

Sumatran Rhino Sanctuary  
(SRS)  
YABI - Way Kambas National  
Park, Indonesia



**IRF PROGRAM  
4th QUARTER REPORT  
1 October – 31 December 2014**

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Date Of Verification: Januari , 2015**



## **Executive Summary:**

In 1993 a workshop on Rhino Population and Habitat Viability Analysis or PHVA was held in Bandar Lampung and followed with another in 1994 at Taman Safari Indonesia, Bogor. One of the recommendations as results of the workshop is to build a Sumatran Rhino Sanctuary or Sumatran Rhino Sanctuary (SRS) in Way Kambas National Park because of the failure of maintenance of Sumatran rhino in zoos. To the follow up, an agreement or memorandum of understanding between the Directorate General of Forest Protection and Nature Conservation (PHPA) Forestry Department, the International Rhino Foundation (IRF), Yayasan Mitra Rhino (YMR) and Taman Safari Indonesia (TSI) on In Situ Conservation Program Rhino Sumatra was signed on 7 September 1995. In 1996 begun the construction of a special zone (SRS) within the Way Kambas National Park, Lampung, covering an area of ~ 100 ha. In order for managing the daily activities of the SRS the Foundation established the Sumatran Rhino Sanctuary (YSRS). Until 2007 management SRS managed by YSRS and subsequently forwarded by the Indonesian Rhino Foundation (YABI).

In January 1998 the SRS received the first Sumatran rhino from Howletts and Port Lympne Zoo, England, that was captured in the forest of Torgamba Riau in 1985, and followed with the sumatran rhino from Taman Safari Indonesia, which was captured in the jungle of Bengkulu in 1991. 1998 SRS accept Hamlet, a female Sumatran rhino from Ragunan Zoo a female Sumatran rhino captured on September 9, 1986 in Sungai Dusun, Malaysia then sent to Ragunan Zoo Jakarta. After over 11 years inhabit the Ragunan Zoo, Hamlet transferred to SRS and lived there for 3 years. Hamlet died on February 7, 2001 due to degeneration and aging (senility). In 2005 SRS received 2 female Sumatran rhinos as results of rescue actions saving rhinos that were wandering out of the parks: the Ratu and Rosa. Ratu comes from the region of Way Kambas National Park while Rosa from Bukit Barisan Selatan National Park.

In 2007, SRS received the arrival of a male Sumatran rhino "Andalas" from the Los Angeles Zoo, USA. Andalas was born on September 13, 2001 in Cincinnati Zoo, USA and is a subsidiary rhino breeding between female Sumatran rhino "Emi" and a male Sumatran rhino "Ipuh". In 2011 (24 April) Torgamba died of chronic kidney disease (kidney failure) and aging (32 years). In 2012 (June 23) SRS produces rhino "Andatu" as the results of successful breeding of Andalas and Ratu

## **Introduction**

Preparation of the work program for Sumatran Rhino Sanctuary (SRS) in Way Kambas National Park in 2013 to 2017 is a continuation of activities of SRS 1998-2012.

The work program is expected to be the reference of SRS in carrying out the activities of the Sumatran rhino breeding until the year 2017, the program of synchronization with TNWK. SRS activities of 2013-2017 emphasizing the optimal reproduction activities by combining natural breeding and advance technology reproduction (hormones, insemination, etc.). with implementation of the work program that is adaptable to the on going situation in order to accelerate the achievement of the Sumatran rhino conservation to produce as many offsprings as possible within a safe environment.

Support and participation of the Sumatran rhino conservation activists and the government represented by the Ministry of Forestry is needed to materialize the purpose of the Sumatran Rhino Sanctuary activities. It is expected that SRS be the center of the Sumatran rhino breeding stock in balancing the Sumatran rhino population in the habitat, for the sustainability of life insurance badak sumatera, as a center for research and information Sumatran rhinoceros in exploring the science of conservation of Sumatran rhino is the benchmark of success of this program.

The SRS in Way Kambas National Park was formed as the last resort (asylum) for Sumatran rhino who failed to survive and proliferate in the zoos. SRS is managed, programmed, and integrated with the concept of a semi in-situ. Although still in a restricted area, the rhino kept as natural as possible to the needs of a much more natural than the time at the zoo. At the location of SRS, rhinos left to live alone in their respective areas (10-20 ha) which are interconnected to the center area as the location of the breeding (every 20-25 days / period). This system mimics the behavior of the Sumatran rhino in the wild where it is a solitary animal, and in SRS rhino has a fairly extensive cruising area, the topography of the natural habitat and food sufficient to complete variation. Here also additional supply of foliages and fruit that needs of eating is completely fulfilled.

In SRS main concern is the health of the rhino, including learning how to maintain and monitor the health of, the officer must know as early as possible abnormalities or disorders of rhino pain. Similarly, reproductive effort, always strived accuracy in time merger or breeding. Also samples of blood, urine and feces are to be checked regularly and be quickly tested in the laboratory. So far rhino health conditions are excellent. Weighting is done at least once in a week. Another attempt to anticipate the spread of disease is to perform annual diseases surveillance around the Way Kambas National Park, including the villages immediately adjacent to the park. Maintenance as

natural as possible in an attempt to improve the well-being and reproductivity of the rhinos, thus approaching normal conditions as in their natural habitat. SRS trying to uncover all the facts of information about Sumatran rhino scientifically which is expected to be the center of sumatran rhino research and breeding. It is also expected that SRS is to be a source of animals for reintroduction to strengthen natural populations (in-situ). Of course if the region wants to do introductions it need to be guaranteed as safe from damage and rhino poaching

Hopefully, this work program will be implemented as expected for the achievement of the Sumatran rhino conservation purposes.

### **Objectives**

1. Program Suaka Rhino Sumatera (SRS) menghasilkan Anak badak sebanyak-banyaknya kondisi yang aman baik untuk badak, manusia dan lingkungannya (Goal: menghasilkan banyak keturunan yang seaman mungkin)
2. SRS sebagai Pusat Perkembangbiakan (breeding), Penelitian Dan Informasi badak Sumatera.
3. SRS sebagai Asuransi (asuransi) keberadaan badak sumatera.

