tortoises were reunited. The subspecies is now well on its way to recovery. Although the population had its first successful hatching at the CDRS six years before Diego's return, he played a key role. By competing with the other two males, he supplied the necessary stimulation to produce more than 1,000 hatchlings! During the past three decades, some 1,000 tortoises have been reintroduced to a goat-free and vegetation-rich Isla Española.

There are currently 20 Galápagos tortoises at the zoo, including representatives from six locations in the archipelago. All but two of the subspecies are isolated populations on different islands or volcanoes, separated by geographic barriers of lava and water. The location best represented in our herd, with 4.2 animals, is Santa Cruz (formerly Indefatigable) Island, one of the largest in the group and home to the CDRS. The tortoise reserve on this island contains 2,000 to 3,000 Santa Cruz Island tortoises (*G. n. nigrita*). This subspecies is extremely large – males can weigh 600 pounds [270 kg] – and is known for its domed carapace.

Another part of our herd is made up of the subspecies native to three volcanoes on the northern half of Isabela Island. All three volcanoes have genetically distinct tortoise populations, and all three subspecies are found at the zoo. Volcan Alcedo is one of these volcanoes, and in their homeland Volcan Alcedo tortoises (*G. n. vandenburghi*) have the largest present-day population – 3,000 to 5,000. The Volcan Alcedo tortoise is similar in size and shape to the Santa Cruz tortoise; San Diego has two males and a female. Volcan Wolf is the northernmost volcano on Isabela, and at more than 5,000 feet [1,670 m], it is the highest point in the archipelago. There are several known tortoise populations located around this volcano. San Diego has 1.1 from an area known as Piedras Blancas. This subspecies, *G. n. becki*, is known for its 'intermediate' shell shape, a term used to describe a combination of 'domed' and 'saddlebacked' forms. The last volcano in the northern half of Isabela Island is Volcan Darwin; because of easy accessibility, the tortoise subspecies on this volcano was profoundly victimized by passing ships. San Diego has 1.1 Volcan Darwin tortoises (*G. n. microphyes*), also characterized by its intermediate shell shape. Representing the southern half of Isabela Island is the Volcan Cerro Azul tortoise (*G. n. vicina*), which is large and has a domed shell. Old Number 5, one of our most famous and certainly our biggest tortoise, is one of our two male representatives of this subspecies. A majority of the tortoises collected during the Townsend Expedition were Volcan Cerro Azul tortoises.

The sixth and final subspecies at the zoo is the James Island, or Santiago Island, tortoise (*G. n. darwini*). The island itself is large but may contain a population of only 500 tortoises. Santiago Island tortoises are being bred at the CDRS and released back onto their native island, thus boosting the small wild population. The story in zoos is less hopeful: we have the only two Santiago Island tortoises in the United States, but they are both males. Unless more females are brought into the country, which is unlikely, the captive population of this subspecies will not increase.

There are many ways in which San Diego and other U.S. zoos are managing giant tortoises to ensure that they will be around to enjoy for a long time to come. Modern technologies have helped us identify the total captive population and the population still surviving in the wild. This will make it possible to have a 'dating game' of sorts, matching tortoises for breeding. At San Diego, we hope to use this new data with our population and make changes accordingly, because a herd of six subspecies could prove to be too large to manage properly. Currently plans are being made to better exhibit the tortoises and focus on breeding three separate subspecies. So we might need to say goodbye to a few of our tortoises so that they can join new breeding groups at other zoos, while at the same time bringing in some new individuals to assist our own breeding efforts.

Abridged from Thomas C. Owens in *Zoonooz* Vol. 76, No. 10 (October 2003)

Wilhelma Zoo, Stuttgart, Germany

The great hornbill (*Buceros bicornis*) has always been an extremely popular exhibit bird in European collections. But in marked contrast to the large number of holders, breeding successes have been achieved in only a few institutions to date (Alphen aan den Rijn, El Retiro Malaga, Rostock and Walsrode). In 2003 Wilhelma was able to join the small circle of breeders.

For many years, a pair of great hornbills has been housed in a combined indoor/outdoor compartment of our large bird aviary. Dimensions are 400 × 600 × 250 cm (indoors) and 550 × 700 × 400 cm (outdoors). The outdoor aviary is heavily planted, while the indoor aviary is furnished with wooden perches and a nest-box of 80 × 72 × 90 cm with a 23-cm entrance hole on the front side. The female arrived from a small collection near Stuttgart 20 years ago and is of unknown age and origin. She was paired with a wild-caught male who arrived via Berlin Zoo in 1992. She was sealed in the nest and produced infertile clutches every year from 1994 on. Various environmental factors such as light–dark cycle, light intensity, temperature, diet, type and diameter of perches, etc., were altered but did not improve reproductive success, and the male was finally exchanged for another wild-caught male kept at Vogelpark Detmold-Heiligenkirchen since 1973. The transfers were carried out in the framework of the EEP in August 2002.

The female and her new partner got along with each other extremely well from the day they were introduced. The female entered the nest-box just a few months later, on 22 January 2003, and was sealed in. She laid two eggs, and on 10 March our keepers heard the begging calls of two newly hatched chicks. The chicks were raised on a diet consisting mainly of pinky rats and mice, giant mealworms, locusts and crickets. No complications occurred and the chicks fledged within one hour of each other on the afternoon of 22 May.

Despite this long-awaited and encouraging success, many more efforts are necessary to establish a self-sustaining EEP population of this charismatic bird.

Gunther Schleussner in *EAZA News* No. 44 (October–December 2003)

News in brief

A Bolivian gray titi monkey (*Callicebus donacophilus*) was born on 28 March at Dallas Zoo, Texas, U.S.A.. The youngster is being parent-raised on exhibit. This is the 13th titi birth at the zoo, and the first offspring for the mother, who arrived from Sunset Zoo, Kansas, in 2002; the father has been in Dallas since 1988. There are fewer than 40 Bolivian titi monkeys in the United States, the only country outside of South America where the species is exhibited.

Communiqué (American Zoo and Aquarium Association), October 2003

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The oldest Indian rhino at Tierpark Berlin-Friedrichsfelde died on 1 October 2003 at the age of 36 years. This rhino, a female called Kumari, arrived in Berlin from Nepal on 1 August 1967 as a baby (approximately three months old) via the animal dealer G. Munro. Kumari gave birth twice: a stillborn male in 1985 and a bull calf on 1 January 1990 – her son Belur, now the Tierpark's breeding

male. [See: Blaszkiewitz, B. (1997): Rhinos in Berlin. *IZN* 44 (7), 403–406.]

Dr Bernhard Blaszkiewitz

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Cincinnati Zoo, Ohio, U.S.A., is pleased to announce the hatching of a king penguin on 28 July. This is thought to be the first time a king penguin has been produced in captivity without the use of artificial incubation. The pair of adult birds incubated the egg for 54 days and provided the initial care for the chick.

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A nine-strong troop of hamadryas baboons have joined four white rhinos and six giraffes in the African paddock at South Lakes Wild Animal Park, Dalton-in-Furness, U.K. It is thought to be the first time this combination of species has been placed in a mixed exhibit in any zoo.

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Two (1.1) red panda cubs were born at Knoxville Zoo, Tennessee, U.S.A., on 7 July. This brings to 80 the number of births at the zoo since 1978, making it the most successful breeding institution for this species in North America, and the second most successful in the world. The zoo offers annual workshops designed to train keepers in the optimal care of the species with regard to husbandry, diet, medical care, enrichment, training and cubbing.

Communiqué (American Zoo and Aquarium Association), October 2003

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