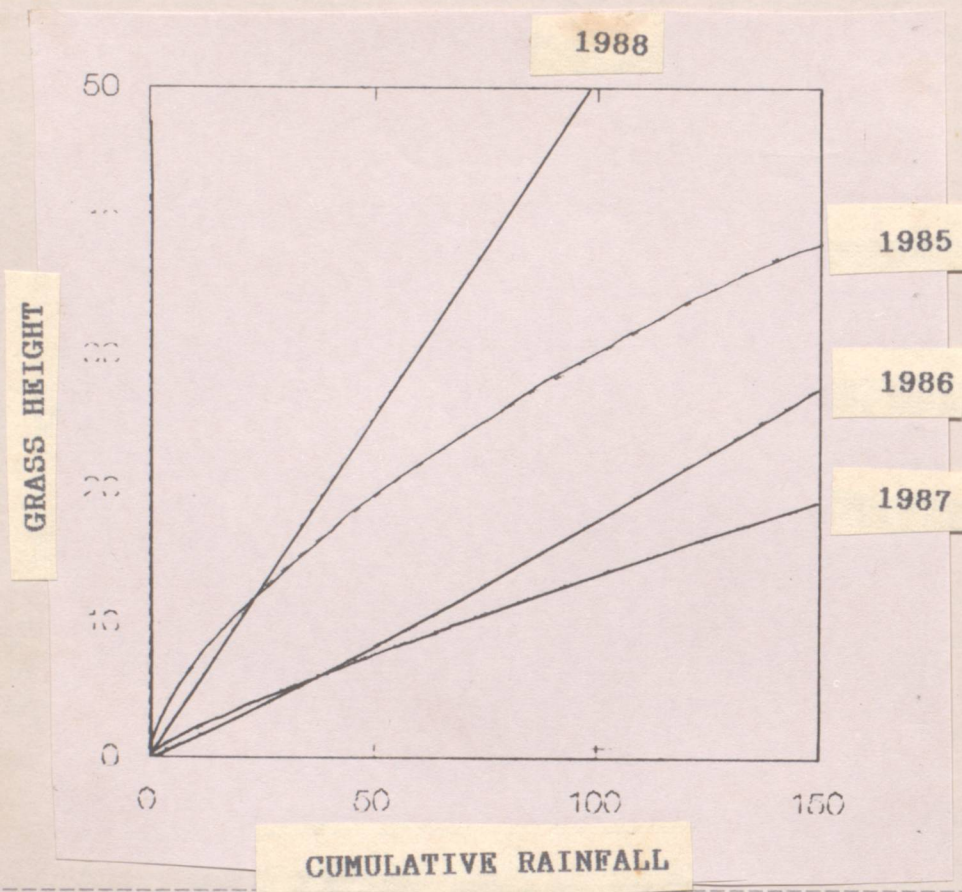


EFFECT OF QUANTUM & DISTRIBUTION OF RAINFALL ON GRASS GROWTH



$GHT = K * Rain^B$

where K = constant; B = slope of the correlation between Log grass height and Log cumulative rainfall.

Thus for e.g. for 1985 $Y = 1.612129 * X^{0.6358}$

Normal Rainfall : Quantum = 1095 mm
 (Average of 6 years) Number of Rainy days = 44

	Quantum	Nos. of rainy days
1985	-51%	48
1986	+49%	48
1987	+8%	29
1988	+16%	51

Dudwa
grass ht. in cm

1988		Navakhad		Kowhaghatki	Navakhad total
Chapra		E	W		
1/2	8.3	2/2 11.02	2.2	1/2 = 9	6.6
8/2	12.7	8/8 16.6	10.1	8/2 15.5	13.35
15/2	17.3	23.2	12.5	15/2 21.2	17.9
22/2	19.6	29.	15.6	28.2	22.3
2/3	—	^{2/3} 26.3	22.8	^{2/3} 25.3	24.55
7/3	27.4	28.1	28.1	30.11	28.1
18/3	33.75	^{8/3} 39.2	30.8	35.3	35.
22/3	39.3	45.5	38	^{23/3} 39.4	39.7
1/4	—	45.5	48.7	44	46.6
9/4	52.6	^{11/4} 46.7	57	^{9/4} 47	48.85
18/4	55.8	58.15	53.5	53.1	55.8
25/4 Nest site					
25/4	60.1	59.8	60.1	58.6	60
2/5	62.4	65.9	65	64.5	65.4
9/5	72.7	78	78.2	76.6	78.1
17/5	83.2	87.8	83.05	85.7	85.5
1/6	92	^{2/6} 95.4	94.1	^{1/6} 98.35	94.7
8/6	99.75	99.5	102	103	100.8.