### **5 principles of freedom in the welfare of animals, namely:**

1. Freedom from hunger and thirst (free from hunger and thirst): Sumatran rhino should eat and drink according to the needs of natural feed
2. Freedom from discomfort (free of discomfort): minimizing disturbance and direct interaction with humans
3. Freedom from pain, injury and diseases : take precautions, and if ill have to get a diagnosis and treatment quickly and accurately. Officers in the SRS should be free from diseases, especially tuberculosis, hepatitis B and Salmonella to prevent transmission of zoonotic diseases.
4. Freedom from fear and distress (free from fear and stress): Perform the procedure or technique rhino correct handling
5. Freedom to express natural behavior (free to express natural behavior): provides a natural habitat and environment including access to breeding.

## **BADAK SUMATERA - SUMATRAN RHINO (*Dicerorhinus sumatrensis*)**

### **SRS program targets and result of October 2014:**

1. **Rhino health** (*continue regular monitoring and inspections*) – well done and all rhinos are in healthy condition. Rhino's body temperature 36.6° C – 37.4° C in normal range.
2. **Breeding success** – No breeding was achieved.
3. **Switching Rhinos to next Enclosure** – Success, all rhinos are switched to Enclosure "A" which has good forest coverage

### **Sumatran Rhino Health Update**

Routine monitoring procedures were conducted during this month, and all five rhinos in the facility are in good condition. Their daily activities such as walking, browsing, wallowing and resting are normal, since all rhinos are starting to be switched to new enclosure, which still have good forest coverage. Ratu and Andatu, which are being separated on last month are also enjoying their new enclosures.

Lack of rain within this month, made the daily temperature was hot and surface water is running out.

### **Andalas (Male, 13 Years Old)**

There was no health problem with Andalas within this month. His activities and Body condition was good, and the haematology result was in normal range. Body temperature ranged from 36,7 – 37,1 °C. Body weight was measured weekly and the result shown on the table below.

Andalas Body Weight Measurement			
08 October 2014	16 October 2014	23 October 2014	30 October 2014
805,0 - 805,5 kg	802 – 804 kg	799 – 801,5 kg	797,5 – 798,0 kg

The white spot scar on the right eyeball from the last operation still can be observed, but the size, thickness and depth is not getting bigger nor smaller.

He is calm and friendly towards people, probably because he is accustomed to human since he was born in a zoo. He enjoys his time in the stall 3 and also during the introduction program while driving him to central stall. When he is in the forest, he would better actively browse for food. He needs a lot variety of food, and sometimes

gets bored with one kind of leaf, and will ask for another variety of leaf in the stall. In this month, multivitamin was given to him, after he has exercised moment during mating with Ratu on 16<sup>th</sup> and 17<sup>th</sup> of October 2014.



Figure 1: *Andalas urine spraying*

**Bina (Female, 31 Years Old)**

Bina was in good condition in this month. Her activities and condition is normal, and hematology result was in normal range. Body temperature were ranged between 36,6 – 36,9 °C. Body weight in this month was shown in table below

Bina Body Weight Measurement			
08 October 2014	16 October 2014	23 October 2014	30 October 2014
751 -752 kg	740 kg	751 -752 kg	760 - 761 kg

Bina was aggressive toward people, but less aggressive recently. Even though, she's still has unpredictable aggressiveness, both in the stall or in the forest, especially when she was shocked by sudden movement or noise. Precaution should be taken very carefully while being around her.

Her daily husbandry was including daily eye checking, because she has eye hypersensitivity to UV light exposure, and will start to develop cloudiness on the eye

cornea. When this cloud eyes happened, it will be treated with ZnSo4 spray topically in the eye.

From Ultrasound examination on the 10<sup>th</sup> of October 2014, she shows good follicle with size 20,55 mm. Then it was decided that she will be inseminated with Andalas' semen through Artificial Insemination. This technique also combined with natural behaviour with introduction to Andalas.

From morning until midday, she was introduced to Andalas in the center area, and in the afternoon she was inseminated with 2 ml of Andalas' semen in the stall 5. On 11<sup>th</sup> October 2014 she was introduced again to Andalas.

### **Ratu (Female, 14 Years Old)**

After occupying her new enclosure on paddock 2, separated from Andatu, Ratu seems back to her normal activities of foraging. Her new enclosure with thick forest facilitates this behaviour. She also has no health problem this month. Her temperature ranged from 36,7 – 37,2 °C, and her body weight shown in the table below

Ratu Body Weight Measurement			
08 October 2014	16 October 2014	23 October 2014	30 October 2014
570 kg	569 -569,5 kg	569 -569,5 kg	565,5 kg

Ultrasound examination on her shows good follicles, and she was introduced to Andalas several times, but most of that time shows bad or negative response from Ratu. But on the 16<sup>th</sup> of October 2014, she shows good responses on introduction, and it was continued to put them together until 17<sup>th</sup> October 2014 morning, but no copulation was happening.



Figure 2: *Ratu, galloping*

### **Rosa (Female, 13 Years Old)**

Rosa was very tame Rhino, seems to have very close relation with the animal keeper and tends to like being around people. Uniquely, she seems to be shy and very aware with other rhino, including male during her “heat” period. During this month, she has no problem with health, thus also her activities and behaviour of foraging, wallowing and exploring was normal. Her blood result also shows normal ranged. Her body temperature ranged from 37,0 °C to 37,4 °C, which is quite high, but tends to normal to her. Her body weight was shown on the table below.

Rosa Body Weight Measurement			
08 October 2014	16 October 2014	23 October 2014	30 October 2014
622 - 623 kg	610 - 611 kg	612 - 613 kg	608 - 609 kg

Ultrasound examination also performed to Rosa and the follicle image was shown on the picture below.

She was introduced to Andalas on 18<sup>th</sup> October 2014 but the response was not good, and Andalas seems too tired from his exercised moments with Ratu the day before.



Figure 3: *Rosa, examining her new area*



### **Andatu (2 years, 4 months)**

After occupying his new enclosure from the beginning of this month, Andatu was observed to be happy to stay in his new place, his activities on foraging, wallowing and exploring the enclosure was seems to be active. Usually he was found in the very late morning, still enjoying his time in the forest, and need to be herded to the stall to get his daily husbandry treatment. He has no health problem in this month, the crack on his hoof that happened a few months ago is now almost reach to the bottom edge of the hoof, and he has no problem with locomotion.

His body temperature ranged from 36,6 °C to 37,0 °C, and his body weight was shown on the table below.

