RHINO PATROL AND MONITORING UNITS
CAT TIEN NATIONAL PARK
VIETNAM

TECHNICAL REPORT 4: JUNE & JULY 2002

RESULTS OF RHINO SURVEY JUNE AND JULY 2002

By Bui Huu Manh

WWF - ASIAN RHINO AND ELEPHANT ACTION STRATEGY in VIETNAM

CAT TIEN NATIONAL PARK CONSERVATION PROJECT
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This report describes the results of the Rhino Protection and Monitoring Units in Cat Tien National Park. This work is generously funded by WWF-US through the Asian Rhino and Elephant Action Strategy (AREAS) and the US Fish and Wildlife Service. It is executed under the auspices of the WWF – Cat Tien National Park Conservation Project and Cat Tien National Park. The Cat Tien National Park Conservation Project is a joint initiative of the Ministry of Agriculture and Rural Development (Hanoi) and the WWF-Indochina Programme, funded by the Governments of Vietnam and The Netherlands.

I. General

Since August of 2001, the RPMUs (Rhino Protection and Monitoring Unit) have made the monthly survey on the Javan rhino in Cat Loc section of Cat Tien National Park. The results (see the first six-month report) have shown that the status of this species is highly critical when there are many information showing that only very few rhinos left. So there is a need to organise a deatail survey to check out this situation again to get the right data on this species in order to build the appropriate management plan for this area. June – July survey is the comprehensive survey to evaluate the status of the rhino in Cat Loc.

Different from the normal monthly survey before, this survey has 3 groups in order to cover the larger area in the same time to get the information synchronously for the easy comparison.

The members of 3 groups are as follow:

- Tien Hoang group
- Gia Vien group
- Phuoc Son group

This survey has been divided into 2 period: the first period is from 22nd of June to the end of June, the second is from 7th until 17th of July.

In the first period, Tien Hoang group surveys the Northeast area of Village No.4 to check wether the rhino distributes outside the already known range. Phuoc Son group surveys the area from Phuoc Son station up to Beu Cau station (the northwest of the rhino range). Gia Vien group survey the area from K'Lo – K'Ích westwardly.

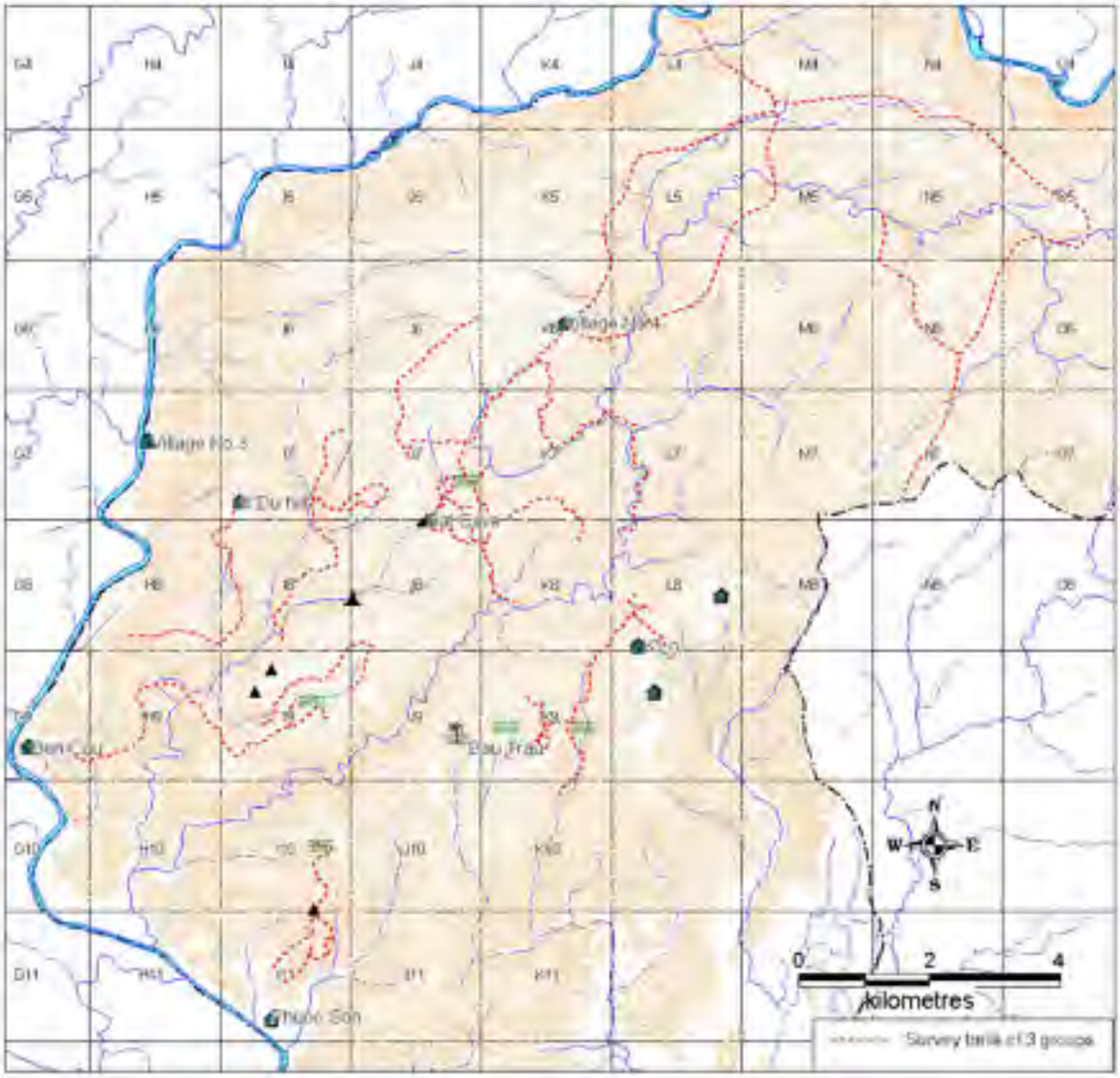
In the second period, Tien Hoang group surveys the area from Village No.4 down to the Bat Cave, Gia Vien group surveys the area from K'Lo – K'Ích up to Bat Cave, Phuoc Son group surveys the area from Bau Chim up to Dinh Vu area (Da Dinh De stream). (see map 1).

II. Generals results

In period one, 3 group have got the following results:

- Tien Hoang group: this group has covered a large area in the Northeast of village No.4 but they didn't find any information about the rhino. This proves that the rhino never moves up north of Village No.4. This group has covered blocks K6, L6, L5, L4, M4, M5, N4, N5, O5, N6.
- Phuoc Son group: this group has found information about rhino in hilly areas near Bau Trau, in the beginning of Suoi Tre, in Suoi Lanh area (old tracks). This group has covered the blocks of I6, I7, I10, J10, J9, K9.

