

## Chapter III

### STTCP of BUKIT TIGAPULUH

#### Introduction

Bukit Tigapuluh National Park (BTNP) is established by Decree of Forestry Ministry number 6407/Kpts-II/2002, 21 June 2002. In this national park there are live various type of extinct animal like Sumatran Tiger (*Panthera tigris sumatrae*), Sumatran elephant (*Elephas maximus sumatranus*), Tapir (*Tapirus indicus*), Sun Bear (*Helarctos malayanus*) and Sumatran Orangutan (*Pongo abelli*) (result of released to be wild), also various type of othercarnivore like Kucing Mas (*Catopuma temincki*), bough tiger (*Neofelis nebulosa*), Kucing Bulu (*Pardofelis marmorata*), Hyena (*Cuon alpinus*) and Mountain goat (*Capricornis sumatraensis*). Others, there are extinct flora like Cendawan Muka Rimau (*Rafflesia hasseltii*), Salo (*Johannesteijsmannia altifrons*).

Besides representing as habitat of wildlife and plants, this area with width of 144,223 ha also omit and live 3 original tribes that are: Talang Mamak, Melayu Tua (Old Malay) and Orang Rimba. The Jungle People is representing as comer / migration from Bukit Duabelas National Park in Jambi Province.

#### A. Sumatra Tiger, prey animal and its habitat Monitoring and Protection

Sumatran Tiger monitoring and protection, its prey animal and its habitat activity is done with forming the Tiger Protection Unit (TPU) and use of camera trap.

To date activity of protection and monitoring more focus done in area of national park which is the included in Riau Province, there are only some locations the camera installation and patrol route done in area which is included in region of Jambi Province.

##### A. 1. Monitoring of Sumatra Tiger, Prey animal and its Habitat

Monitoring is done through survey activity as well as use of camera trap. There are 2 type of camera trap what used by, that is active camera from trail master second generation and cuddeback camera. According to the result, known that cuddeback camera type is more compatible used in Bukit Tigapuluh National Park area to watch the tiger therewith of its prey animal.

Tables 7. Comparison of between Trailmaster and Cuddeback Camera

| No | Criterion                        | Trail master                  | Digital Cuddeback                |
|----|----------------------------------|-------------------------------|----------------------------------|
| 1  | Operating expenses per month     | 200,000                       | 80,000                           |
| 2  | Data / Photo Storage             | Maximal 36                    | Up to 100                        |
| 3  | Specification                    | Photo Only                    | Photo and Video                  |
| 4  | Period of Checking               | 10-20 day                     | Until 40 day                     |
| 5  | Flexibility                      | 3 components                  | 1 component                      |
| 6  | Time of of installation per unit | 30-45 minute                  | 10-15 minute                     |
| 7  | Angle of Camera                  | MoreWide because use separate | Only from front / back or left / |

|    |                                |   |                                       |
|----|--------------------------------|---|---------------------------------------|
|    |                                | camera  | right side                            |
| 8  | Location                       | Bandwith 1-6 metre  | Bandwith 3-8 metre                    |
| 9  | Endurance from weather         | More waterproof   | Less hold up                          |
| 10 | Endurance from insect          | More difficult to access by insect                                | Easier to entered by insect           |
| 11 | Security from animal           | Cable is often nipped by animal                                   | There no cable                        |
| 12 | Security from human (stealing) | Unsafe, because this camera of type is commonly use by public     | not like common camera                |
| 3  | Storage the result             | Require to be printed and need of additional equipments (scanner) | Directly copying to computer          |
| 14 | Time of photo                  | Date and time of photo often unwritten                            | Date of and time of photo written     |
| 15 | Treatment                      | 3 components (draining by silica gell)                            | 1 component (draining by silica gell) |

## Result

Through installation of camera trap have been obtained photographs of various animal which is live in Bukit Tigapuluh National Park (tables 8).

