



IRF PROGRAMS
3rd QUARTER REPORT
1 JULY – 30 SEPTEMBER 2014

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DATE OF VERIFICATION:
September, 2014

SUMATRAN RHINO SANCTUARY – YABI, WAY KAMBAS NP



IRF Programs – Quarterly Report
July-September 2014
Sumatran Rhino Sanctuary YABI - Way Kambas National Park, Indonesia
By Dedi Candra, DVM (Animal Manager and Senior Veterinarian) and
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BADAK SUMATERA - SUMATRAN RHINO (*Dicerorhinus sumatrensis sumatrensis*)

SRS program targets and result of July 2014:

1. **Rhino healthy (continue regular monitoring and inspections)** – well done and all rhinos are in healthy condition. Rhino's body temperature and body weight in normal range.
2. **Breeding success** – No breeding was achieved.
3. **Separate Ratu and Andatu** – failed because renew paddock and stall 2 still in progress. Hopefully, in August the stall on the paddock 2 will be finished.
4. **Replanting rhino browses**– continuing nursery program to prepare replanting in the rhino location.

Sumatran Rhino Health Update

The health status of all five rhinos at the Sumatran rhino sanctuary facilities is good and healthy condition. Not too much change SRS activity than last month.

Andalas

Andalas is healthy rhino with a bit decreased of Haematology result and often founded close the stall 3 every morning. Not too much change with his behaviour, he has been active in the forest and enjoying activities.

The eye conditions are good conditions, including the right eye; small spot in the middle of the cornea is still present.

On July he has foot-pad problem post breeding, but not serious. Give the treatment with antiseptic solution and topical ointment.

Rosa

Not too much change with Rosa and she is healthy rhino. She has often approached the centre fence.

One of Rosa problems is behaviour, she has a close relationship with peoples and since early this month has limited access to see Rosa. Change her behaviour is important right now to support breeding program.

On July 9 she was escaping to another paddock through a fence 4-5 and meets with Bina. The fence has an electrical problem at this time. Founded head wound post fighting with Bina through the fences. Again she was escaping move in the same place on July 11 because an electric fence still have trouble. After repairing the electric fences, she can't move again. Rosa is showing increased interest near the breeding period. She often comes to the central area to watch and vocalize to calling Andalas.

Bina

She is in good condition; with sometimes was founded digestive problem. She is getting older 31+ years old right now. She is eating well and maintaining a very good body weight. Hematology testing has been normal. Irregular ovarian activity is still being observed during routine ultrasound examination.

Founded some scratch wounds on her face on July 9, probably stabbed by fence's stick (isolator) fences when she met (fighting) other female rhino "Rosa" between paddock 4 and 5 fences.

Her eyes are treatment with zinc sulphate every day as long as the cloudy eye occurred.

Ratu

Good body condition, but her browsing had decreased because no bush including young leaves anymore in the paddock 1. Collected food supply from outside the SRS location is important to support daily food, but must be careful if we collected from border or local village, pesticide exposure is attention.

She has in a breeding program with Andalas and hopes her will success with pregnancy again soon.

Andatu

Not too much changed with Andatu condition and behaviour. He is healthy and he has more aggressive, especially in the forest.

On July 20 foot-pad hind leg L problem with crack. Andatu's feet are cleaned daily and a topical antiseptic hoof solution and hoof dressing applied. The hoof getting better post treatment.

On July 21, found a bit problem with his eye – clean discharge with a bit itching. Give the treatment with zinc sulphate and become normal in 2 days eye care.

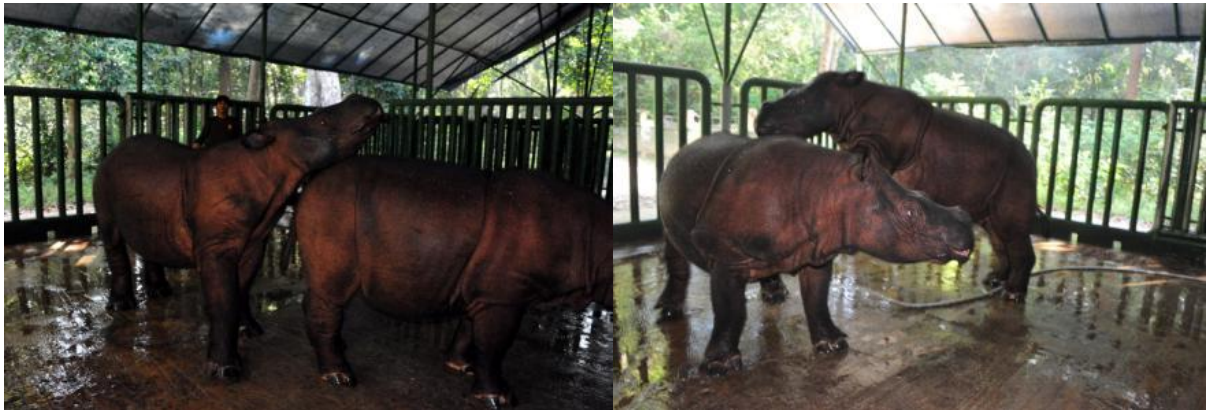


The dorsal lateral hoof corona of the left hind foot of Andatu is being treated by application of a topical hoof solution.

Separated program for Ratu and Andatu

Separating program is ongoing for 4-6 hours daily and especially during Ratu's breeding program, he was separated with mother for 30 hours.

Plan: early August will be totally separated them.



Ratu and Andatu still have playing in the observation stall during they were together. Both of them look similar of body size.

Rhino's keeper (Kateno) prepares extra fruits Give to Andatu and Ratu in the observation stall 1 every day.



Observation cage in the paddock 2 on repair to prepare For Ratu or Andatu. Separated program has ongoing And we will separate them soon after facility ready.

Other Rhino Information

Hoof (foot) problem

All rhinos at the sanctuary have good hoof and pad condition overall, just small problems have found on Andatu hoof. The keepers and doctor usually do treatment for rhino feet once every 2-3 days. They wash feet using antiseptic solutions then apply topical ointment and hoof dressing.



Rosa's foot pad (hoof) condition

Blood collection

Rosa and Andalas on July 21 and continue Bina on July 23.

Bina is a good result, but Andalas have a bit decreased in hematology (RBC, Hb and PCV) but still in normal range. Continue routine blood collection (more frequently if health deteriorates)

Dr. Dedi and Andatu's Keeper has given training for blood collection habituation and he looks enjoy.



Body weight

The Sumatran rhinoceros body weights are steady with a bit fluctuation in this month. The rhinos usually weigh in the morning after being clean and before eating any extra food or hand feeding.



The weighing program is an important tool to monitor the rhino condition at the SRS. All rhinos, including Ratu and Andatu has been routine weight weekly.

