

S T A T U S R E P O R T
O N
K A Z I R A N G A N A T I O N A L P A R K

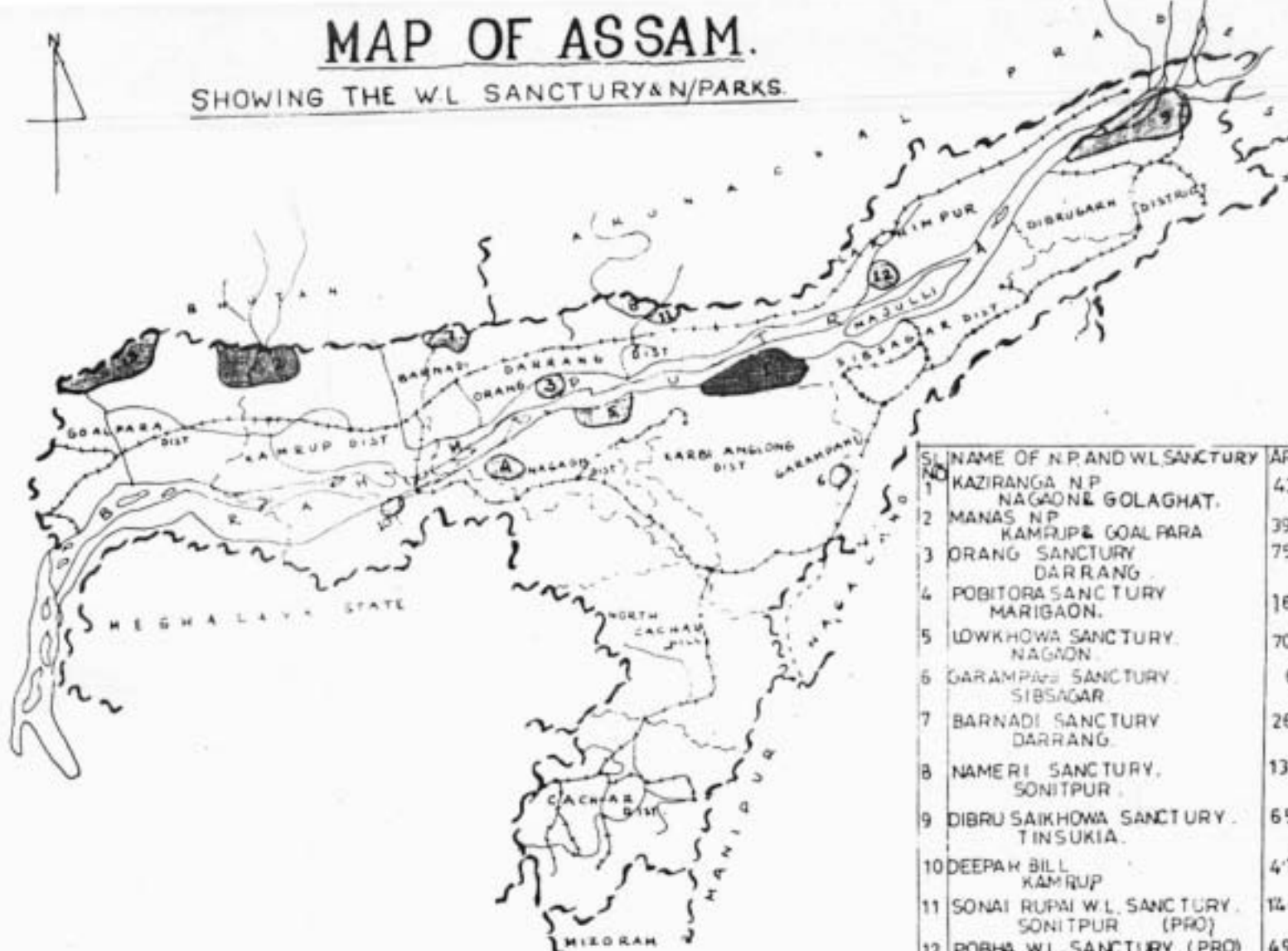
ASSAM FOREST DEPARTMENT

Compiled by

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MAP OF ASSAM.

SHOWING THE W.L. SANCTUARY & N/PARKS.



S. NO.	NAME OF N.P. AND W.L. SANCTUARY	AREA IN SQ. KM.
1	KAZIRANGA N.P. NAGAON & GOLAGHAT.	430.50
2	MANAS N.P. KAMRUP & GOALPARA	390
3	ORANG SANCTUARY DARRANG	75.60
4	POBITORA SANCTUARY MARIGAON.	16.00
5	LOWKHOWA SANCTUARY. NAGAON.	70.13
6	GARAMPAH SANCTUARY. SIBSAGAR	6.00
7	BARNADI SANCTUARY DARRANG.	26.21
8	NAMERI SANCTUARY. SONITPUR.	137.07
9	DIBRU SAIKHOWA SANCTUARY. TINSUKIA.	65.0
10	DEEPAH BILL KAMRUP	4.14
11	SONAI RUPAI W.L. SANCTUARY. SONITPUR (PRO)	14.0
12	POBHA W.L. SANCTUARY. (PRO) LAKHIMPUR.	49.00
13	KACHUGAON GAME RESERVE KOKRAJHAR (PRO)	

CONSERVATION STORY

The entire area from near about Bokakhat in the east upto Jakhalabandha on the west was covered with continuous belt of forests extending from the Brahmaputra river upto the hills and the integrated habitat of hills and plains was the ideal habitat for a rich and varied population of wildlife during the major part of Nineteenth century. But the advent of present century ruthless destruction of forests was carried out in the higher terraces for establishing Tea Gardens and the low lying stretches were opened out for paddy cultivation and incidental habitations. The wild animals were gradually farced and restricted to the flood plains which now forms the Kaziranga National Park.

The extinction and decline of the Great Indian One Horned Rhinoceros right from the vast stretches of Indo-Gangetic plains to the Brahmaputra plains was due to ruthless destruction of habitat, persecution in the name of sports and superstition about the magical properties of its horn. The decline in the population of the species was very rapid and it was believed that not more than a dozen surviving Rhinos were left in the Kaziranga area at the beginning of the present century. Realisation dawned on the Government of Assam that concrete protective measures were called for and an area of 22,617 Hectares (approx.) were constituted into Kaziranga Reserved Forest in January, 1908 and that was the D-Day for conservation of Great Indian One Horned Rhinoceros. From that day till now the population is progressively increasing and the result of last census carried out in April, 1993 in presence of N.G.Os, and media persons stands at 1,164 ± 136.

SITUATION :

Kaziranga National Park lies between 26°30' and 26°45' N latitudes and 93°5' E to 93°40' E longitude

and spreadover in parts of civil districts of Golaghat, Nagaon and Sonitpur in the State of Assam having boundary the River Brahmaputra on the North, artificial lines and part of the river course on the east, Moridiffloo river, foothills of Karbi Anglong District, Deopani Nallah, National Highway 37 on the South and artificial lines and part of the river course on the West.

EXTENT OF AREA :

The reservation process started during 1908 and exclusion and addition to the Kaziranga Reserved Forests continued upto 1967 and details of exclusion and additions were :

Reservation vide Notification No. 37	Dt. 3.1.1908	-	22,617 Ha.
Exclusion vide Notification No. 2069	Fdt. 18.4.1911	- (-)	577 Ha.
			<u>22,040 Ha.</u>
Addition vide Notification No. A/95,	Dt. 4.6.1911	-	356 Ha.
-do-	-do- No. 295 R,	Dt. 28.1.1913	- 5,403 Ha.
-do-	-do- No. 3560 R,	Dt. 26.7.1917	- 15,012 Ha.
-do-	-do- No. FOR/WL/512/66/17,	Dt. 7.4.1967	- 60 Ha.
			<u>2</u>
		Total	- 42,870 Ha.
		i.e.	- <u>428.70 Sq.Km.</u>

Annual flooding and erosion of the northern boundary of the Park and accretion of chapories on the river bed is the annual phenomenon from the inception of the Park. On the north-eastern side, large area has been lost due to erosion (1986). At present, the Park has an area of 378'22 Sq. Km. which is constantly changing due to erosion caused by the river Brahmaputra (Lahon and Sonowal, 1973). The stable chapories (river island) so formed due to erosion of North Bank are the extended habitat of the wildlife mostly Rhinos and wild Buffaloes.

LEGAL STATUS :

Immediately after constitution of the area into Reserved Forest in 1908, hunting/shooting/trapping and fishing inside the Reserved Forests were banned. In November, 1916, the area was declared as a "Game Sanctuary" and subsequently changed its nomenclature to "Wildlife Sanctuary" with effect from 1950. After enactment of the State Act on National Park (Assam National Park Act of 1968), Kaziranga Wildlife Sanctuary was proposed for declaration into a National Park vide Notification No. FOR/WL/722/69/45, Dt. 23.9.69 and it was declared as National Park vide Notification No. FOR/WL/722/68, Dt. 11.2.74 with the subsequent adoption of the Wildlife (Protection) Act of 1972 by the Assam State and Kaziranga attained the status of a National Park under the relevant provisions of the said Act.

EXTENSION OF AREAS :

The habitat of Kaziranga National Park was extended upto the foothills of Karbi Anglong district in the past. But with the establishment of Tea Gardens, human habitations and agricultural activities on the periphery of the southern boundary of the Park, it has now become difficult for the wild animals to move through certain corridors to the hills during high flood seasons and the animals become easy prey to the poachers. On the other hand, due to constant erosion of the Northern boundary and accretion of chapories, the animals move to chapories as these are extended habitat of wildlife. Moreover, there are number of villages on the edge of southern boundary of the Park which are the harbour of the poachers. At the sametime, the increment percent of the animal population mainly Rhinos is gradually declining which indicates urgent necessity for extension of habitat for Rhinos in the National Park. With all these backgrounds, the following proposals for extension of areas of Kaziranga National Park were proposed but the

the proposals were not finalised due to various reasons, such as legal, administrative and financial reasons.

