

MALE-MALE AGGRESSION IN *RHINOCEROS UNICORNIS* - CASE STUDY FROM NORTH BENGAL, INDIA

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Introduction

In West Bengal Great Indian One Horned Rhinoceros (*Rhinoceros unicornis*) is confined to Gorumara National Park (80 km²) and Jaldapara Wildlife Sanctuary (216.5 km²) in mosaic of various vegetation types (Ghosh, 1991). There are few studies on various aspects of Rhino ecology and management strategies in this part of the country (Ghosh, 1991, Pandit and Yadav, 1995; Anon, 1997). Jaldapara Wildlife Sanctuary has population of 40 Rhinos and Gorumara National Park has 14 Rhinos. The population figure shows an increasing trend over the last decade. However, question has been raised over the future of this species in such small, isolated and fragmented patch of forests (Nandi, 1993; Bist, 1994; Raha and Yadav, 1996). Bist (1994) has reported certain incidents of male-male aggression in Jaldapara leading to death of the subordinate male.

The present study analyses the aggressive behaviour in male Rhinos of Jaldapara WLS and Gorumara National Park. Ghosh (1991) described in brief about male dominance relationship in Jaldapara Wildlife Sanctuary and Laurie (1978) studied this aspect in Royal Chitwan National Park in Nepal.

About Male - Adult Male Confrontation

Adult male Rhinos are solitary in nature and form temporary associations with females during sexual encounters. Home ranges of Indian Rhinos show much overlap between different individuals of each sex (Laurie, 1978) and concept of exclusive territory is absent in this species. Dominant adult male tries to establish its supremacy by show of strength with other adult males for mating with females in oestrus.

In Jaldapara Wildlife Sanctuary there are 9 adult males and 18 adult females at present.

During December, 1992 one adult male Rhino was sighted with injury on the back of the rump with bleeding occasionally in Jaldapara-5 and Torsa-1 Compartments. The injury was caused by intra-species fight with another adult male Rhino. The movement of Rhino was regularly tracked with the help of departmental Elephants and was located on day to day basis. In the last week of January 1993, this old aged Rhino, past its prime, was again attacked by the dominant adult male which travelled almost 10 km from Torsa-2 Compartment and inflicted severe injury to the old male

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Rhino, which was attacked many times. The movement of the injured Rhino became very slow and appeared to be weak. It was observed that after injury the old Rhino restricted its movements only to Jaldapara-5 Compartment near Chirakhawa river and spent most of the time in wallowing in a muddy water pool or in Chirakhawa river. Moreover, it would not leave the pool unless disturbed.

Intra-species fight

Fighting between these two adult male Rhinos was observed twice. Antagonistic behaviour of Rhinos was typical before and during the fight. The dominant male was observed to keep both its ears erect and forward and occasionally move its head upwards before approaching the old male Rhino from a distance of nearly 100 m. As the dominant male approached nearer the old male, it performed squirt-urination and rubbed the horn on a medium girth *Dalbergia sissoo* tree. This display was followed by dragging of the hind legs one by one making marks on the earth. Soon after, the dominant male ran towards the older male in full speed with lowered head and making typical sound. Older male Rhino was chased for a distance and was charged by the dominant male by pointed horn in the rump's flanks. During the fight dominant male also opened the mouth wide and displayed tusks.

The older male Rhino once turned suddenly to face the other but again ran after a brief pause. Dominant male Rhino chased the opponent for more than 300m with accompanying typical loud vocalizations. The weak old male Rhino ran in full speed with curled tail.

In another incident of clash similar behaviour was observed with additional head to head confrontation. The dominant male Rhino attacked with the horn and the tusks on the head of the weak male Rhino. Attacks were also made from side to side with aim at the head region. However, due to the movement injuries were also received on the neck and side of front folds. Both the male Rhinos frequently performed squirt-urination during the fight. At the end of every fight the dominant male Rhino totally overpowered the old weak Rhino.