Tables 8. List of animal result of camera trap in BTNP

| No  | Nama Indonesia   | Nama Inggris           | Nama latin                               |
|-----|------------------|------------------------|--|
| 1.  | Elang sikap      |                        | <i>Accipiter trivirgatus trivirgatus</i> |
| 2.  | Kuau Raja        | Great argus            | <i>Argusianus argus</i>                  |
| 3.  | Binturong        | Binturong              | <i>Artictis binturong</i>                |
| 4.  | Landak Bayas     |                        | <i>Atherurus macrourus</i>               |
| 5.  | Tupai Pohon      | Plantain squirell      | <i>Calosciurus notatus</i>               |
| 6.  | Kucing mas       | Golden cat             | <i>Catapuma temincki</i>                 |
| 7.  | Murai batu       |                        | <i>Copsychus malabaricus</i>             |
| 8.  | Anjing Hutan     | Wild dog               | <i>Cuon alpinus</i>                      |
| 9.  | Beruang          | Sun bear               | <i>Helarctos malayanus</i>               |
| 10. | Musang belang    | Banded palm civet      | <i>Hemigalus derbyanus</i>               |
| 11. | Siamang          | siamang                | <i>Hylobates syndactilus</i>             |
| 12. | Landak           | Porcupine              | <i>Hystrix brachiura</i>                 |
| 13. | Beruk            | Pig tile macaqua       | <i>Macaca nemestrina</i>                 |
| 14. | Kijang           | Barking deer           | <i>Muntiacus muntjak</i>                 |
| 15. | Martin           | Yellow throated martin | <i>Mustella flavigula</i>                |
| 16. | Teledu           | Malayan badger         | <i>Mydaus javanensis</i>                 |
| 17. | Macan Dahan      | Caulded leopard        | <i>Neofelis nebulosa</i>                 |
| 18. | Musang merah     | Masked palm civet      | <i>Paguma larvata</i>                    |
| 19. | Harimau sumatera | Sumatran tiger         | <i>Panthera tigris sumatrae</i>          |
| 20. | Luak biasa       | Common palm civet      | <i>Paradoxurus hermaphrodictus</i>       |
| 21. | Kucing bulu      | Marbled cat            | <i>Pardofelis marmorata</i>              |
| 22. | Simpai           | Mitred leaf monkey     | <i>Presbytis melalophos</i>              |
| 23. | Kucing hutan     | Leopard cat            | <i>Prionailurus bengalensis</i>          |
| 24. | Kucing air       | Fishing cat            | <i>Prionailurus viverrinus</i>           |
| 25. | Burung penyiul   |                        | <i>Rollulus rouloul</i>                  |

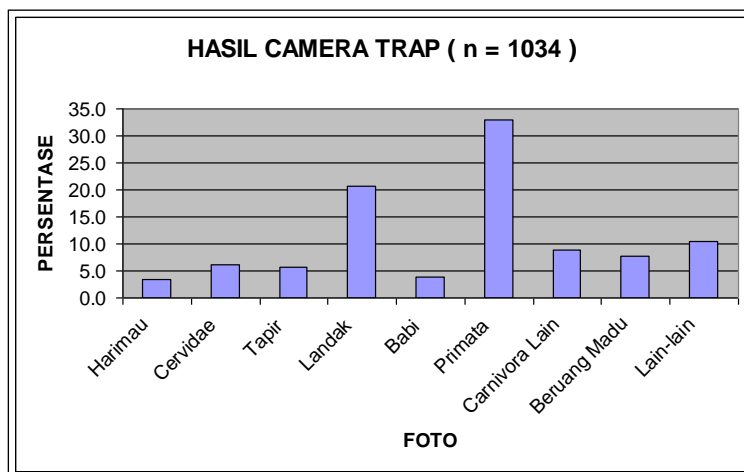
|                  |                    |                                |
|------------------|--------------------|--------------------------------|
| 26. Babi Gunung  |                    | <i>Sus barbatus</i>            |
| 27. Babi Rawa    | Wild pig           | <i>Sus scrofa</i>              |
| 28. Tapir        | Malayan tapir      | <i>Tapirus indicus</i>         |
| 29. Kancil       | Lesser Mouse deer  | <i>Tragulus javanicus</i>      |
| 30. Biawak       | Monitor lizard     | <i>Varanus salvator</i>        |
| 31. Musang biasa | Small indian civet | <i>Viverricula malaccensis</i> |

## Discussion

Pursuant to type of animal, have pothograph 31 type of animal which are identify, some of them are unidentifiy. Till today there are 10 individuals of Sumatran Tiger have photograph, from this result known that an individual of Sumatran Tiger is rare to come to the camera location, which is about 8 weeks. This thing is showing that Sumatran Tiger of BTNP need more long time to back to one area after get around its home range for about 8 weeks or can be assumed that Sumatran Tiger home range in BTNP is widest if compared with home range of Sumatran Tiger in WKNP.

Pursuant to camera trap result also knowable the potential prey animal type which is live in a region. By compared the amount of tiger photo and the amount of prey animal photo we can estimate ability of habitat support capability to continuity of life of Sumatran Tiger.

From totalizeing photo of wild animal which is got, Sumatran Tiger have been photographed less than 3.5% while the other type of carnivorous about 8.9%, so the total is 12.4% carnivore from totalizeing of 1,034 photos. The left of 87.3% are representing as potential animal which can



Gambar 23 . result of camera trap in BTNP

smaller body size if compared with tiger and will only become rival of tiger in hunt of little prey animal.

group and there are 4 hyenas in one photo. While the other carnivorous type (member of Felidae), they own

become carnivorous animal's prey. Carnivore animals which are predicted can become rival of Sumatran Tiger in hunting big prey animal is Hyena. The existence of Hyena is representing as new record, because previously have never been reported in BTNP even Indigenous People have never informed about the existence of this animal. During installing camera trap, hyena has photographed as much 16 times and generally on