Map 1. SURVEY TRAILS OF THREE GROUP IN JUNE AND JULY OF 2002



- Gia Vien group: They has surveyed the blocks of L8, K8, J9, K9, L9, K10, L10 and found rhino signs in blocks of K9, L9 and L8, in which the rhino information has been known before since the previous monthly survey. They found new tracks of rhino only in 2 areas: Bau Trau and the area in southeast of Bau Trau, about 1 km away from Bau Trau. In the northern part of K'Lo (on the way to Da Toi stream), they also found rhino sign but they are old, at least 1 month old so thet can't make any measurements.

The area which 3 groups covered in period two is presented in Map No.1. The results are as follow:

- Tien Hoang group: only found rhino signs in the area around Bat Cave, about 1 km away from the Bat Cave, along the Suoi Lanh area. All the signs are old, at least one month old. This group only can make on plaster of front hoof.
- Gia Vien group: found rhino signs in block E6, E7, F7, F8. Rhino signs are mostly found in the area between Suoi Lanh stream and Da Toi stream and in 2 areas around Bau Trau. . Only the signs in southern part of the Bat Cave are new while the signs in Bau Trau are old. This proves that the rhino has moved from Bau Trau area in June to near Bat Cave in July because this group found new signs of rhino in June in Bau Trau area.
- Phuoc Son group: found rhino sign in the area of Suoi Sinh (or Da Dinh Rech stream) and the beginning of a samml tream mostly in block of D7 and D8). They also found old signs of rhino in this area. The new signs this group found is very near to the location where Gia Vien group found new signs. These two areas are only about 1 km away from each other and on the moving route of the rhino which have been recorded before.

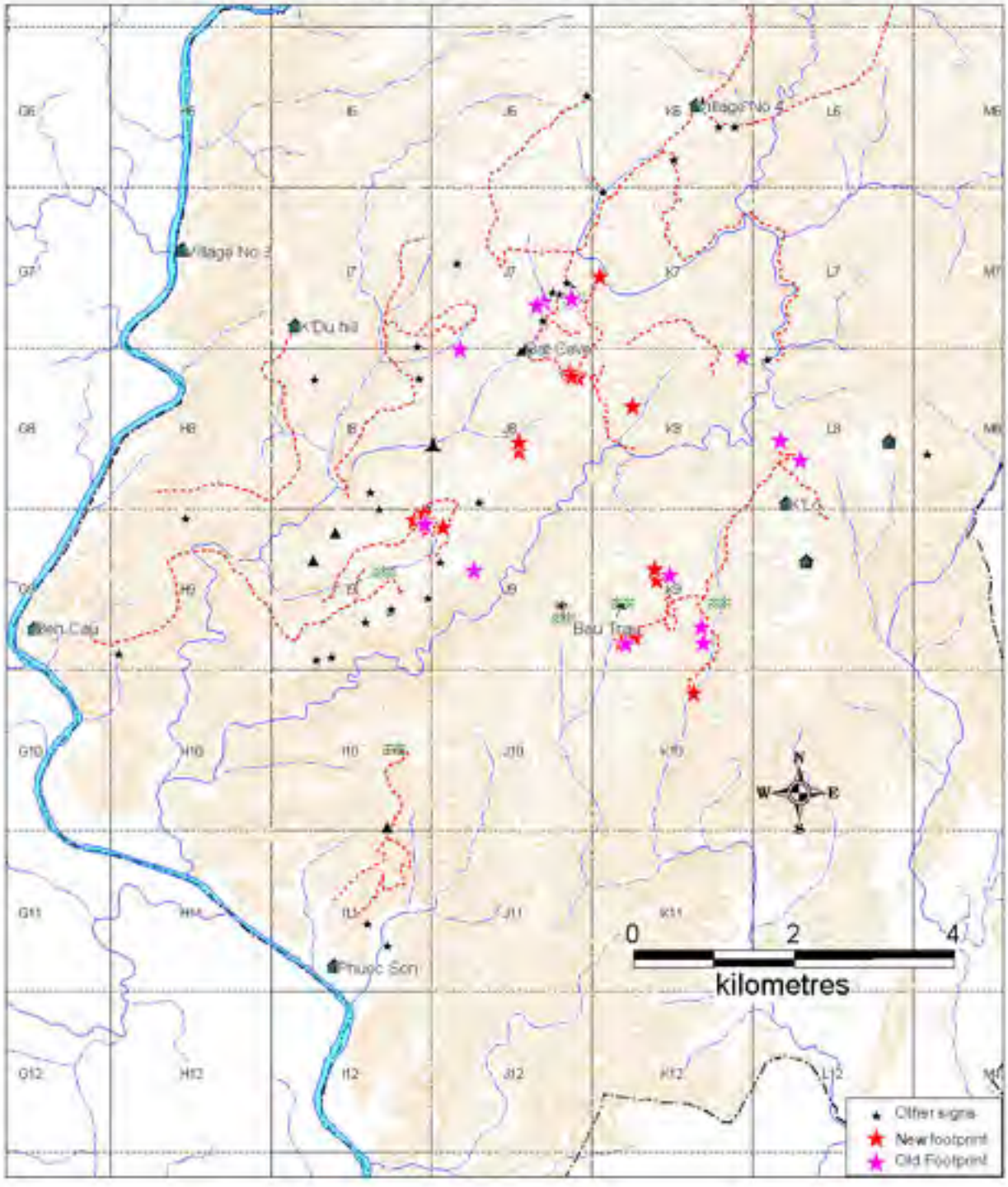
III. Results in detail:

III.1. Footprints:

All 3 group found the footprints of rhino in those areas: Bau Trau – Dac Lo, Suoi Sinh, Da Dinh De, north and south of the Bat Cave. They also found the footprints scatteredly on the known moving trails of rhino, from Dac Lo to Bau Trau, from Bau Trau to Da Toi stream and then to Bat Cave and Suoi Sinh direction.

New footprints found by Gia Vien group have been recorded in 23th , 24th, 25th, 26th and 27th of June. New footprints in Bat Cave area have been recorded during the time from 9th to 13rd of July. The new footprints found by Phuoc Son group are recorded in 14th and 15th of July. It is obvious that in the end of June, the rhino stays in the Bau Trau – Dac Lo area, while in the first 2 weeks of July, the rhino stays in Suoi Sinh – Bat Cave area.

Map 2. FOOTPRINT SITES FOUND IN JUNE - JULY 2002



***III.2. Dung*:**

The dung of rhino has been recorded in 6 locations, which are:

- 2 locations next together at the top of a small near Bau Trau and 1 location in the beginning of Lua stream, comming out from Bau Trau swamp.
- 1 location on the rhino trail from K'Lo to Da toi stream.
- 2 locations in the northeast of Bat Cave, about 700 meters away from the cave, along a small stream. Dung piles found in these locations area old, about 1 month.

