

taxonomic group, while descriptions of specific techniques are enclosed in boxes. Few readers, I think, could browse through the techniques without finding new and thought-provoking ideas; and, as befits a publication largely produced by and for keepers, the suggestions tend to be economical, not merely financially, but – of equal importance – also in their demands on staff time. David Field emphasises that if enrichment is to become an integral part of a zoo's husbandry regime, it is essential that it can be incorporated into daily routines without producing undue pressure on keepers.

ABWAK's journal, *Ratel*, regularly includes a section on environmental enrichment. From now on, at the end of each year these enrichment articles will be available to be purchased as a separate block for insertion into the *Guidelines* binder. But I predict that many owners of the volume will also make their own – hand-written, word-processed or photocopied – additions. Each copy of *Guidelines for Environmental Enrichment* can develop in its own way; many of them, I'm sure, will grow and grow. What a good idea it was to issue it as a loose-leaf, ring-bound volume!

Nicholas Gould

Forthcoming meetings

12–16 May 1999 – The 39th International Symposium on Diseases of Wild and Zoo Animals will be organised by the Institute for Zoo Biology and Wildlife Research (IZW) and hosted by Schönbrunn Zoo and the Veterinary University of Vienna, Austria. Main topics of the symposium will be the breeding, husbandry, control and diseases of elephants; anthropozoonoses in wild and zoo animals; and diseases of Lagomorpha and Rodentia. For further information please contact: IZW, P.O. Box 601103, 10252 Berlin, Germany (Tel.: +49 30 5168 728; Fax: +49 30 5126 104; E-mail: froelich@izw-berlin.de)

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29 August–3 September 1999 – The Fourth International Conference on Environmental Enrichment will be hosted by the Royal Zoological Society of Scotland and take place at the University of Edinburgh. The main aim of the conference is to provide a forum for discussion between the theory-based scientist and the practical application of the zoo keeper. There will be oral presentations, workshops, posters and discussions that deal with all aspects of environmental enrichment. For further information please contact: In Conference Ltd, 10B Broughton Street Lane, Edinburgh EH1 3LY, Scotland, U.K. (Tel.: +44 131 556 9245; Fax: +44 131 556 9638; E-mail: inconference@cableinet.co.uk).

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23–26 February 2000 – Wolves: A Global Symposium will be hosted by the International Wolf Center and the University of Minnesota Duluth University College. The focus will be on wolf recovery and management. For further information, contact: International Wolf Symposium, UMD-University College, 251 Darland, 10 University Drive, Duluth, Minnesota 55812-2496 (Tel.: 218-726-6819; Fax: 218-726-6336; E-mail: mericks@umn.edu).