Tables 9. List of Member of Felidae result of camera trap in BTNP

| No | Latin Name                      | Indonesia Name   | English Name    |
|----|---------------------------------|------------------|-----------------|
| 1  | <i>Catopuma temincki</i>        | Kucing Mas       | Golden Cat      |
| 2  | <i>Neofelis nebulosa</i>        | Macan Dahan      | Clauded Leopard |
| 3  | <i>Pardofelis marmorata</i>     | Kucing Bulu      | Marbled Cat     |
| 4  | <i>Panthera Tigris sumatrae</i> | Harimau Sumatera | Sumatran Tiger  |
| 5  | <i>Prionailurus bengalensis</i> | Kucing Hutan     | Leopard Cat     |
| 6  | <i>Prionailurus viverrinus</i>  | Kucing Air       | Fishing Cat     |

Existence of prey animal very determines the continuity of tiger life. To know type of animal that preyed by Sumatran Tiger can be done by see prey animal hair which is found on tiger feces. However to in Bukit Tigapuluh, tiger feces are very rare to found. This matter is possibility of relevant with belief or diffraction of indigenous people / around of national park which often uses tiger feces to take care of their garden by put the tiger feces on the boundary of between their garden and forest. Aromas that generated by tiger feces is trusted to make wild pig which often disturb their crop will go away. So far is only found 11 tiger feces, 5 of them are represent the hair of mount pig (*Sus barbatus*), 2 wild pig (*Sus scrofa*) and 4 (beruk/kera/monkey).

If we use data result of by macroscopic tiger feces analysis in WKNP (tables 10), hence we can see prey animal in BTNP generally is still very answer the demand, both the type and amount. Wild pig on BTNP is consisted of 2 types, which are Swamp pig (*Sus scrofa*) and Mount pig (*Sus barbatus*). Mount pig generally live in big group, even can reach hundreds in a group. Generally, they are distrubing society's crop on about September - Oktober. For Talang Mamak People this pig season is represent as moment to celebrate because the mount pig are easily search.

Tables 10. Prey animal type result of feces analysis in WKNP (STP, 1998)

| No | Prey Name                      | % feces ( N=120) |
|----|--------------------------------|------------------|
| 1  | Wild Pig                       | 33               |
| 2  | Macaca (beruk / kera / monkey) | 27,5             |
| 3  | Sambar                         | 16,7             |
| 4  | Deer                           | 15,0             |
| 5  | Bear                           | 2,5              |
| 6  | Others Type                    | 5,0              |

Amount of primate (monkey / beruk) are still plenty of in BTNP, this matter possible because of supported by to the number of plant type and fruits which are supporting the continuity of primate life.

Although monkey / beruk of *Macaca nemestrina* is very rare to seen, however pursuant to result of camera trap, there are plenty of monkey beruk. Several times one roll of film only contains a group of monkey / beruk which are descend and play at ground. Even 2 times, trailmaster camera type is withdrawn by monkey / beruk, this matter is known from printing result of camera which is previously found about 50 m from installation location. Monkey / beruk often reside in and play on the surface of ground, this matter enable monkey / beruk can become prey animal for Sumatran Tiger in comparison with other type of primate.

Gambar 24 . Some result of camera trap in BTNP



Explanation:

- 1,2 & 3 : Sumatran Tiger (*Panthera tigris sumatrae*)
- 4 : Clouded leopard (*Neofelis nebulosa*)
- 5 : Golden cat (*Catopuma temincki*)
- 6 : Marbled cat (*Pardofelis marmorata*)
- 7 : Mountain pig/Nangui (*Sus barbatus*)
- 8 : Sun Bear (*Helarctos malayanus*)
- 9 : Tapir (*Tapirus indicus*)
- 10 : Barking deer (*Muntiacus muntjak*)
- 11 : Banded civet (*Hemigalus derbyanus*)
- 12 : Great argus (*Argusianus argus*)

Tables 11. List of primate in BTNP

| No | Family       | Latin Name                   | Indonesia / Local Name | English Name        |
|----|--------------|------------------------------|------------------------|---------------------|
| 1  | Cercopitidae | <i>Macaca fascicularis</i>   | Monyet                 | Long tile macaque   |
| 2  |              | <i>Macaca nemestrina</i>     | Beruk                  | Pig tile macaque    |
| 3  |              | <i>Presbitis cristata</i>    | Lutung / Cigak         | Silver leaf monkey  |
| 4  |              | <i>Presbitis melalopos</i>   | Simpai                 | Banded leaf monkey  |
| 5  | Hylobatidae  | <i>Hylobates agilis</i>      | Owa                    | Agile gibbon        |
| 6  |              | <i>Hylobates syndactylus</i> | Siamang                | Siamang             |
| 7  | Lorisidae    | <i>Nyctibus caucang</i>      | Kukang Abu-abu         | Slow Loris          |
| 8  | Tarsiidae    | <i>Tarsius tarsius</i>       | Singapuar / Beruk Buku | Tarsier             |
| 9  | Pongidae     | <i>Pongo abelli</i>          | Orang-Utan             | Orang-Utan Sumatran |

Existence of Cervidae (deer, Sambar and napu mousedeer) pursuant to camera are not too much (6,2%), this matter is big possibility of because the location of installing camera usually at primary forest and hilly. While the Sambar footprint are much to found around and near of river or other lower area, however this location is often used by society so that it is not enable to be installed camera.

