



CROSSREF.ORG
THE CITATION LINKING BACKBONE

Easily Accessible Content and Linking

ICSTI Public Conference May 17, 2004

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Ed Pentz, CrossRef

Always Keep the End User in Mind

- “Electronic journals, e-print archives and print journals together are fulfilling the needs of readers. Scientists continue to read and today choose from alternatives that satisfy their specific needs and requirements, particularly to *minimize their time and effort.*”

Carol Tenopir, ASIS&T Conference, 2003

Accessible Content

- Access is about linking and searching
- Challenge: connections in a distributed environment
- User: search and link regardless of publisher or location of content
- Publisher: visibility and traffic



CrossRef's Hats

- An independent membership association of scholarly publishers
- A cross-publisher citation linking network using the DOI
- One of nine official DOI registration agencies worldwide

CrossRef Mission Statement

- To provide services that bring the scholar to authoritative primary content, focusing on services that are best achieved through collective agreement by publishers

CrossRef Indicators

- 307 participating publishers
- 290 libraries and consortia
- 33 agents and affiliates
- 11.1 million items, 9,500 journals
- 6 million DOI resolutions/month
- >2.5 million DOIs retrieved per month
- ~300,000 records updated per month
- 650,000 book and proceedings DOIs

Oldest content in CrossRef

- Digitization of backfiles – it's all going electronic and getting DOIs
 - 2.4 million in 2003 and over 2 million expected in 2004
- Vol 1, Issue 1, 1823, The Lancet
doi:10.1016/S0140-6736(01)18836-7

CrossRef Developments

- Main CrossRef developments:
 - Article network via reference links has reached critical mass
 - Forward Linking – articles in context
 - CrossRef Search - Cross-publisher full text search

CrossRef Search powered by Google

- CrossRef Search Pilot
 - Cross-disciplinary, full text search of journals and conference proceedings
 - Normal Google search with results limited to authoritative scholarly content
 - Content also available in regular Google searches

CrossRef Search cont'd

- Publishers have CrossRef Search boxes on their normal search pages
- Pilot to run through end of 2004
 - Evaluation of functionality, ranking, end user feedback
- DOIs used for indexing articles and linking from search results back to publisher
- Optional for CrossRef members – participation in Pilot to be expanded in 2004



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9-publisher pilot for full-text scholarly research

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This service launches a typical [Google](#) search but filters the result set to the content from participating publishers.

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CrossRef Search

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[PDF] [1 Supplementary Note \(Wienholds et al.\) Morpholino knockdown ...](#)

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www.nature.com/ng/journal/v35/n3/extref/ng1251-S3.pdf

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... Aude Dupr , Catherine Jessus, Ren  Ozon and Olivier Haccard. Figures. Figure 1, Figure 1 **Morpholino** antisense inhibits Mos synthesis but does not prevent GVBD. ...
www.nature.com/emboj/journal/v21/n15/fig_tab/7594621ft.html - 14k - [Cached](#)

[Figure 4](#)

... Figure 4 Rescued formation of a pectoral fin bud by transplanted wild-type cells in a *tbx2* **morpholino**-injected embryo. a-e, Images ...
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morpholino

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DOIs in Online Full Text

The screenshot shows the Nature journal website interface. At the top left is the 'npg nature publishing group' logo. To the right, a banner reads 'First Issue October 2003 Save 15%' next to a 'nature REVIEWS MICROBIOLOGY' cover image. A navigation bar contains links for 'nature.com', 'about npg', 'nature science update', 'naturejobs', 'natureevents', 'help', and 'site index'. Below this is the 'nature' logo in red, with 'my account', 'e-alerts', 'subscribe', and 'register' links to the right. A search bar is labeled 'SEARCH JOURNAL' with a 'go' button and an 'advanced search' link. The date 'Sunday 14 September 2003' is displayed on the right. On the left sidebar, a menu includes 'Journal Home', 'Current Issue', 'AOP', 'Archive', and 'Highlights'. The main content area features a 'letters to nature' section with a red oval around the text 'Nature 425, 155 - 158 (11 September 2003); doi:10.1038/nature01826'. A large red arrow points from the right towards this DOI. Below the DOI is the article title 'Quantum dynamics of a single vortex' and the authors 'A. WALLRAFF*, A. LUKASHENKO, J. LISENFELD, A. KEMP, M. V. FISTUL, Y. KOVAL & A. V. USTINOV'. The article text begins with 'Vortices occur naturally in a wide range of gases and fluids, from macroscopic to microscopic scales. In Bose–Einstein condensates of dilute atomic gases¹, superfluid helium² and superconductors, the existence of vortices is a consequence of the quantum nature of the system. Quantized vortices of supercurrent³ are generated by magnetic flux penetrating the material, and play a key role in determining the material properties⁴ and the performance of superconductor-based devices^{5,6}. At high temperatures the dynamics of such vortices are essentially classical, while at low temperatures previous experiments have suggested collective quantum dynamics^{7,8}. However, the question of whether vortex tunnelling occurs at low temperatures has been addressed only for large collections of

DOIs in Reference Citations

The screenshot shows the top navigation bar of the Nature Publishing Group website, including the logo and various utility links. The main content area features the article title and a paragraph of text. Below the text is a 'References' section with a list of six citations. Two of these citations are circled in red, and red arrows point from the right side of the page to these circles. The first arrow points to the first citation, and the second arrow points to the fifth citation. The page footer contains copyright information for 2003.

