sius increase in global mean temperature, especially those whose diets are mainly leaf-based such as the beautiful colobine monkeys. In contrast, New World monkeys will be virtually unaffected by a rise of two degrees in mean temperatures. However, even the South American species will begin to suffer if temperatures rise as much as four degrees Celsius (the currently predicted most extreme value), because suitable habitats will then become increasingly fragmented and small fragmented populations are more liable to chance risks of extinction.

These predictions are based on analyses of the ecological constraints that determine how much time animals are forced to rest. Animals that have forced rest have less time to forage for food or engage in other biologically essential activities, such as forming friendships. Although most primates have adaptations that help them cope with the heat, they head for shelter and rest when the sun gets too hot.

The researchers show that resting time is influenced by three main factors: the percentage of leaves in the animals' diet, temperature variation and mean annual temperature. When these three effects come together, susceptible species will be unable to cope and populations will go extinct.

The researchers used climate models coupled with an analysis of quantitative data on the behaviour, diet and group size of different primate species across the world. African monkeys and apes that have a high percentage of leaves in their diet are geographically more restricted even now, being confined to a relatively narrow region around the equator. However, fruit-eating species like the baboons and guenon monkeys of Africa typically have a much wider latitudinal range and can cope with a wider range of climatic conditions. This ecological separation between fruit- and leaf-eating species is much less obvious in the Americas, and so these species will be much less badly affected by climate warming. The contrast between the continents may be due to the fact that African fruit-eating species may have developed a particular ecological adaptation to more challenging habitats than those encountered by species in South America.

Lead author Dr Amanda Korstjens, from Bournemouth University, says: 'The possibility that enforced resting time might have so strong an effect on where on the map a major mammal group is likely to survive has not previously been appreciated. This study suggests that the amount of time available for monkeys and apes to gather food and socialise may be a key factor when looking at possible effects of climate change on animal distribution patterns in the past and in the future.'

'We often worry about deforestation and hunting as the two main factors threatening the extinction of primate populations,' says Professor Robin Dunbar, from the Institute of Cognitive and Evolutionary Anthropology at the University of Oxford, 'but these results suggest that even if we find ways to solve those problems, it may not save some species of monkeys and apes from extinction. Instead, we perhaps should worry about ensuring that we provide these species with habitats that are more in tune with their capacities to cope with climate change.'

'At overall temperature increases of two and four degrees Celsius, the distribution of habitat suitable for species that eat a lot of leaves will be greatly reduced,' says Dr Julia Lehmann, from Roehampton University. 'The distribution of suitable habitat would become progressively restricted and increasingly fragmented. The scale of the effect is sufficiently large that the implications for the survival of the dietetically more specialised primates are worrying.'

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MISCELLANY

Housing amphibians in cargo containers

Insulated shipping containers can make ideal rescue facilities for amphibians. They are:
– relatively inexpensive, often cheaper than new 'traditional' structures;
– available everywhere in the world, often as discounted 'retired' units that are still fit for this use;
– easily modified to meet particular specifications (every major port in the world seems to have a company that specializes in adapting units for other uses);
– modular, easily placed adjacent to or on top of each other so that they can be added one at a time to increase capacity at a given facility;
– ideal where space is limited;
– mobile and made to be easily transported, so they can be delivered 'ready-to-go' to a point of use or, if need be, relocated from one site to another (all they need is a concrete pad to sit on and a link to the local water and electric supplies);
– the perfect size to house an entire rescue population of an average-sized amphibian;
– easily modified to be an attractive exhibit by adding large viewing windows and graphics.

The use of insulated shipping containers for housing amphibians was pioneered by Gerry Marantelli at the Amphibian Research Centre (ARC) in Australia. The ARC has modified containers to order and supplied them to other organizations, including Tidbinbilla Nature Reserve, Taronga Zoo, Chester Zoo [see *IZN* 55 (3), 171–2] and Durrell Wildlife Conservation Trust.

The Amphibian Ark organisation recommends that these containers can be practical in many applications, and its partners are available to discuss their experiences (and vendors): (Australia) Michael McFadden **mmcfadden@zoo.nsw.gov.au**; (U.K.) Richard Gibson **richard@AmphibianArk.org**; (U.S.A.) Ron Gagliardo **ron@AmphibianArk.org**.

Kevin Zippel, Program Director, Amphibian Ark

The sixth living rhino species?

In April 2010, Colin Groves, Prithiviraj Fernando and Jan Robowsky cooperated in the publication of a pivotal paper (Groves *et al.*, 2010) on the 'sixth rhinoceros'. After reviewing a series of morphological, genetic and ecological data, they conclude that the taxon hitherto separated as the northern white rhinoceros on the subspecific level should actually be elevated to species status. Hence there are now six species of rhinoceros, the new one known scientifically as '*Ceratotherium cottoni* (Lydekker, 1908)'. This paper clearly shows the importance of taxonomy for policy in conservation.

Personally I believe that it is now time to move away from calling the taxa southern and northern white rhino. Historically, they have also been called Burchell's and Cotton's rhinoceroses, from their respective 'discoverers'. These names may no longer be appropriate. I wonder if anybody can suggest good popular names for these two kinds of African rhinoceros?

The move of four northern white rhinos from Dvur Králové to Ol Pejeta in Kenya has been successful so far [see above, p. 168].

Kees Rookmaaker in the newsletter of the Rhino Resource Center, No. 19 (May 2010), **www.rhinoresourcecenter.com**

Reference

Groves, C.P., Fernando, P., and Robovsky,