The first 4 locations found by Gia Vien group have dung. If considering with the rhino trail system found in the first 6 months of survey, these 4 locations are on the rhino trail from Bau Trau to Suoi Sinh area.

Phuoc Son group didn't find any dung site during the survey.

***III.3. Wallow*:**

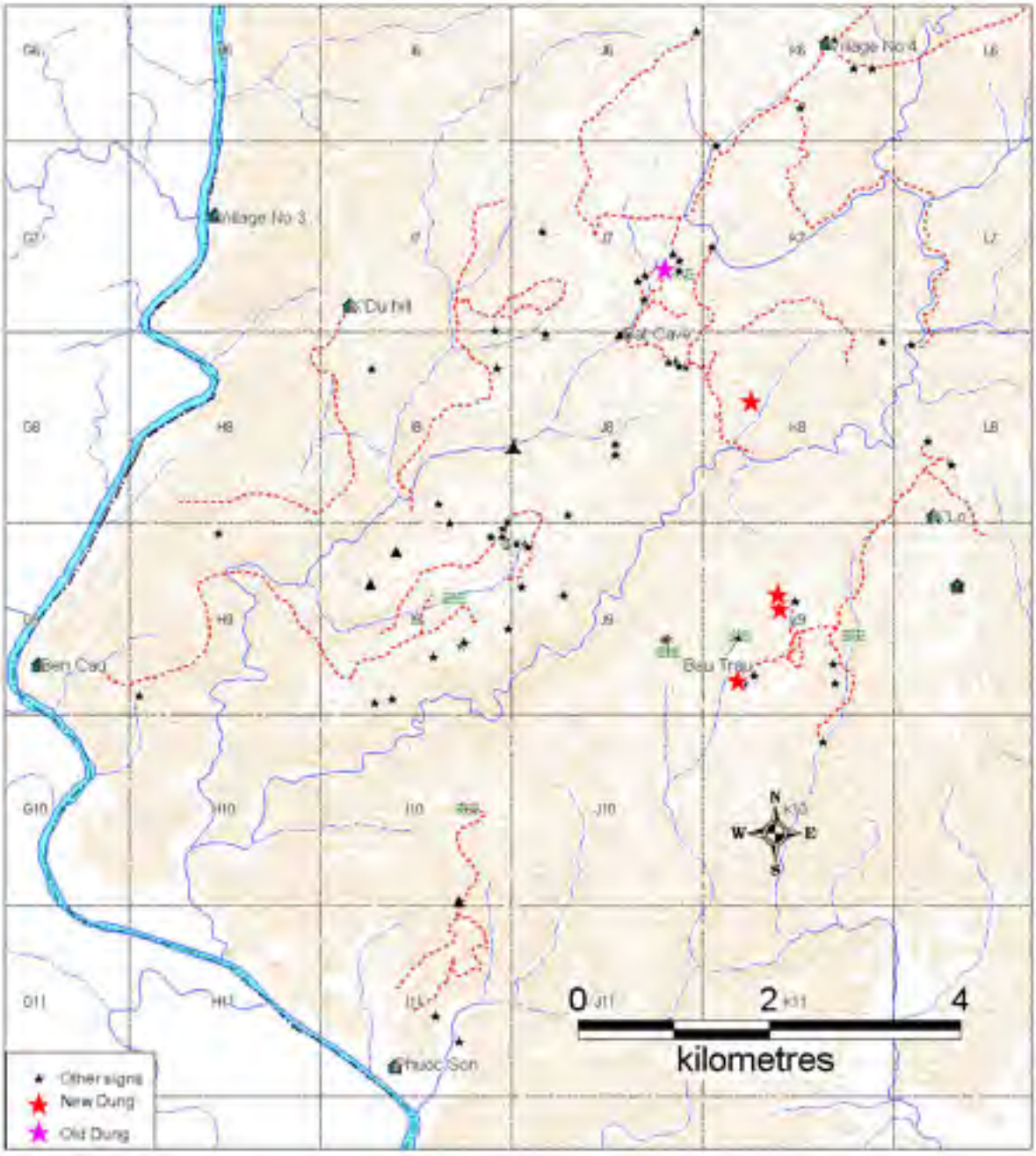
The 3 groups have found 9 locations of wallow. They are:

- 1 location in southeast of Suoi Sinh stream (recorded in 9th of July), 2 locations right at the beginning of Suoi Sinh (recorded in 14th and 15th of July), 2 locations near the beginning of one small stream (coordinate: 107°18'57" E, 11°41'27" N) (recorded in 12th of July). Those are recorded by Phuoc Son team.
- 2 locations in the hilltop near Bau Trau (recorded in 26th and 27th of June); 1 location in southeast of Bat Cave (recorded in 10th of July), about 700 meters away from the cave (recorded in 10th of July); 1 location in the northeast of the Bat Cave, along a branch of Da Dimbo stream, about 1500 meters away from the cave (recorded in 9th of July). Those 4 location are recorded by Gia Vien group.