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The quiescent, discrete, elongated aurora discovered by Kubota *et al.*¹, however, fit the bill. Their near co-rotation with the Earth also supports McIlwain's model, which Kubota *et al.* seem to have independently resurrected. If these findings and associations are confirmed, they could help to explain the unexpectedly strong connection between the solar wind, the aurora and the composition and electron density of Earth's upper atmosphere, even at latitudes that are nominally below the auroral oval.

References

1. Kubota, M., Nagatsuma, T. & Murayama, Y. *Geophys. Res. Lett.* doi:10.1029/2002GL016652 (2003). | [Article](#) |
2. McIlwain, C. E. in *Physics of Auroral Arc Formation* (eds Akasofu, S.-I. & Kan, J. R.) 173-174 (Am. Geophys. Union, Washington DC, 1981).
3. Wallis, D. D. *et al. J. Geophys. Res.* **84**, 1347-1360 (1979). | [ISI](#) | [ChemPort](#) |
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5. Foster, J. C. & Vo, H. B. *J. Geophys. Res.* doi:10.1029/2002JA009409 (2002). | [Article](#) | [ChemPort](#) |
6. Craven, J. D. *et al. Geophys. Res. Lett.* **21**, 2793-2796 (1994). | [ISI](#) |

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Synopsis

All PLoS Biology research articles are accompanied by a synopsis written by a professional science writer for a general audience. It is our goal that the synopses will provide non-experts with insight to the significance of the published work. We hope you enjoy reading them.

Borneo Elephants: A High Priority for Conservation

DOI: 10.1371/journal.pbio.0000007



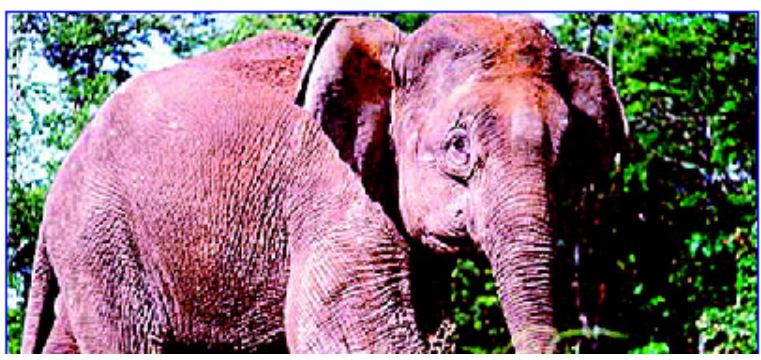
Published August 18, 2003

Copyright: © 2003 Public Library of Science. This is an open-access article distributed under the terms of the Public Library of Science Open-Access License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

A new study settles a long-standing dispute about the genesis of an endangered species. With scant fossil evidence supporting a prehistoric presence, scientists could not say for sure where Borneo's elephants came from. Did they descend from ancient prototypes of the Pleistocene era or from modern relatives introduced just 300–500 years ago? That question, as Fernando et al. report in this issue, is no longer subject to debate.

Applying DNA analysis and dating techniques to investigate the elephants' evolutionary path, researchers from the United States, India, and Malaysia, led by Don Melnick of the Center for Environmental Research and Conservation at Columbia, demonstrate that Borneo's elephants are not recent arrivals. They are genetically distinct from other Asian elephants and may have parted ways with their closest Asian cousins when Borneo separated from the mainland, effectively isolating the Borneo elephants some 300,000 years ago.

In the 1950s, Borneo elephants had been classified as a subspecies of Asian elephants (either Indian or Sumatran) based on anatomical differences, such as smaller skull size and tusk variations. This classification was later changed, partly because of the popular view that these animals had descended from imported domesticated elephants. Until now, there was no solid evidence to refute this belief



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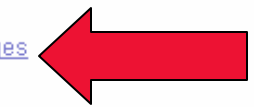
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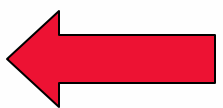
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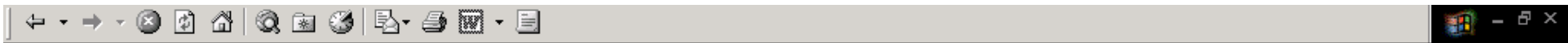
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brief communications

biodiversity

**Biodiversity (Communications arising (reply):
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DAVID QUIST AND IGNACIO H. CHAPELA

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**Biodiversity (Communications arising): Maize
transgene results in Mexico are artefacts**

NICK KAPLINSKY, DAVID BRAUN, DAMON LISCH,
ANGELA HAY, SARAH HAKE & MICHAEL FREELING

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**Biodiversity (Communications arising): Suspect
evidence of transgenic contamination**

MATTHEW METZ AND JOHANNES FÜTTERER

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Conclusion

- Collaboration – better access for end users
- Digitized backfiles, linked references, forward linking and full text search are all coming together for powerful system
- Easy accessibility for users via Distributed Integration