1. An area of 33 Sq. Km. of Karbi Anglong District for which preliminary notification vide No. 16 of 30.7.75 issued and payment of Rs. 4,71,000/- had already been made till 1979 to the Karbi Anglong District Council authorities.	33.00 Sq. Km.
2. 1st addition (Burapahar) - Rs.23,79,530/- has already been deposited with the Deputy Commissioner, Nagaon and payment of the balance amount of Rs. 15,03,788/- against the final assessment is yet to be made to the Deputy Commissioner, Nagaon.	43.79 Sq. Km.
3. 2nd addition (Sildubi) - Payment of Rs. 58,953/- has already been made and payment of the balance amount of Rs. 11,54,658/- is yet to be made to the Deputy Commissioner, Golaghat.	6.47 Sq. Km.
4. 3rd addition (Panbari) payment of Rs. 13,27,746/- is to be made to the Deputy Commissioner, Golaghat.	0.69 Sq. Km.
5. 4th addition (Kanchanjuri) - Final notification has been notified but subjudice in the High Court due to a case filed by a Tea Estate.	0.89 Sq. Km.
6. 5th addition (Haldibari) - Payment of Rs. 4,00,000.00 has already been made and the balance amount of Rs. 9,91,357.00 against land compensation is to be made to the Deputy Commissioner, Golaghat.	1.15 Sq. Km.
7. 6th addition (Chapories of Brahmaputra river right from Dhansirimukh to Kolia Bhumura Bridge including Panpur R.F.). Delayed due to High Court case. Notice have been issued for receipt of claims/objection by the Collector (Commissioner, Northern Assam Division, Tezpur) on 1st September, 1993.	401.50 Sq. Km.
Total	<u>487.49 Sq. Km.</u>

VEGETATION :

Three broad categories of vegetation can readily be recognised in the Park.

- a) Aquatic plants in or near the water bodies.
- b) Eastern wet alluvial savanna or the grass land, and
- c) Woodland or the tree forests.

The water bodies occupy about 6% of the total area of the Park. The predominant species amongst the aquatic vegetation is the Water hyacinth (*Eichhornia crassipes*), Floating and straggling grasses like Dal (*Andropogon* spp.), Erali (*Andropogon* spp.) and other species like Kalmu (*Ipomea reptans*), Helonchi (*Enhydra fluctuans*), Borpunni (*Pistia stratiotes*), Harupuni (*Louisa panicostals*), Water Lilies (*Nymphaea* spp.), Lotus (*Nelumbo* spp.), etc. make up the aquatic vegetation. Savanna formation or grass lands cover nearly accretions alongwith Jhau (*Tamarix dioca*), grasses like *Saccharum spontaneum*, *Imperata cylindrica*, *Erianthus fillifolius*, *Narenga porphyrocome*, *Neyrandia reyaundiana*, *Cymbopogon pendulus*, etc. come in and established extensive grass lands. The most common and widely distributed species of grass in the Park Ekora (*Erianthus ravaniao*). Other associated grasses are Barata kher (*Saccharum elephantinus*) and Ulu kher (*Imperata cylindrica*). Moist low lying locations show presence of species like Khagori (*Phragmites karka*) and Nal (*Arundo donax*). *Microstegium ciliatum* occur as ground cover under the tree canopies in comparatively higher ground. Around the edges of the beds and in marshy areas, short succulent grasses like *Cynodactylon*, *Chrysopogon aciculatus*, *Andropogon* spp., *Panicum* spp., *Eragrostis* spp. occur and all these grasses attract the herbivores.

Woodlands are represented by a variety of sub-type of different stages of succession and edaphic variations, like Riparian fringing forests, different stages of moist mixed deciduous forests, seasonal swamp forests and moist tropical semi-evergreen formation. Cane brakes are a definite edaphic variation. The description and composition of each sub-type will be rather voluminous and hence not attempted here. Woodlands occupy about 28% of the area of the Park.

ECOLOGICAL STATUS :

Two important external factors - one man made and the other natural have influenced the flora and fauna of the Kaziranga National Park since its inception or even earlier. Large part of the Savanna or grasslands are subjected to annual controlled burning during the winter months (December to February). Such burnings help in arresting further progress of vegetational succession towards woodlands of the higher patches of grasslands and in retaining its present form of an ideal habitat for terrestrial fauna particularly the larger mammals. Sufficient care is taken for preventing fires from creeping into areas with resting colonies of birds. The low lying areas, moist pockets, semi-evergreen formations etc. are naturally immune from the fires. Vegetational regrowth being phenomenally fast in the prevailing conditions, no serious deterioration of the habitat occur and the status-quo of the grassland are maintained. The ash, burnt up stems, roots and emerging shoots attract the herbivoures and immediately after burning large congagation of animals are deserved in such burnt patches. Since bruning is most effective in areas containing tall grasses, which are usually shunned by the animals, the effect of burning is better disposal of the animals and relieving of the pressure in heavily grazed short grass locations.

Annual submergence of large areas of the Park, due to high flood level of the Brahmaputra river coupled with spells of heavy showers in the southern Karbi Anglong Hills is a regular feature. The floods play an important role in maintaining ecological status of some of the grass land formations and flush out the water ways of the checking growth of the water hycinth which acts as an inhabiter to the water birds.

Moreover, the various waterways and beels of the Park serve the purpose of breeding grounds and nursery of

enormous fish population and the animal floods help in replenishing the stock of the fish in the Brahmaputra river.

The submergence is not uniform throughout the Park, the earliest to be flooded being the southern and western parts of the Park and the last to be effected being the central part. In the earlier period, there were escape routes for the animals in the shape of inter-connecting corridors of vegetation leading to the southern high hills but with more and more areas being opened up and subjected to habitation and cultivation in the areas adjacent to the southern parts of the Park both in the plains and hills, such escape routes have vanished. During the annual floods, some mortality amongst the animal population particularly the Deer have been noticed in the recent years and the weak and young ones are the most adversely affected. Since there have not been any decline in total population figures, the loss due to floods probably indirectly helps in maintaining a healthy stock of population. All the herbivores suffer due to paucity of food during the flood season. There appears to be some changes in the behaviour of the animals, particularly breeding pattern due to the influence of floods.

WILDLIFE :

The important animals of the Park are Rhinoceros (*Rhinoceros unicornis*), Wild Buffalo (*Bubalis bubalis*), Swamp Deer (*Cervus duvaucelli*), Hog Deer (*Axis porcinus*) and Elephant (*Elephas maximus*). Besides these, Sambar (*Curvus unicornis*), Wild Bear (*Sus serofa*), Tiger (*Panthera tigris*) and Leopard (*Panthera pardus*) are other animals found in the Park. Host of other animals and birds such as Bengal florican are available in the Park. A check list of animals and birds has been annexed herewith.

HABITAT EVALUATION :

Proper habitat evaluation for all types of animal available in the Park had not been done till to-day.

However, habits and habitat needs of various animals in the Park was studied (Lahon and Sonowal, 1973) and on the basis of this study evaluation has been done for five animals, viz. Rhinoceros, Wild Buffalo, Swamp Deer, Hog Deer and Elephants (Parihar et-al, 1986). The area of the Park has been divided into one minutes by one minute grids for the purpose of habitat evaluation by the author and the total land area of the Park covers three broad types as described earlier such as woodland, grassland and water bodies. The marshy areas around the beels are under short grasses. The larger part of the Park is under cover of tall grasses and woodlands are mostly confined to the high grounds along river and stream banks.

HABITAT SUITABILITY (Parihar et-al, 1986) :

The whole Park area has been divided into 138 grids of one minute by one minute and the overall evaluation of the area indicates that out of 138 grids, 37 have high suitability for rhino and wild buffalo, another 94 grids are found to have moderate suitability and only 7 grids have low suitability.

The assessment of the area for Swamp Deer and Hog Deer also indicates good suitability for the animals as 44 units are found to be highly suitable and 78 as moderate suitable. Only 16 grids have low suitability. The best suitability of the area is found to be for elephants as 81 grids fall under high suitable category and 57 grids have moderate suitability.

The Park has an overall good suitability for all the five animals studied so far, i.e. Rhinos, Wild Buffalo, Swamp Deer, Hog Deer and Elephants. However, the tall grasses occupy a large portion of the habitat which has low fodder value due to its height. Annual burning of these grasses generally add to its food value.

The Park has the largest area of high suitability for elephants. According to last Elephant census, the Park has got 1,094 Nos. of elephants but the number fluctuate from time to time. The management of the Park is rhinoceros-oriented and as such extension of Rhino habitat areas is essential with the growth of population. Therefore, habitat manipulation through constant control burning and desiltation of water bodies and removal of water hyacinth are essential factors which will make room for short grasses and favourable fodder for rhinos.

ANIMAL CENSUS :

The first scientific annual census in Kaziranga was carried out during 1966 and thereafter animal census were carried out every 6th year. Census operation during 1990 could not be carried out due to poor visibility and the same was done during 1991. In perusance to the assurance given to the Assurance Committee of the Parliament and to remove apprehension of quarters regarding probability of the extinction of the Rhinos from the Kaziranga National Park in the near future, the census of animals (specially Rhinos) was carried out during April, 1993. But due to intermittent rains during the last part of 1992 and the beginning of 1993, the tall grasses of the Park could not be burnt properly and the ideal condition of direct count could not be achieved. There was deep concern and apprehension of under counting remained. The census was carried out in presence of media persons and Non-Governmental Organisations and everybody opined of under-counting of Rhinos.