Tapir and Bear which also represent as potential prey of tiger, known in quite a lot (13.4%). While the other type (Hystricidae, Aves and Reptil) what also represent as potential prey animal are about 10.3%. In the following is list of potential prey animal which is live in Bukit Tigapuluh National Park (tables 12).

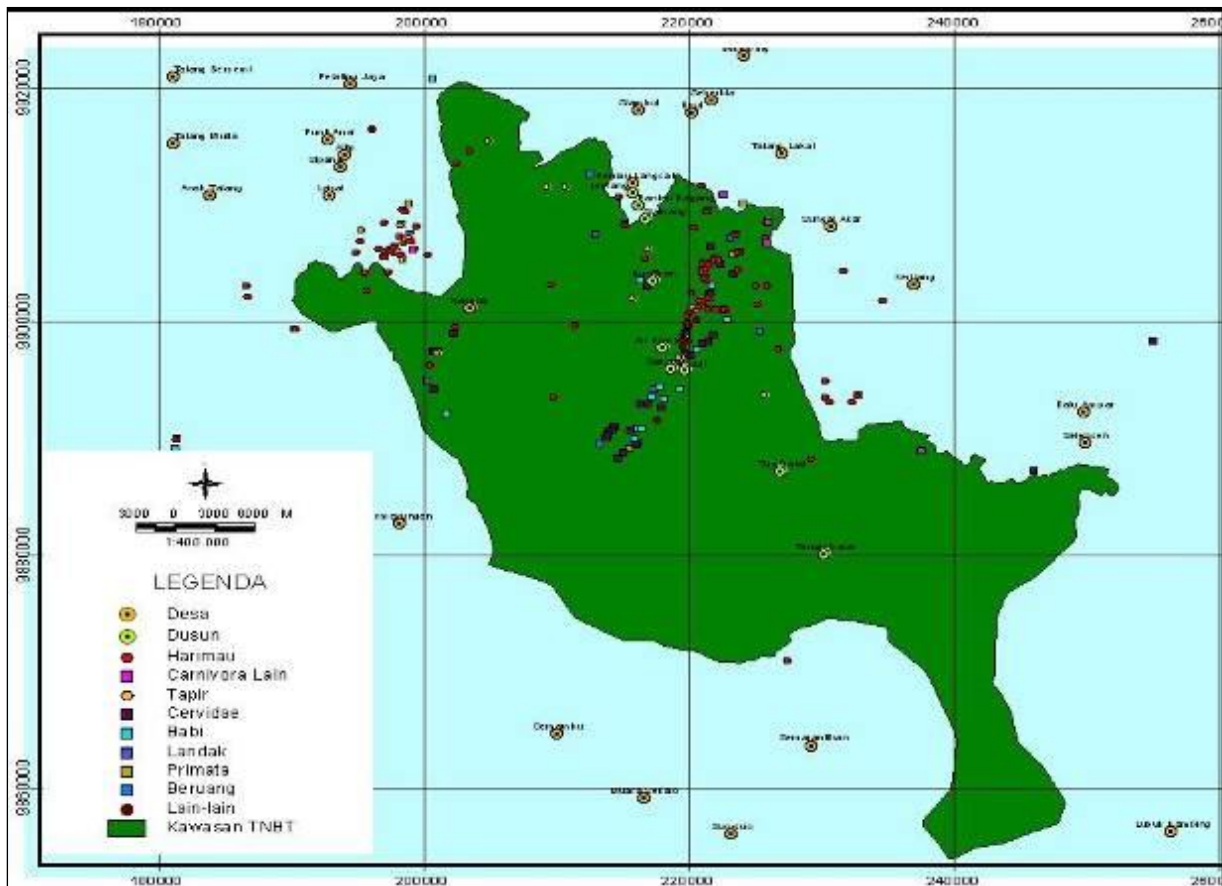
Tabel 12 . list Of potential preys species in BTNP

| No | Nama latin                         | Nama Indonesia/ daerah  |
|----|------------------------------------|-------------------------|
| 1  | <i>Aonyx cineria</i>               | Berang-berang           |
| 2  | <i>Artictis binturong</i>          | Binturong               |
| 3  | <i>Atherurus macrourus</i>         | Landak bayas            |
| 4  | <i>Capricornis sumatraensis</i>    | Kambing hutan           |
| 5  | <i>Cervus unicolor</i>             | Sambar                  |
| 6  | <i>Elephas maximus sumatranus</i>  | Gajah                   |
| 7  | <i>Helarctos malayanus</i>         | Beruang                 |
| 8  | <i>Hemigalus derbyanus</i>         | Musang belang           |
| 9  | <i>Hylobates agilis</i>            | Owa                     |
| 10 | <i>Hylobates syndactylus</i>       | Siamang                 |
| 11 | <i>Hystrix brachiura</i>           | Landak                  |
| 12 | <i>Macaca fascicularis</i>         | Kera                    |
| 13 | <i>Macaca nemestrina</i>           | Beruk                   |
| 14 | <i>Manis javanica</i>              | Trenggiling             |
| 15 | <i>Muntiacus muntjak</i>           | kijang                  |
| 16 | <i>Mustella flavigula</i>          | Martin/ Utu-utu         |
| 17 | <i>Mydaus javanensis</i>           | Teledu/senggung/ Kuskus |
| 18 | <i>Nyctibus caucang</i>            | Kukang abu-abu          |
| 19 | <i>Paguma larvata</i>              | Musang merah            |
| 20 | <i>Parodoxurus hermaphrodictus</i> | Luak biasa              |
| 21 | <i>Pongo abelli</i>                | Orang utan              |