Andatu Body Weight Measurement			
08 October 2014	16 October 2014	23 October 2014	30 October 2014
518 - 519 kg	519,5 kg	530 kg	532 kg

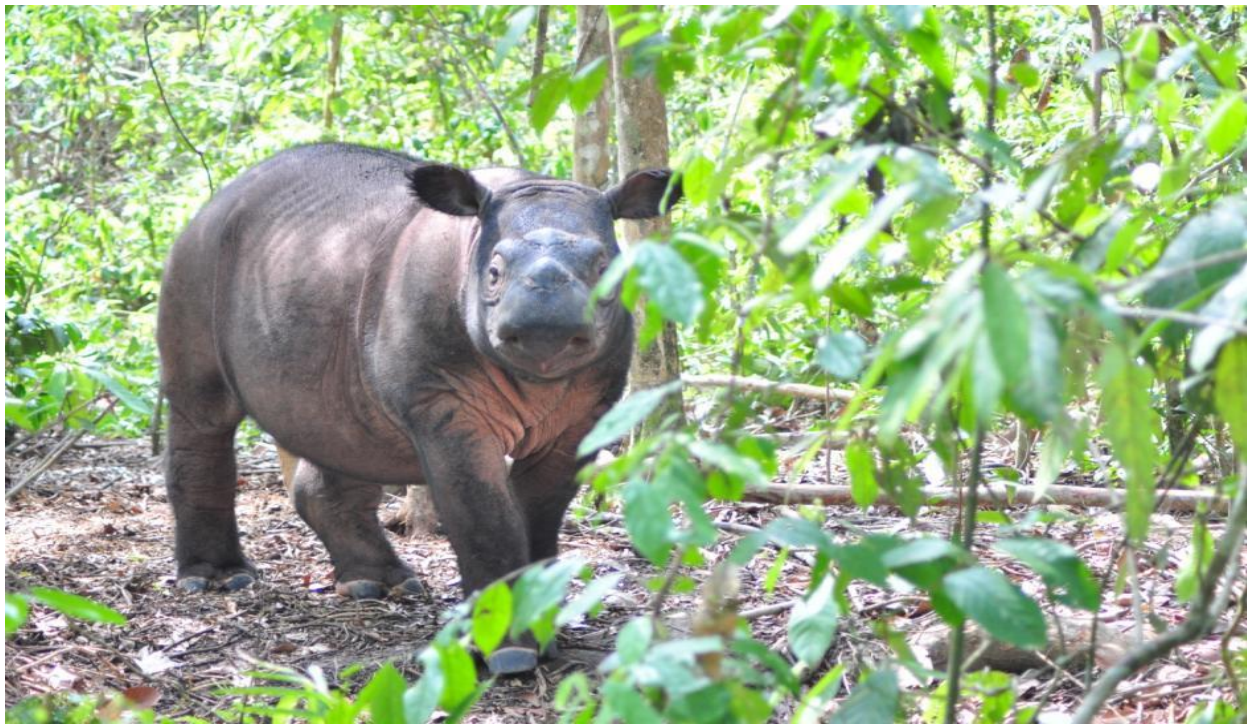


Figure 4: *Andatu, alert standing in his new area*

## Fecal Examination

Fecal examination that performed this month shows there is no helminth (worm) eggs or larvae found, and only normal protozoa found in small number.

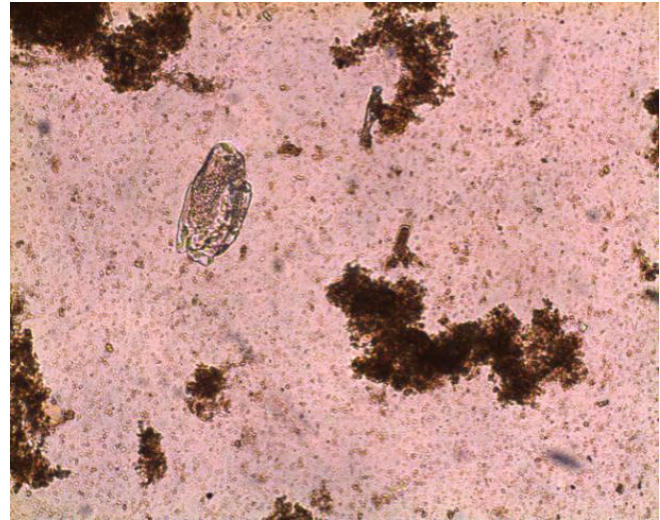


Figure 5: *Microscopy image of Cilista that found on Rosa's fecal sample*

## Reproduction Program Bina

Artificial Insemination was performed to Bina on 10<sup>th</sup> of October 2014, and continuing ultrasound monitoring was also performed.



Figure 6: *Dr. Dedi and team applied Artificial Insemination on Bina*



Figure 7: *Introduction Bina to Andalas to keep natural breeding and between this program was applied a artificial insemination procedure.*

## Ultrasound examination

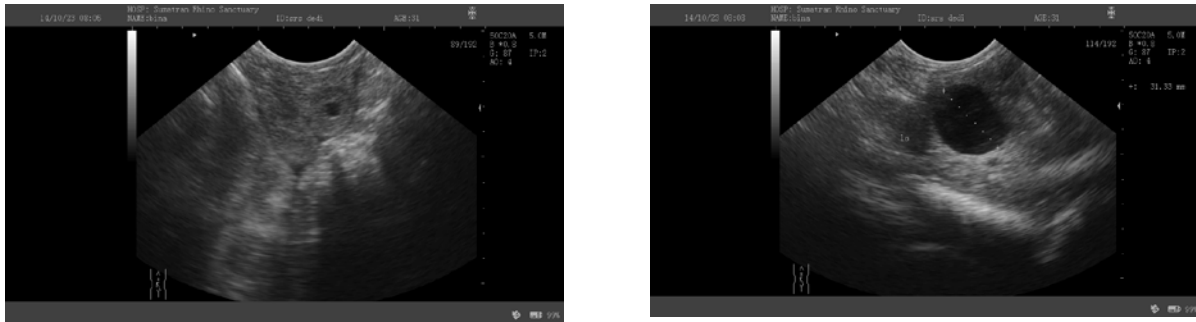


Figure 8: *Foreign body was detected on the right horn of Bina's Uterus, big follicle was also detected on the left ovary on 23<sup>rd</sup> October 2014, this is indicated Bina doesn't ovulation in this period*