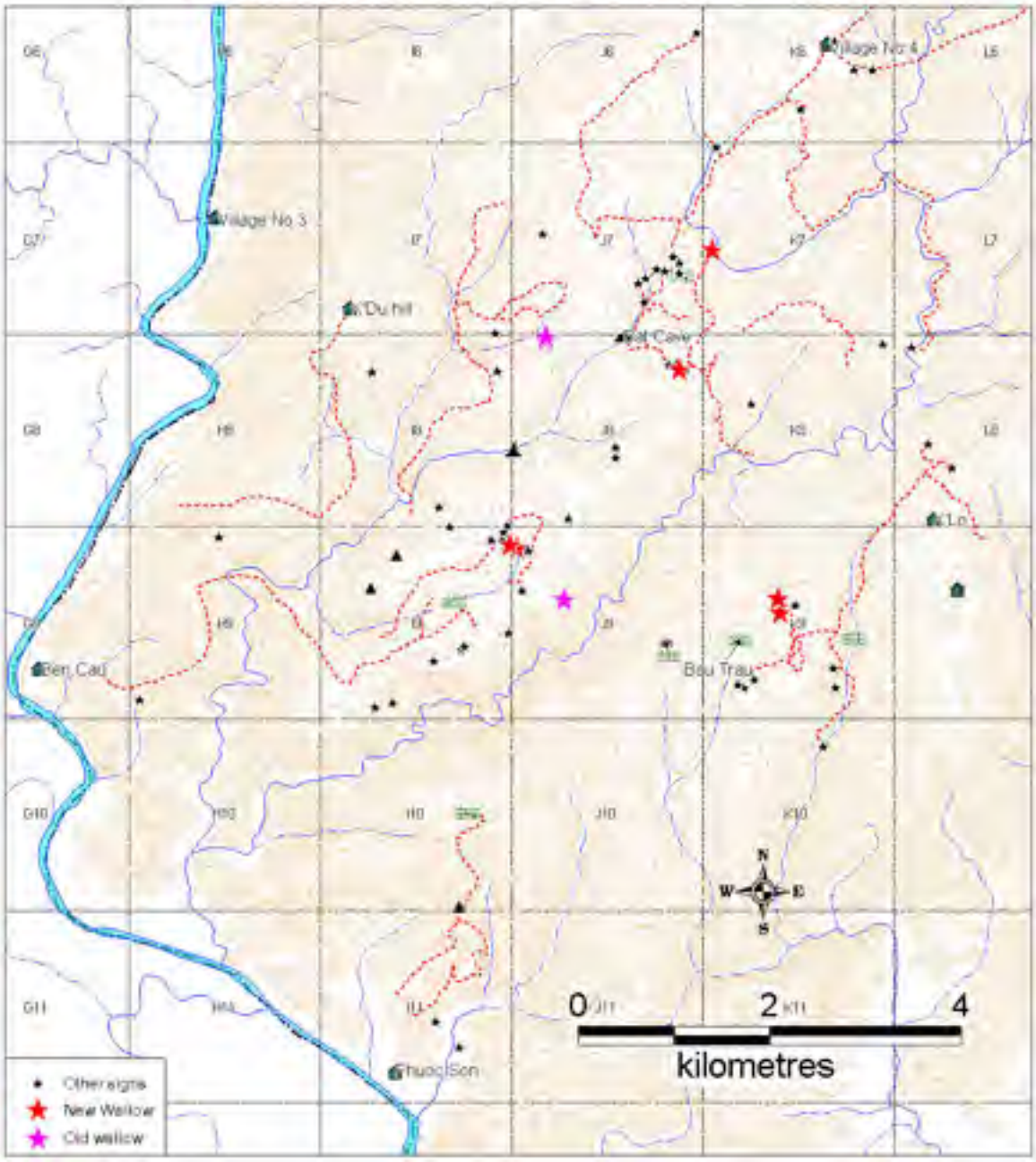
Tien Hoang group didn't find any wallow in the north of Bat Cave.

Among the 9 locations of wallow, 2 locations next together in the small stream and 1 location in the southeast of this stream are old wallows, the rest are new, about 1 – 4 days.

Map 3. DUNG SITES FOUND IN JUNE - JULY SURVEY



Map 4. WALLOW SITES FOUND IN JUNE - JULY SURVEY



***III.4. Feeding signs*:**

Feeding signs of the rhino have been found in 10 locatons:

a) 4 locatons are nearly at the same place, in the northeast of the Bat Cave, about 700-800meters away from the cave (recorded by Tien Hoang group in 10th and 11th of July).
b) 1 location in the southeast of the Bat Cave, about 500 meters away from the cave (new sign, recorded in 10th of July).
c) 1 location at the beginning of Lua stream.
d) 2 locations at the small hilltop near Bau Trau.
e) 1 location in the southeast of Bau Trau, about 1 km away from this swamp (Trang May).
f) 1 location near Da Toi stream.

Locations in b), c) and d) are new signs. New sign in location b has been recorded in 10th of July. Other new signs have been recorded from 23rd to 27th of July. All feeding sites in northeast of Bat Cave (location a) are old, at least 1 month.

It is obvious that the feeding sites are closely related to dung sites. All the sites with feeding sites are new also have new dung.

All the group also have collected 9 samples of foodplants.

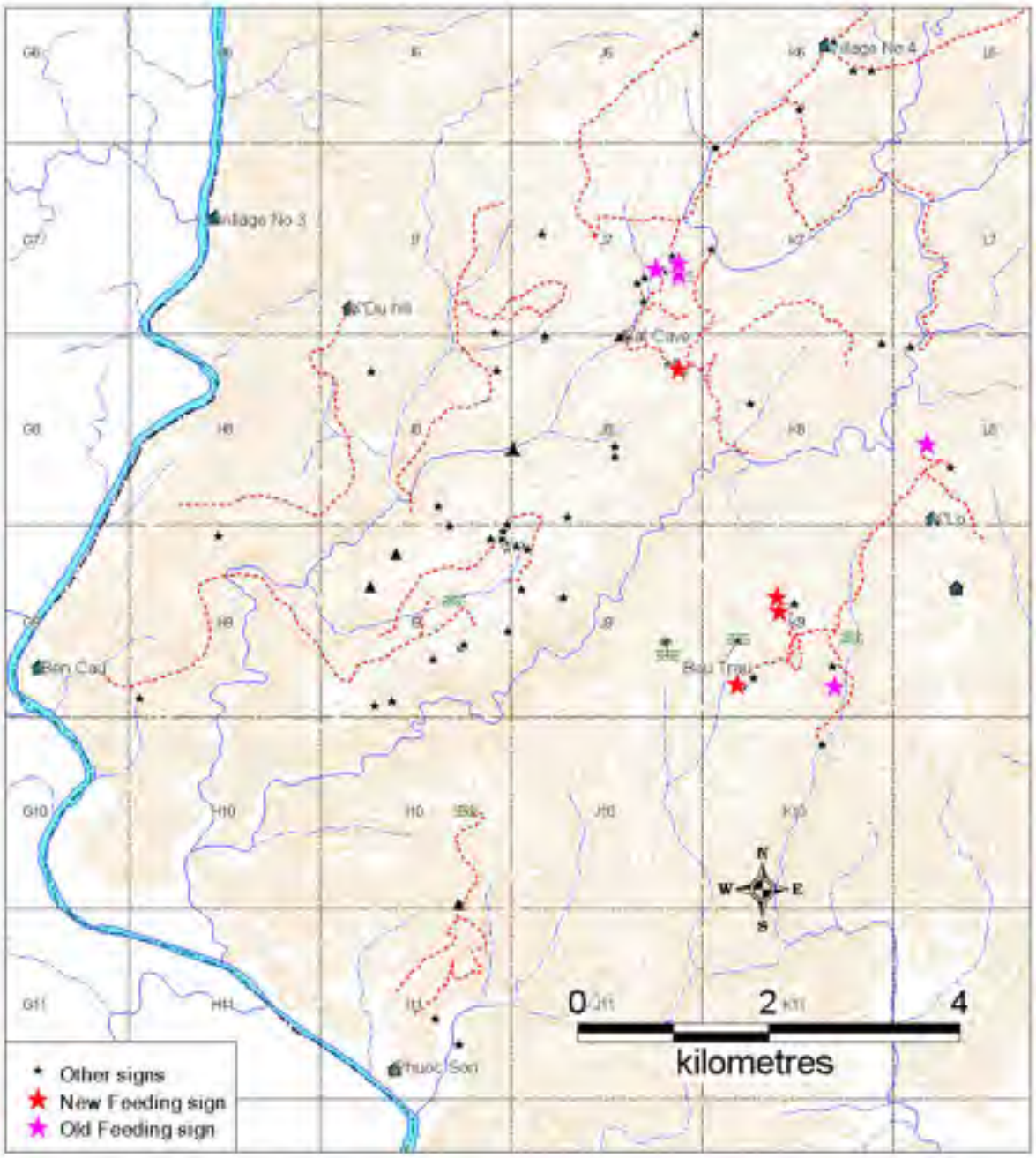
***III.5. Scratches*:**

Scratches are usually created when the animal moving on the trails so they are found anywhere where the other signs are found.