Injury and treatment

After the first encounter with dominant adult male, the old male Rhino received injury on the left side of the rump. The wound was 45cm long and approximately 5cm deep. Subsequently more injuries were inflicted during fighting and old male Rhino sustained 15cm long wounds on both the hind legs below the fold. Bleeding was noticed from the wounds and part of it also indicated maggot formation. It was decided to give treatment to the lacerated wounds. Firstly for some days long acting antibiotics mixed with turpentine oil were sprayed on the wounds from a distance on Elephant back. This did not help much. On 5.2.1993, the injured Rhino was darted with 1.6 ml of immobilization drug and was tranquillised. Team of Veterinary doctors cleaned the wounds and treated with Himax ointment, Nebasalph ointment, Dexamethasone (30 ml), Conciplex injection (30 ml) and long acting penicillin (240 lacks). During the treatment an additional dose of Xylazine (150 gm) was pushed. After 47 minutes antidote injection Revivon (2 ml) was administered intravenously and the Rhino recovered

its reflexes. The movement of the Rhino was monitored regularly and it was reported that wounds were healing. The same Rhino was again attacked by the dominant male Rhino after three months and was it reported that horn was slightly broken on the top edge. There was not much severe injury. After 10 months in April 1994, the old male Rhino was injured during horn clash and sustained injury near the nasal opening and at the base of the broken horn. The injured Rhino was given dose of long acting Penicillin (200 lacks) in the months of April and August, 1994 using dart gun. In the last week of September 1994, the old Rhino was severely injured in the head region and was bleeding from the nose. On 6th October 1994, the injured Rhino was tranquillised at Jaldapara-5 compartment by giving dose of 1.74 ml of immobilion. There were two wounds near the nasal portion and base of the horn. The wound was at the right maxillary position. The injury at the base of horn was 10cm in diameter and extended towards the frontal sinus. The wound was putrified with maggot formation with pus and dead tissue debris which were removed. Treatment to the wounds was given as mentioned earlier and the animal was revived with the help of antidote revivon (1.8 ml). This was followed by spraying of medicine Himax; Betadime, Lignocaine 2% (30 ml) and Nebasulf. Injection Pendifure LA (48 lacks) was administered five times by dart gun. However, the condition of wounds further deteriorated because of violent encounter with dominant male Rhino in the first week of December 1994. The head region appeared to be swollen and continuous bleeding was noticed from the nasal openings and at the base of the horn. The injured Rhino was unable to move properly and spent

most of the time in wallow pool to avoid maggot formation. It was decided to tranquilize the injured Rhino and keep it in a temporary wooden stockade for intensive treatment and to prevent the chances of further fighting with the dominant male. On 23rd December 1994, the injured Rhino was tracked near the stockade in the grassland on Jaldapara-5 Compartment and was tranquillised using 1.6 ml. of immobilion (3.92 mg Etorphime HCl plus 16 mg Acepromazime). The Veterinary Surgeons examined the immobilised injured Rhino. They found that the left nasal passage was completely blocked by cancerous tissues with cauliflower like growth pattern. Sinus wound was created from nasal passage to bottom of the horn due to maggot infestation. Wounds were cleaned and long acting penicillin was applied intra-muscular. The animal maintained stable pulse rate, breathing and body temperature. The immobilised Rhino was carried on a wooden sledge to near the stockade. The overall operation took less than 45 minutes and 1.6 ml of revivon was administered intravenously. However, the injured Rhino did not respond and died.

Adult Male - Sub-adult Male Confrontation

Intra-species fighting in Rhinos was observed in Gorumara National Park involving one fully grown adult male Rhino and a sub-adult Rhino (5-7 years old). The stronger bull was the dominant male among the three male Rhinos in this national park. Calves generally remain with their mothers for three to four years and are quite protected by mothers. However after weaning from mothers juvenile males are attacked frequently

by stronger adult males. It was observed that this particular sub-adult male Rhino was very timid and used to flee immediately on the approach of stronger bull. This sub-adult male Rhino was repeatedly chased by the stronger bull and forced to move out of the prime Rhino habitat. The sub-adult male changed its range use after confrontation with stronger adult male and shifted to central Diana block after crossing the river Jaldhaka in the last week of August 1995. Central Diana block is fragmented patch of forest surrounded by tea garden and human habitation and was not considered safe from protection point of view. It was decided to drive this sub-adult Rhino towards Gorumara National Park using departmental Elephants. However, every time it went up to the Jaldhaka river it again ran back to a small *D. sissoo* plantation patch on the bank of the river Jaldhaka outside forest area. Since all attempts to drive back the Rhino failed, a team of staff along with one departmental Elephant were stationed that area to ensure safety of the animal, with the hope that the Rhino may, on its own, enter Gorumara National Park. However, the Rhino was reluctant to cross the river and confined its territory across Jaldhaka river near zero-bundh. It was then decided to translocate this sub-adult Rhino to Jaldapara Wildlife Sanctuary. The attempts for chemical capture failed in January, 1996 and the operation was ultimately abandoned apprehending that shock and trauma caused by chemically induced capture may have fatal result.