Vitamin Supplement

All rhinos were given multivitamin with Carnitol orally on July 21 – maintenance health condition.

Mineral supplement for salt lick

The salt lick supplement with normal salt mix with drinking water were given.

Stop mineral block supplement since early in May. Serum mineral analysis with good result except Rosa founded high Iron (Fe). To compare analysis in this month we are sending again new serum sample for analysis.

Wallowing

Wallow is an important facility of Sumatran rhinos, wallowing as a special and unique ritual activity for hairy Sumatran rhinoceros. Sumatran rhino will be wallowing at least two times daily at the afternoon and night for 2-4 hours wallowing for each time.

Rhino's faecal sample



SRS had been prepared faecal sample for analysis with faecal sample collection weekly. One of the activities is drying faecal sample with oven. After dry, faecal sample put in plastic bag, labelled and stored. This ample can be used for hormone analysis and other analysis in the future.

Routine de-worming Program

At this time used "Ivermectin" for de-worming. Given to Andalas on July 14, Ratu on July 19 and Rosa on July 20.

Sumatran Rhino Reproductive July 2014

Reproductive Monitoring Update

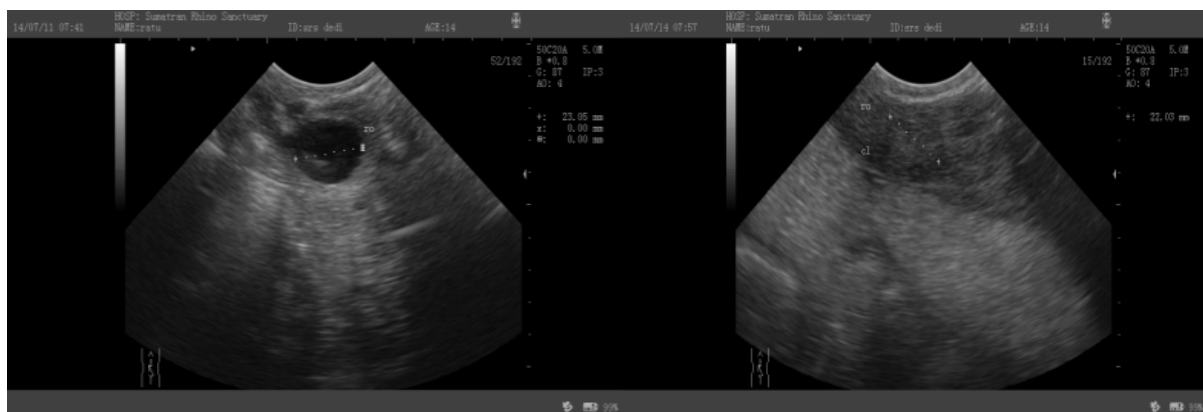
Ratu

Routine ultrasound is continuing to be a useful tool for the SRS veterinary team to use in predicting the optimal time for mating in the Sumatran rhino. Recently, we followed Ratu's cycle and observed a pair of growing follicles, one on each ovary. On July 11, the Right Ovary had a 23-mm follicle and the Left Ovary had small follicle.

Introduction program Ratu with Andalas on July 11 and 12.

On July 12 was a very nice introduction response through the centre stall's bars. The pair was mixed on the afternoon of July 12 with mild courtship. There was the usual pushing and circling with occasional snorts; however, there was no aggression, chasing or fighting. Andalas was 4 times mounting without intromission or copulation (19.24 for 2 minutes, 04.01 for 2 minutes, 04.30 for 1 minute and 07.54 for 2 minutes).

Post-breeding ultrasound examination was conducted 40 hours and again 70 hours after mating. We were surprised to find that the new corpus luteum (CL) on Right ovary and confirmed spontaneous ovulation in this period. A clear Right ovary ovulation site was noted.



On July 11 Ratu's ultrasound image in the right ovary with good follicle 23 mm and small follicle on left ovary (left). Ovulation confirmed on July 14 (right).

Plan for Ratu

1. Separate with Andatu as soon as possible
2. Keep natural introduction and breeding
3. Prepare for artificial insemination (AI) program during the natural program if Andalas can't copulation.

Ratu and Andalas breeding program



On July 12 Introduction through the stall's bars (left) and Andalas followed Ratu in the centre area (right)



Continuing introduction through the stall's bars on the night (left) and Andalas mounting Ratu on the front of the centre stall (right)



On July 13 They were showing nice response during introduction and continue pairing in the centre area

Rosa

Rosa has ultrasound examination regularly in this month. On July 16 and 19 founded big follicle. Continuing introduction program with Andalas.

Introduction program on July 15, 16 and 17.

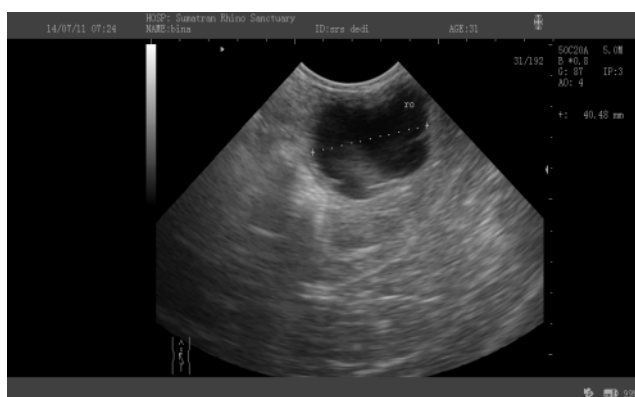
Pairing on July 16 after they showed good response during introductions. Actually Rosa was ready to breed with standing up and moving up her tail in the front of the stall, opened the gate and Rosa still waiting, but suddenly Andalas slip in the stall's floor and Rosa run away. As usual Andalas chased her. After that she has looks scare and avoid from Andalas. The other problem at this time, our Radio HT system was a failure and we can't communicate each other.



On July 11 Rosa's ultrasound image in the left ovary with good follicle 26.54 mm.

Bina:

Bina has ultrasound examination regularly in this month, but didn't find good follicle, on July 11 she has a big follicle on the right ovary (old follicle). There was no sign of oestrus overall.



On July 11 Bina's ultrasound image in the right ovary with very big follicle 40.48 mm. The largest follicle on Bina's left ovary has become a haemorrhagic follicle.

SRS YABI Enrichment plant with (Nursery and Replanting activity)

Rhino food supply is one problem of SRS husbandry management with limited space in the sanctuary. The sanctuary area with 100 ha forest for 4-5 rhino is not enough. The SRS staff tried to make nursery and planting activity beside their main job at the SRS as keeper or facilities.

