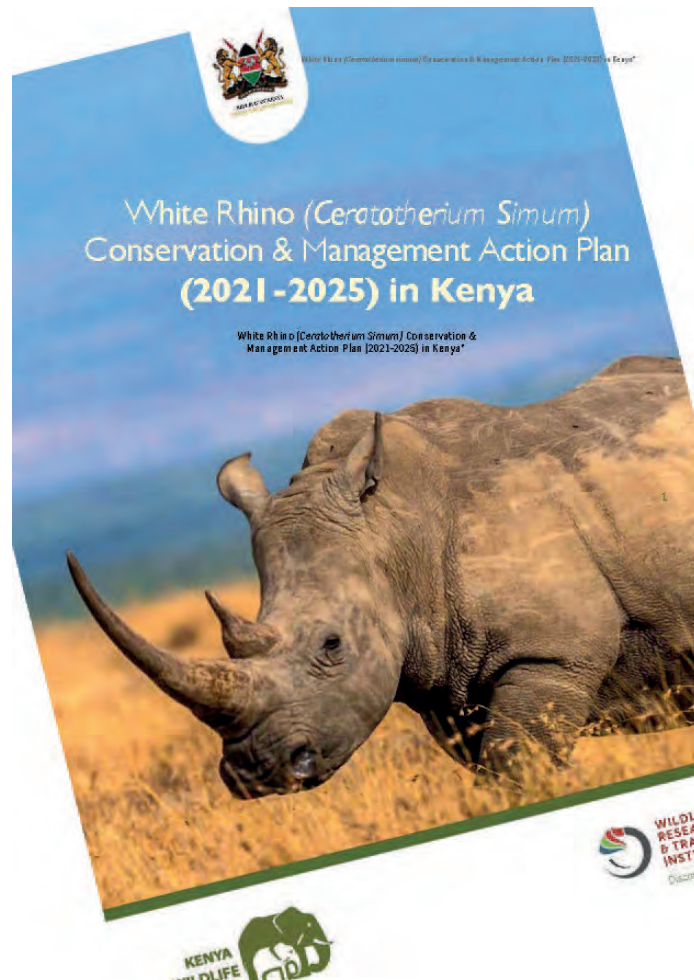


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African Rhinos – continued

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- Kinsell, J.; Worley, M., 1988. Research in viral infectious disease in Black rhinoceros. *CRES Report* Winter 1988-89: 2.
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African Rhinos – continued

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Little crash of rhinos by Anne Barron, 2015



African Rhinos – continued



Rhino statue in concrete by artist Terry Mathews at HQ of Kenya Wildlife Service in Nairobi

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African Rhinos – continued

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Black rhinoceros – taken in the Moringa waterhole at Halali, Etosha National Park in Namibia, by Franca Arzon of the Trieste Natural History Museum, 2015.



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Sculpture "Moses 2021" by Joep van Lieshout (1963) exhibited in the Vondelpark, Amsterdam, in 2021.



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In February 2017 I had a chance to visit Chitwan National Park in Nepal. Staying in the Taj Meghauri Lodge, I drove through the reserve in a jeep, had a ride on an elephant and navigated the river in a boat. Many deer, and beautiful birds. I saw about a dozen rhinos. In February the reserve is covered in mist in the mornings, but once it clears, the days are bright and beautiful. There are about 650 rhinos in the reserve (2015 count was 645), so there is a good chance to see the animalson even a casual visit. - Kees Rookmaaker



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A female Sumatran Rhino was born in Way Kambas on 28 March 2022 – read [here](#)

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An adult Rhinos in the Dudhwa stockade. The animals were kept in the stockades for a minimum of 3 weeks prior to release.



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Sumatran rhinoceros Suci taking a bath, 2013.



A *Coelodonta antiquitatis* (Blum., 1799) reconstruction by J.J. Wildschute, 2014. A photograph taken during the 2014 International Mammoth Conference in Greece.

NEW PUBLICATIONS ON FOSSIL RHINOS

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Replica of a woolly rhino created by Remie Bakker, 2010



Fossil Rhinos – continued



An original 24"x30" oil painting by Josef Moravec figuring *Dicerorhinus mercki* (Jäger) 1999

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A reconstruction attempt of *Stephanorhinus kirchbergensis* (Jäger, 1839). Benoît Clarys, 1995.



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Woolly rhinos evolved to survive in the palearctic environment during the Pleistocene. Z. Burian, 1964.

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