

RHINO CONSERVATION

Northern White Rhinos

The Wild Side

Despite prodigious reproduction in the wild, four civil wars, power politics and the fierce Janjaweed horsemen finally tipped the scales for the Northern White Rhinos.

STORY BY KES HILLMAN SMITH

In 1986 we wrote “A Last Chance to Save the Northern White Rhinos (NWR)?” referring to the successful project we had with IZCN (*Institut Zairois pour la Conservation de la Nature*) the wildlife protection agency of what was then Zaire. (Hillman et al. 1986). In the October-December 2022 issue of *Swara*, we wrote again about a last chance for the “Extinction or Survival?” of NWR. But how had we come to such a situation?

Northern White Rhinos (*Ceratotherium simum cottoni*) are the rarest and most endangered large mammals on earth. Their story encompasses absolute extremes -- from discovery, through challenging, often dangerous, conservation in little-known wild areas of Africa, many of them beset by conflict.

The international programme, BioRescue covered in the previous issue of *Swara*, is one extreme. We were working at the

other extreme -- to conserve the NWR in the wild. This article outlines some of the successes, challenges and battles for their wild conservation over the past 40 years.

The White rhinoceros of north and central Africa was first described in 1908 by Richard Lydekker from specimens collected in Lado, Sudan, by Joseph Powell-Cotton, who lent his name to the sub-species: (*C.s. cottoni*, Lang 1920). They ranged from north-western Uganda through the Belgian Congo, Sudan, Cameroon and the Central African Republic and Chad. The River Nile was the easternmost limit of their distribution, but fossils of the white rhino precursor (*C.praecox*) have also been found in Ethiopia, Kenya and Tanzania (M.Leakey pers.com., Beden et al 1985). Then the NWR considerably out-numbered Southern whites (*C.s.simum*), which had been decimated by hunting to as few as 20. This ratio began to change as considerable

BELOW

Sub-adult Northern White Rhinos in Garamba National Park Zaire in 1993.

DID YOU KNOW

White rhinos are not actually white, but grey. The confusion results from a misinterpretation of the Dutch word 'wijde' (meaning wide, not white), used to describe the rhino's mouth.



PHOTO BY FRASER SMITH.

BIODIVERSITY

resources and efforts were put into the conservation of the Southern whites, but very little was invested in, or even known about the Northern whites.

In those days game capture was accepted practice. A total of 22 NWRs from Sudan and Uganda were imported to captive holdings between 1948 and 1975. Dvur Kralove Zoo in the Czech Republic held the largest group. They had been captured by Josef Wagner in the Shambe area of South Sudan in the 1970s, including the male *Sudan*, who was then a calf. Others were caught by Chipperfield in Uganda and Carr Hartley of Kenya and distributed to other zoos, including several in San Diego, United States.

Species conservation in wild indigenous habitats is the priority when possible. The wildlife is adapted to the habitat and conservation activities benefit whole ecosystems. But backup from captive groups has also proved important for species' survival.

In the 1970s and early 1980s, a wave of poaching hit eastern and central Africa, driven by the value of trade. I worked with Iain Douglas Hamilton to carry out the first pan-African Elephant Survey and Conservation Action Plan, then with ex-Chief Game Warden Ian Grimwood to do the same for rhinos and we started the IUCN African Rhino Specialist Group of rhino experts from each country. In 1981 Black rhinos were widespread, occurring in 18 or 19 countries and numbering 10,000 to 15,000, with varying degrees of support and threat. Southern White rhinos numbered around 3,000 in eight countries, (now over 17,000, Knight 2019). But separated from them by over 2,000km, the Northern whites then appeared to be less than 100 in South Sudan and Garamba National Park in what was then Zaire (now the Democratic Republic of Congo or DRC). They warranted the highest priority for their intrinsic value, low numbers and threatened status, but also because they represented unique ecosystems that were



TOP

Radio transmitter being inserted in horn of immobilised NWR.

BELOW

Northern White Rhino Male M2 Eleti in Garamba National Park, 1984.