## Rosa

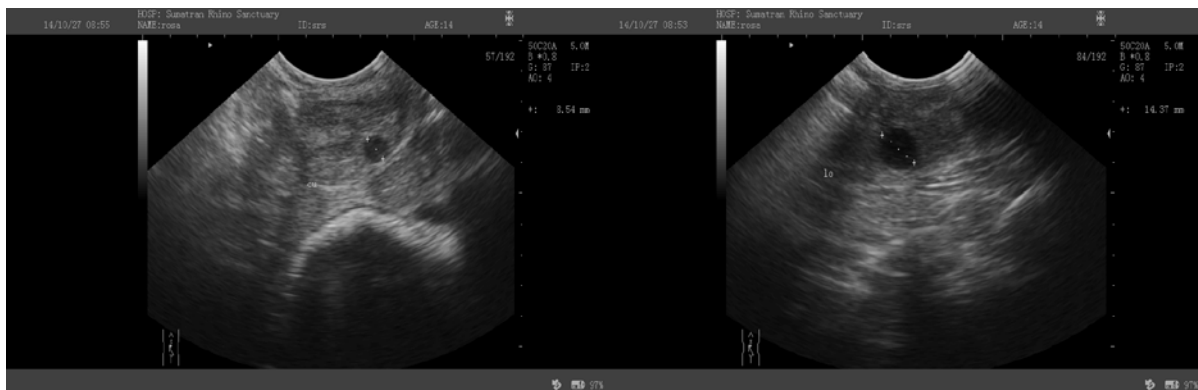


Figure 9: *Ultrasound image of Rosa reproduction organs with small follicles on ovary*

## Ratu

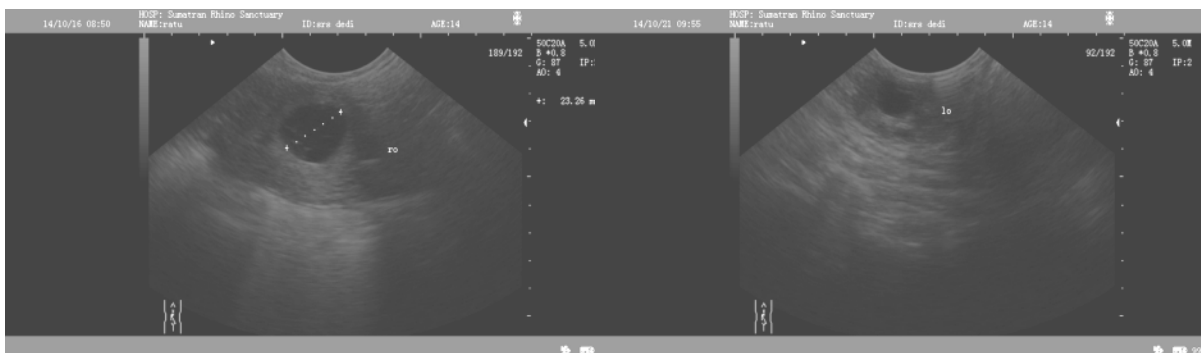


Figure 10: *Ultrasound image of Ratu reproductive organs with big follicle 23 mm size (left) and follicle has smaller in the few days (right)*



Figure 11: *Ratu and Andalas* in the introduce program

### **Watering Area with water tanker**

Within this month, rain did not fall that make the ambient temperature are very high and dry. To avoid any further disorder with rhino's health condition, the area was being watered with Water Tanker from National Park, using water source from SRS. This tanker is very useful to reach the area where hose could not reach.



Figure 12: *Watering the area with a water tanker vehicle*

## Director of Way Kambas NP visit SRS



Figure 13: *Ir. Dulhadi as director of WKNP was visiting the SRS and SRS's staff guiding to SRS tour.*

## Guess Visit



Figure 14: *Ir. Listya Wardani as director of "Pengendalian Pembangunan Kehutanan" Ministry of Forestry on Oktober 4<sup>th</sup> was visiting the SRS*

## Nursery Program



Figure 15: *Nursery program is one important activity at the SRS to support paddock location*

## Lampung University Summer Course program



Figure 16: *Ir. Dewi as a lecture in the Lampung University lead students to visiting the SRS on October 22<sup>th</sup> and dr. Dedi was giving a presentation about SRS program.*

## Wildlife Protection (WPS) visit



Figure 17: *WPS was visited the SRS and discussed with Dedi, Arief, Zulfi and Ujang about "apply technology for protection and monitoring Sumatran Rhino"*

## SRS's Fences trouble



Figure 18: *Broken tree is one of problem for the fences at the SRS*

## Sun Bear Rescue



Figure 19: *Dr. Dedi together with WKNP's staff were successful to rescue a sun bear in the forest. This sun bear was trapped by the poacher's trap.*



## **SRS program targets and result of November 2014:**

- 1. Rhino health (continue regular monitoring and inspections)** – Andalas has eye problem, he has corneal wound. And he was treated and back to normal condition. All other rhinos are in healthy condition. Rhino's body temperature 36.6° C – 37.4° C which is in normal range.
- 2. Breeding success** – No breeding was achieved.

### **Sumatran Rhino Health Update**

Routine regular health monitoring procedures were conducted during this month. Treatment was given to rhino that in condition of needed veterinary care.

#### **Andalas Corneal wound**

Andalas has suffers a corneal wound on his right eye, just above the scar from the last surgery. No definitive cause is known, but it was presumed that this was from scratch of twigs. On 17<sup>th</sup> of November 2014 morning he was found with thickening whitish cornea on the right eye, while the left eye was remains normal. Treatment was given with ZnSo<sub>4</sub> spray to remove the thickening layer, and in further observation, it was observed that he has wound on this eye. From 18<sup>th</sup> of November 2014, regime of treatment is changed to: Ofloxacin eyedrops, Gentamycin eye ointment, combined with general Enrofloxacin orally was given for 7 days. Meloxicam was also given orally, along with atropine ointment topically and autologous serum topically.

Andalas' right eye gradually improved, and on 22<sup>nd</sup> of November 2014 it was observed that his right eye getting improved and was back to almost normal condition again.



Picture 1. Andalus right eye condition on 18<sup>th</sup> (left) and 19<sup>th</sup> (right) of November 2014



Picture 2. Andalus right eye condition on 22<sup>nd</sup> of November 2014. Photograph with flash (left) and without flash (right)



Picture 3. Andalus eyes condition 2 weeks after treatment, left and right eyes

### Rhino Sole Pad Condition

During dry season, Andalus, Bina and Rosa's sole pad is getting thickened due intensive exposure to hot surface on the ground they were stepped on. And in the beginning of this rain season, the feet were exposed to wet condition. And the thickened soles were getting more soft, and sensitive to getting slit and cracked.