Ratu and Andatu large Boma location in paddock 1 is already damaged because it has been used longer and for habitat rehabilitation in doing replanted with rhinoceros food plants. Seedlings planted from nursery done before by SRS staff. The focus of this rehabilitation is to make the habitat more fresh and lush with origin plant from Way Kambas forest. There are several species of plants in planting because they are easy to grow in different types of forest habitat. We have planted 3.000 seedlings in this time. This activity is done by all SRS staff.



SRS YABI Enrichment plant program (nursery and replanting activity) with preparing for Rhino food – Continuing by SRS's staff

Electric fences trouble is caused by broken tree



Indonesia Forestry Research and Development (LITBANG Kehutanan) - Research and Development Center for Conservation and Rehabilitation (Puskonser) visited SRS on July 20

The participants are DR. Boen Purnama (invasive species program), DR. Titiek Setyawati, Ir. Adi Susmianto, M.Sc (Chief Puskonser and also YABI board member), DR. Atok Subiakto and Mr. Muniful (Program director of Bukit Barisan Selatan NP).

The activities are:

1. Dr. Dedi was giving a presentation about SRS program and progress
2. Discussion about Sumatran rhino conservation together with SRS and Rhino Protection Unit (Drs. Arief Rubianto)
3. Rhino and facility tour



SRS Rhino and facility tour guide by Dr. Dedi

Sumatran Rhinoceros “Torgamba” Skeleton!

Torgamba was captured in Riau Province in 1985, a male Sumatran Rhinoceros was about 32 years old, that we keep in the Sumatran Rhino Sanctuary (SRS) Way Kambas died and after a prolonged illness which appears to have been associated with chronic kidney disease and aging. Although several years were given treatment for chronic failure and the best efforts of keeper at the sanctuary and veterinary staff in consultation with experts of international rhino, Torgamba died on Saturday April 24th, 2011 at 07:25 am.

Torgamba’s carcass brought to the Faculty of Veterinary Medicine IPB Bogor on April 24th, and then performed a necropsy on April 25th at 00.30 am.

Plan for Torgamba carcass are:

1. Skin for Sumatran rhino offset to Rahmad Museum in the Medan, North Sumatera - Done
2. Bone for the skeleton to Sumatran Rhino Sanctuary Way Kambas NP – Done on July 2014
3. Others, including muscle and internal organs, prepare to “Atlas Anatomy Book for Sumatran Rhino” – ongoing in the IPB University Bogor



SRS program targets and result of August 2014:

5. **Rhino healthy (continue regular monitoring and inspections)** – well done and all rhinos are in healthy condition. Rhino's body temperature (36.4°C – 37.5°C) and body weight in normal range.
6. **Breeding success** – No breeding was achieved.
7. **Separate Ratu and Andatu** – failed, renew stall in the paddock 2 already done, but the fence still needs a bit repair and we delayed to separated them.
8. **Replanting rhino browses**– continuing nursery program to prepare replanting in the rhino location.

Sumatran Rhino Health Update

The health status of all five rhinos at the Sumatran rhino sanctuary facilities is good and in healthy condition. Not too much change SRS activity than last month. Their other activities such as wallowing, browsing and walking are normal. It was hot season this period in the Way Kambas National Park in general. All the rhinos still enjoyed wallowing during the day and night because we have prepared water supply.

Andalas

Not too much change with Andalas, he is healthy rhino and often founded close the stall 3 every morning. His body condition is healthy with decreased of Haematology result. Not too much change with his behavior, he has been active in the forest and enjoying activities. On August 16 he has foot-pad problem post breeding, the cause probably stabbed by tree during urinated scrape.

Supplement: on August 25 - 29, was given multivitamin (*Carnitol*) to keep his good stamina after prepared for the introduction program in the center area - maintenance health condition.

The eye conditions are good conditions, however the small spot in the middle of the cornea still present.



Andalus's right eye with small white spot on the cornea (left) and Normal eye (right)

Rosa

Rosa and she is healthy rhino. She has a problem with behavior, the few times she was escaping to another paddock, especially Bina's paddock (fence 4-5). Founded few reasons why she moves to another location: trouble with electric fence, problem with fence construction, and the keeper doesn't check fence condition completely and she tried to find people because she has a close relationship with people. Change her behavior is important right now to support breeding program - limited access to see Rosa.

Bina

She is in good condition. However, she is getting older 31+ years old right now, but everything looks good and the only irregular ovarian activity is still being observed during routine ultrasound examination.

Ratu

Good body condition, but her browsing had decreased because no bush including young leaves anymore in the paddock 1. Collected food supply from outside the SRS location is important to support daily food.

She has in a breeding program with Andalus and hopes her will success with pregnancy again soon.

Andatu

Not too much changed with Andatu condition and behavior. He is healthy and he has more aggressive, especially in the forest.

On July 20 foot-pad hind leg L problem with crack. Give the treatment with antiseptic solution and hoof dressing - *Kevin Bacons*. Andatu's feet are cleaned daily and a topical antiseptic hoof solution applied. The hoof is getting better post treatment with growing up new nail's tissue.

Separated program for Ratu and Andatu

Separating program is ongoing and Andatu has been able to be separated from Ratu for 6-7 hours daily.

Plan: on early September will be totally separated them.

Other Rhino Information

Hoof (foot) problem

All rhinos at the sanctuary have good hoof and pad condition overall, just small problems have found on the Andalas foot pad and Andatu hoof.

On August 16 Andalas has foot-pad problem (injury) post breeding, the cause probably stabbed by tree during urinated scrape.

There were two cracks at the hooves of Andatu's left rear foot (outside and inside of the nail) but he didn't show any abnormality in his standing position or walking activities.

The keepers and doctor usually do treatment for rhino feet once every 2-3 days as routine care. They wash feet using antiseptic solutions then apply topical ointment and hoof dressing. More attention during dry periods, land ground was very dry, hard and hot will be a problem with rhino foot pad

Foot-pad Problem



Figure : Andalus's right leg foot pad injury. The pad condition now has recovered. New skin tissues had grown to cover the pad. The surface of the wounds now has dried and become thick



Figure : Andatu's hoof cracks

Fecal Collection

Fecal samples were checked regularly and some protozoa have founded in rhino's stools.

Blood collection

Continue routine blood monitoring minimum 1-2x per month (more frequently if health deteriorates).

Rosa and Andalus on August 23 and continue Bina on August 24. Bina is a good result, but Andalus have decreased in hematology (RBC, Hb and PCV). However Andalus have low hematology result, but his behavior and appetite still good.

Body weight

The Sumatran rhinoceros body weights are steady in this month. The rhinos usually weigh in the morning after being clean and before eating any extra food supply.

Mineral supplement for salt lick

The salt lick supplement with normal salt mix with drinking water was given.

Stop mineral block supplement since early in May. Resend Serum sample on August for mineral analysis focusing on Iron (Fe) level, a good result was shown at this time.

Plan: on September will give a mineral block supplement again and will be control every 3 months through the serum sample mineral analysis.