ANNUAL REPORT

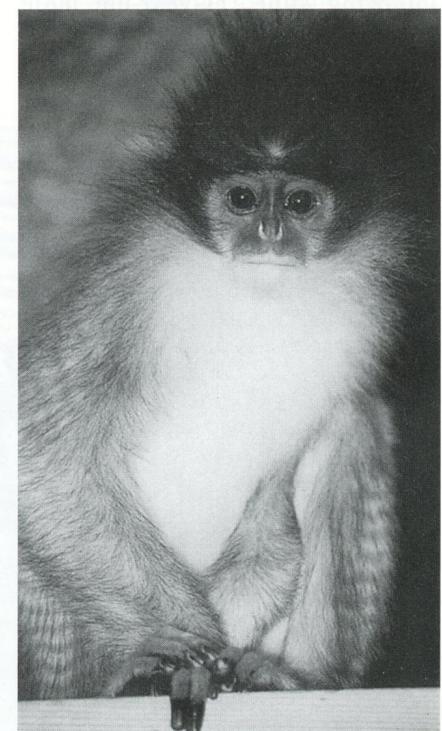
HOWLETTS AND PORT LYMPNE WILD ANIMAL PARKS, U.K., SUMMER 1997 TO SUMMER 1998

Extracts from *Help Newsletter* No. 20

Primates

Howletts had 15 primate births – six Javan langurs, a dusky (spectacled) langur, three banded leaf monkeys, two colobus, a black howler, a white-faced saki and a moloch gibbon – and only one infant, a banded leaf monkey, did not survive. New arrivals were a group of six woolly monkeys from Apenheul, and nine banded/mitred (*Presbytis melalophos*) and eight grizzled (*P. comata*) leaf monkeys from Indonesia (see overseas news, below). The arrival of the banded and mitred leaf monkeys will give our small gene pool of this species a valuable boost. The arrival of an adult male mitred (*P. melalophos mitrata*) is particularly important, as our group of fully fertile, proven mother-rearing mitred females have been without a male of their own subspecies for over three years. Even more important, however, is the arrival of the grizzled leaf monkeys, a species endemic only to western Java, where it is highly endangered and estimates suggest only 1,000–2,000 remain. Our experience and unique breeding success with the related *P. melalophos* over the last 11 years has placed us in a position where we can attempt to establish a breeding colony of this species in captivity. The reduction of numbers in the wild continues from deforestation and hunting, and in 1997–8 the catastrophic effects of forest fires and the

threats from political upheaval in Indonesia have served to remind us just how vulnerable such small populations of forest-dependent wildlife are. Unfortunately two females had to be euthanased due to illness within the first month of arrival; one had peritonitis from a liver infection and the other showed a positive reaction during routine TB testing. But had they remained untested in Java, the entire group would probably have become infected, so it may be that we imported them just in time.



Female grizzled leaf monkey Pitith at Howletts. (Photo: Erni Thetford)

Among primate births at Port Lympne, the most surprising was that to Barima, a 26-year-old saki monkey, who is rearing the infant herself; it is said that the average age for this species is only 17 years, so she is obviously an exception.

Gorilla births continue to take place regularly, and in September 1998 the total for the two parks was 60 (27.33). Two mature males have left Port Lympne to lead breeding groups elsewhere, Biju at Ueno Zoo, Tokyo, and Jomie in London. In September 1997 Jomie had shown us an unpleasant side to his character by killing Cato, the male colobus whom we intended to run with the gorillas; it is thought that he pulled him through a gap in a hydraulic door which joins the two enclosures. The following June, 11-year-old male Boulas killed Mojo, a young diana monkey; we think Mojo had become

very confident in her interactions with the younger males, and possibly got too close to Boulas. After these two incidents, we no longer mix colobus or diana monkeys with the gorillas. At Howletts, a young male samango monkey suffered a broken jaw, but it is not clear whether this was the result of fighting within the samango group or a confrontation with one of the gorillas.

Carnivores

There have been more breeding successes among our canids. The newest Asian wild dog pack at Howletts once again reared a litter of five. Often at the front of their spacious enclosure, the 12 dogs here make a beautiful sight, their red coats contrasting vividly with the green grass, the pups entertaining the public with their games. At Port Lympne, last



Part of a twelve-strong breeding pack of Asiatic wild dogs at Howletts. (Photo: Nick Marx)

year's hunting dog success has been repeated with a litter to a new pair of dogs, Ben and Ashanti, who arrived from South Africa in December 1997. Last year's litter are now young adults and doing well. With the demise of wild dogs the world over, these successes could be of extreme significance for the future.

At Howletts, Tonkin, our breeding female clouded leopard, succumbed to cancer, and though at 12 years she would probably not have bred again, it was a serious loss. But perhaps sadder was Notyet, a hand-raised female 'cloudie', and perhaps the gentlest cat the park has known, always greeting her keeper - whether new or old - with friendship. She contracted Marie's disease, one symptom of which is a crippling and irreversible enlargement of the limb bones. Despite valiant attempts to save her by hand-feeding and syringing distilled water down her throat night and day, it was ultimately and very reluctantly decided to gently euthanase her. She is very much missed. We also feared we would lose a male Indian tiger, Jumna, who was suffering severe mouth lesions and constant and recurrent sickness. The prescribed medicines, though of some help, made him lose his coat. Then, on a hunch, we eliminated horse from his diet, and he completely recovered - we have a tiger who is allergic to horse meat!