Daily observation and cleaning with chlorhexidine were applied to prevent further wound on the sole.



Picture 4. Andalus sole pad condition

### Information on Each Rhino

#### Andalus (Male, 13 Years Old)

Andalus activities and body condition was good, and the haematology result was in normal range. Body temperature ranged from 36,7 – 37,2 °C. Body weight was measured weekly and the result shown on the table below.

Andalus Body Weight Measurement			
09 November 2014	16 November 2014	23 November 2014	30 November 2014
789,5 - 790,5 kg	799 – 801 kg	797 – 798,5 kg	795,5 – 798,0 kg

He is calm and friendly towards people, and accustomed to human. His physical mark was on the scar on right cornea, which is not changed after another wound happened in this month. Attempts on introduction to females were arranged several times during this month. And multivitamin was given on 12<sup>th</sup> November 2014 for 3 days after introduction with chasing Rosa.

On November 8<sup>th</sup> his daily care was moved to central stall, due to renovation on stall three, and seems that he is okay with this arrangement.

### **Bina (Female, 31 Years Old)**

Bina was in good condition in this month. Her activities and body condition is normal, and hematology result was in normal range. Body temperature were ranged between 36,7 – 37,3 °C. Body weight in this month was shown in table below

Bina Body Weight Measurement			
09 November 2014	16 November 2014	23 November 2014	30 November 2014
757 - 755 kg	736 kg	744 – 745 kg	739 – 740 kg

Bina was calm but has an unpredictable aggressiveness when she was shocked by noise or sudden movement. She also has eye hypersensitivity to sunlight exposure, and will start to develop whitish cloud on the cornea. Treatment for this condition is eye spray with ZnSo4 that will help to remove the cloudiness.

### **Ratu (Female, 14 Years Old)**

Ratu has shy temperament, and uncomfortable with new people near her. In this month, she has no health problem and her temperature ranged from 36,7 – 37,3 °C, her body weight shown in the table below

Ratu Body Weight Measurement			
09 November 2014	16 November 2014	23 November 2014	30 November 2014
547 - 548 kg	555 - 556 kg	561 kg	550 – 551 kg

Almost every morning she was found close to the stall, and she was actively forage and eat in the forest in paddock 2, which still have good forest coverage.

### **Rosa (Female, 13 Years Old)**

Rosa was very tame Rhino and like to be around people, but seems to be shy and aware to male rhino during introduction. She has no problem with health and behavior in this month. Her blood results also did not show any abnormalities. Her body temperature ranged from 36,8 °C to 37,4 °C, which is quite high, but tends to normal to her. Her body weight was shown on the table below.

Rosa Body Weight Measurement			
09 November 2014	16 November 2014	23 November 2014	30 November 2014
624 - 626 kg	608 - 607 kg	622 - 624 kg	622 kg

From introduction with Andalus, she suffers minor wounds on the skin. It was shallow and superficial wounds that come from scratch of Andalus' horn and teeth, topical treatment with antibiotics ointment was given to this wounds.

She received oral multivitamin for three days after she has exercised moment, chased by Andalus during introduction on 12<sup>th</sup> November 2014 and back to normal condition afterwards.

### **Andatu (2 Years, 5 Months)**

Andatu is in good condition in this month, he is actively foraging, wallowing and exploring the enclosure. He almost always found resting on land in the morning and tends to not interested to come to the stall if he is not encouraged to. His daily care and treatment take place very last in the late morning amongst other rhinos here, due to these exploring activities. He also observed to lose his upper incisors at the beginning of this month and start to grow his adult incisors one week later.

His body condition is good and his body temperature ranged from 36,6 °C to 37,0 °C, and his body weight was shown on the table below.

Andatu Body Weight Measurement			
09 November 2014	16 November 2014	23 November 2014	30 November 2014
522 kg	528 - 527 kg	522 - 523 kg	522 - 521 kg

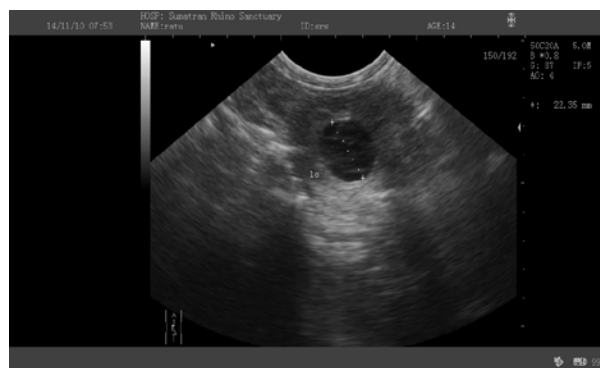
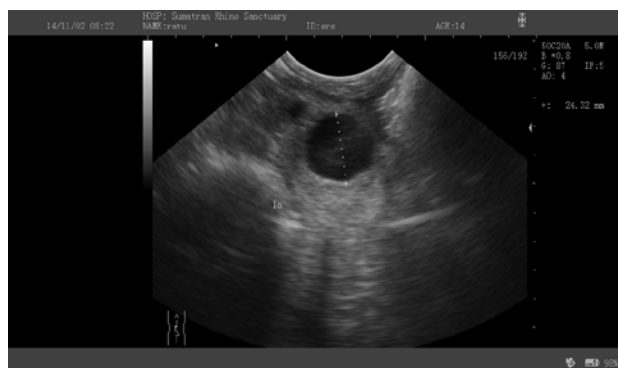
### Fecal Examination

Fecal examination for parasites that performed in this month shows negative results on Worm eggs and larvae and just found normal protozoa in small number.

### Reproduction Program

Reproduction monitoring on female rhino was conducted with ultrasound examination and also combined with behavior observation. Attempts on introduction between male (Andalas) and females (Ratu and Rosa) were arranged several times, but did not lead to copulation at the end.