In the night of 29.2.1996 the sub-adult Rhino was attacked by the dominant bull Rhino which crossed the river Jaldhaka and fiercely charged the weak

Rhino. The staff camping nearby burst crackers and drove away the adult male Rhino using departmental Elephant. The fight lasted for around half an hour. During the fight, the sub-adult Rhino received severe injuries in the left and right thighs, under portion of the belly and on the left part of the face. Blood was also oozing from these injuries. It was evident from the injuries that the sub-adult male Rhino was completely overpowered by the adult bull and felled to the ground. The dominant bull used its horn fiercely to attack and injure the weak Rhino. Again after a week the dominant bull crossed the river Jaldhaka and entered the patch forest where sub-adult male Rhino had taken shelter. It chased the sub-adult male Rhino for around 4 km towards Gorumara National Park and forced it to cross the Jaldhaka river. The chase continued upto the Gairati Camp where adult bull overpowered the weaker one and again injured it in the right and left thighs. The injured Rhino took shelter in a secluded area of Medla-3 Compartment where Rhinos generally do not visit. The movement of the Rhino was tracked and it was observed that wounds which were quite severe. It was decided to keep the injured Rhino within the electric fence to prevent further fight with adult bull and to give proper medication. The sub-adult Rhino was guided with the help of departmental Elephant towards the electric fence area. The electric fence was switched off and part of it dismantled when it approached near the fence. When the injured Rhino entered that area the electric fence was made operational. Firstly for some days long acting antibiotics mixed with turpentine oil were sprayed on the wounds from a distance on Elephant back. The movement of the

injured sub-adult Rhino was regularly monitored and it was observed grazing, wallowing and drinking water. After three days the injured Rhino was seen in the resting position when staff went to spray medicine. It was able to move very slowly and again it went near a tree and took resting position. The veterinary doctors

administered intramuscular antibiotic and antipyretic injections including a life saving drug. The condition of the Rhino deteriorated fast and it was unable to move and died on 12th March 1996. According to the veterinary doctors the injuries were quite severe and Rhino became anaemic due to heavy blood loss.

SUMMARY

The present study analyses the aggressive behaviour of male Rhinos. Dominant adult male Rhinoceros attack frequently weak aged male Rhino and subadult Rhinos, who are recently weaned from mother. They try to establish supremacy by show of strength with other male Rhinos for mating with females in oestrus. Injuries inflicted during repeated intra-species fighting are many times fatal and lead to the death of weak males. The present study indicates that the dominant male Rhino frequently encroach upon the home range of other weak male Rhinos and compel them to leave the areas and restrict their movement to a particular area due to frequent attacks.

राइनोसेरोस युनिकोर्निस के नर-नर की आपसी लड़ाई - उत्तरी बंगाल में किया गया एक विशेष अध्ययन
 सी.के. यादव

सारांश

प्रस्तुत अध्ययन में गैण्डों के हिंसात्मक व्यवहार का विश्लेषण किया गया है। अधिरोही वयस्क नर बहुधा कमजोर उम्र वाले और कम वयस्क नर गैण्डों पर हमला करते हैं जिन्हें थोड़ा समय हुए ही भौं का दूध पीना छोड़ा होता है। वे गर्मी में ज़ाई मादा गैण्डियों से समागम करने में अपना वर्चस्व स्थापित करने के लिए दूसरे नर गैण्डों पर अपनी शक्ति का सिक्का जमाने का प्रयत्न करते हैं। जाति के अन्दर होती इन बारम्बार की लड़ाइयों में लगे घाव से कई जानलेवा बन जाते हैं और उनसे कमजोर नर मर भी जाते हैं। यह अध्ययन सूचित करता है कि अधिरोही नर बहुधा दूसरे कमजोर गैण्डों के अधिकार क्षेत्रों का अतिक्रमण करते हैं और उन्हें अपना क्षेत्र छोड़कर भागने को विवश कर देते हैं और बार-बार आक्रमण करके उनका चलाता-फिरना एक खास क्षेत्र को अन्दर ही सीमित कर देते हैं।

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