The high point of the year with the Howletts tigers must be the continued growth and vigour of the cubs born to Schytta and Zcabs. Though we have always been able to enter enclosures with mother-raised tigers until recent rules dictated otherwise, a reliable handling relationship has not been achieved. Yet this is what we now have with these four tiger youngsters - probably a unique achievement. This close relationship and the time spent has given us a unique insight into the

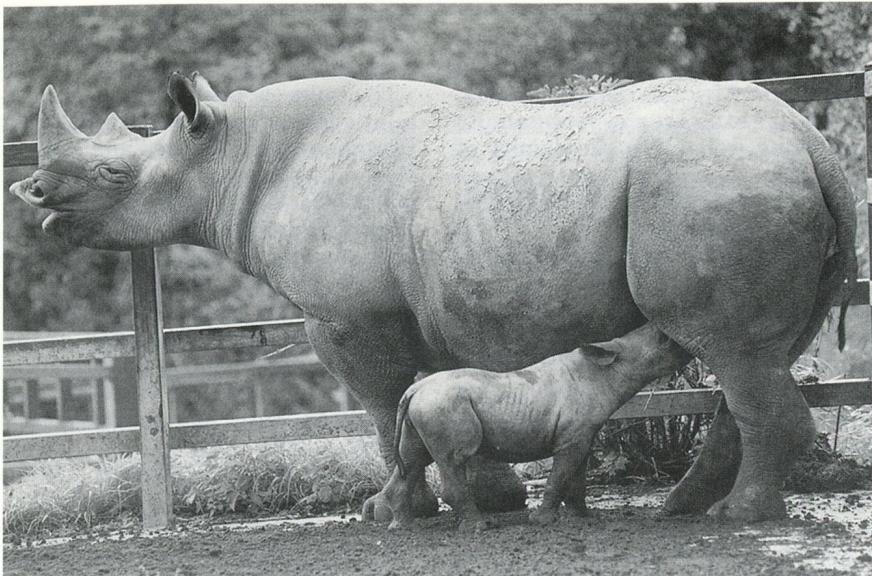
family life of these predators and their little-mentioned qualities such as tenderness and loyalty.

The value of such human-animal relationships was also shown at Port Lympne when a 'bonded' male tiger, Harami, collapsed in his shed only hours after being seen full of life. A *Clostridium* infection was suspected. The close friendship head keeper Adrian Harland has with this cat allowed him to hand-inject drugs and spend the night in the shed giving him water and helping him to change position, thanks to which Harami recovered, and has subsequently mated.

In December 1997, Pickles, a blind fishing cat at Port Lympne, underwent an operation to remove a cataract in his left eye. Early indications suggested that his eyesight had been greatly enhanced, especially when he was seen to catch and kill a bird in the enclosure, but as time went by it became obvious - judging by his inability to locate food placed in water - that he was actually relying on his other senses. In early August he was introduced to Lao, one of our older females, who has a gentle and placid temperament. Although they are unlikely to breed, it is hoped they will settle together and that Lao will not take advantage of his disability. Two pairs of our fishing cats went abroad to zoos in Germany and France. Matings have been regularly observed in both elderly pairs of rusty-spotted cats at Port Lympne, but unfortunately nothing has resulted from this; sadly no sexual behaviour has been seen in our young pair, although due to their secretive nature it is not always observed.

Hoofstock

At Howletts, the bongo are doing well, with a female calf born in summer 1998 and another expected



Port Lympne's female black rhino Etna with her calf Tana. (Photo: Berry White)

in the autumn. Louissa, last year's hand-raised female, was weaned before Christmas 1997 and has been fully integrated with the herd for some time now. The Brazilian tapirs seem to have formed an admirable pair, and produced their second offspring in August 1998; this calf came only 426 days after Chico's birth last year, and as the gestation period is approximately 400 days, the time-scale reflects the compatibility of the pair. A female chousingha (*Tetracerus quadricornis*) gave birth to one calf but was unable to pass the second, so it was decided to perform an emergency caesarean section. Unfortunately it was impossible to save the calf, but thankfully the mother survived and by the following day had convalesced sufficiently to continue to feed and raise her surviving offspring. A hand-raised blackbuck, Dehlia, gave birth in July 1998, and coped well despite her own unconventional upbringing and inexperience; the birth serves to reinforce

indications that she has been completely accepted into the social structure of the herd.