### Ratu

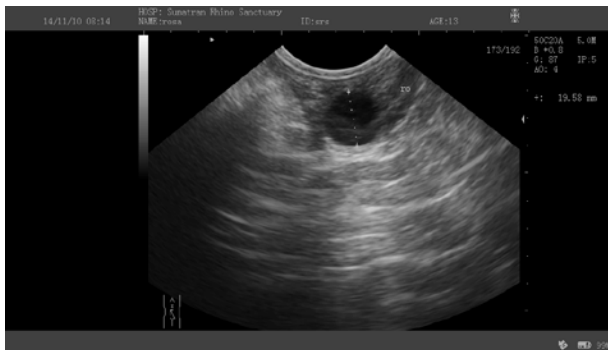


Big follicle was detected on Ratu's left ovary on 2<sup>nd</sup> of November 2014 (left) and still remains persist on 10<sup>th</sup> of November 2014 (right) indicates that Ratu did not ovulate in this period.



Attempts on introduction to Andalus did not resulting any copulation

## Rosa

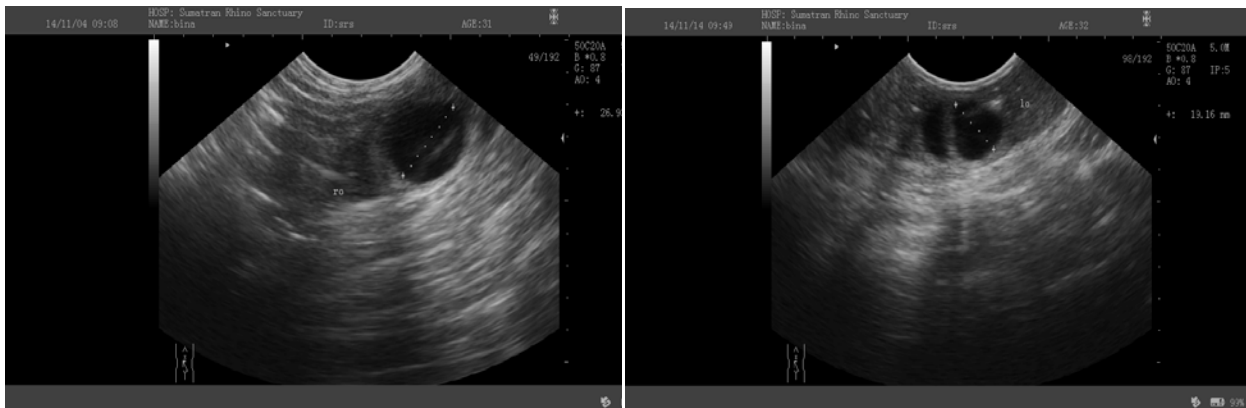


Big follicle was detected on Rosa's right ovary

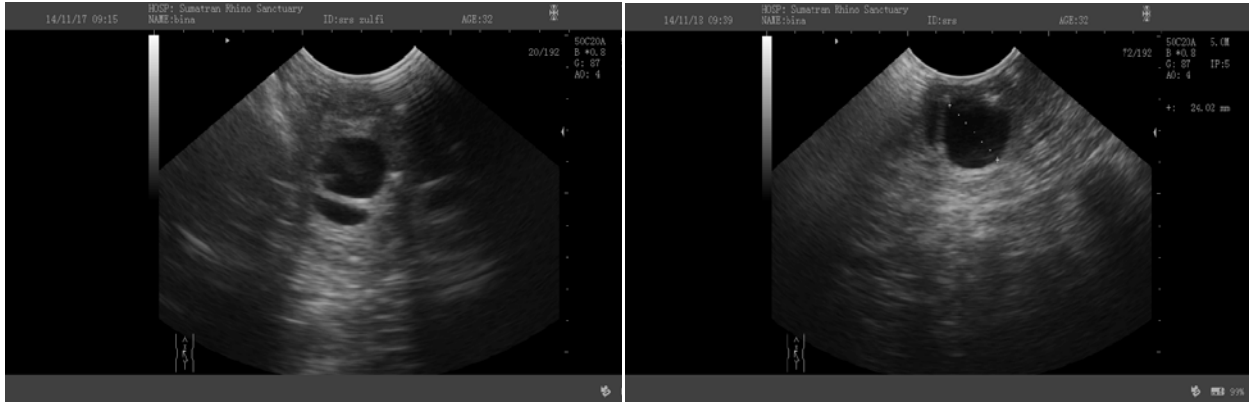


Attempt on introduction to Andalas did not resulting any copulation and end up with fighting and chasing

## Bina







Multiple follicle were detected on Bina's ovaries

## **SRS program targets and result of December 2014:**

- 1. Rhino health (continue regular monitoring and inspections)** – All rhino are in good condition, no major health problem observed. All rhino have foot pad problem, due to changed environment from dry season to rain season.
- 2. Breeding success** – No breeding was achieved.
- 3. New Veterinarian is join SRS team** – Drh. Dwika Ayu Adriani

## **Sumatran Rhino Health Update**

Routine regular health monitoring procedures were conducted during this month. All rhinos in the facility are in good condition, only minor problem happened on the foot pad that the thickened skin and blister that occurred from the hot surface during dry season are now peeled off, exposing softer new skin beneath it. Small shallow perforation also happened on the sole surface. Treatment was given to prevent wound and infection on this new skin. Daily observation, cleaning with chlorhexidine, application of betadine and salve are the routine application. Although all of the rhinos have this condition, but did not influencing their locomotion and foot movements, and their daily activities such as browsing, walking, foraging and wallowing are normal. Body temperature is ranged from 36.5° C – 37.3° C.

## Specific Information on Each Rhino

### Andalas (Male, 13 Years Old)



Picture1. Andalas eating in central stall

Andalas is a captive born rhinoceros and has a calm temperament. He is routinely come to the stall every morning for daily care. Throughout December 2014 his regular stall is being renovated, and he received his daily treatment in the central stall. His activities and body condition was good and blood test result is shown normal range. Bodyweight was measured every week and the results are shown on the table below.

Andalas Body Weight Measurement		
08 December 2014	15 December 2014	22 December 2014
786,5 - 790 kg	768,5 – 769,5 kg	796 - 794 kg

He also received oral multivitamin from 15 – 19 December 2014, after exercised during introduction with Ratu several days before.

## Bina (Female, 31 Years Old)



Picture. Bina receiving foot treatment

Bina has an unpredictable aggressiveness when she was shocked by noise or sudden movement. And also have eye hypersensitivity to sunlight exposures, and will start to develop keratinized cornea. Eye treatment with ZnSo<sub>4</sub> spray on the affected eye is part of her daily routine care. Beside her foot pad condition, she is in good condition in this month. Her activity is normal and her body temperature was ranged between 36,8 – 37,2 °C. Blood test result shows normal range and her body weight is 738 – 741 Kg. Bina is an aged female rhino, but she still has regular follicular cycle, and still has chance to breed.