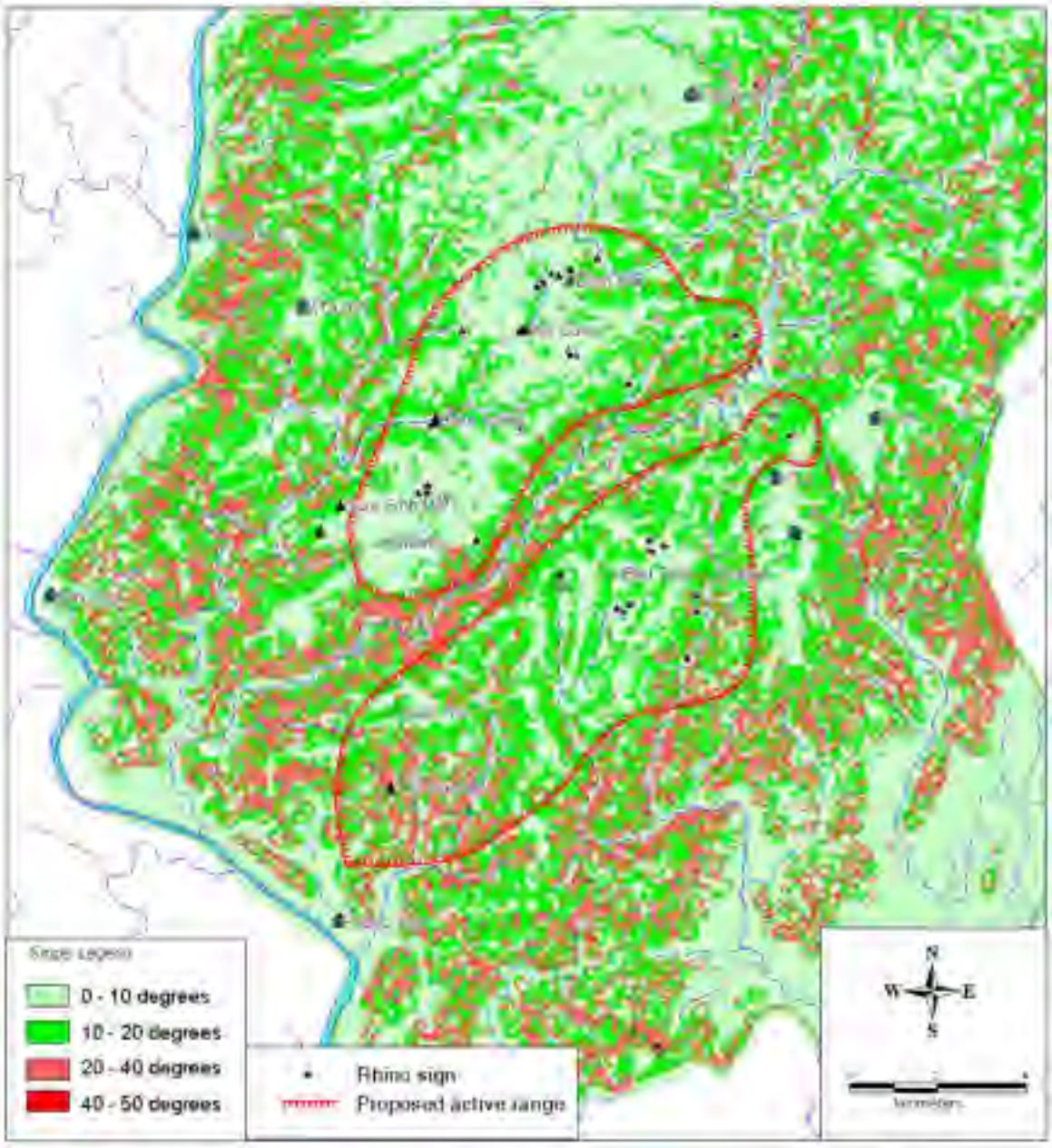
All different signs of rhino recorded in the survey show that the distribution of the species is only restricted to 2 sides of Da Toi stream which is a flat area and far away from human disturbance. Comparing with the slope (see map 6), it is clear that the species mainly distributes in areas with slope less than 10 degrees. In the northern part of Bat Cave, the landscape is similar to the known favorable terrain of the rhino but there is no sign. This is possibly because that area is too close to the agricultural land with many activities of human being there.

Also during this survey three group didn't find signs of rhino in Bau Chim area. As we already know, Bau Chim area is a main saltlick where the species come periodically to pick up some essential mineral for their lives. The survey time in June – July therefore is possibly not the period the species come to the saltlick.

Map 5. FEEDING SITES FOUND IN JUNE - JULY SURVEY



MAP 6. PROPOSED ACTIVE RANGE OF THE JAVAN RHINO IN COMPARISON WITH THE SLOPE



***III.6. Results about plasters and footprint measurements*:**

During the whole survey, 3 groups have made 11 palsters of footprints and 55 platers of front hoof. They also made hundreds od measurements (see table 1). However, because of the status of the footprints and the structure of the substrate, the quality of the plasters are not so good.