Contd....

Species	1966	1972	1978	1984	1991	1993
1. Rhino	366	658	939	1080	1129(1069)	1164±136
2. Elephant	349	422	773	523	515(498)	511
3. Wild Buffalo	471	555	610	677	1090(1008)	1034
4. Bison	1	18	23	30	5	-
5. Swamp Deer	213	516	697	756	635(559)	427
6. Sambar	120	105	215	358	55(51)	34
7. Hog Deer	1311	4551	6855	987	2911(2332)	2048
8. Wild Boar	155	522	733	1645	555(447)	140
9. Tiger	20	30	40	52	50	- 8
10. Bear	-	-	-	-	-	2
11. Capped langur	-	-	-	-	-	21
12. Gibbon	-	-	-	-	-	8

N.B. :

- Figure under () means animals sighted during census within the Park area and the balance within the extended habitat.
- During 1993, the s.d. calculated 12%.
- Number of Tiger as per latest census carried out is 90 plus.

MORTALITY :

The total number of death of Rhinos both poaching and natural death from 1980 onwards is as detailed below :

Year	Poaching			Total poaching	Natural death	Total mortality
	Pit	Gun shot	Electrocution			
1980	11	-	-	11	58	69
1981	22	2	-	24	39	63
1982	19	6	-	25	48	73
1983	31	6	-	37	46	83
1984	14	14	-	28	50	78
1985	23	21	-	44	37	81
1986	18	27	-	45	38	83
1987	6	17	-	23	41	64
1988	7	17	-	24	105	129
1989	12	29	3	44	54	98

Contd....

1990	4	29	2	35	57	92
1991	4	18	1	23	79	102
1992	2	44	2	49	66	115
1993 (12.11.93)	2	37	-	39	54	93

TREND OF POACHING :

The trend of poaching has taken a dramatic change from pit poaching to electrocution. The use Carbine and Silencer by the poachers has increased problem to the untrained staff. The reason for increased poaching are manifold. The prime reason is the high value of the horn in the International market coupled with socio-economic conditions of the villagers (who act as field man) residing around the Kaziranga National Park. Moreover, easy availability and free movement of sophisticated arms coupled with militant activities in the North East has aggravated the problem of poachings. The vulnerability of poaching due to its situation is having no natural barrier having villages all along the southern boundary and river Brahmaputra on the north is a constant headache for the Park authorities. The fishery mahals and Khuties in the Chapories (Accretions) are the harbour of poachers from the north. Having no natural barrier and having tall grasses, once the poachers sneak into the Park makes it difficult to locate the presence of poachers inside the Park.

ANTI-POACHING STRATEGY :

The anti-poaching strategy now being adopted by maintaining 113 Nos. of camps situated all over the Park areas is not at all full proof method. Moreover, constant patrolling on the southern boundary and placing of two stationary vessels on the river Brahmaputra and patrolling on river routes are the main anti-poaching activities of the Park. The strategy of having number of anti-poaching camps inside the Park and patrolling thereof had resulted initially

very good and any counter firing from the camp had proved counter productive as the poachers either used to leave the Park without poaching or without removal of horns after killing of Rhinos. But now-a-days, the poachers are using sophisticated arms and taking full advantage of staff, who are not trained for combat fighting. Therefore, the strategy needs changes but due to lack of infrastructures, it is not readily possible to change the present strategy and to move for complete sealing of Northern and Southern Boundaries wherefrom poachers make entry into the Park. It is also not the fact that there were no direct encounter with the poachers and the staff of the Park but this definitely involves risks. As a result of number of encounters and the raids inside the Park, the following number of poachers were killed, arrested, horn recovered and different kinds of arms and ammunitions were recovered from 1985 till date :

Year	No. of poachers		Total of arms recovered.	Total ammunitions recovered.	Horn recovered.
	Killed	Arrested			
1985	2	10	3	11	11
1986	2	43	5	-	9
1987	3	29	3	-	2
1988	3	13	1	7	1
1989	2	18	1	-	11
1990	3	49	11	104	6
1991	4	25	4	7	9
1992	9	58	9	96	9
1993	5	67	11	49	4

Comparative statement of poaching of Rhinos monthwise for the years 1985 to 1993 till date is shown below :

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1985	5	2	7	2	5	2	1	3	1	8	2	6	44
1986	6	2	5	5	3	1	4	-	3	6	6	4	45
1987	1	3	1	1	-	3	2	-	1	5	4	2	23

Contd....

1988	3	-	3	-	2	1	3	-	1	2	1	8	24
1989	1	3	3	5	3	5	1	2	2	4	6	9	44
1990	11	4	3	3	2	-	1	1	1	2	5	2	35
1991	2	3	2	4	2	1	1	2	-	1	1	4	23
1992	4	3	7	5	3	3	3	3	1	5	4	7	48
1993	5	11	3	8	5	1	-	-	1	3	2	-	39

It has been observed and experienced that the intensity of poaching is on the rise mainly due to escalating high value of the horn in clandestine market consequent to ban on its trade. The last sale of Rhino horn in Assam took place during 1978 and during 1980 tenders were called but the sale was stopped. This was the beginning of increased intensity of poaching in Kaziranga National Park as well as other Rhino bearing areas. The fact can be established from the figures given below :

Year	No. of Rhinos killed by poachers
1974	3
1975	5
1976	1
1977	-
1978	3
1979	2
1980	11
1981	24
1982	25
1983	37
1984	28
1985	44
1986	45
1987	23
1988	24
1989	44
1990	35
1991	23
1992	48
1993	39 (As on 30.11.93).

POPULATION STRUCTURE OF RHINOS IN
KAZIRANGA NATIONAL PARK

The first scientific census operation started from 1966 in Kaziranga National Park and carried out every 6th year. The mid year population has been calculated by exploration from the graph.

Year	Adult		Young	Non-sexed	Total
	Male	Female			
1966	67	83	44	172	366
1972	203	188	148	119	658
1978	331	322	243	43	939
1984	316	329	301	134	1080
1991	338	357	190	184 (+60)	1069 (+60)
1993	387	379	176	222	1164

Contd.....

Year	Population	Poaching cases		Death		Total death	Increment rate
		No.	% age	No.	% age		
1966	366	5	1.37	11	3.00	16	
1967	414	12	2.92	27	6.52	39	13.11%
1968	462	10	2.16	23	4.98	33	11.60%
1969	510	8	1.57	15	2.94	23	10.39%
1970	558	2	0.36	26	4.66	28	9.41%
1971	608	8	1.32	20	3.29	28	8.96%
1972	658	-	-	20	3.04	20	8.22%
1973	704	3	0.43	59	8.38	62	7.00%
1974	752	3	0.39	20	2.66	23	6.81%
1975	798	5	0.63	34	4.26	39	6.12%
1976	846	2	0.24	20	2.36	22	6.02%
1977	892	-	-	37	4.15	37	5.44%
1978	939	5	0.53	25	2.66	30	5.27%
1979	941	2	0.21	19	2.02	21	0.21%
1980	942	11	1.17	58	6.16	69	0.11%
1981	943	24	2.55	39	4.14	63	0.11%
1982	944	26	2.75	47	4.98	73	0.11%
1983	945	37	3.92	46	4.87	83	0.11%
1984	946	30	3.17	48	5.07	78	0.11%
1985	966	44	4.55	37	3.83	81	2.11%
1986	982	45	4.58	58	3.87	83	1.66%
1987	1001	23	2.30	41	4.10	64	1.93%
1988	1018	24	2.36	105	10.31	129	1.70%
1989	1036	43	4.15	55	5.31	98	1.77%
1990	1053	35	3.32	57	5.41	92	1.64%
1991	1069	23	2.15	78	7.30	101	1.52%
1992	1116	48	4.30	67	6.00	115	4.40%
1993 (12.11.93)	1164	39	3.35	54	4.63	93	4.30%

The age/sex classification of Rhinos against poaching and natural death has been shown below in table "A" and "B" respectively.