Two new species joined the collection at Port Lympne. Four female Burmese brow-antlered (Eld's) deer arrived from Leipzig and were joined by a male from Chester; three more are due to come from Prague at some point. Three female banteng came from a park in Germany, and were joined by five (2.3) more from Austria; a male calf was born in August.

Additions to our herd of black rhinos in the last year have brought the total number at Port Lympne up to 14. This is the most rhinos we have ever had, and our herd is now equal with that of Dvur Králové in the Czech Republic as the two largest captive groups of black rhino in the world. Our five-year-old cow, Etna, who originally herself came to us in 1995 from Dvur Králové, has helped us achieve this goal; on 8 September 1998 she gave birth to a female calf which she is rearing successfully. We

hope our other young cow, who stopped cycling some months ago, is also pregnant. In July 1998 we separated our mothers Rukwa and Nakuru from their babies; as both had started to cycle again, it was time to get them back in with the bull, and their calves, at around 20 months old, were getting quite big and more independent. The two (1.1) calves were put together and are now inseparable companions. After more than two years of negotiations, Lucia from Rome finally made it to Port Lympne in October 1998. Aged 27, she is a proven breeder but had been on her own for more than ten years in a small enclosure at Rome Zoo. She is a beautiful animal with a lovely temperament. Though it has been a very long time since she saw another rhino, she seems very calm and curious about her new surroundings. We look forward to getting her properly established in her new life, and hope that she will breed once again, bringing new blood to our group.

Elephants

The past twelve months at Howletts have been very interesting and also very entertaining, especially observing the three (2.1) new African calves, Jumar, Umna and Jassa, with their family group. All three have their own individual characters, and they are constantly play-fighting, which is very amusing to watch. All the rest of the herd are also fit and healthy. At the time of writing another female, Stavit, is definitely pregnant, and we are expecting her to give birth around October. [Stavit gave birth to a healthy female calf on 25 October 1998; the Howletts herd now numbers 16 (5.11), the largest group of African elephants in Europe. – Ed.]

Our search for a new bull to replace Assam in Port Lympne's Asian herd finally ended when we obtained Luka,

a proven bull from Belfast Zoo. After an initial settling-in period and a wait for dry weather, we were able to use a grass paddock to introduce him to some of our cows. This went very well indeed, with only minor pushing and shoving from him to assert his dominance over them. Within only a few hours of his meeting Yasmin, she stood for him and allowed him to mate her. He has now also mated Tanya and Motki, so things look promising. On 20 August 1998, Pugli finally gave birth after a 695-day pregnancy. She killed her first calf soon after birth in 1984, and her second, in 1996, although stillborn, was kicked around, so it had been agreed in advance that this calf should be removed at birth, with a view to returning it to her once she had calmed down. We have made many attempts to give this latest calf back to her, with or without sedation, but she has shown nothing but aggression towards him. So Ashoka, as he is known, is being raised by us, and we are now in the process of trying to foster him out onto another female, Motki, who seems to be quite interested but at the same time a little nervous. We are sure that, in time, she will take him under her wing; the sooner he can spend time freely in the company of other elephants, the better, as he will learn from them and only need us for feeding.

Overseas projects

In January 1998 the Congolese authorities revoked a previous decision to allow all the gorillas under our care to move to Gabon. Not only would the gorillas have to stay in the Republic of Congo, but they would also have to go back to the sanctuary at Lefini. This decision came as a great disappointment, as we had set our hopes on the isolated paradise of the newly-found site at Mpassa, in south-east

Gabon. Thanks to the courage and determination of the eco-guards at Lefini, the six gorillas who had been left in the sanctuary had survived the war unscathed and were in perfect health; so work is proceeding on the return of the 11 gorillas who had been evacuated to Pointe Noire, together with two more infants confiscated subsequently. Although the Congo project is to continue, it was decided to go ahead with the new sanctuary in Gabon anyway. The site is far more remote and undisturbed than that of Lefini, and has a greater wildlife population, including elephants, hippos and crocodiles. The first four gorilla babies arrived at Mpissa in July 1998, and are now spending the whole day in the forest across the river from the base camp; several more will be joining them shortly.