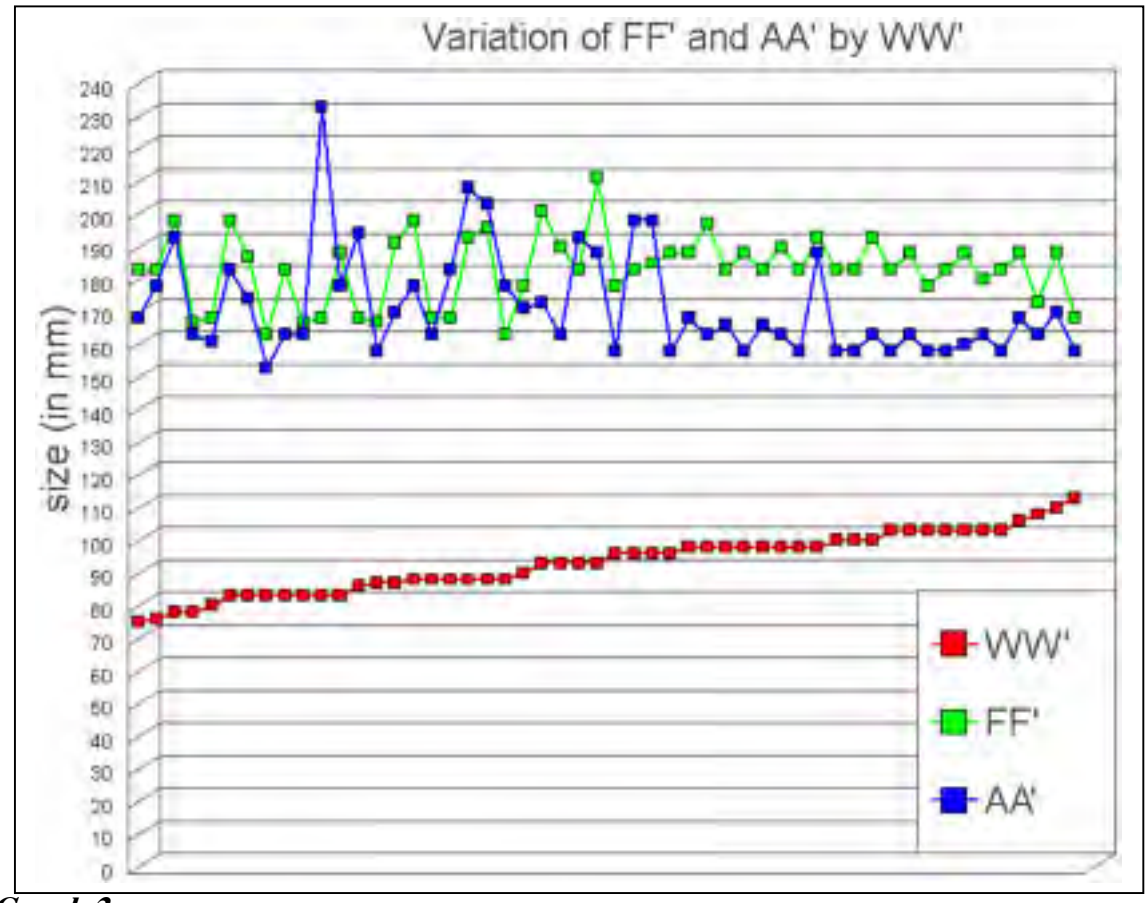
It is already known that the fooprint of rhino in the field are very variable, depending on the substrate and the status of the signs. When considering the plasters of fooprint and fronthoof, we can see that they are very similar. (see figure 1). This proves that the number of rhino are not many and if there are several individuals they are all nearly the same size because the measurements are nearly equal. The measurements data shows that there are not diference in size among the individuals, or in other words, they are nearly the same size and therefore it likely that there is no sign of breeding.

Among the measurements which are made, the most stable measurements are fronthoof width (WW'), footprint pad width (AA'). If we put the fronthoof width as the comparing parameter and plot the other parameters versus this one, it is seen that when WW' increases, the other measurements are very variable. The three series are only stable when the fronthoof width are in the range of 90 to 100mm. This proves that the measurements of other parameters can not be considered as highly confident. Looking at the graph (graph 1 and graph 2), the measurements in the range from 95 – 110mm could be considered as the real measurements of the animals because they are stable while outside this range the measurements are just the results of the changes created by environmetal factors and they are very variable.

Tien Hoang group can not make any measurements because they are all very old. This also proves that the animal didn't go to the north of the Bat Cave, at least in the survey time.

Analysis of plasters of fronthoofs (the richest data among different parameters of footprints) shows the same tendency like measurements. Fronthoofs from plasters (Figure 1) are very similar in shape and and size. Even though that they might look very different in plasters, the redrawing of those plasters based on measurements on plasters shows the very high similarity. The differences in plasters are just the effect of the different positions of fronthoof in 3 dimensional view when the animal leaves the tracks on substrate. This effect gives the wrong feeling that there are many different individuals. Actually, redrawing of those plasters from their measurements provides the more accurate results than just looking at the plasters. The only difference recognized are the fronthoof series in Bau Trau – Dac Lo area is slightly bigger than the series in Suoi Sinh – Bat Cave area and they are more quarish as pointed out in the first 6 month report.

Graph 1.



Graph 2.