DID YOU KNOW

The last male Northern White Rhino, *Sudan*, had appeared in many films and documentaries, including starring in the BBC film with his name, "*Sudan, The Last of the Rhinos*". *Sudan* and the last known female Northern White Rhinos *Najin* and her daughter *Fatu* have been symbolic of the fight to save a major charismatic sub-species from extinction in our lifetimes.

receiving little or no support. We set out to raise money for them. Prince Bernhard and WWF Netherlands provided initial support.

Rhinos in South Sudan appeared to need the most money to make Shambe Game Reserve into a National Park. Zaire's Garamba National Park, well-staffed and established in 1938, needed only a small amount of support. But Garamba has been through challenges.

In 1960, the rhino population in Garamba had been estimated at between 1,000 and 1,300 (Cornet d'Élzius 1957), but during the Simba Rebellion in the ex-Belgian Congo in 1963-4, rhinos and elephants were decimated, leaving 100-200 rhinos (Curry Lindhal 1964, Hillman Smith 2014). With the re-development of the conservation authority, the number of rhinos increased again, and an aerial survey of Garamba in 1976 estimated 490±270 rhinos and 22,670±11,790 elephants (Savadge et al 1976). Then, in 1978 the FAO/UNDP project that had been supporting the

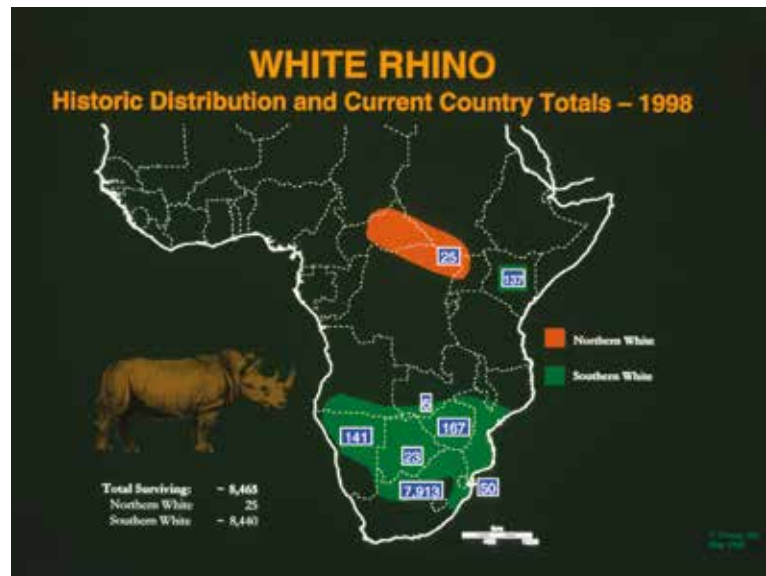


park left and the poaching of the late 1970s hit Garamba. Rhinos and elephants were again massacred for ivory and horn. To assess conservation feasibility we flew systematic aerial surveys of Garamba, where results showed 13 to 20 rhinos (Hillman et al 1983) and Shambe, where we saw no live rhinos, three dead and several carcasses of other species. Fraser Smith and I also walked the ground survey of Garamba and sweated on foot and vehicle across long distances in South Sudan. Then the civil war in Sudan resumed, so Garamba became the main conservation focus for the Northern White rhinos.

The Scientific Director of the IZCN, Mankoto ma Mbaelele, asked me to establish ecosystem and rhino monitoring at Garamba and continue to raise funds. Some 22 years later I was still there. So was Fraser, who became a Technical Specialist and later Head of the Project. We were married there and our two children were raised in that wonderful wild area.

When we started the Garamba Rehabilitation Project in 1984, I found, using individual recognition, only 15 rhinos. Elephants were down to about 4,000. Thanks to support from several NGOs and private donors, we were able to re-equip the park with vehicles, aircraft, radio systems, and the rangers with training, uniforms, equipment and rations, open roads, build river crossings, airstrips and patrol posts and top up salaries with a results-based bonus system. Poaching was reduced and the rhino and elephant populations doubled in 8.5 years (Hillman Smith 2014). There was great hope for saving the Northern White Rhinos and Garamba National Park.