AGE/SEX CLASSIFICATION OF RHINOS AGAINST POACHING
(TABLE - A)

Year	Adult			Sub-Adult			Calf			Unknown sex and age	Total
	Male	Female	Unknown	Male	Female	Unknown	Male	Female	Unknown		
1980	3	1	5	-	-	-	-	-	-	2	11
1981	2	-	10	-	-	6	-	-	1	5	24
1982	7	4	3	3	2	3	-	1	1	2	26
1983	5	5	7	6	5	4	-	-	5	-	37
1984	13	8	2	-	-	5	-	1	1	-	30
1985	22	10	4	1	5	-	-	1	1	-	44
1986	17	11	5	3	5	1	2	1	-	-	45
1987	8	11	2	-	-	-	1	-	1	-	23
1988	6	10	5	-	2	-	-	-	1	-	24
1989	18	20	1	1	1	1	-	1	1	-	44
1990	13	11	-	3	5	1	-	1	1	-	35
1991	8	8	2	-	3	1	-	1	-	-	23
1992	19	7	3	4	3	1	-	-	-	2	49
1993	15	19	1	-	-	-	1	2	-	1	39

(14.11.93)

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AGE/SEX CLASSIFICATION OF RHINOS AGAINST NATURAL DEATH
(TABLE - B)

Year	Adult			Sub-Adult			Calf			Sex and age unknown	Total
	Male	Female	Unknown	Male	Female	Unknown	Male	Female	Unknown		
1980	24	14	2	-	-	-	5	5	8	-	58
1981	10	8	2	-	-	-	6	3	7	3	39
1982	-	-	30	-	-	-	1	-	14	3	48
1983	13	8	6	-	-	1	6	3	3	6	46
1984	19	13	1	1	-	-	5	7	2	2	50
1985	11	5	7	-	-	-	4	2	7	1	37
1986	13	8	-	-	-	-	6	3	5	3	38
1987	14	11	-	-	-	-	8	1	3	4	41
1988	28	24	7	1	2	-	16	16	9	2	105
1989	18	14	2	1	1	-	8	8	2	1	55
1990	19	10	3	1	-	-	7	6	2	9	57
1991	28	20	3	1	1	-	11	10	5	-	79
1992	21	12	8	2	2	-	7	5	8	1	66
1993 (24.11.93)	14	15	3	-	1	1	6	9	8	4	57

ANTI-POACHING ACTIVITIES :

The total area of the Park has been divided into four segments and each segment is under direct control of a Forest Ranger. There are number of camps in each segment in vulnerable places (mostly near beels) and the total number of such camps at present is 107 Nos. (this number is not fixed). In each camp at least 3 (three) number of staff are posted including Homeguards and casual labourers. The total strength of staff of different categories under different schemes engaged for anti-poaching works are as follows :

Category	Non-Plan	Rhino Conser- vation(C.S.S)	Protected Area (State Plan)	Total
Forest Ranger	6	1	-	7
Deputy Ranger	2	4	-	6
Game Keeper	2	-	-	2
Forester - I	29	27	3	49
Forester - II	1	18	-	19
Head Game Watcher	4	-	-	4
Mahut	26	-	-	26
Game Watcher	56	-	-	56
Forest Guard	65	133	6	204
Boat Man	40	20	-	60
Total	221	203	9	433

In addition to this, the strength of Homeguards and casual labourers are 45 and 64 numbers respectively.

WIRELESS :

The position of wireless network and sets available with different Ranges and Headquarters are as follows :

Range	Fixed	Mobile	Proto	Total
Kaziranga Range, Kohora.	2	3	7	12
Western Range, Baguri	4	3	7	14
Eastern Range,	1	2	6	9
Burapahar Range	1	1	3	5
Total	9	9	25	43

ARMS AND AMMUNITIONS :

The position of arms and ammunitions provided to the staff for anti-poaching activities are as follows :

	'315	SBBL	DBBL	Revolver	Other
Total Stock	179	33	27	6	10
Serviceable	170	23	24	5	-

There are 12 Nos. of Rifles having '423/'243 and '470 bores unserviceable due to non-availability of standard bullets.

INTELLIGENCE NETWORK :

There are no particular intelligence network available with the Park authorities. However, a few local people are being engaged for collection of information regarding movement of poachers, illegal trade, etc. On the basis of information furnished by the informers, good results had been achieved during raids outside the Park. Even poachers were killed during encounters, arms and ammunitions recovered. On successful raids and encounters, the informers were rewarded. Few such raids and encounters during the last two years are furnished below :

- 10.4.91 Near Bandarkhal encounter took place with the poachers and the poachers fled away leaving the Rhino horn and subsequently 4 (four) persons arrested.
- 22.4.91 Near Sahabduba, a Rhino was killed. Encounter took place with the patrolling staff and the poachers. The whole area was cordoned.
- 23.4.91 Encounter took place with poachers and 2(two) Naga poachers were killed.
- 24.4.91 2(two) number of poachers apprehended in the raids conducted at Dagaon.
- 3.5.91 An encounter took place with the poachers by the staff of Haldibari and 1(one) poacher was killed and 1 (one) '470 DBBL rifle with ammunitions were recovered without any damage.

- 17.8.91 Two rounds of Gun shots were heard at Malani area. The staff on patrolling duty immediately reacted and as a result, no damage caused.
- 28.8.91 Encounter with patrolling staff and armed poachers took place at about 8.30 P.M. at Kachanjuri. Consequently, one poacher succumbed to his injury and another fled away with heavy injury. Recovery of DBBL '470 gun and one DBBL gun with ammunitions were made. No casualty to staff and Rhinos.
- 28.10.91 Patrolling staff encountered with miscreants and apprehended 3 (three) persons under Naste Camp and handed over to Police.
- 14.1.92 Encounter with staff took place at Sesonimukh area under Western Range and 2 (two) poachers were killed.
- May/92 Raid was conducted at Dagaon under Kaziranga Range and 3 (three) persons including one Telecom Engineer of Telecommunication Department were arrested and one Silencer with '303 rifle recovered. 17 Nos. of bullets also recovered during the raid.
- 20.6.92 Encounter with the staff took place at Gorakati, North of Moridiffalo river under Wester Range took place and 1 (one) poacher was killed and one '500 DBBL gun and 5 Nos. of live cartridges were recovered.
- 26.6.92 Encounter with staff took place at Baghmari area under Kaziranga Range and 1 (one) poacher got killed and one Rifle of Italy made recovered.
- 20.9.92 Encounter with staff took place at Roumari Nallah under Western Range and 1 (one) poacher was killed.
- 10.10.92 Raid was conducted at Dolamara area and the following arms were recovered from the possession of poachers. During the raid, encounter took place and 1 (one) person (Naga) was killed, one injured and 2 (two) persons were arrested.
- Mark - III Rifle - 1 No.
S.B.B.L. Gun - 1 No.
'315 Rifle - 1 No.
Masket Rifle - 1 No.
- 66 rounds of live cartridges of '315 bore and 5 Nos. of ball bullets of lead recovered.

- 18.11.92 Encounter took place with the staff at Arimora under Kaziranga Range and 1 (one) poacher got killed and one rifle of '303 bore recovered.
- 12.12.92 A raid was conducted at Joypur village near Bokakhat and 2 (two) Nos. of '303 rifles were recovered and 5 (five) persons were arrested.
- 21.12.92 Encounter took place at Naste under Kaziranga Range and one poacher got killed.
- 18.1.93 Encounter with patrolling staff took place in between under Murkhua Camp and 1 (one) poacher got killed.
- 3.2.93 Encounter with patrolling staff took place in between Sitalmari and Kartika Camp under Kaziranga Range and 1 (one) poacher got killed.
- 23.2.93 A raid was conducted at Barbheta Gaon near Bokakhat and 2 (two) persons, one of them Naga were arrested with recovery of '303 rifle and 14 rounds of live bullets.
- 26.3.93 Encounter with patrolling staff took place at Tinibeel Tinali under Eastern Range and 1 (one) known notorious poacher got killed.
- 24.4.93 In the operation, 3 (three) persons were arrested with recovery of 25 rounds of live bullets of '303 rifle and Rs. 13,000/- in cash.
- 30.5.93 A raid was conducted at Bokakhat, 3 (three) persons were arrested.
- 22.6.93 A raid was conducted at Benganakhua, Golaghat, 3 (three) persons were arrested with recovery one 1 (one) SBBL Gun with live 2 rounds of cartridges, Hand made cartridges 3 Nos., E/C Cartridges 2 Nos. and '303 bullets 7 Nos. and '315 bullet 1 No.
- 8.5.93 Encounter with patrolling staff took place at West of Gotonga under Burapahar Beat and recovered '303 rifle with bullets 1 No., '303 rifle E/S 1 No. and Carbine E/I 1 No.
- 31.8.93 Encounter with patrolling staff took place at Burapahar Malani area and 2 (two) persons got killed and 1 (one) '470 DBBL Gun with 1 bullet and '500 bore bullet 1 No. were recovered.
- 3.10.93 A raid was conducted at Geleki Karbi Gaon under Kaziranga Range and 3 persons were arrested with recovery of 1 No. '303 rifle, Khaja Gun - 2 Nos. and 11 Nos of '303 bullets.
- 22.10.93 A raid was conducted at Kaziranga and 2 persons were arrested with recovery of 1 No. '303 rifle, Silencer 1 No. and live cartridges 6 Nos.

27.10.93 A raid was conducted at Teliabari gaon under Eastern Range and recovered 1 No. of hand made Pistol.

The information so provided by the Informers if found productive after raids and encounters, the informers were paid cash as incentive. The expenditure incurred for payment of incentive during 1992-93 and 1993-94 are as follows:

1991- 92	-	Rs.	10,975.00
1992 - 93	-	Rs.	21,100.00
1993 - 94	-	Rs.	1,10,600.00

DEATH OF RHINOS DUE TO FLOOD :

Flood is an annual phenomenon for the Kaziranga National Park. Some of the animals of the Park migrate during the high floods to the hills through certain corridors but most of the animals remain inside the Park. Animals take shelter in number of high lands constructed inside the Park area. Even then there is mortality of animals during the flood and yearwise and agewise statement of Rhino death due to flood from 1980 onwards is tabulated below :

Year	Adult	Sub-Adult	Calf	Total
1980	6	1	6	13
1981	2	-	1	3
1982	1	-	-	1
1983	-	-	-	-
1984	-	1	-	1
1985	-	-	1	1
1986	1	-	-	1
1987	1	-	2	3
1988	19	10	19	48
1989	1	-	-	1
1990	-	-	1	1
1991	4	-	3	7
1992	-	-	-	-
1993(14.11.93)1	-	-	4	5
Total	36	12	37	85

DEATH OF RHINOS DUE TO PREDATION :

Predation by tiger/leopard mostly the rhino calves is a common phenomenon in the Park. The number of death of Rhino calves due to Tiger/Leopard predation from 1980 onwards is tabulated below :

1980	8 Nos.
1981	14 Nos.
1982	14 Nos.
1983	13 Nos.
1984	9 Nos.
1985	13 Nos.
1986	14 Nos.
1987	9 Nos.
1988	19 Nos.
1989	14 Nos.
1990	13 Nos.
1991	21 Nos.
1992	16 Nos.
1993	17 Nos.(Upto 14.11.93)
<hr/>	
Total	194 Nos.