|    |                                |                     |
|----|--------------------------------|---------------------|
| 22 | <i>Presbitis cristata</i>      | Lutung              |
| 23 | <i>Presbitis melalopos</i>     | Simpai              |
| 24 | <i>Sus barbatus</i>            | Babi gunung/ Nangui |
| 25 | <i>Sus scrofa</i>              | Babi hutan          |
| 26 | <i>Tapirus indicus</i>         | Tapir               |
| 27 | <i>Tragulus javanicus</i>      | Kancil              |
| 28 | <i>Tragulus napu</i>           | napu                |
| 29 | <i>Viverricula malaccensis</i> | Musang biasa        |

Sumatran Tiger is very rare to found at hilltop, generally sign of their existence is more regularly found on sloping area. While at hilltop more often got sign of existence of Clauded Leopard, this matter is known both from footprint and also results of camera trap.

Picture 25. Animal distribution in BTNP



## A.2. Sumatran Tiger Protection, its Preys and its Habitat

Sumatran Tiger protection is done with forming the Tiger Protection Unit (TPU). This unit is consisted by 1 national park Rangers and 3 local people who are passed the selection and experience training. This team aim to assist Forestry Department in the effort to taking care of the permanence of Sumatran Tiger, prey animal and its habitat.

During period 2007, have been found and annihilated 5 slingshot traps which generally to ensnare sambar, deer or pig both in and outside the national park area. Team also fined 1 tapir carcass (*Tapirus indicus*) outside Bukit Tigapuluh National Park.

Others, together with Ranger of BTNP Bureau team also have finished one case of illegal logging (STTCP, 2007) and an effort to sale sambar by Indigenous People. While doing patrol or survey this team also does counselling to society especially Indigenous People. In one day, one team can pass through over about 4 km. Far or nearness of travelled distance is also influenced by condition of track which passed by like the hill precipitous, beside that some back of hills in Bukit Tigapuluh area are have been opened by HPH and in this time those place are growed by thick resam (kind of fern) so that very difficult to be passed by (STCP, 2005).

The example case: Sambar Trade

|                       |   |
|-----------------------|---|
| Type which will trade | : 2 (two) female deer which about 2 year old  |
| Owner Name            | : Ujang (Lecok) (Indigenous People)   |
| Gender                | : Man   |
| Age                   | : 39 year   |
| Work                  | : Farmer  |
| Address               | : Dusun Suwit, Rantau Langsat Countryside, Batang Gansal Subcistrict, Indragiri Hulu Regency, Riau Province |
| Buyer Candidate       | : Pendi Cs  |
| Work                  | : Journalist (ill defined)  |
| Address               | : Rengat  |

### Chronological:

On 10 December 2007 there is information from field that will be happened a transaction of two deer trade in Dusun Lemang, Rantau Langsat Countryside, Batang Gansal Subcistrict, Indragiri Hulu Regency. The Information mentions that the two of deer will be placed in Danau Raja Recreation Park of Rengat Town.

To follow up the information, at 12 December 2007 two Rangers of Bukit Tigapuluh National Park; Najarlagu Sinaga which also representing as STTCP TPU Commandant and Poltak Alimadan Harahap is immediately sent to Dusun Lemang to ascertain the truth. The information turned out correct information, at they arrived in Lemang, the deer owner or seller therewith two of his property deers have resided in there await buyer candidate who is ordered previously.

First action that done by these two officers is give understanding to deer owner that what will he do is representing collision to the regulation and can entangle him in doing an forestry injustice. Hereinafter these two officers are still stay in location / house where the two deer reside in to pacify and anticipate the transaction that can be happen or other ugly possibility and also await buyer.

According to explanation that submitted by deer owner, those two deers is initially representing as his livestock animal without having a purpose to sell it. One of them has almost one year in his rearing (since little), while another one, he buy from other Dusun Suwit citizen about one month ago. But because someone who will buy this two deer confess as a functionary messenger, hence he aggre to sell it because he is respect and fear to the functionary. However someone who promises to buy the deer is never return.

### **Handling**

Pursuant to information from mentioned small team, hence in the day time of 13 December 2007 BTNP Ranger Commandant does coordinate with BTNP Bureau Head, Superintendent of BKSDA Rengat and STTCP to study an action to be taken. In coordinate meeting that goes on shorten, agreed on that action which is to be done is bring back the two deer to be looked after by its owner in Dusun Suwit (traditional exploiting zone) on condition that the owner have to sign a minutes of deer storage from BTNP Bureau Head, where this two deer hereinafter represent as BTNP Bureau property but in charge of look after it is its previously owner and also can not allowed to trade.