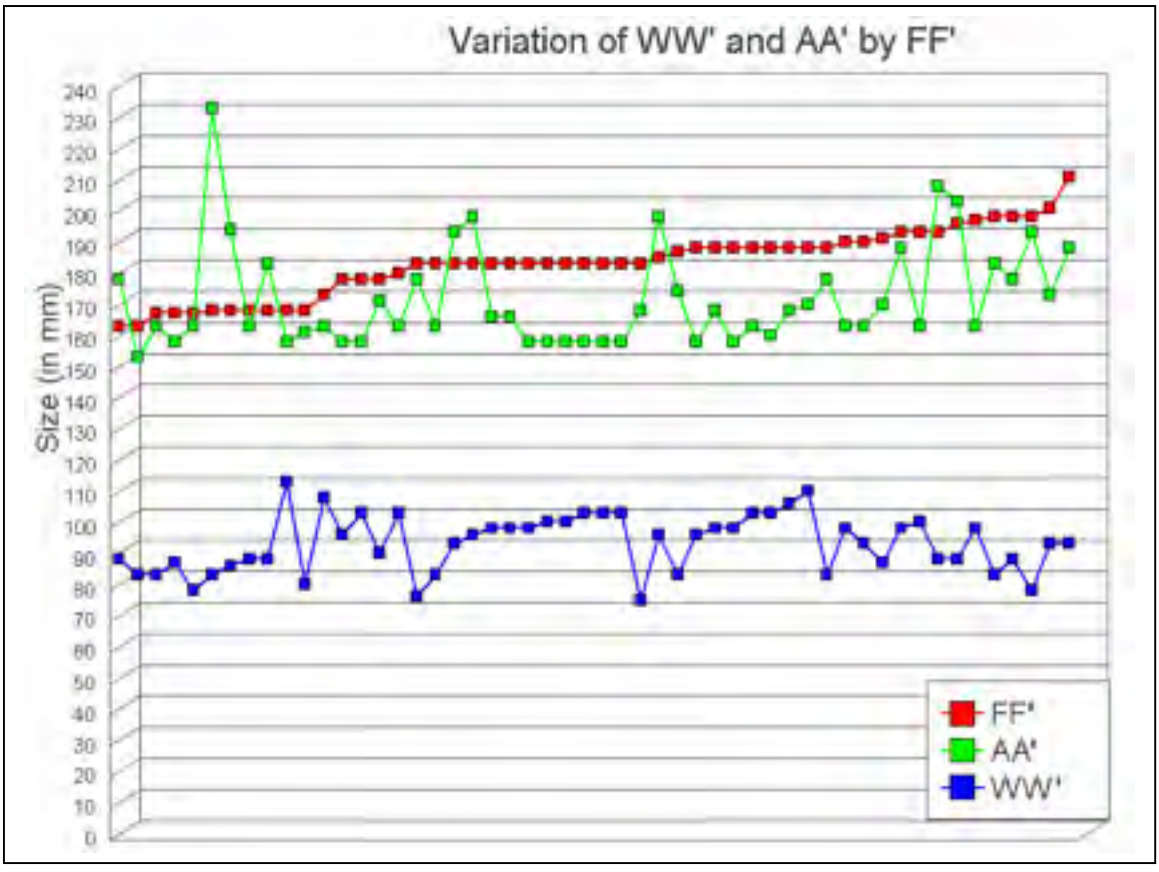
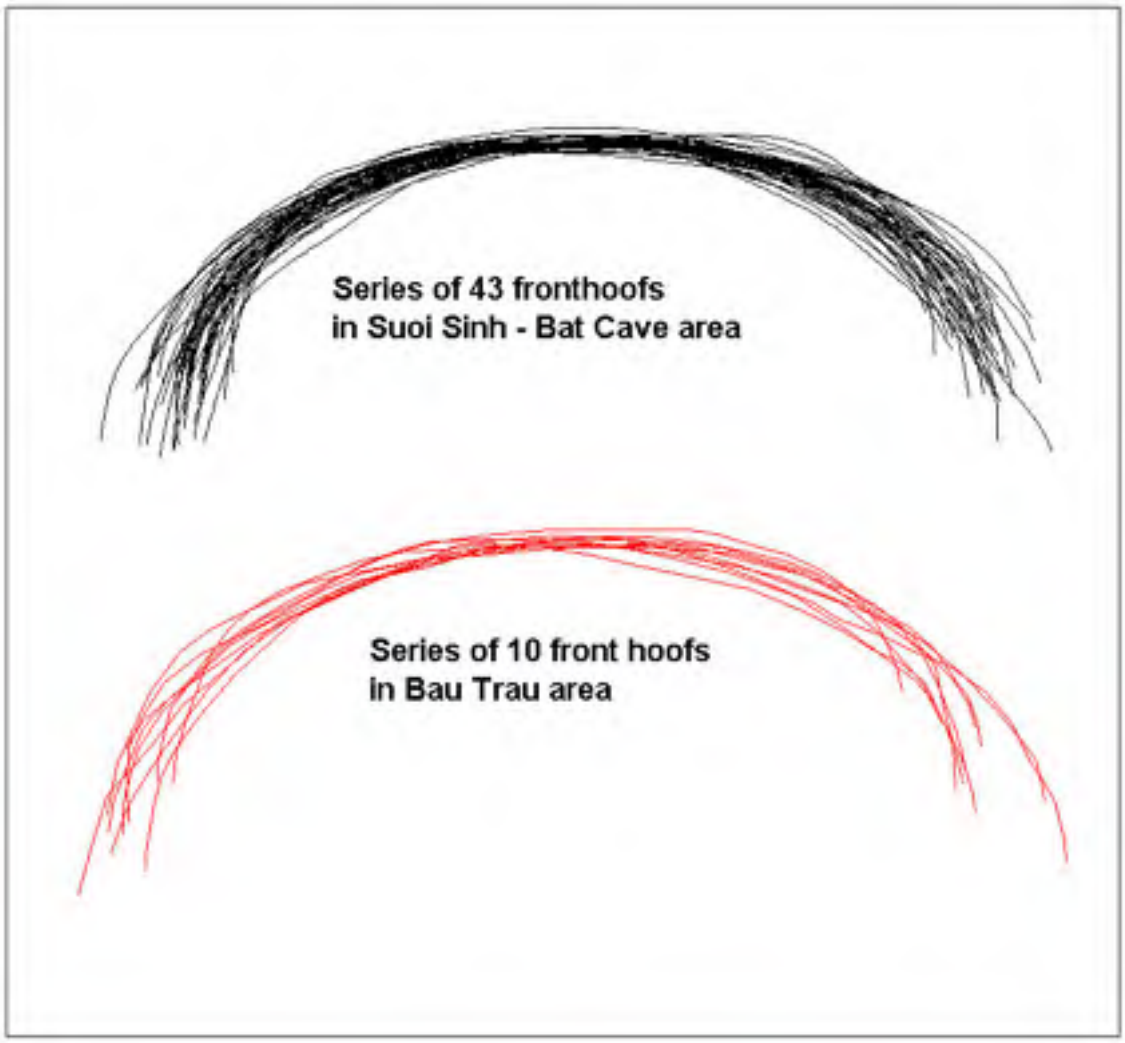


Figure 1. Comparisons between the two series of fronthoofs in Suoi Sinh – Bat Cave area and Bau Trau – Dac Lo area.



Considering all the information collected so far, it is possible to say that there is only 1 to 3 rhinos left in the region (see the first report). It is likely that there are only two left because the poor data collected in nothern part of Bat Cave is possibly from the one living in Suoi Sinh area.

IV. Conclusions and Recommendations:

From the results collected those conclusions can be withdrawn:

1. The range of the species is only 3000 to 4000 hectares which distributes mainly along the main stream in the region (Da Toi stream).
2. The range of the rhino is highly limited by surrounding agricultural land. This also limits the range expanding of the species
3. The minimum number of rhino is one and maximun is three (see first report).
4. Activities of the species is highly disturbed by local people with surrounding agricultural land and even by the activities of the RPMUs themselves. As for this situation, limiting the number of people and duration of monthly survey is recommended.
5. The animal has known the activities of the phototraps set up by the RPMUs so setting up the phototraps to get photos versus disturbance for the species caused by those equipments should be considered. The effectiveness of this activity on this extremely sensitive species should also be considered because it seems that the animal knows how to stay away from the units too.
6. The area must be secured from outside the known range of the species to avoid the disturbance mentioned above.
7. The resettlement program for those local communes living around the range of the rhino should be carried out as soon as possible to expand the range and reduce the effects on the species.