But rhino numbers were low and bottlenecks limit genetic diversity. The only other known Northern White gene pool was the captive animals. The rhinos that had been moved from West Nile in Uganda to Murchison Falls National Park had all been killed. When I first presented the results of the African Rhino Survey at a meeting at the London Zoological Society attended by both captive and wild rhino biologists, it was clear that linkages between wild and captive Northern White rhinos were going to be important for their long-term future. I travelled to Dvur Kralove, met with Kristina Tomasova, then the white rhino studbook keeper, and maintained communication with the zoo. They worked to improve breeding, but rhino breeding in zoos was low compared with the wild, where we were finding a 9.5 per cent annual birth rate increase. A Danish biologist, Hanne Lindemann, surveyed the factors affecting rhino breeding in captive



MAP CREDIT TOM FOOSE



PHOTO BY KES HILLMAN SMITH

institutions and found that where it was possible to hold reasonably sized groups of rhinos and allow male territories, they bred better than if they were managed as male/female pairs. This mimics what we have found in the wild where alpha males are territorial to give them mating rights. Adult females have larger ranges, which overlap with males. Sub-adults move even further, seeking new territories, often with links to related adult females in a clan structure.

Biopsy darting, as a non-invasive technique of genetic sampling, had just been developed by roving WCS vet Billy Karesh. We sampled 10 individuals using this method and took the tissue to the new Molecular Genetics lab at the National Museums of Kenya for analysis. When we later used radio tracking to improve the protection of the rhinos and Peter Morkel came to immobilise the rhinos, we also ear-notched them and the notch tissue was taken to Eric Harley's laboratory in Capetown for genetic analysis and storage. Analyses showed good genetic diversity among the Northern

TOP RIGHT

White Rhino Historic Distribution and Current Country Totals 1998.

BELOW RIGHT

5dF Jengatu and her son 5daM Millenium in termitaria short grass clearing 2000.

Biopsy darting, as a non-invasive technique of genetic sampling, had just been developed by roving WCS vet Billy Karesh.

Whites and that the difference between the Northern and Southern White rhinos was significantly greater than that between the Black rhino sub-species. In 2009 it was even proposed by Colin Groves that the Northern White Rhinos were sufficiently different to be considered a separate species. However, considering all factors, the Rhino Specialist Group still classifies them as sub-species.

The habitat in Garamba National Park is a Sudano-Guinean savannah, dominated by grassland in the south, with increasing bush and woodland towards the north, which is the DRC-Sudan boundary. The basic needs of all White rhinos are short grass, water and cover. The cover for them to hide from danger was generally provided in the park by tall *Loudetia* and *Hyparrhenia* grass. The grassland is interspersed with termitaria clearings. The rhinos liked to rest in them, surrounded by the perception of protection from walls of grass. Smaller annual grasses sprout around the edges of these clearings, providing palatable food for grazers when the coarse perennial grass is too long. Fire is an important factor in the long old dry grass. Following a series of experiments, we adopted a policy of mosaic burning, which provides a range of forage and habitat at all times of the year. The interface between long and short



PHOTO BY KES HILLMAN SMITH

grass was favoured by rhinos, combining grazing adjacent to cover. Conservation involves habitat management and behavioural understanding as well as anti-poaching protection.

Breeding in the natural social system was good. With protection rhinos and elephants doubled in eight years. But survival and population increase also depends on costly protection. Garamba was surrounded by war zones, where arms and ammunition were widely available and political pressures reigned. Injuries and even deaths were not uncommon among rangers as well as wildlife.

Much of the poaching was coming across the border from the war in South Sudan. Training, equipping and strategic developments of patrolling, aerial back-up and negotiations with the Sudan People's Liberation Army (SPLA) leadership focused on countering this.

TOP RIGHT

Team at work on 3eF Etumba, Immobilised for radio telemetry.

BELOW

Biopsy darting, Billy Karesh, Gingayo Panziama & Kes Hillman Smith.