Wallowing

Wallow is an important facility of Sumatran rhinos, wallowing as a special and unique ritual activity for hairy Sumatran rhinoceros. Sumatran rhino will be wallowing at least two times daily at the afternoon and night for 2-4 hours wallowing for each time. However, dry season at this time, but we prepared fresh water supply to all paddocks especially to support wallow.

Sumatran Rhino Reproductive August 2014

Ultrasound Examination

Routine ultrasound is continuing to be a useful tool for the SRS veterinary team to use in predicting the optimal time for mating in the Sumatran rhino.



Figure: dr. Dedi applied ultrasound examination regularly to all rhinos female

Reproductive Monitoring Update

Ratu

Ratu Introduction Program

On August 3-6, Ratu was introduced to Andalas with bad response. She has been approached to Andalas's stall just for a few minutes and after that, she is avoiding Andalas and she serious to explore the center forest. Actually, Andalas was no significant respond in this time.

Breeding Program



Figure : They were showing bad response overall and just few minutes showed good response during introductions

Then, on August 14, ultrasound scans observation has given a follicle in the right ovary with 13.87-size mm in diameter but this follicle not good in shape and formation.

Continuing to introduce Ratu and Andalas. Again, there was no positive result. Furthermore, on August 24, it was detected growth follicle in the left ovary of Ratu with 19

mm size. Tried to introduce Ratu and Andalas on August 24 – 26. There was no reproductive behavior response.

Ultrasound examination on August 27, ovulation confirmed on left ovary, this is very interesting she was ovulating without breeding - spontaneous ovulation.

Plan for Ratu:

4. Separate with Andatu as soon as possible – early September
5. Keep natural introduction and breeding
6. Prepare for artificial insemination (AI) program during the natural program if Andalas can't copulation.

Rosa

Rosa has ultrasound examination regularly in this month. On August 27, was founded cyst on left uteri with 0.5 cm size, but a few days later we didn't see cyst again and gone. This is still normal situation, sometime found cyst in the uteri during ultrasound examination with many animal species. This situation confirmed the ultrasound machine is an important tool for monitoring abnormality in the reproductive track.

Good follicle was shown, but also found hemorrhagic follicle at the same time, very often case if follicle and hemorrhagic follicles in the same cycle, so difficult to get a peak of estrus.

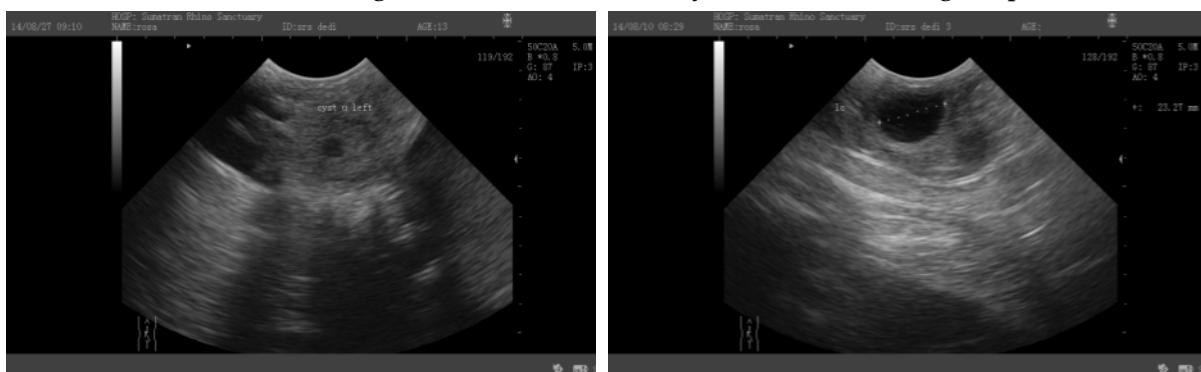


Figure : Rosa's left uteri with small cyst (left) and Rosa's ultrasound image in the left ovary with good follicle 26.54 mm on July 11 (right)

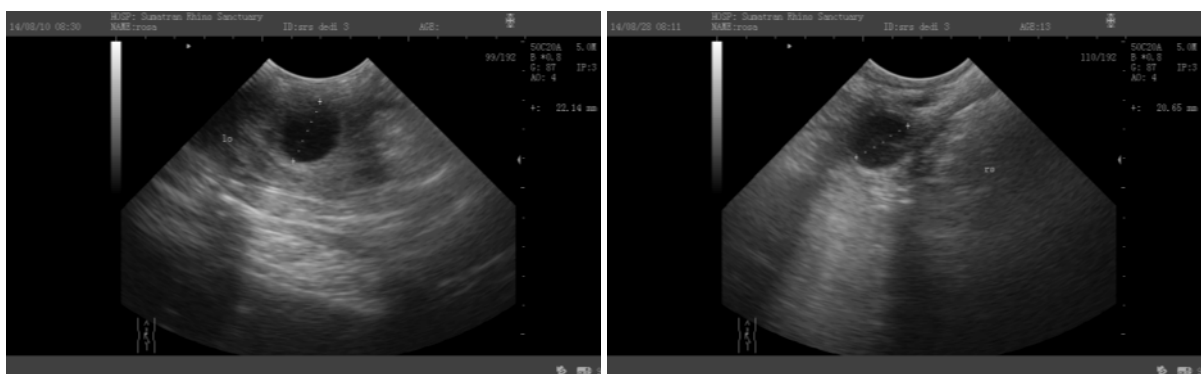


Figure : On August 10 (left), Rosa's ultrasound image in the right ovary with good follicle less than 22 mm size and on August 28 (right), Rosa's ultrasound image in the right ovary with small follicle less than 21 mm

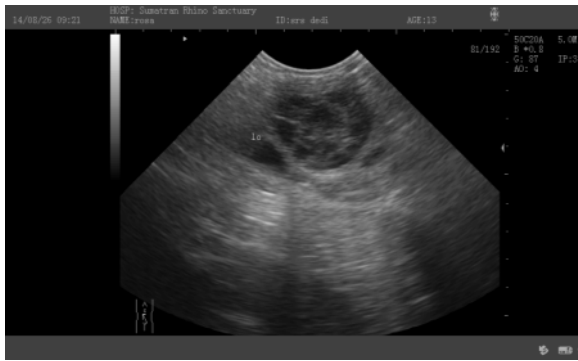


Figure : On August 26, Rosa's ultrasound image in the right ovary with hemorrhagic follicle

Introduced Rosa to Andalus on August 7-9 with bad response and the continuing introduction on August 10 with a better response, she was a few times on position and standing head.

There was the usual pushing and circling with occasional snorts; however, there was no aggression, chasing or fighting between stall's bars.

Andalus was mounting 2 times for 2 minutes at this time, but no copulation happened. She is scared as usual and tried to escape through under the center's fences and separated.