### Ratu (Female, 14 Years Old)



Ratu is very shy and not comfortable with new person or too many people around her. She also shows an alerted temperament in the stall, and will ram new person that approach. In this month, she has no health problem and her temperature ranged from 36,5 – 36,9 °C, her body weight shown in the table below

Ratu Body Weight Measurement		
08 December 2014	15 December 2014	22 December 2014
563 -563,5 kg	536 kg	550 - 552 kg

Sometimes she come to the stall voluntarily in the morning, as often as she has to be searched in the forest and has to be taken back to the stall. She was actively forages and eats in the forest in paddock 2, which still have good forest coverage.

She suffers minor wounds on the skin during introduction with Andalas. It was shallow and superficial wounds that come from scratch of Andalas' horn and teeth, topical treatment with antibiotics ointment was given to this wounds.



Picture. Ratu receiving foot treatment.

**Rosa (Female, 13 Years Old)**



Picture. Rosa eating in the stall

Rosa was very tame Rhino and likes to be around people. But she also sometimes has unpredictable temperament. During introduction, she is so shy and aware of male rhino, and sensitive to movements and sudden sounds. This makes attempt to breed her was fails so far. Her blood results also did not show any abnormalities. Her body temperature ranged from 37,0 °C to 37,3 °C, which is quite high, but tends to normal to her. Her body weight was shown on the table below.

Rosa Body Weight Measurement		
08 December 2014	15 December 2014	22 December 2014
623,5 - 625 kg	622,5 – 623,5 kg	624,5 kg



Picture. Rosa foot pad condition

## Andatu (2 Years, 6 Months)



Andatu is in good condition in this month, he is actively foraging, wallowing and exploring the enclosure. Every morning he always still in the forest, foraging, walking or eating and tends to not interested to come to the stall if he is not encouraged to. He is not comfortable inside the stall, and will always ask to go out to the forest.

His body condition is good and his body temperature ranged from 36,8 °C to 37,1 °C, and his body weight was shown on the table below.

Andatu Body Weight Measurement		
08 December 2014	15 December 2014	22 December 2014
522 - 524 kg	519,5 – 520,5 kg	524,5-526 kg





Picture. Andatu foot pad condition.

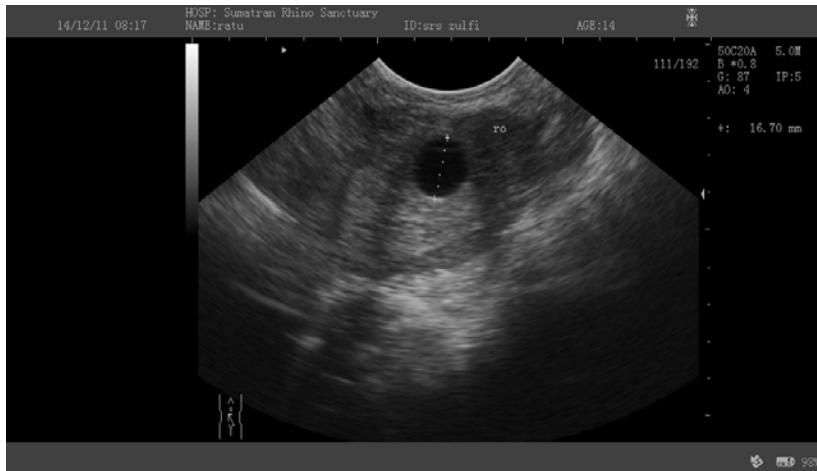
### **Fecal Examination**

Fecal examination for parasites performed once or twice a week, and during examination in this month no worm's eggs and larvae and just found normal protozoa in small number.

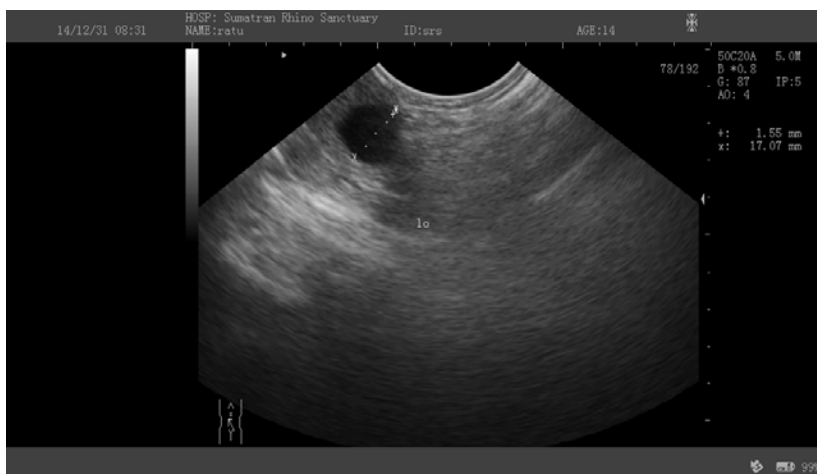
### **Reproduction Program**

Ultrasound examination on Ratu, Rosa and Bina show development of follicle at different size in different day. On 11<sup>th</sup> of December 2014, Ratu shows good follicle at 16,7 mm and then she was introduced to Andalus on that day. Her response are not good, and introduction was stopped in the afternoon. In the following day, her response is better, and there mounting attempt made by Andalus once. But did not lead to copulation, and Ratu's response is getting worse, and always run away from Andalus. On 13 and 14 of December, her response is bad, and no mating happened.

And on 31<sup>st</sup> of December 2014 a follicle with diameter 17 mm was detected, and she was introduced again to Andalas, but her response is not good, and they were being separated.