CONSTRAINTS OF ANTI-POACHING :

With no natural barriers to protect the perimeters, keeping a look for intruders become a Herculean task for the staff of Kaziranga National Park. Possession and movement of illegal arms and ammunitions in areas surrounding the Park need to be eliminated. The Army Operation code name 'Rhino and Bajrang' in the State of Assam during 1991 resulted in restriction of movements of illegal arms and activities of all types of anti-social elements including poachers reflected by reduced number of poaching cases.

The lack of deterrents to neutralise the activities of habitual offenders, harbourer of poacher in nearby villages, advantages taken of the weakness and loopholes in the Judicial process by persons engaged in poaching activities as well as their accomplices are the chronic disadvantages. Lack of informations on the planning process, execution, financing illegal traffic and trade in Rhino horn to meet international

demand continues to be a hurdle. The main constraints are :

- i) Lack of information/intelligence system.
- ii) Delayed finalisation of proposed additions (7 Nos.).
- iii) Absence of eco-development programmes.
- iv) Possession and movement of illegal arms and ammunitions.
- v) Lack of infrastructures and incentives to the staff.
- vi) Lack of trained staff in combat fighting.
- vii) Lack of system of awarding rewards to the staff and informers for commendable works for conservation of Rhinos.

RESEARCH :

To have more proper and scientific management of the Park more research on the available resources and proper planning is a must. The sound management of the Park depends upon sound research background. It is very important for the authority to know the viability of rhino population within the existing habitat of the Park and for this purpose, it is essential to take up systematic research work on habit, habitat and reproductive growth rate of Rhinos in relation to other animals in the Park.

There is only one study on habit and habitat (Lahan and Sonowal, 1973) of Kaziranga National Park and the other study of habitat suitability made by Shri Parihar (Parihar et-el, 1986) are only the research work available till now. There is no work done on the morphologyon Rhinos of Kaziranga National Park. Further habitat suitability needs further study since there are number of hervivoures available inside the Park and depend upon the same types of vegetations.

Research on Grassland ecology is one of the most important one and on which the viability of Rhinos in Kaziranga National Park depends. Another study on succession of vegetation inside the Park can be taken up. Further study on invasion and control of exotic climbers which is posing a problem in maintenance of tall grasses inside the Park needs attention of researchers.

TOURISTS AND REVENUE :

Tourism is mainly dealt by the Tourism Department of Government of Assam. However, for elephant ride and visit to the Park by vehicle, a nominal fee is being realised. The entrance fee and other charges which are being realised from the tourists has been furnished in the Annexure 'A'. However, a table showing the number of Indian and Foreign tourists visited the Park and revenue collected thereof are shown below :

Year	Visitors		Total	Revenue Collected
	Foreign	Indian		
1984-85	24	46,244	46,268	Rs. 1,68,832.00
1985-86	204	50,632	50,836	Rs. 2,21,015.00
1986-87	403	61,207	61,610	Rs. 2,24,493.00
1987-88	614	65,273	65,887	Rs. 3,03,914.00
1988-89	841	52,160	53,001	Rs. 2,85,686.00
1989-90	455	50,021	50,475	Rs. 2,75,381.00
1990-91	463	22,704	23,167	Rs. 3,10,298.00
1991-92	526	26,827	27,553	Rs. 6,13,811.00
1992-93	659	27,943	28,602	Rs. 8,49,428.00
1993-94 (20.11.93)	165	2,779	2,944	Rs. 95,150.00

FUNDING :

The expenditure for maintenance of the Park and anti-poaching works are being funded from Non-Plan and State Plan Budget to a limited extent. During the VIIth Five Year Plan, the Government of India through a 100% assisted scheme named "Rhino Conservation" had provided the main stay and back bone for management and conservation of the National Park. The infrastructure including entertainment of staff, construction of buildings, high lands, roads and bridges, etc. were taken up during the period. Land acquisition cost for expansion of the Park area was provided within the frame work of the scheme. The salary component of the scheme is Rs. 42,00,000.00. But the transfer of

the scheme to the State Plan from the VIIIth Five Year Plan without ensuring the State's capability of taking the extra burden resulted in drying of financial source and the development of the Park has come almost to a stand still in all fronts. The marginal increase in the State's Budget Provision has been wiped off by the enhancement of salary and wage component of the staff resulting no room for undertaking any development works except meeting the demands for maintenance.

No external funding has so far been made available for conservation and protection of Rhinos in Kaziranga National Park. A project proposal was submitted for external funding under UNEP but the project has not yet been sanctioned.

Incentive to the staff, who works at parrel with the paramilitary forces could not be provided due to acute shortages of fund.

The yearwise expenditure under Non-Plan, State Plan and Centrally Sponsored Schemes are furnished in the Annexure - 'B'. However, statement showing the total expenditure incurred combining all the schemes (State Plan, Non-Plan and Centrally Sponsored Schemes) from 1986-87 to 1992-93 is tabulated below :

Year	Expenditure
1986-87	Rs. 1,23,67,507.00
1987-88	Rs. 1,42,62,529.00
1988-89	Rs. 1,66,31,945.00
1989-90	Rs. 1,33,80,179.00
1990-91	Rs. 1,19,60,024.00
1991-92	Rs. 1,55,07,488.00
1992-93	Rs. 1,60,09,733.00

A FEW SALIENT SUPPORT SYSTEM

ARTIFICIAL HIGH LANDS :

After devastating flood of 1987-88 when casualty of maximum number animals took place, about 68 Nos. of Highlands were constructed inside the Park to provide shelter for the marooned animals during the floods, which is shown below :

Location	No. of High land	Length in Meter
Eastern Range	1	1,650 Meters.
Western Range	2	1,000 Meters.
Eastern Range	2	350 Meters.
Eastern Range	9	200 Meters.
Kaziranga and Eastern Ranges.	22	100 Meters.
Kaziranga and Western Range.	29	30 Meters.
Eastern Range	3	25 Meters.
Total	68 Nos.	3,355 Nos.

FLOATING CAMPS :

There are 2 Nos. of Floating camp, viz. Hawk and Samrat in the Brahmaputra River to prevent intrusion of poachers from northern side of the National Park.

COUNTRY BOATS :

To facilitate the anti-poaching activities as well as to supply rations and other logistic support to the staff at different camps situated in the interior part, the country boats are the only means of transport during the rainy seasons. There are 88 Nos. of country boats in the Park. Every year 10% of the boats require repair or replacement.

SPEED BOATS :

SPEED BOATS :

There are 12 boats fitted with Out Board Motors in the Park but very frequent it requires repairing. As such, better quality O.B.Ms will be necessary for anti-poaching measures during the rainy days.

DEPARTMENTAL ELEPHANTS :

There are 44 Nos. of Departmental Elephants in the Park, out of which 29 are adult and rest 15 are calves. 15 Nos. of elephants are generally engaged for Tourists' visits during the tourists season and the rest are meant for anti-poaching measures.

FACILITY FOR THE WILDLIFE STAFF :

It has been indicated in the earlier paragraphs that the job of the staff engaged for anti-poaching works inside and outside the Park are most arduous in nature and extremely risky yet they are not granted any due reciprocate consideration. It has also been indicated earlier that the job of the staff of the Park should be considered at par with paramilitary Forces and they should be provided with all facilities which are being provided to the Paramilitary Forces, such as special allowance, compulsory one month's leave, free ration and full uniform, etc. At present, the low paid Forest Guards and Foresters are maintaining double establishments and are away from their families for months together. The morale of the staff can only be boost up by providing facilities which are actually due to them.

PEOPLE'S AWARENESS :

The intensity of man-animal conflict is on the rise commensurate with increase of Rhino as well as human population within a well defined and confined area. This is more so since the villagers are already under stress of various socio-economic pressures.

It is no doubt a fact that the general public are quite aware about the need for conservation and protection of animals, particularly the Rhinos of the Park but active and constructive awareness is confined only to a limited person. The large scale depredations and damages of crops and properties for which poor villagers are not getting adequate compensation coupled with socio-economic conditions of the villagers have created a barrier of understanding between the Park authorities and the villagers. The villagers, who co-operated with ready information regarding poachers earlier are slowly distancing themselves from the same being afraid of retaliation by the poachers and erosion of interactions between Park staff and the villagers. To narrow down this gap, massive programme of 'Eco-Development' programmes in the villages surrounding the Park is the call of the day.

ANNEXURE A

PARK ENTRANCE FEES :-

- (1) Fees for entering into K.N. Park.
Per day per person - Rs. 5.00
Per child (below 12
Years and student) - Rs. 1.00
- (2) Road toll for Vehicles :-
Per day per trip means a journey
covering the period from entry to
exit in any one round.
Car/ Jeep per vehicle - Rs. 30.00
Mini Bus per vehicle - Rs. 75.00
Bus per vehicle - Rs. 100.00
- (3) Fees for photography per day by
amateur photographers per camera.

Still camera without tele
lens. - @Rs. 5.00
Still camera with tele
lens. - @Rs. 25.00
Movie camera - 8 mm - @Rs. 50.00
Movie camera - 16 mm - @Rs. 150.00
Video camera - @Rs. 250.00
- (4) Fees for photography per day by
professional photographer.