Continue introducing with Andalus on August 11 but the response was bad.

Ultrasound exam on August 27 founded follicle 18.5 mm sizes.

August 27-30, they were showing bad response overall, but on August 30 they showed better response, and then paired them in the center area. After few hours separated them because nothing good response just running around. On August 31 tried to again drive Rosa to the center area, but failed because she didn't care in avoiding center area and just active explored the paddock forest.

Breeding Program



Figure : On July 12 August, Introduction through the stall's bars (left) with nice response and Andalas was mounting at this time, unfortunately no copulation happened.

Bina:

Bina has ultrasound examination regularly in this month, but didn't find good follicle and she was no sign of estrus, her cycle is unclear in this month.

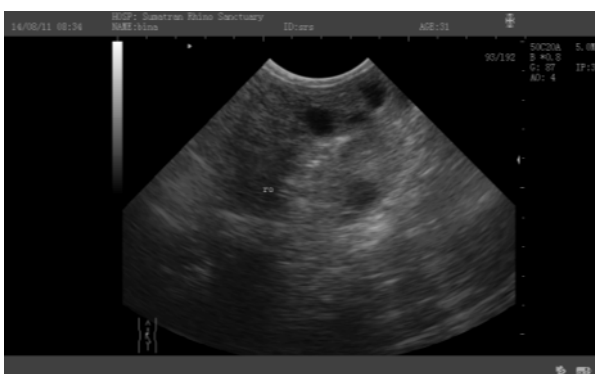


Figure : On August 11 (left), Bina's ultrasound image in the right ovary with small follicle less than 10 mm size

**Veterinary Student research Program – Faculty of Forestry and ekowisata IPB University,
Bogor Indonesia on August 18-23**

Novirin Razanah Jati was doing research with focusing research on potential ecotourism In the Sumatran Rhino Sanctuary WKNP.

New SRS Staff

A new veterinarian (dr. Zulfi Arsan) was joining with the SRS team since August 26. dr.Zulfi recruited by YABI for 3 months and will be evaluated and SRS management will give recommendations for the next process step to YABI. The veterinarian is an important position in the SRS for keeping good rhino husbandry.

Visitor

On August 6-7: Guess from MD Iceland Seafood Limited leads by Mrs Rosida Idriss with the participants are Mr Allen Townsend, Mrs Lynda Rosemary Townsend, Mr Charles John Melville Townsend, Mr Robert William Townsend, Miss Josephine Maureen Townsend, Ms Kate Victoria Townsend, Mr Zakariyyaa Idriss and Miss Aanisah Idriss.

MD Iceland Seafood Limited is potential funding (donor) to support sanctuary program.



Figure : dr. Dedi was leading this trip, starting from SRS facility, including presentation, rhino souvenir and see the rhino in the paddock. RPU team was joining with this trip.

On August 19-21: Rai Seafoods team with the participants are Mrs Rosida Idriss, Miss. Shahbaz Idriss, Miss Freeda Idriss, Miss Aanisah Idriss, Mr.Zakariyyaa Idriss and Miss Josta Sihatupar. Rai Seafoods is potential donor to support sanctuary program. The activities are:

- On August 19: Dedi give a presentation about SRS program
- On August 20: rhino tour and boat trip with SRS and RPU
- On August 21: elephant tour and planting in the Restoration rhino food garden



Figure : dr. Dedi and Sumadi were leading this trip, starting from SRS facility, including presentation, rhino souvenir and see the rhino in the paddock, elephant training center, then continue to Rhino food garden restoration in the Margahayu area – planting rhino food.

On August 11, Guess from Wildlife Protection Unit Thailand (Mr. Saw Sha Bwe Moo), Wildlife Protection Unit Myanmar (MR. Seree), Bibhab KT (IRF) and Sectionov (IRF Liaison) were visited the SRS.



Figure : Drs. Arief was leading in this trip and Dr. Dedi was giving the presentation and discussed about Sumatran rhino at the SRS office. They are also seen rhino in the paddock 1.

On August 18: Guess from YABI donor; Clare Campbell (Director of ARP), Hunt Susan Jane, and Moody Nicole Julie (CEO Perth Zoo).

Perth Zoo has donated to YABI for RPU activity and hope they will support SRS also in the future. They were appreciated with SRS good and hard work to save the Sumatran rhino.



Figure : dr. Dedi and drs. Arief led this trip, starting from SRS facility, including a presentation about SRS and RPU activity, rhino souvenir and see the rhino in the paddock. RPU team was joining with this trip.

SRS patrol activity

The Sumatran rhino sanctuary is a special area for Sumatran rhino conservation effort with 5 Sumatran rhino inside. Of course big responsibility here and must be protected from all illegal activity especially poacher. The SRS patrol unit has routine monitoring and protection all sanctuary area lead by 5 forest ranger we have and joining patrol also with RPU. 5-6 peoples as participating in every patrol activity lead by 1 forest ranger. So far we haven't found indication of illegal activity surrounding the sanctuary.



Figure : Patrol team briefing with dr. Dedi before activity. The participants in this trio are Sarno, Edy Parwito, Soca, Iswanto, Ketano (rhino keepers) lead with Supardi and Wilson (WKNP forest ranger).

SRS rhino's food supply challenge

Location of the Sumatran rhino sanctuary, which only ~100 ha are not enough to support the daily feed for five Sumatran rhinos. To provide for additional leaves, and then be taken from the surrounding the National Park Forest including the villages.

Rhino's keepers tried to collect extra food supply. One of the techniques is climbing the big tree to collect young leaves from the forest and give to rhino in the paddock.



Figure : the rhino keepers was climbed the highest tree to collect young leaved and small branches in the forest

Repair the Fences



Figure : SRS's staff repaired the fences facility in the swamp area (between 1-5 fences and 4-5 fences), before we used tree and now changed with concrete pole.

SRS program targets and result of September 2014:

1. **Rhino healthy (continue regular monitoring and inspections)** – well done and all rhinos are in healthy condition with normal of body temperature 36.4 °C – 37.5 °C and body weight in normal range.
2. **Breeding success** – No breeding was achieved.
3. **Separate Ratu and Andatu** – success, since September 5 separated them.
4. **Replanting rhino browses** – continuing nursery program to prepare replanting in the rhino location.
5. **Recruitment new Veterinarian** – Zulfi Arsan, DVM has joined with the SRS team.

Sumatran Rhino Health Update

The health status of all rhinos at the Sumatran rhino sanctuary facilities is good and in healthy condition. Physical condition, movements and appetite were showing no abnormalities. It was hot (dry) season this period in the Way Kambas National Park in general and serious problem for the rhino. A bit change rhino's daily activity in this month such as foraging, browsing and wallowing. All the rhinos were difficult to find young leaf because no bushes anymore during the dry season, but no problem with drinks because we were prepared fresh water supply.