There is two alternative of action to be done by after second of these deers is re-returned to Dusun Suwit, that are; first, released to be wild the two deers and second, the two deers will remain to be looked after by its owner with observation from BTNP or STTCP party.

To execute that aggrement hence formed a team consisted of BTNP Bureau and STTCP which at the time go to Lemang to finish this deer case. Hereinafter this team immediately goes to location and arrives there about 16.00 WIB. There have waited the two of Rangers which have been sent previously and the deer owner. After giving explanation and counselling to deer owner, team submits to owner of deer the agreement which have been made in previous coordination. Deer owner is agreed and ready to sign the Deer Strogare Minutes from BTNP Bureau Head which have been prepared.

After all case assumed finishes, this team is direct back to Pematang Reba. While the two BTNP Rangers are constantly at Lemang until the deer re-brought to Suwit.

Henceforth, planned that the two of deer which have the tame will be proliferated by unite it with a stag (what is tame too) which is in Dusun Datai in this time.



Picture 27. Sambar (*Cervus unicolor*) that will trade

### A. 3. Threat

Threat to permanence of Bukit Tigapuluh National Park especially comes from outside, that is from countrysides which abut of national park. Wood stealing which is generally sporadic, its meaning the wood which is cut away will direct process and bring it out. For wood stealing activity, transportation usually they use river as the transportation means, that is by sweeping away the wood and lift it to land after residing outside of national park. Rivers which commonly use to sweep away wood for example: Sungai Akar (lifted up on Sungai Akar Countryside) and the Sungai Antan (Lifted up on Sanglap or Alim Countryside). Wood felled down in Bukit Bulan area that conducted to Sanglap Countryside, pursuant to condition of remained wood can be estimated have desisted on last some years.

In this time, by done intensively operation to discontinue wood stealing, hence wood stealing activity is decrease although immanent. Generally wood stealing, majored for the type which commonly use by society for substance of ligneous domestic such as Tembesu (*Cathium sp*). While type of Keruing - Meranti seldom be stolen by because of the sawmill which are previously a lot of there (around BTNP) are closed. The Closed of these sawmill also because of ending of raw material of wood have coming from produce forest. Ending of classed raw material of wood outside national park is also the careful need, because meaning the increasing



of wood price sells which also can mean the possibility of wood stealing in national park will increase, although just to fulfill domestic requirement.

Picture 28. Resak bark is being put to the sun

Other threat for BTNP is Resak bark (*Vatica resak*) stealing, what is often used as a substance to make wine. This matter is careful need, because although just taken its bark, however to get the bark require to cut away he wood.

Resak bark price is very charm, for example: one fastening of dry resak bark esteemed by about Rp. 10.000,- and one of resak tree with diameter 15 cm can yield 4 fastening of resak bark, so its meaning Rp. 40.000,- with a period of workmanship only about 30 - 40 minutes. While one resak tree with diameter 150 cm can yield 350 - 400 fastening with a period of workmanship about 2 - 3 day. Others, for the resak bark transportation from forest is easy enough in comparison with the wood transportation, because bark resak transportable only by using motorbike. From sale side this resak bark is easy too, because ordinary resak bark sold to Jakarta, Lampung and Medan is enough transported by using bus car (placed above the bus) and is not incured by operation. Around of BTNP, area which is a lot of searching and or resak bark stealing especially come from Sungai Akar Countryside and Keritang.

Bird steal is also become threat for permanence of BTNP. Bird which is often searched by is warbler like Murai Batu (*Copsychus malabaricus*). Some bird thieves have been caught by camera trap which is installing in BTNP. Gaharu Aloe-wood (*Aqualaria malaccensis*) is representing as other threat, the perpetrator generally come from Medan. In 2003 - 2004 have are under arrest about 18 Gaharu wood thieves from three groups. However because previously have never been done a counselling and represent is the first time known, hence the Gaharu wood thief discharged with commemoration and the Gaharu wood confiscated and annihilated (burned).



Picture 29. Bird thief who are caught by camera trap

Gussed the activity of Gaharu wood thief have taken place for a long time, pursuant to information of Datai people that thief of Gaharu wood really often through in Dusun Datai. At June 2007, one group of thief of Gaharu wood is under arrest in Dusun Suit of however returning discharged because this Gaharu wood thieves group is invited by Suit People. Action that taken is give counselling, guidance and also the emphasis in order to not recur an Indigenous people invite outsider to steal in BTNP. This external society generally ally with backwoodsman with sharing



Picture 30. Gaharu wood thief who is caught by camera trap

holder system. Because backwoodsman do not know Gaharu (part that taken) however recognizing the aloe, hence generally after tree cut away the outsider will say that there are not Gaharu yet on the tree. Then after some month later, outsider will visit upon the location to take Gaharu wood from tree decayed without entangling Indigenous People which become indicator walke previously.