Per camera still camera - @Rs.100.00
" Movie 8 mm
16 mm @Rs.500.00
" -do- 35 mm @Rs.1000.00
" Video camera - @Rs.1000.00
- (5) Fees for hiring elephant per trip
when one elephant is hired exclusively
by one person per elephant. @Rs. 500.00

Hire charge per seat per person. @Rs. 50.00

ANNEXURE B

STATEMENT SHOWING EXPENDITURE INCURRED UNDER NON PLAN FROM 1986-87 TO 1992-93
UNDER EASTERN ASSAM WILDLIFE DIVISION :-

Year	Salary/ TA	Wages	Works	Total	Percentage for works
1986-87	Rs. 32,29,704.00	Rs. 4,71,433.00	Rs. 29,40,598.00	Rs. 66,41,735.00	
1987-88	Rs. 35,38,240.00	Rs. 3,22,225.00	Rs. 39,74,688.00	Rs. 78,35,145.00	
1988-89	Rs. 45,35,371.00	Rs. 3,22,840.00	Rs. 32,66,112.00	Rs. 81,24,323.00	
1989-90	Rs. 35,45,000.00	Rs. 4,20,450.00	Rs. 23,15,607.00	Rs. 62,81,057.00	
1990-91	Rs. 41,19,900.00	Rs. 2,20,450.00	Rs. 17,19,923.00	Rs. 60,60,273.00	
1991-92	Rs. 56,04,378.00	Rs. 4,40,000.00	Rs. 13,18,000.00	Rs. 74,24,378.00	
1992-93	Rs. 62,97,675.00	Rs. 4,07,945.00	Rs. 16,58,515.00	Rs. 83,64,135.00	

STATEMENT SHOWING EXPENDITURE INCURRED UNDER PLAN (STATE) FROM 1986-87 TO 1992-93 :

Year	salary	Wages	Works	Total	Percentage for works
1986-87	Rs. 3,24,000.00	Rs. 5,47,000.00	Rs. 20,75,426.00	Rs. 29,46,426.00	
1987-88	Rs. 3,50,000.00	Rs. 5,50,000.00	Rs. 12,89,000.00	Rs. 21,89,000.00	
1988-89	Rs. 4,00,100.00	Rs. 7,59,940.00	Rs. 13,65,000.00	Rs. 25,25,040.00	
1989-90	Rs. 4,50,000.00	Rs. 7,59,940.00	Rs. 11,07,000.00	Rs. 23,16,940.00	
1990-91	Rs. 5,40,100.00	Rs. 8,58,110.00	Rs. 17,77,420.00	Rs. 31,75,630.00	
1991-92	Rs. 8,25,000.00	Rs. 8,58,110.00	Rs. 17,10,000.00	Rs. 33,93,110.00	
1992-93	Rs. 6,68,419.00	Rs. 7,58,510.00	Rs. 20,25,176.00	Rs. 34,52,105.00	

ANNEXURE B

STATEMENT SHOWING EXPENDITURE INCURRED AND CENTRALLY SPONSORED SCHEME RHIND CONSERVATION FROM 1986-87 TO 1992-

Year	Salary	T.A.	Works	Total.
1986-87	-	-	Rs. 6,40,059.00	Rs. 6,40,059.00
1987-88	-	-	Rs. 49,27,592.00	Rs. 49,27,592.00 .. This includes payment of land acquisition cost of Rs.23,79,530.00
1988-89	Rs. 93,297.00	-	Rs. 37,62,582.00	Rs. 38,55,879.00
1989-90	Rs. 8,64,375.00	-	Rs. 38,96,573.00	Rs. 47,60,948.00 .. This includes payment of land acquisition cost of Rs. 4,00,000.00
1990-91	Rs. 24,35,947.00	Rs.1,58,992.00	Rs. 15,10,091.00	Rs.41,05,030.00
1991-92	Rs. 36,22,733.00	-	Rs. 10,35,000.00	Rs.46,57,733.00
1992-93	Rs. 41,53,039.00	-	-	Rs. 41,53,039.00

APPENDIX - 2

List Of Mammals Commonly found in Kaziranga National Park.

Sl.	English name	Scientific name	Local name (Assamese)
1.	Great Indian One horned Rhinoceros	Rhinoceros unicornis	Borh.
2.	Wild Buffalo	Bubalus bubalis	Bonoria moh.
3.	Indian Elephant	Elephas maximus	Hati.
4.	Royal Bengal Tiger	Panthera tigris	Dhekiapatia Bagh.
5.	Indian Wild Boar	Sus Scrofa	Bonoria gahori.
6.	Indian Gaur	Bos gaurus	Methon.
7.	Swamp Deer	Cervus duvauceli	Dol Horina.
8.	Sambar	Cervus unicolor	Hor pahu.
9.	Barking Deer	Muntiacus muntiac	Hugori Pahu.
10.	Hoolock or White browed gibbon	Hylobates hoolock	Halou Bandar.
11.	Hog Deer	Axix porcinus	Khotia Pahu.
12.	Capped langur of Leaf langur	Presbytis pileatus	Tupipindha Hanuman bandar.
13.	Common Langur	Presbytis entellus	Hanuman Bandar.
14.	Rhesus monkey	Macaca mulatta	Molua Bandar.
15.	Assamese Monkey	Macaca assamensis	Jati bandar.
16.	Leopard	Panthera pardus	Naharphutuki Bagh.
17.	Sloth Bear	Melursus ursinus	Mati Bhaluk.
18.	Indian Porcupine	Hystrix Indica	Ketela Pahu.
19.	Fishing cat	Felis viverrine	Masuo: Mekuri.
20.	Jungle cat	Felis chaus	Ban Mekuri.
21.	Large Indian Civet	Viverra Zibetha	Johamal.
22.	Small Indian Civet	Viverricula Indica	Hari Johamal.
23.	Common Mongoose	Herpestes edwardsi	Neul.
24.	Small Indian Mongoose	Herpestes auro-punctatus	Hari Neul.

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25.	Indian Fox	Vulpes bengalensis	Ram Hial.
26.	Jackal	Canis aureus	Hial.
27.	Common Otter	Lutra lutra	Ud.
28.	Chinese Ferret Badger	Melogale moschata	-
29.	Hog Badger	Arctonyx callaris	Nalgahori.
30.	Eastern Mole	Talpa micrura	Utonua.
31.	Pangolin	Manis crassicaudata	Bun Row.
32.	Gangetic Dolphin	Platanista Gangetica	Hihu.
33.	Squirrel	Dremnomys lokriah	Kerketua.
34.	Himalayan Bear	Sciencos thibetanus	Kolabhaluk.
35.	Bat	Various Spp.	Baduli.

APPENDIX - 1

List of Fishes Recorded in Kaziranoa National Park :-

<u>Sl. No.</u>	<u>Scientific Name</u>	<u>Local Name (Assamese)</u>
1.	Ambly/Pharyngodon Mala	Banhpati.
2.	Amphipnous Cuchia	Kuchia.
3.	Bagarius bagarius	Garua.
4.	Belone Cancila	Kokila.
5.	Catla Calta	Bahu.
6.	Chanda nama	Chanda.
7.	Channa amphibious	Chenga.
8.	Channa cachua	Chengeli.
9.	Channa maraulius	Sal.
10.	Channa punctatus	Goroi.
11.	Channa striatus	Sol.
12.	Cirrhinus grigala	Mirika.
13.	Clarius batrachus	Magur.
14.	Calisa chuna	Bhecheli.
15.	Calisa fasciatus	Khalihona.
16.	Entropiichtys vacha	Bocha.
17.	Badusia chapra	Koroti.
18.	Glossogobius giuris	Patimutura.
19.	Heteropheoustes fossilis	Singi.
20.	Labeo bata	Bhangan.
21.	Labeo calbasu	Mali.
22.	Labeo rohita	Row.
23.	Labeo nandina	Nadani.
24.	Labeo gonius	Kurhi.
25.	Mastacembelus armatus	Bami.
26.	Mystus bleekari	Ghotia singora
27.	Mystus cavastus	Borsingora.
28.	Mystus menoda	Gagol.

29.	<i>Mystus seenghala</i>	Ari.
30.	<i>Mystus vittatus</i>	Singora.
31.	<i>Nandus</i>	Vedvedi.
32.	<i>Notopterus</i>	Chitol.
33.	<i>Notopterus notopterus</i>	Kandhuli.
34.	Ompak Rabo	Pabho.
35.	<i>Oxygaster bacaila</i>	Chelkona.
36.	<i>Puntius sfricto</i>	Kaniputhi.
37.	<i>Puntius Sarana</i>	Cheniputhi.
38.	<i>Rasbora daniconius</i>	Dorikona.
39.	<i>Rasbora eleng</i>	Eleng.
40.	<i>Tetradon cuteutic</i>	Gongatup.
41.	Wallagu	Borali.