Andalas - Male 13 Years Old

He is healthy rhino. Andalas did not show any abnormalities in this month. No new external wounds were observed, locomotion and movement normal.

Wound on the foot-pad was still in the healing process and almost completely healed. The mucous membrane is pink and all teeth are present.

In the first 10 days of September Andalas Body temperature was between 36.5 to 36.8 °C. The activities also did not show any abnormalities, he eat 7-11 kg of fruits and 36-45 kg of foraged leafs given. His foraging activity is also normal, and wallowing time is around 2 hours.

On September 11th to 20th, the body temperature was between 36.6 to 36.7 °C, daily food intake was 8-9 kg of fruits and 34-43 kg of leaves. His foraging activity is normal, and wallowing time is around 2 hours during daylight.

On September 15th, body weight was measured and Andalus was about 794-796 kg, 20 ml of blood also collected for hematology and biochemistry examination. The result is still in normal range.

In the last 10 days of September 2014, body temperature was between 36.6 to 37 °C, daily food intake was 10-13 kg of fruits and 39-44 kg of leaves. His foraging activity is normal, wallowing time is around 2 hours. Body weight was measured on September 22nd and 30th, and Andalus was on 786.5-787.5 kg and 804-807 kg.

The eye conditions are good conditions without inflammation or abnormal, including eye vision, whitish spot on the right eye still can be observed with around 5 mm diameter.

Andalus looks comfortable with normal activity. Now, we didn't give any medical treatment.

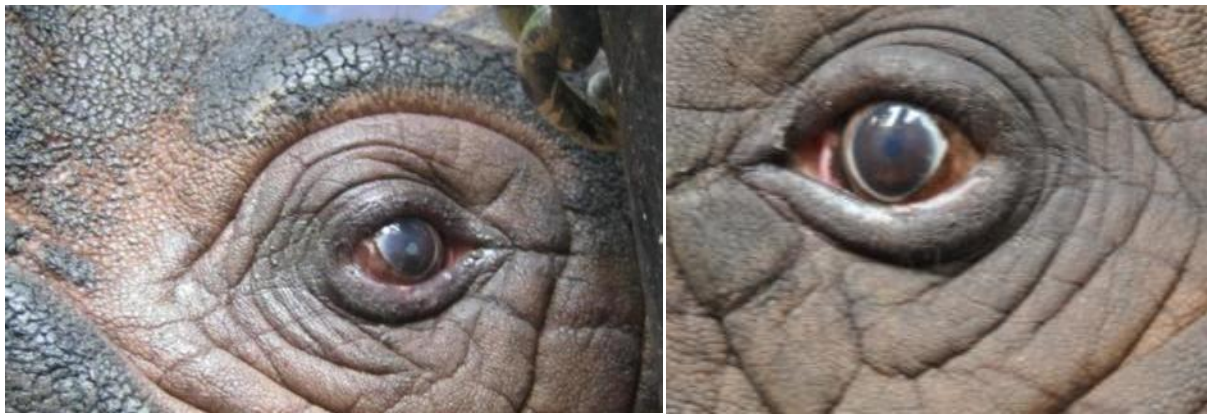


Figure : Andalus's right eye with small white spot on the cornea (left) and Normal eye (right)

Andalus's 13th birthday on September 11, 2014



Figure : The keeper (Giyono) was enjoyed to celebrated Andalus's 13th birthday in the paddock 3

Rosa - Female 13 Years Old

She is healthy rhino. Rosa activity was normal and did not show any signs of illness. Her wallowing duration was between 3-4 hours during daylight. Movement and locomotion were normal, no external wound was observed.

On September 1st to 10th, the body temperature was between 36.9 to 37.3 °C, fruit daily intake was 7-10 kg and leafs was 20-35 kg. Foraging activity was normal. .

On September 11th to 20th, her body temperature was between 36.4 to 37.3 °C. Daily fruit intake was 6-8 kg and leaf was 24-37 kg. Foraging activity was normal. Body weight measured on September 15th, was 600-601 kg.

On September 21st to 30th, her temperature was between 36.9 to 37.3 °C. Daily fruit intake was 6-10 kg and leafs was 25-35 kg. Body weight measured on September 22nd was 606-608 kg and on September 30th, was 609-611 kg.

Blood was collected for hematology and biochemistry examination, and the results were normal.

She has a problem with behavior, she shows some “naughty” behavior, and again she was escaping to another paddock (central paddock) several times within this month. On September 1st she penetrates the fence between her paddock and paddock number 5, when she was guided to the central paddock, and she stays there for a while, then guided back to her paddock. In the morning on September 6th, she was found browsing in the partition area to central paddock. It was assumed that she penetrated the fence in the early morning. On September 27th, she was found foraging in the paddock number 5 after she penetrated the fence in the early morning.

After further investigation, it was concluded that the leaf and trees in her paddock already used up, and she attracted to the trees on the other side of the fence that still green. Change her behavior is important right now to support breeding program - limited access to see Rosa.

Bina - Female 31+ Years Old

She is in good condition. However, she is getting older 31+ years old right now, but everything looks good and not founded abnormality with her health condition. Bina activities are normal in this month; wallowing duration is between 1-3 hours during

daytime. No external wounds were observed, movement and locomotion are normal. Cloudiness of the eyes due to excessive exposure of the sunlight occasionally happened, and treated with Zink sulphate spray.

On September 1st to 10th, Bina's body temperature was between 36.5 to 36.9 °C, daily food intake was 6-8 kg of fruits and 38-46 kg of leaves. Foraging activity was normal.

On September 11th to 20th, the body temperature was between 36.6 to 37.0 °C, daily fruit intake was 6.5-9 kg, leaves daily intake was 34-46 kg. Foraging activity was normal. Body weight was measured on September 15th, and Bina's was about 746-749 kg.

On September 21st to 30th, the body temperature was between 36.6 to 37 °C, daily food intake was 7-9 kg of fruits and 36-47 kg of leaves. Foraging activity was normal. On September 22nd, the body weight was 735-737 kg, and on September 30th, body weight was about 750 kg.

Ratu - Female 14 Years Old

Ratu condition was normal in this month. Daily fruit intake was 8-10 kg, and foliage intake was 27-35 kg. Foraging activity was normal, and daily wallowing duration was 2-3 hours during daylight. On September 15th, her body weight was 554-555 kg and on September 22nd, her body weight was 555-556 kg. The body temperature range was 36.5 to 37.2 °C. On September 6th she was separated from Andatu, her offspring. During the first days after separation, her activity was still looking for Andatu, but after a few days her activity was normal again, and she enjoys forage in the forest of her new paddock.