Threat potency also comes from society who stays in national park. Although this indigenous people have live in there before specifying of this forest area as national park, however because their knowledge are lower, they often exploited by outsider. Various means done by outsider in the name of Indigenous People interest, in consequence the approach, counselling and also the knowledge improvement for this Indigenous People is vital importance to do. For example at June 2007, external society enter to wood up Gaharu wood; July 2007, hinterland society

exploited by outsider to cut away wood; last on December 2007 hinterland society appealed to sell to Sambar / Deer.

## B. Community Development for Indigenous People

Talang Mamak people are representing as one of original tribe in Riau Province. They live



Picture 31. Society who is making roof from salo leaf

pledgedly to sociability and forest permanence, both to fulfilling requirement gird, food and board; they also have ability of traditional medicine crop. Society which omit and live in Bukit Tigapuluh National Park are about 202 Household (about 893 people) or about 11.5% from entire of Talang Mamak society in Riau Province which is amounting about 7.776 people.

People of Talang Mamak generally still embrace as animisme or "Langkah Lama / Old Step", and if have embraced islam religion they often referred as an Old Malay or also "Langkah Baru / New Step". In everyday life this socialize live good foundation among which is the inclusive of "Old Step" and "New Step". They are the inclusive of type who avoid dispute, probably this matter also become one of their reason do not want to keep out forest. This socialize is omit in 6 small group on riparian of Batang Gangsal.

### B.1. STTCP Study Studio

Education activities for indigenous people have been started since 2004, with forming Study Studio 1 in Dusun Datai. Since 2007, education activities in Dusun Datai have been continued by Education Official Duty of Riau Province and Indragiri Hulu Regency. For that, STTCP since May 2007, founding Study Studio 2 in Dusun Sadan and in this time have runned with 54 pupil on early activity later mount to become 69 pupil with age between 5 - 17 years old. There is 2 commisioned STTCP staff to teach this indigenous people children, beside teach the teacher is also undertake to give counselling, approach, as motivator and also as link between Indigenous People with national park party. For see education activity growth, hence at December 2007 STTCP Study Studio has done an evaluation (examination) for pupil with some questions which is taken from some public school.



Besides reading, writing and counting, since August 2007 have been given some added lesson / subject like Natural Sciences (IPA), Social Science (IPS) and Education of Pancasila and Civics (PPKN) especially for student who is owned ability to read and write. Substances of Iesson that used by is equal to substance that weared and applied by generally Elementary School.

Picture 32. Study Studio 2 in Dusun Sadan

At December 2007 while evaluated is performed the amount of Study Studio students is 53 pupil. The reason why the pupil desist to learn is marginally because four reason that is: marriage, move to omit to other orchard, assisting parent (tap rubber etc) and because by his parent still be assumed undersize for the school. For the last reason, generally the parent come and asks consideration to teacher.

### **Study Studio Evaluate**

Evaluation (test) what is executed at 25 – 29 December 2007 is representing first as the evaluation that have been done. This evaluation is aim to know efficacy level of Study Studio program. Its parameter is the student ability level in hand the Iesson items which have been given by like ability to read, writing and counting and the other common knowledge. As basis for determine efficacy level is that any student start from zero, its meaning that they are have never learnt and recognize letter and number at all while join in and start to learn in Study Studio. Efficacy parameter is also visible from persentage of student who owned ability to reading, writing and counting.

Before evaluations were done, we have done a subdividing relied on level of ability owned by all of pupil from result of perception of all teacher during the time. This matter is done so the item of test which is given is according to ability each pupil. There are two groups, that is:

1. First group: consisted of pupils which predicted still not yet or the indigent write, reading and counting. There are 42 pupils in this group. With items of test reading, writing and counting.
2. Second group: consisted of pupils who owned ability on reading, writing and counting though not yet fluent enough, there are 11 pupils. Items of Test consisted of reading, writing, Mathematics, PPKN, IPS And IPA.



*Picture 33.  
atmosphere at the  
time of student  
answering the  
question of test*

### **Result Evaluate**

For the questions for pupil in the second group of especially at PPKN, IPS, IPA and Mathematics subject, its substance is obtained from test questions of class 1 SD (elementary school) of first semester. The questions are edited and compiled by] pursuant to study studio pupil ability assumption. Each subject consisted of 25 questions divisible in two questions type that is 20 questions of multiple choice and problem 5 essay questions. Maximal value /point from entire

questions is 100 with detail 60 point from 20 multiple choice questions and 40 point from 5 essay questions.

From test result, known that from 42 pupil in the first group, it is only 10 pupil which have been able to read and write; while to count there are 11 pupils. While result of evaluation for group 2 (tables 13)