BIRDS OF KAZIRANGA NATION PARK
(RECORDED AND IDENTIFIED BY SHRI R.N. SONOWAL)

<u>ENGLISH NAME</u>	<u>SCIENTIFIC NAME</u>	<u>LOCAL NAME</u>
1. Spotted bill or Grey Pelican.	Pelicanus Phillipensis	Dhela
2. Large cormorant	Phalacrocorax carbo	Doikola
3. Little cormorant	-do- Niger	Panikauri
4. Pigmy cormorant	-do- pygmaeus	
5. Indian shag	-do- fuscicollia	
6. Darter or snake bird	Anhinga rufa	Moniori
<u>HERONS AND BITTERNs</u>		
7. Grey heron	Ardes cinerea	
8. Purple heron	-do- purpurea	Ajan
9. Little green heron	Butorides striatus	
10. Pond heron	Ardeola grayii	Kenamuchori
11. Night heron	Nycticorax nycticorax	
12. Chestnut bittern	Ixobrychus cinnamomeus	
13. Yellow bittern	-do- sinensis	
14. Black bittern	Depetor flavicellis	
<u>EGRETES</u>		
15. Little egret	Egretta garzetta	Bogoli
16. Median egret	-do- intermedia	
17. Large egret	-do- alba	
18. Cattle egret	Bubulcus ibis	
<u>STROKS</u>		
19. Open bill stork	Anostonus oscitamus	
20. White necked stork	Ciconia episcopus	
21. Black necked stork	Xenorhynchus asiaticus	Teliasarang
22. Black stork	Ciconia nigra	

23. Greater adjutant stork Dubius Bortukula

24. Lesser adjutant stork Dubius javanicus

GOOSE AND DUCKS

25. Bar headed goose Anser indicus Dhritaraj

26. Lesser whistling teal Debdrocygna javanica Sarali hansh

27. Common teal Anus crecca Ghila hansh

28. Cotton teal Nettapus coromandelianus Pani hansh

29. Ruddy sheldrake (Dr. Duck) Tadorna ferruginea Sakai chakua

30. Pintail duck Anus acuta

31. Mallard duck Anus platyrlynchos

32. Spot bill duck Anus pecilorhyncaa

33. Gadwall duck Anus stepera

34. Wigion duck Anus penolope

35. Gorgeny (Blue winged teal). Anus querquedula

36. Shoveller Anus clypeata

37. Common pochard Aythya terina

38. White eyed pochard Aythya niyroca

39. Tufted pochard Aythya fuligula

40. Graylag goose Anser anser.

EAGLES AND KITES

41. Pallas fishing eagle
or
Ringtailed fishing eagle Haliaeetus leucorvphus

42. Bonelli's Hawk eagle -do- fasciatus Kurua

43. Grey headed fishing eagle Ichthyophaga ichthyaetus

44. Crested serpent eagle Spilornis cheela

45. Short taed eagle Circsetus gallicus

46. Black winged kite	Elanus caeruleus	
47. Brahminy kite	Haliastur indus	Siloni
48. Black kite	Milvus migrants	
49. Black crested baze	Aviceda leuphotes	
50. Shikra	Accipiter badius	
51. Osprey	Pandion haliaetus	
52. Eurasian kestrel	Falco tinnun culus	

HARRIERS

53. Marsh harrier	Circus aerugineus	
54. Pale harrier	-do- macrourus	
55. Pied harrier	-do- melanoleucus	

VULTURES

56. Black or King vulture	Torgos calvus	Raja Sagun
57. Cinerous vulture	Aegyptus monachus	
58. Indian griffon vulture	Gyps fulvus	
59. Indian Longbilled vulture	Gyps indicus	
60. White blacked vulture or Bengal Vulture	Gyps bengalensis	Sagun

PATRIDGE, PHEASANTS AND FOWLS

61. Kalij pheasant	Lophura leucomelana	Darik
62. Common crow pheasant	Centropus sinensis	
63. Median	-do- -do- -do- -do- intermedus	
64. Lesser	-do- -do- -do- loulou	
65. Swamp partridge	Froncolinus gularis	Hoikoli
66. Red jungled fowl	Gallus gallus Bonoria kukura	

CRAKES, MOORHENS, FLORICANS, JACANAS, ETC.

67. Branded crane	Rallinn ourizonoides	
68. Brown crane	Amaurornis akool	
69. Ruddy crane	-do- fuscus	
70. White breasted waterhen	-do- phoenicurus	Dauk
71. Water cock	Gallicrex cinerea	Korya chorai
72. Indian moorhen	Gellinula chloropus	
73. Purple moorhen	Porphyrip	Kamchorai
74. Bengal florican	Eupodotic bengalensis	Ulumora
75. Bronze winged jacana	Metopidius indicule	Jalmoyur
76. Pheasant tailed jacana	Hydrophasianus chirugus	

PLOVERS, LAPWINGS, SHANKS, SAND PIPERS, ETC.

<u>77. Lapwing or green plover</u>	<u>Vanellus vanellus</u>	
78. Sociable lapwing	-do- gregarius	Balighora
79. Grev headed lapwing	-do- cinereus	
80. Red wattled	-do- indicus	
81. Spur winged	-do- spinosus	
82. Little ringed plover	Charadrius dubius	
83. Spotted redshank	Tringa erythropus	
84. Green shank	Tringa nebubaria	
85. Marsh sandpiper	-do- stagnatilois	
86. Green Sandpiper	-do- Ochropus	
87. Common Sandpiper	-do- hypopeucos.	

SNIPES, STINTS, GULLS AND TERNS, ETC.

88. Fantail snipe	Capella gallinaya	
89. Temminck's stint	Calidris temminckii	
90. Brown headed gull	Larus brunnicephalus	Ram pare
91. Indian whiskered tern	Chlidepias hybrids	Gonga chiloni
92. Indian river tern	Sterna aurentia	
93. Black bellied tern	Sterna acuticauda	

PIGEONS AND DOVES

94. Orange breasted green Pigeon	Treron oicincta	Haitha
95. Bengal green pigeon	-do- phoenicoptera	
96. Impereal green pigeon	Bucula aenea	Parghuma
97. Rufous furtle dove	Streptopelia primentalis	
98. Ring dove	-do- decoocto	Kapou
99. Red turtle dove	-do- trnquabarica	
100. Spotted dove	-do- chinensis	
101. Emaralad dove	Chalcophaps indica	Hilkopou

PARAKEEPTS

102. Large india parakeet	Psittacula supatria	
103. Roseringed parakeet	-do- krameri	
104. Red breasted parakeet	-do- alexandri	

CUCKOOS, KOELS, ETC.

105. Indian cuckoo	Cuculus micropterus	Keteki
106. Indian plaintive cuckoo	Cacomantis merulinus	
107. Common hawk cuckoo	Cuculus varius	
108. Indian koel	Rudynamus scolepacea	Kuli
109. Large green billed malkoha	Rhopodytes tristis	

OWLS, OWLETS AND NIGHTJARS

110. Indian great Harnad owl	Bubobubo bengalensis	
111. Brown fish owl	Bubo zeylonensis	
112. Barred jungle owlet	Glaucidium radiatum	
113. Spotted owlet	Athene brama	
114. Long tailed nightjar	Caprimulgus macrurus	
115. Indian little nightjar	-do- asiaticus	Dinkona
116. Indian edible nest swiftlet	Callalia unicobur	
117. Indian house swift	Apus affinis	
118. Red headed trayon	Harpactes erythrocephalus	

KING FISHERS

119. Pied king fisher	Ceryle rudis	
120. Small blue king fisher	Alcedo atthis	Masluruka

121. Blue eared king fisher *Alcedo meninting*
122. Stork billed king fisher *Pelargopsis capensis*
123. White breasted King fisher *Helcyon smyrnensis*

BEE EATERS

124. Chestnut headed bee eater *Merops leschenaulti* Moupia
125. Blue tailed bee eater -do- *pilleppinus* "
126. Small green bee eater -do- *orientalis* "
127. Blue bearded bee eater *Nyctyornis athertoni* "

ROLLERS

128. Indian roller or blue jay *Caracian bengalensis* Kau chorai
129. Broad billed roller *Eurystomus orientalis*
130. Hoopoe *Upupa epops* Barhoituka

HORNSBILLS, BARBETS AND PICULETS

131. Indian pied hornbill *Anthracoceros malabaricus* Dhonesh
132. Great pied hornbill *Buceros bicornis* Hetekteki
133. Lineated barbet *Megalomia lineata* Heteluka
134. Blue throated barbet *Megalomia asiatica* '
135. Blue eared barbet *Megalomia eustralis*
136. Wryneck *Fynx torquilla*
137. Speckled piculet *Picumnus innominatus*
138. Rufous piculet *Sasia ochracea*

WOOD PECKERS

139. Little scalybellied wood pecker *Ficus xanthopygaeus* Kathluruka
140. Black naped green wood pecker *Ficus canus* "
141. Fulvous breasted wood pecker *Oendroscopus macei* "
142. Grey crowned pigmy wood pecker *Picoides canicapillus* "
143. Burmese scale bellied wood pecker *Picus viridanus*
144. Golden backed threetoed wood pecker *Dinopium shortii*
145. Large golden backed wood pecker *Chrysocoloptes lucius*

PITTAS AND LORKS ETC

146. Blue naped pitta	<i>Pitta nipalensis</i>
147. Rusty naped pitta	<i>Pitta eatesi</i>
148. Assam bush lark	<i>Mirafra assamica</i>
149. Red winged bush lark	<i>Mirafra acrythroptera</i>
150. Ganges sank lark	<i>Galandrella raytal</i>

MARTINS AND SWALLOWS

151. Plain sand martin or Grey throated sand martin	<i>Riparia paludicola</i>
152. Common swallow	<i>Hirundo rustica</i>
153. Red rumped swallow	<i>Hirundo dsurica</i>

SHRIKES

154. Black headed shrike	<i>Lanius schach</i>
155. Grey backed shrike	<i>Lanius phropotus</i>
156. Brown shrike	<i>Lanius cristatus</i>
157. Common wood shrike	<i>Tophrodonis-pondicerianus</i>
158. Large cuckoo shrike	<i>Coracina novacho-uandiae</i>
159. Dark grey cuckoo shrike	<i>Coracine melaschistos</i>