Andatu - Male 2.3 Years Old

He is healthy and he has more aggressive, especially in the forest.

On September 1st to 10th, his body temperature was 36.8 to 37.2 °C. Daily fruit intake was 8-10 kg, leafs was 33-44 kg. Foraging activity was normal. On September 11th to 20th, his body temperature was 36.6 to 37.2 °C. Daily fruit intake was 6-9 kg, leafs was 22-37 kg. Actively forage in the forest. A body weight that measured on September 22nd was 512-513kg.

On September 21st to 30, his body temperature was 36.9-37.2 °C. Daily fruit intake was 6.5-11kg, leafs was 21-34 kg. Actively forage in the forest. On September 30th, his body weight was 518 kg.

His body temperature was in a normal range (36.4 °C – 36.8 °C). The mucous membrane of his tongue and the other parts in the mouth cavity were in normal condition (wet/moist, transparent and have a specific rose in colour) and there was no damage.

Andatu was weaned from Ratu on September 6th, and 24 hours observation was applied to see his response to this new condition. In the first few days of the weaning process, he still makes sound to call his mother after he finished wallowing, after a few moments without any replies, he continues his activities.

After the first few days, he gets accustomed to absences of his mother. His daily wallowing duration was 4 hours. He suffered hoof nail cracked few months ago, and still in the healing process by the growth of the cuticle from the base of the nail.



Figure : *Andatu enjoy feeding*

Separated program for Ratu and Andatu - totally separated them.

Andatu was weaned from Ratu on 7th of September 2014. Ratu was placed in the paddock 2 that already prepared, while Andatu still inhabit paddock 1, where he was born and staying with Ratu before. Twenty-four hour observation was conducted to observe Andatu response to Ratu's absence. In the first couple of days, he made calling sound to locate his mother, after he got up from wallowing. After several minutes, he waited with no response from Ratu, he continues his activities to forage or walking. This calling behavior was not observed on the 3rd days and so on and he enjoy his placement now.

Other Rhino Information

Fecal Collection

Fecal samples were checked regularly and some protozoa have founded in rhino's stools.

Blood collection

Routine blood collection for hematology and biochemistry examination was performed on September 15th on Bina, Andalas and Rosa. All samples showed good result.

Body weight

The Sumatran rhinoceros body weights are steady in this month base on weekly weighing procedure. The rhinos usually weigh in the morning after being clean and before eating any extra food supply.

Mineral supplement for salt lick

The salt lick supplement with normal salt mix with drinking water was given.

Teeth Examination

Note has been made on the teeth examination. From direct observation and palpation on the incisors of the rhinos, it was observed that two of the rhinos have the incisor teeth were not present.

Bina, Andalas and Andatu have all upper and lower incisors present with good condition and no exposed root canal. The shapes of Bina's and Andalas' incisors were nearly sharp front edges, while Andatu have dull front edges. It was presumed that Andatu still have milk teeth, but need further examination.

Ratu's left lower incisor is not present, and the right lower incisor remains in good condition, not wobbly and no exposure of crack or root canal. Both Rosa's left and right lower incisors are not present and the gum where the tooth root attached is already closed. No sign of infection was observed and feeding behavior also normal.

Lower incisor condition of 4 Sumatran Rhinoceros in SRS – Way Kambas

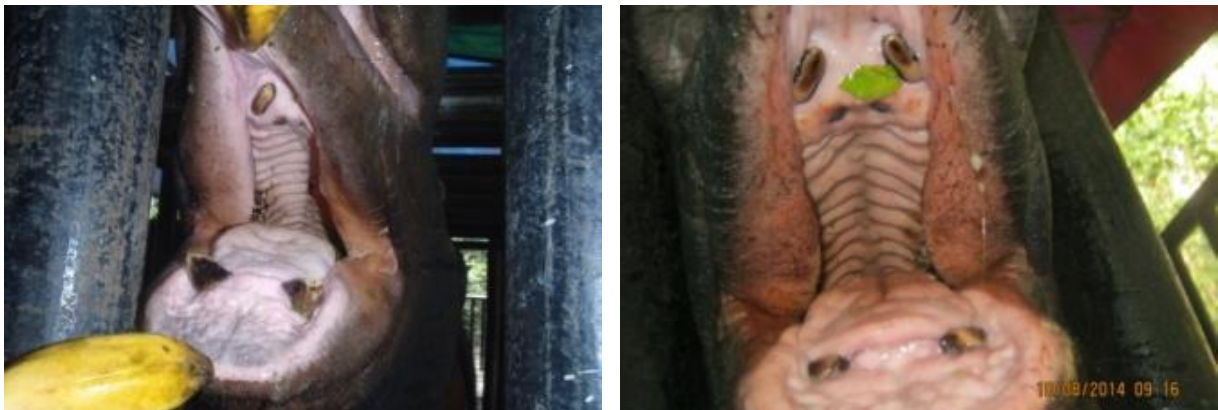


Figure : Andalas – both lower incisor presents (left) and Bina – both lower incisor presents (right)



Figure : Ratu – left lower incisor absent (left) and Rosa – both lower incisor absent (right)

Hoof (foot) problem

All rhinos at the sanctuary have good hoof and pad condition overall, just small problems have found on the Andalas foot pad and Andatu hoof but both of them look better condition. The keepers and doctor usually do treatment for rhino feet once every 2-3 days as routine care.

Foot-pad Problem



Figure : Bina's keeper (Edy Parwito) has daily foot care. They wash feet using antiseptic solutions then apply topical ointment and hoof dressing. More attention during dry periods, land ground was very dry, hard and hot will be a problem with rhino foot pad

Andatu Foot (nail) Problem

Foot-pad hind leg L problem with crack. Give the treatment with antiseptic solution and hoof dressing - Kevin Bacons. The hoof is getting better post treatment with growing up new nail's tissue.



Figure : Andalas's right leg foot pad injury. The pad condition now has recovered. New skin tissues had grown to cover the pad. The surface of the wounds now has dried and become thick

Wallowing

Wallow is an important facility of Sumatran rhinos, wallowing as a special and unique ritual activity for hairy Sumatran rhinoceros. Sumatran rhino will be wallowing at least two times daily at the afternoon and night for 2-4 hours wallowing for each time. However, dry season at this time, but we prepared fresh water supply to all paddocks especially to support wallow.



Figure : *Andatu's enjoyed her wallowing in the daylight*

Sumatran Rhino Reproductive - September 2014

Reproductive Monitoring Update

Breeding Program

Ultrasound Examination

Routine ultrasound is continuing to be a useful tool for the SRS veterinary team to use in predicting the optimal time for mating in the Sumatran rhino.

Ultrasound examination on female reproductive organs and behavior observation during breeding introduction were performed in this month.

Introduction of females to Andalas, the male, was arranged several times.