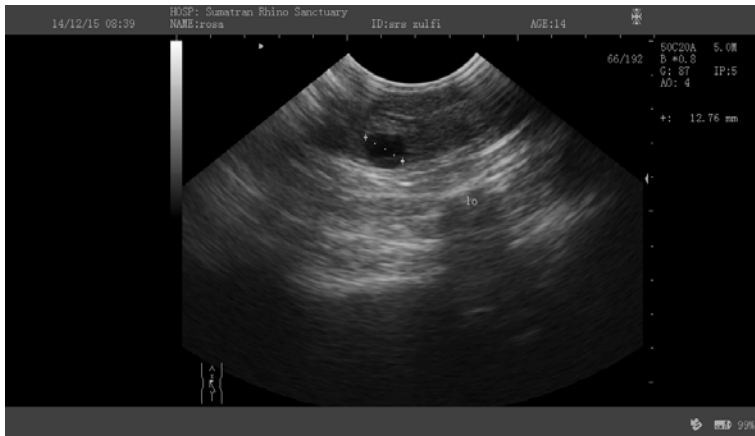


Picture. Ratu follicle on 11<sup>th</sup> December 2014

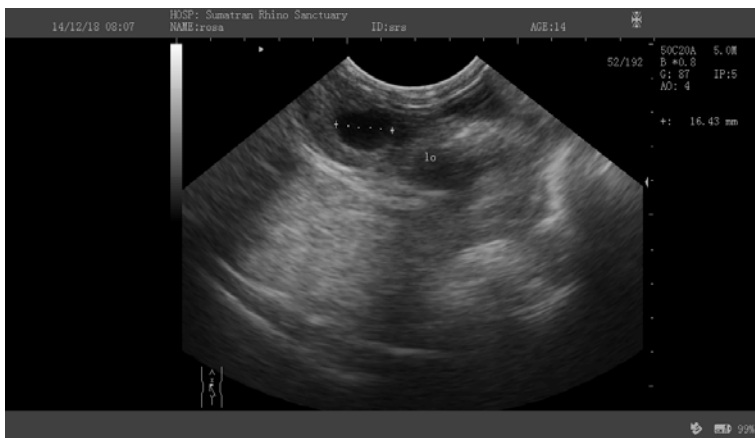


Picture. Ratu Follicle on 31<sup>st</sup> December 2014

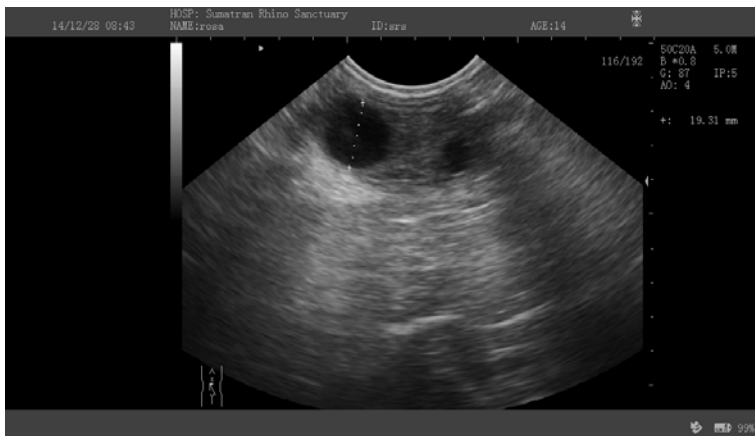
Rosa's follicle was detected on 15<sup>th</sup> of December 2014 at 12,7 mm and on 18<sup>th</sup> of December 2014 at size 16,4 mm, and she was introduced to Andalas on 20<sup>th</sup> to 22<sup>nd</sup> of December 2014, but she did not respond it well and not accepting Andalas, and no breeding activities are observed. Further ultrasound examination on 28<sup>th</sup> of December 2014 shows that the follicle is getting bigger (19 mm) and seems like that this follicle did not ovulate.



Picture. Rosa Follicle on 15<sup>th</sup> of December 2014

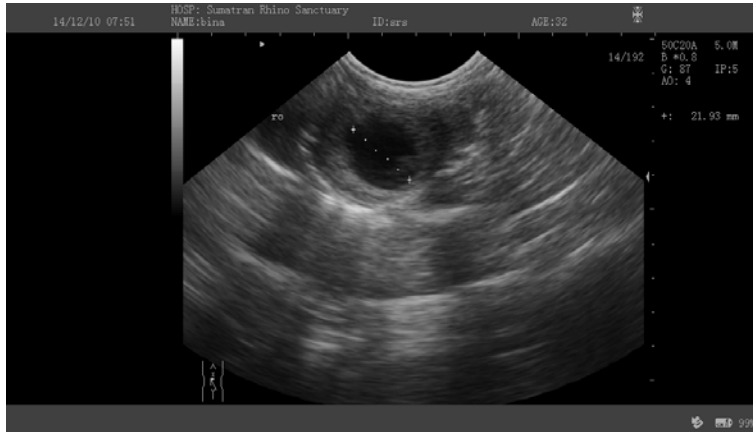


Picture. Rosa Follicle on 18<sup>th</sup> of December 2014

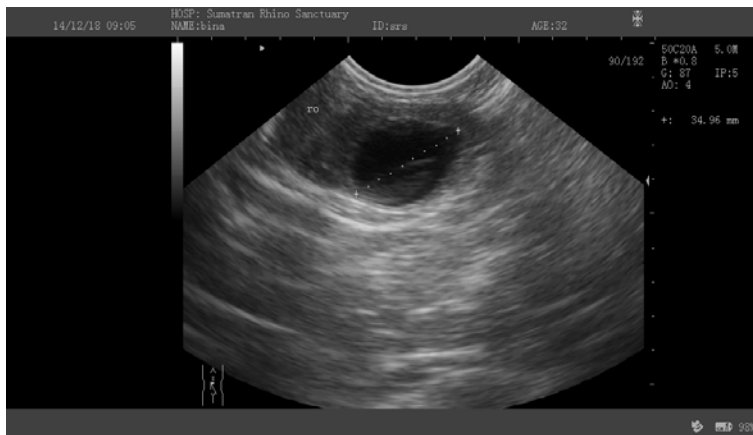


Picture. Rosa follicle on 28<sup>th</sup> of December 2014

In this month Bina ultrasound examination shows some big follicle, but not with round shape. She is not introduced to Andalas in this month.



Bina follicle on 10<sup>th</sup> December 2014



Bina follicle on 18<sup>th</sup> December 2014

## YABI Rhino Protection Unit Training Course

Two SRS keeper, Mr. Kateno and Mr. Sugiyanto attending Rhino Protection Unit Training Course in Bukit Barisan Selatan National Park on 13<sup>th</sup> to 19<sup>th</sup> December 2014, to upgrading and adding skill and capacity.



## Fallen tree on the Outside Fence

On 30<sup>th</sup> of December 2014, a big tree was fell over outside fence and break it. Removing tree and fence fixation is being done.