DRONGOS

160. Black drongo	<i>Dicrurus adsimilis</i>	Phesu
161. Crow billed drence	-do- <i>annectans</i>	"
162. Bronze drongo	-do- <i>aeneus</i>	"
163. Hair crested drongo	-do- <i>hottentotus</i>	"
164. Lesser racked tailed	-do- <i>remifer</i>	Bhimraj

MAJNAS

165. Grey headed myna	<i>Sturnus malabaricus</i>	
166. Pied myna	-do- <i>centra</i>	Kankurika
167. Common myna	<i>Acridotheras thistis</i>	Chor salika
168. Jungle myna	-do- <i>fuscus</i>	Sutia salika
169. Bapk myna	-do- <i>ginginianus</i>	
170. Hill myna	<i>Gracula raligiosa</i>	Moina

STARE, MAGPIE, PIE AND ORIP LE

171. Snot winged stare	<i>Saraglossa spiloptera</i>
172. Green magpie	<i>Cissa chinensis</i>

173. Tree pie Dendrocitta bagabunda Chakcheki
174. Black headed oriole Oriolus anthernus Sakhioti

CROW, MINIVET AND CHLOROPSES

175. House crow Corvus splendens Patikauri
176. Jungle crow Corvus macrorhynchos Dhora Kauri
177. Scarlet minivet Pericrocotus flammeus
178. Short billed minivet Pericrocotus brevirostris
179. Small minivet -do- cinnamomeus
180. Gold mantled chloropsis Chlororopses cochinchineus
181. Gold fronted chloropsis -do- surifrous
182. Common iora Aegithina tiphia

BULBULS

183. Black headed yellow Pycnonotus malanictrus Phesuluka
 bulbul
184. Red whiskered bulbul -do- jacosus "
185. Red vented bulbul -do- cafer "
186. White throated bulbul Criniger flaveolus "
187. Black bulbul Hypsipetes, madagascia riensis

BABLERS ◊ ◊ ◊

188. Spotted babbler Pellorneum ruficeps
189. Red fronted babbler Stachgris rufifrous
190. Red capped babbler Timalia pileata
191. Black throated babbler Stachyris nigriceps
192. Yellow breasted babbler Macronous cularis
193. Yellow eyed babbler Chrysomma sineuse
194. Striated babbler Turdoides sarlei
195. Jungle babbler Turdoides striatus.

THRUSH

196. Necklaced laughing Garrulax monileger
 thrush
197. Rufous necked laughing -do- ruficollis
 thrush
198. White crested laughing -do- leucolophus
 thrush
199. Blue rock thrush Monticola nolitarius
200. Himalayan whistling Myiophonous caeruleus
 thrush

FLY CATCHERS

201. Red breasted fly catcher *Muscicapa narva*
202. Varditer -do- -do- *thalassina*
203. Little pied fly catcher *Muscicapa westermanni*
204. Slaty blue -do- -do- *leucomelanura*
205. Grey headed -do- *Culicicapa ceylonensis*
206. White browed fantail fly catcher *Rhipodura anveola*
207. Yellow bellied fantail fly catcher -do- *hypoxantha*
208. Paradise fly catcher *Ternsiphone paradisi*

WARBLERS

209. Yellow browed ground warbler *Tesia cyaniventer*
210. Streaked fantail warbler *Cisticela juncidis*
211. Large grass -do- *Graminicola bengalensis*
212. Striated marsh -do- *Megalurus palustris*
213. Paddy field -do- *Acrocephalus agricola*
214. Blyth's reed -do- -do- *dumetorum*
215. Black browed flycatcher warbler *Scicercus burkii*
216. Yellow bellied warbler -do- *Abroecopus supersiliaris*

ROBIN, SHAMA, BUSH CHAT, ETC.

217. Tailor bird *Urthotomus sutorius* *Pathis*
218. Blue throat *Erithacus savecicus*
219. Ruby throat *Erithacus pectoralis*
220. Maglie robin *Copsychus saularis* *Dohikotora*
221. Shama -do- *malabaricus*
222. Black redstart *Phoenicurus ochruros*
223. Daurian redstart -do- *aureus*
224. Collared bush chat *Saxicola torquata*
225. Jerden -do- -do- *gerdoni*
226. Grey tit *Parus major*
227. Hodgson's tree pipit *Anthus hodgsoni*
228. Paddy field pipit *Anthus novaeselandiae*

WAGTAILS

229. Pled wagtail	Motacilla alba alboides	Balimahi
230. Yellow wagtail	-do- fleva	"
231. Yellow headed wagtail	-do- citreola	"
232. Grey wagtail	-do- caspica	"
233. White wagtail	-do- alba dulehunensis	"
234. Large pied wagtail	-do- maderaspatensis	

FLOWER PECKER, SUNBIRD, ETC.

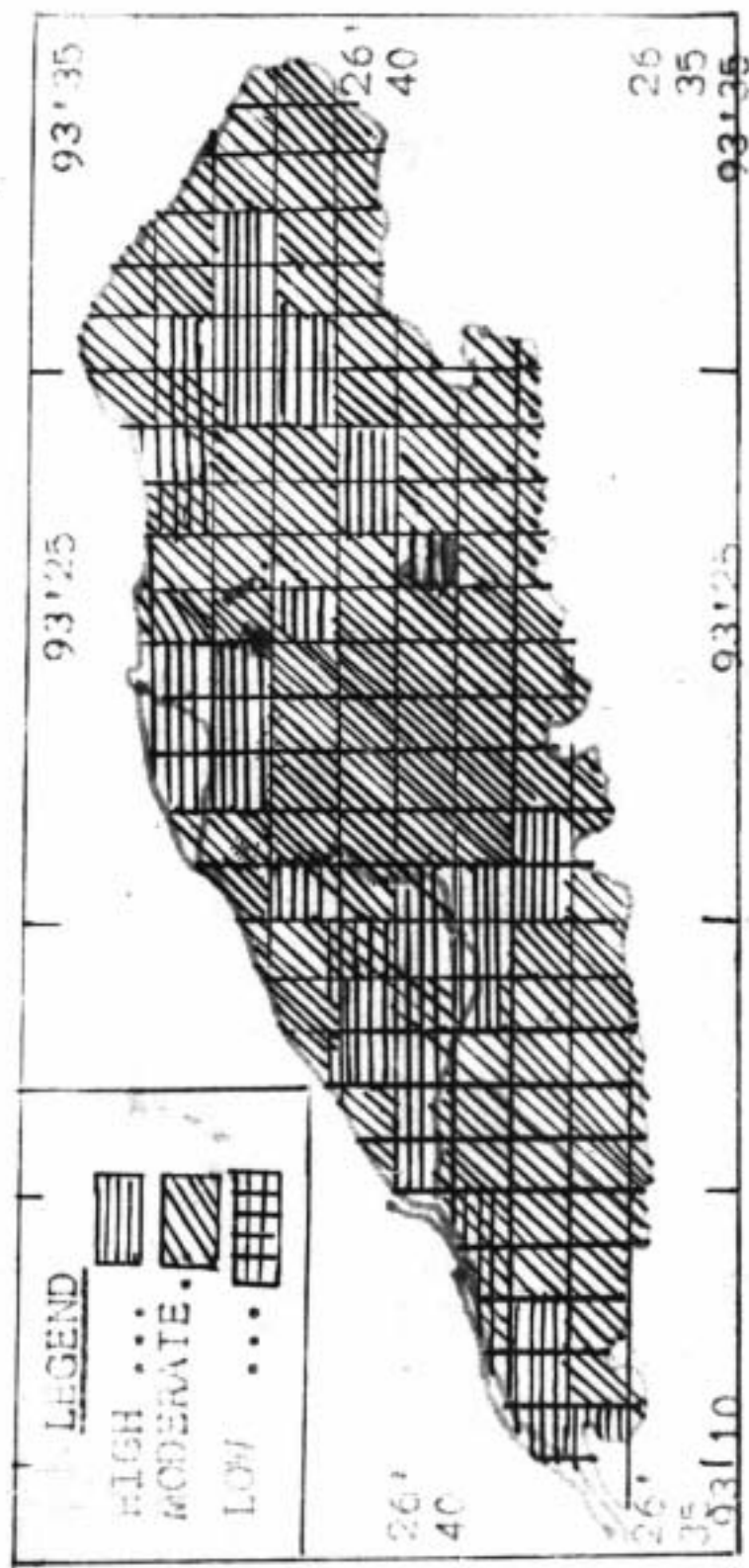
235. Five breated flower pecker	Dicaeum ignipectug	
236. Scarlet back -do-	-do- cruentatum	
237. Purple sunbird	Nectarinia asiatica	
238. Yellow backed sunbird	Acthopyga stparaja.	
239. Little spider hunter	Arachnothere longirostris	
240. Streaked spider hunter	-do- magna	
241. Ruby check	Anthreptes singalensis	
242. White eye	Zosterops palpebrosa	

SPARROWS AND WAVER BIRDS ◊ ◊ ◊

243. House sparrow	Passer domesticus	Ghor chirika
244. Tree sparrow	-do- montanus	
245. Baya waver bird	Ploceus phillippinus	Tukura chorai
246. Black throated bird	-do- bengalensis	
247. Streaked waver bird	-do- manyar	

MUNIAS AND BUNTINGS

248. White backed munia	Lonchura striata	
249. Spotted -do-	-do- punctulata	
250. Black headed munia	Lonchura malacen	
251. White throated munia	-do- malabarica	
252. Redfaced hunting	Estrilda amandava	
253. Black faced hunting	Emboriza spodocephalus	
254. Little hunting	-do- pusilla.	



HABITAT SUITABILITY FOR RHINOCEROS IN KAZIRANGA NATIONAL PARK .