Ratu

Ratu Introduction Program

Ratu and Andalas were introduced each other on September 3rd and 4th, with bad response and also continue to introduce Ratu and Andalas on September 15th to 20th, their response is a bit better, but no pairing activity has happened.

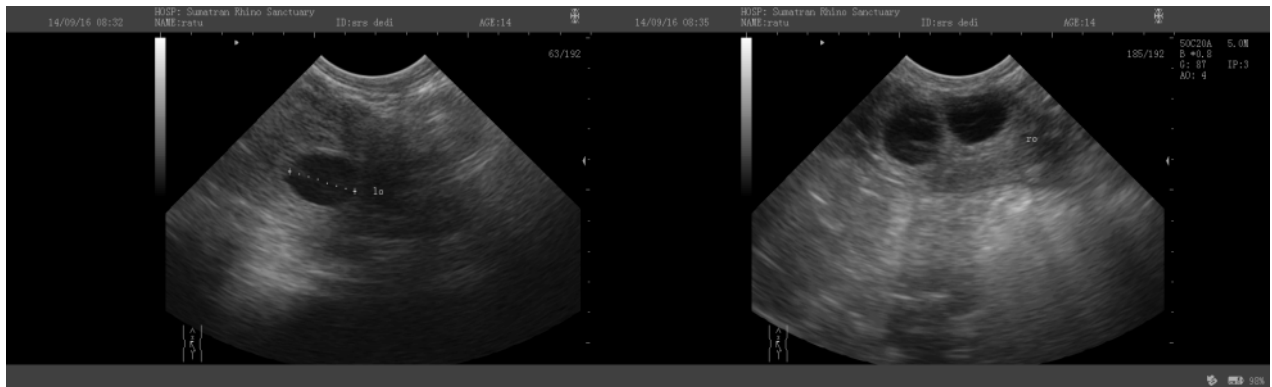


Figure : On September 14th Rosa's ultrasound image in the left ovary with good follicle 26.54 mm size (left) and 2 follicles on the right ovary(right)

Bina:

Bina has ultrasound examination regularly in this month founded good follicle and her cycle is better this month.

Bina was introduced on September 27th to 30th. Andalas had shown an aggressive response at the first time of Bina's coming. They both responses each other in a not good way, as Andalas sometimes shows alert responses to Bina's presences.

Plan for Bina:

1. Keep natural introduction and breeding
2. Prepare for artificial insemination (AI) program



Figure : on September 25 they were showing bad response overall and just few minutes showed good response during introductions

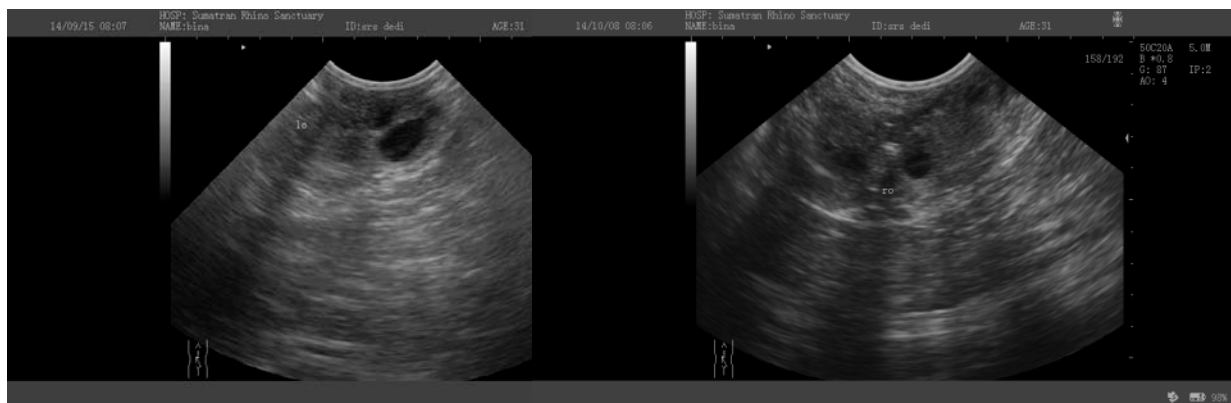


Figure : On September 15th Bina's ultrasound image in the left ovary with small follicle less than 10 mm size (left), and very small follicle on right ovary (right)

Rosa

Rosa has ultrasound examination regularly in this month.

On September 9th to 13th, Rosa was introduced to Andalas with a bit good response; she was a few times on position and standing head in the front of the center stall. Also continue introduction on September 23rd to 25th. On the last attempt, the response of Rosa to Andalas presence is not good, thus also Andalas' response is not good either. On the second attempt, the response was sufficient, courtship behavior was observed several times, but no mating activities performed.



Figure : On September 9th, Introduction through the stall's bars with a bit better response, but no pairing in this time because when the keepers tried opening the gate Rosa walking away.

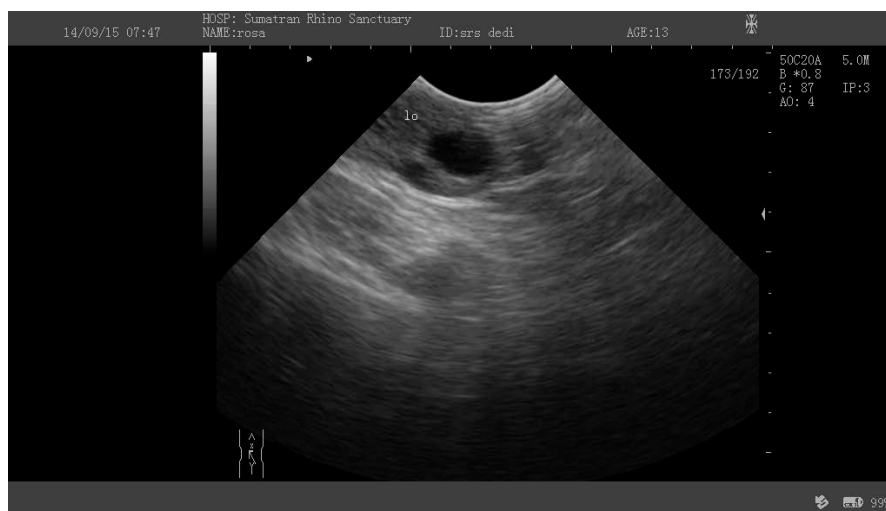


Figure : On September 15th, Rosa's ultrasound image in the left ovary with small follicle less than 10 mm size.

Visitor

On September 2, Mr. Lonnie Mc Caskill from Disney Animal Kingdom was visited SRS together with pak Widodo Ramono from YABI



Figure : Pak Widodo, dr. Dedi and Sumadi were guiding this trip, starting from SRS facility, including presentation, rhino souvenir and see the rhino in the paddock.

Reference:

SRS daily report