PHOTO BY BRUCE DAVIDSON



PHOTO BY KES HILLMAN SMITH

In 1995, a meeting held at White Oak, United States to “discuss meta-population management” of the Northern Whites, agreed that conservation of the wild population was still the priority, but that it was important to have a backup group somewhere safe but natural, comprising rhinos from captivity and Garamba. However, there was considerable reluctance from both DRC and Dvur Kralove to risk removing any rhinos from Garamba or taking any from Europe to Africa. That meeting also agreed that the Northern Whites in captivity should be consolidated to try to stimulate breeding. One of the results was the movement of the male Saut from San Diego, where he was on loan, back to Dvur Kralove. The re-introduction of a new male to the rhinos there stimulated breeding and he mated with *Najin*, who in June 2000 gave birth to the female *Fatu* -- The Millennium Baby.

An emergency rescue of a few individuals from Garamba was agreed in principle if civil war broke out. Ol Pejeta Conservancy in Kenya was selected as the best option for a temporary rescue holding. Despite preliminary preparations, this proved impossible when the so-called Liberation War happened too fast. As the AFDL (*Alliance des Forces Démocratique pour la Liberation du Congo-Zaire*) fighters were moving through the country in late 1996

and early 1997, mercenary groups hired by then Zaire’s president Mobutu Sese Seko occupied the park headquarters, having seen what a strategic point it was, on the border, with airstrips and armed personnel. Fraser and a visiting ranger trainer were forced to relocate to a camp in the park. Then when the invading AFDL forces backed by ethnic Tutsi fighters from Rwanda entered the park headquarters in February 1997, they drove out the mercenaries, looted and disarmed the park rangers, stopping anti-poaching patrols. The resultant poaching free-for-all halved the elephant population and killed three-quarters of the buffaloes and hippos. But the rhinos only went from 31 to 29 with five deaths and three births until negotiations with AFDL enabled a re-establishment of patrolling. In May 1997 Laurent Kabila’s forces reached Kinshasa changing Zaire to the Democratic Republic of Congo and replacing Mobutu with President Kabila.

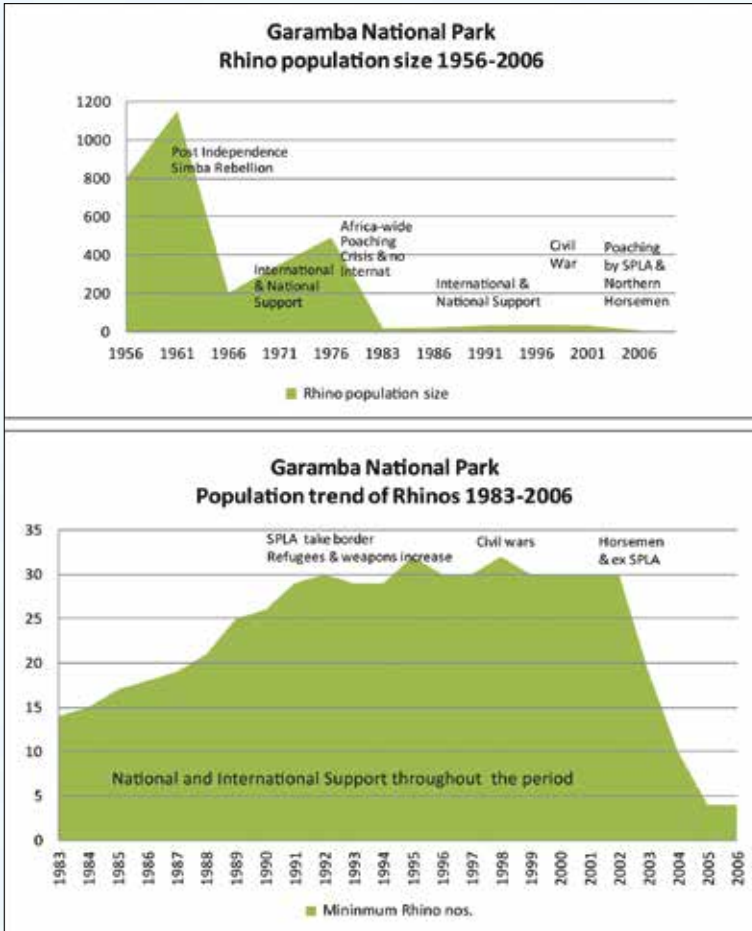
In Garamba we began re-equipping and re-building, but in August 1998 civil war broke out again when Kabila tried to get rid of the Rwandans that had supported his take-over. It divided the country into three with two-thirds occupied and controlled by Rwanda and Uganda. Fortunately, during this war, the five World Heritage Sites of DRC and the dedicated conservationists working in them

TOP
Garde Training at Bac Garamba 2004.