Sumatran rhino bull Torgamba attempting to mate Bina at Way Kambas. (Photo: Marcellus Adi)

In January 1998 Torgamba was returned to the new 300-acre (120 ha) Sumatran Rhino Breeding Area in the Way Kambas National Park. The transfer took place without significant problems, and as part of the same operation Torgamba was joined by two females from Indonesian zoos, Bina from Taman Safari and Dusun from Ragunan Zoo. At the time of

writing, all three rhinos are fine, though a little underweight. Torgamba has attempted to mate Bina, but so far no actual copulation has taken place, and Dusun has not cycled as yet.

While in Indonesia, Peter Litchfield, our general manager, saw a number of abandoned or confiscated leaf monkeys being kept in poor conditions at Ragunan Zoo. It was agreed that we would take some banded leaf monkeys on loan, along with some grizzled leaf monkeys from Bandung, for our breeding programmes at Howletts, and that we would also set up a breeding project within the zoo in Jakarta.

The Przewalski mare we sent from Port Lympne to run free in Mongolia with other reintroduced horses has produced a beautiful foal. The Foundation for the Preservation and Protection of the Przewalski Horse has introduced a further 20 horses to the Hustain Nuruu reserve; but it should be remembered that this still remains an extremely endangered species, with around a mere 1,450 worldwide. At the time of writing we have 1.2 in isolation, destined to go to Western Plains Zoo in Australia together with one from Marwell and a couple from Whipsnade.



Port Lympne mare with her Mongolian-born foal in the Hustain Nuruu Steppe Reserve. (Photo: Foundation for the Preservation and Protection of the Przewalski Horse)

INTERNATIONAL ZOO NEWS

Allwetter Zoo, Münster, Germany

A long-awaited birth took place after more than 22 months of pregnancy when Bernhardine, an Asian elephant cow born in 1984 at Rotterdam Zoo, had her first calf on 11 January 1999. It was a very quick birth, but when the keepers and veterinarians checked the calf they found it was not breathing. Intensive efforts to resuscitate the baby were successful after some minutes, but all attempts to lift it onto its feet failed. The next morning when the situation seemed hopeless the little elephant was euthanized - a great disappointment for the dedicated staff who had fought for its life for nearly 30 hours. The post mortem showed a herpes virus infection of the mother which prevented normal breathing of the foetus in the mother's body.

Although this was a sad event, it was a remarkable birth in elephant breeding history: the mother Bernhardine was the first full second-generation birth in Europe (both her parents were captive-born at Hanover and Copenhagen Zoos), and she has now started breeding herself. The calf's father, Alexander, was born in 1978 at Ramat-Gan in Israel and moved to Münster in 1994 when the zoo opened its new elephant facilities. For a few months now Alexander has been at Rotterdam Zoo, but there are still eight Asians in Münster, including a seven-year-old bull born at Hagenbecks in Hamburg.

Jürgen Schilfarth

Amsterdam Zoo, The Netherlands

For the first time in its 160-year history, the zoo has succeeded in

breeding European spoonbills (*Platalea leucorodia*). Amsterdam's colony of 14 birds had bred before, but did not rear the young. In 1998 four pairs produced ten healthy young which were all reared by their parents. The male of the first pair is already 16 years old and by far the oldest spoonbill in the colony. Two young of this pair hatched on 17 March and were reared. The same pair produced a second clutch of three eggs which hatched in early July; again, all the chicks were reared. The three other pairs were somewhat less lucky, but together produced the other five young. One of these pairs did start a second clutch on 22 August, but the eggs were found broken on the ground after extremely heavy thunderstorms in mid-September.

Amsterdam's spoonbill colony is housed in a large 26 x 20 x 8 m outdoor aviary, which was transformed about four years ago into a typical Dutch landscape exhibiting native species. The spoonbills benefited from this transformation, as they were the biggest birds left in the aviary. Two years later the birds were supplied with on-site winter accommodation, which permitted them either to stay inside or to step out into the meadow, which they clearly preferred during daytime. Thus we did not have to expose them any more to the stressful manoeuvres of relocating them in special winter enclosures elsewhere in the zoo.

A different diet may also have contributed to their apparent well-being during this first successful breeding season. Starting in February 1998, even before the first courting was observed, their pool began to be