Table 1. **Footprint measurements in June – July survey**

ID	*Group*	*Date*	*WW'*	*FF'*	*FA'*	*F'A'*	*AA'*
1	GV	7/9/2002	95	160			
2	GV	7/9/2002	90		65		
3	GV	7/9/2002	80		60		
4	GV	7/9/2002	90	175			
5	GV	7/9/2002	90	170			
6	GV	7/9/2002	85		70		
7	GV	7/9/2002	85				
8	GV	7/9/2002	85				
9	GV	7/9/2002	85	178			
10	GV	7/9/2002	85	170			
11	GV	7/9/2002					
12	GV	7/10/2002	85		60		
13	GV	7/10/2002	100				
14	GV	7/10/2002	85	190	68	60	180
15	GV	7/10/2002	75				
16	GV	7/10/2002	82				
17	GV	7/10/2002	85	200	83	75	185
18	GV	7/10/2002	75		65		
19	GV	7/10/2002	80	169	54	55	165
20	GV	7/10/2002	73		0	93	
21	GV	7/10/2002	88	170	58	67	196
22	GV	7/10/2002	87			70	
23	GV	7/10/2002	90				
24	GV	7/10/2002	91				
25	GV	7/10/2002	89	193	78	59	172
26	GV	7/10/2002	95	213	88	87	190
27	GV	7/10/2002	100				
28	GV	7/10/2002	90				
29	GV	7/10/2002	100	195	80	63	190
30	GV	7/10/2002	85		80		
31	GV	7/10/2002	85		80		
32	GV	7/10/2002	85		81		
33	GV	7/10/2002	79		64		
34	GV	7/10/2002	80		76		
35	GV	7/10/2002	85		55		
36	GV	7/10/2002	84		85		
37	GV	7/10/2002	85	189	67	87	176
38	GV	7/10/2002	85				

39	GV	7/10/2002	90				
40	GV	7/10/2002	90	190			180
41	GV	7/10/2002	85	165	55	82	155
42	GV	7/10/2002	100	190		85	
43	GV	7/10/2002	88				
44	GV	7/10/2002	98			90	
45	GV	7/10/2002	95	203	75	80	175
46	GV	7/10/2002	85	185	65	70	165
47	GV	7/12/2002	98				
48	GV	7/12/2002	80				
49	GV	7/12/2002	73				
50	GV	7/12/2002	77	185	70	73	170
51	GV	7/12/2002	90				
52	GV	7/12/2002	85		83		
53	GV	7/12/2002	90				
54	GV	7/12/2002	80				
55	GV	7/12/2002	83				
56	GV	7/12/2002	89	169	65	73	160
57	GV	7/12/2002	90				
58	GV	7/12/2002	95				
59	GV	7/12/2002	78				
60	GV	7/12/2002	85				
61	GV	7/12/2002	85				
62	GV	7/12/2002	85				
63	GV	7/12/2002	95				
64	GV	7/12/2002	85	169	64	67	165
65	GV	7/12/2002	90				
66	GV	7/12/2002	75				
67	GV	7/12/2002	82	170	65	55	163
68	GV	7/12/2002	0				
69	GV	7/12/2002	90				
70	GV	7/12/2002	90				
71	GV	7/12/2002	85				
72	GV	7/12/2002	90			75	
73	GV	7/12/2002	67			85	
74	GV	7/12/2002	70			72	
75	GV	7/12/2002	80				
76	GV	7/12/2002	100	199	90	85	165
77	GV	7/12/2002	78				
78	GV	7/12/2002	85			80	
79	GV	7/12/2002	85				
80	GV	7/12/2002	85				

81	GV	7/12/2002	85				
82	GV	7/12/2002	85				
83	GV	7/12/2002	90	200	75	75	180
84	GV	7/12/2002	78	185	50	62	180
85	GV	7/12/2002	90	170	55	58	165
86	GV	7/12/2002	95				
87	GV	7/12/2002	85				
88	GV	7/12/2002	78				
89	GV	7/12/2002	92	180	55	73	173
90	GV	7/12/2002	85	170			
91	PS	7/15/2002	102	195	72	75	165
92	PS	7/15/2002	105	185	85	78	160
93	PS	7/15/2002	100	185	80	70	168
94	PS	7/15/2002	95	192	75	70	165
95	PS	7/15/2002	98	190	78	74	160
96	PS	7/15/2002	105	190	78	70	165
97	PS	7/15/2002	100	190	78	72	160
98	PS	7/15/2002	100	160			
99	PS	7/15/2002	96				
100	PS	7/15/2002	98	180	78	80	160
101	PS	7/15/2002	100	185	78	80	168
102	PS	7/15/2002	105	0	0	0	0
103	PS	7/15/2002	108	190	72	75	170
104	PS	7/15/2002	110				
105	PS	7/15/2002	112	190	80	84	172
106	PS	7/15/2002	100	192	78	80	165
107	PS	7/15/2002	100				
108	PS	7/14/2002	100		75		
109	PS	7/14/2002	98				
110	PS	7/14/2002	102	185	76	80	160
111	PS	7/14/2002	106	180		79	160
112	PS	7/14/2002	110				
113	PS	7/14/2002	105				
114	PS	7/14/2002	105	180	75	75	160
115	PS	7/14/2002	110	175	75	75	165
116	PS	7/14/2002	105	185	70	76	160
117	PS	7/14/2002	105	190	73	72	162
118	PS	7/14/2002	105	182	73	70	165
119	PS	7/14/2002	100	185	65	72	160
120	PS	6/28/2002	105	185	80	95	160
121	PS	6/28/2002	102	185	87	70	160
122	PS	6/28/2002	115	170	80	85	160

123	PS	6/28/2002	100	190	90	90	170
124	GV	6/28/2002	100	170	70		
125	GV	6/28/2002	105	180	70		
126	GV	6/28/2002	100	200		75	
127	GV	6/28/2002	95	200	75		
128	GV	6/25/2002	90	165	60	60	180
129	GV	6/25/2002	90	170	60	60	185
130	GV	6/25/2002	85	170	65	65	235
131	GV	6/27/2002	100				
132	GV	6/27/2002	80	195	60		
133	GV	6/27/2002	95		75		
134	GV	6/27/2002	95	185	60	60	195
135	GV	6/27/2002	90	195	76	76	210
136	GV	6/27/2002	104				
137	GV	6/27/2002	102				
138	GV	6/27/2002	90	185		60	
139	GV	6/27/2002	80	200	70	70	195
140	GV	6/26/2002	85				
141	GV	6/26/2002	90				
142	GV	6/26/2002	90				
143	GV	6/26/2002	88				
144	GV	6/26/2002	90				
145	GV	6/26/2002	93		65		
146	GV	6/26/2002	80				
147	GV	6/26/2002	72				
148	GV	6/26/2002	90	198	65	68	205
149	GV	6/26/2002	98	185	65	65	200
150	GV	6/26/2002	8	187	55	55	200