DID YOU KNOW

Northern white rhinos prefer to graze on short grasses lower to the ground, as opposed to their black rhino cousins, who browse on thicker roughage such as thorny acacia tree branches. A bit like lawnmowers, northern white rhinos sweep the ground with their wide mouths, which are broader and flatter than a black rhino’s.

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CREDIT: KES HILLMAN SMITH

BELOW

Inspection of young female rhino killed in 2004"; Credit: Chyulu Smith Francombe.



made history by developing the first project aimed at maintaining conservation during armed conflict. It was supported by money donated to the UN by CNN founder Ted Turner and channelled through UNESCO and the UN Foundation. Seventy per cent of the funds paid salaries and supported field rangers through the flexibility of the NGO partners.

Initially, this kept the populations of rhinos and other species in Garamba stable or increasing. We proposed to again use radio telemetry to enhance protection and the use of a helicopter was offered by filmmaker Alan Root. This coincided with the announcement at a meeting in Dvur Kralove by Thomas Hildebrandt of IZW that they could now maintain stored White Rhino semen which would facilitate assisted breeding. The only stored semen at that stage was from captive animals. We, therefore, proposed simultaneously collecting semen from some males in Garamba by electro-ejaculation while they were immobilised for the insertion of radio transmitters into horns. This would contribute wild genes without moving the animals. However, despite considerable efforts, ICCN did not agree, claiming that this was “stealing national heritage” despite offers from IZW to build a facility in Kinshasa and train technicians to store half the semen there.

Although the UN Foundation/UNESCO/ICCN project was proving successful in maintaining conservation within DRC, the conflict and shifting powers in Sudan left

the border area open to penetration by the fearsome *janjaweed* horsemen who had been killing people in Darfur and were expert elephant hunters. By 2003/4 whole groups of elephants and rhinos were being slaughtered and plundered for their trophies. We sought emergency funds from African Parks and did high-level training and motivation for the rangers. Rhino numbers plummeted to 15 in the park and two outside. By December 2004 there were only four in the park and four outside. At an emergency meeting, it was proposed that up to five should be removed for temporary safekeeping in Kenya but internal negative forces with other agendas were working against this suggestion and eventually it was rejected by the DRC government and donors were forced to pull out. Despite credible signs of rhinos in the surrounding reserves and in South Sudan, none have been confirmed recently and they are certainly close to extinction in the wild.

The ecosystem of Garamba and surrounding reserves is a World Heritage Site and is still being conserved by African Parks and is now considered safe enough to introduce Southern White Rhinos. The principles of the IUCN African Rhino Specialist group are to keep sub-species pure and in indigenous habitat when possible. This begs the question of the ethics of re-introducing artificially produced pure Northern Whites at a later stage if Southern Whites are there. However, since they are sub-species and can interbreed, it is probably better to retain as many Northern genes as possible even if combined with Southern. A



PHOTOS BY KES HILLMAN SMITH

calf, *Nasi*, of a Northern and Southern cross was born in Dvur Kralove. Having rhinos in Garamba again would contribute considerably to its value for conservation, but they will have some adapting to do.

The survival of the sub-species is now largely dependent on rhinos protected in captivity, but at least advanced breeding techniques of the BioRescue programme make this possible and the work of the Garamba National Park Project has conserved and shown the value of this very special ecosystem. ●

TOP RIGHT

Skulls of a young female rhino and her calf, Garamba NP .in 2004.

BELOW

Giningayo Panziama and Guy Mbayma Garamba NP



Kes Hillman Smith has a BSc and PhD in Zoology. She did the first pan-African Rhino survey, founding the IUCN African Rhino Specialist Group, and spent 22 years in Garamba conserving the Northern White Rhinos and ecosystem.