Tabel 13 . Result of test of group 2

| No | Pupil Name     | Gender | Age | Point                     |     |     |      |            |       |
|----|----------------|--------|-----|---------------------------|-----|-----|------|------------|-------|
|    |                |        |     | PPKN                      | IPS | IPA | Math | Indonesian |       |
|    |                |        |     |                           |     |     |      | Read       | Write |
| 1  | Leli Yusri     | F      | 12  | 71                        | 46  | 77  | 42   | 70         | 70    |
| 2  | Monica         | F      | 14  | 49                        | 50  | 69  | 42   | 70         | 60    |
| 3  | Ramon          | M      | 12  | 84                        | 71  | 91  | 97   | 90         | 100   |
| 4  | Sides          | M      | 10  | 32                        | 57  | 48  | 32   | 60         | 30    |
| 5  | Sulan          | M      | 10  | 45                        | 38  | 77  | 45   | 70         | 70    |
| 6  | Toni Sabrianto | M      | 14  | 47                        | 61  | 76  | 89   | 70         | 65    |
| 7  | Wardi          | M      | 8   | 21                        | 13  | 21  | 52   | 50         | 10    |
| 8  | Winda          | M      | 10  | 38                        | 17  | 24  | 21   | 50         | 20    |
| 9  | Dudi           | M      | 12  | 42                        | 12  | 10  | 20   | 50         | 20    |
| 10 | Erma Darlis    | F      | 13  | 62                        | 37  | 46  | 47   | 70         | 75    |
| 11 | Pujianto       | M      | 13  | Do not accompany the test |     |     |      |            |       |

From test result which as described at table above, knowable the percentage of pupil who is owned ability to read, writing and counting, that is:

There are 21 pupils (39.6%) which are have been able to read and write, that are 10 pupils from first group and 11 pupils from second group. There are 22 pupils (41.5%) which have been able to count, that are 11 pupils of first group and 11 pupil from second group.

## B.2. Health Improvement

Result of survey of biota medika team finds that society which populating in and around area of BTNP that is Malay people have exploited 182 type of plant to cure 45 disease types. Tribe of Talang Mamak exploiting 110 type of medicinize plant to cure 56 type of disease also recognize 22 type of drug mushroom. Tribe of Anak Rimba (Jungle People) exploiting 137 type of plant consisted of 101 type of plant to cure 54 type of disease and 27 type of mushroom to cure 24 disease type (BTNP, 2004).

Health improvement activity is done to by work along with Puskesmas Batang Gansal in the form of free medication treatment activity and also the health counselling of every 6 month. To date have been done 5 times of free medication with patient amount of about 538 people. Beside that, other activity which is do drug crop sample. This sample is made on the Study Studio yard in order to the pupils who are also representing as indigenous people children not forget their traditional drugs. To date drug crop which have been planted and live is about 24 type (still will be added) from various habitus and benefit (enlist enclosed).

### **B.3. Income Improvement Effort**

One of non wood forest commodity which is very potential to be developed in the form of more intensive cultivation is jernang resin (Dragon's Blood). Jernang Resin serve the purpose of the industrial raw material of colourant in industry marble, ceramic, petrify appliance, wood, paper, paint, tooth paste, extra tanin and pharmacy. Therefore resin of jernang has high economic value. In 2004, price of 1 kg of jernang resin mounted by first seller seeker and compiler can reach Rp. 900.000,- and even there is reaching Rp. 1.200.000,-. Though in this time its price is only be at between Rp. 500.000,- until Rp. 700.000,- per kilograms in first seller seeker and compiler level depended to its quality, but this matter are not make position of jernang resin as prima donna commodity change.

type of rattan of jernang which is its fruit contains resin is come from genus *Daemonorops*, like *Daemonorops draco*, *Daemonorops draconcellus*, *Daemonorops micracantha*, *Daemonorops didymophilla*, *Daemonorops mattanensis*, *Daemonorops propinqua* and *Daemonorops brachystachys* (Januminro, 2000). Though there are also coming from gender *Calamus*. But resin that yielded is not as much and the quality is not as good as resin from gender *Daemonorops* (Wahyudi Dkk, 2005).

For type of rattan of producer of jernang resin which is live in Bukit Tigapuluh National Park area whereas knew and identified there are three type namely *Daemonorops draco*, *Daemonorops propinqua* and *Calamus axleyanus* (Wahyudi Dkk, 2005).

Efforts that done in this activity is in the form of jerenang cultivation attempt. This plant is representing as forest plant becoming one of source of Indigenous People income. Cultivation by using seed have been done, however pursuant to Indigenous People experience, almost all of jerenang crop which is coming from seed do not yield any fruit. For that STTCP, since 2004 have tried to do jerenang multiplication through vegetative cultivation system. Researches in 2004 - 2006 are experiencing failure and in 2007 STTCP have done research again with other system.

Besides doing research, STTCP have also given input to timber / pulp companies to do jerenang multiplication with tissue culture system, however to date there is company which is answer it by seriously. This matter is done because jerenang have high economic value and if earning doing cultivation hence socialize in and around of park area especially the Indigenous People will obtain income from jerenang and almost for certain the wood stealing will not become their choice. In the conservation side, jerenang need tree to creep and will die if the tree cut away. Indigenous People is protect crop of jerenang and will fine someone who have cut away jerenang. This matter also means that protectedly jerenang indirectly also protect tree of place of jerenang creep.



*Gambar 34* experiment to cultivation of jerenang for increase income indigenous people

*Explanation:*

- 1. take sapling of jerenang; 2 & 4: submersion of jerenang sapling in condensation of rooton F*
- 3 & 5: planting of jerenang in the polybag*