1989

M A V A C K H A D
W T

Chapra	Kowhaghatti	E	W	T
19/2 17.3				
15/3 30				
6/4 44	17.48			
24/4 55.1	35.34			
	31/5 54			
17/6 78	78.1			
29/6 103	100			

1987

Kowhaghatti

Navalhal.

3/5	31/5	85.8		
7/5 61				
	11/5	83.3		
16/5 70.3				
	20/5	80.		
24/5 76.7				
2/6 67.16	30/5	80.45		

Grass wt.
Sailana - 1985 - 1988.

<u>1985</u>		1987 Hazariya		1987 Naulakha	
10/8/85	7.5 cm.			6/9	13.1 cm
28/8	20 cm	5/9	33.5	14/9	22 cm
8/9	26.5 cm	15/9	57.3	21/9	34.5
15/9	41 cm	22/9	63.65	29/9	44.3
26/9	56 cm	29/9	64.6		
14/10	76 cm.				

<u>1986</u>		1988 Naulakha		1988 Hazariya		1988 Dohad	
29/6	2 cm	8/7	4.38	8/7	2.9	5/7	13.85
6/7	4 cm	15/7	8.0	16/7	10.25	14/7(I)	10.98
13/7	4.6	23/7	11.5	24/7	18.5	20/7(I)	21.6
20/7	8 cm	6/8	21.6			21/7(II)	25.33
31/7	10.6 cm	14/8	30			29/7(I)	26.2
7/8	12 cm	27/8	62			30/7(II)	36.85
14/8	15.6 cm	5/9	75.84				
21/8	18.5 cm	19/9	97.48				
29/8	26 cm	1/10	105				
6/9	35						
14/9	53						
21/9	65						
28/9	73						
14/10	71						

Summary statement of salaries
only to Research Divisions and Auxiliaries

	I Year	II Year	III Year	IV Year	V Year	Total for each Division
Ecology	205464.40	263516.20	294144.72	322012.56	334119.60	1419257.64
Economic Ornithology	74647.60	70367.20	160913.04	166715.00	212112.00	692755.00
Movement, Population Community	151395.72	150955.00	102733.12	240035.12	292207.00	1034126.76
Ethology and Physiology	60291.96	63416.40	100128.48	149965.80	206366.44	480169.08
Taxonomy & Zoogeography	20067.76	22012.20	39536.16	41261.52	71016.76	195494.40
Toxicology	-	-	33664.20	76431.72	79992.60	190000.52
Invertebrates	123552.72	127614.00	131665.20	135736.00	139797.36	650365.36
Botany	75399.72	70720.60	82120.36	143020.04	147337.32	526614.04
Biostatistics	61776.36	63007.00	65032.60	67060.04	69090.60	329102.60
Computer	53779.92	56355.00	50040.48	61293.96	63702.04	293900.20
<hr/>						
Total	827176.32	912763.60	1149594.36	1413149.52	1517351.40	5920035.28
<hr/>						

Kowshaghatti

(7a) *C. martini* (6) *E. munja* (4) Tree cover 0.

(7c) harrowed. *D. bipinnata* (6) *I. cylindrica* (3)

E. munja (1) *Seemul* (10) *Sheeshum* (20)

high grow.

(7d) *I. cylindrica* (7) *E. munja* (3) high grow.

(7e) *E. munja* (7) *I. cylindrica* (1.5) *D. bipinnata* (1.5)

(8a) *D. bipinnata* (6) *E. munja* (2) ~~*E. (1)*~~ *I. cylindrica* (2)
high grow *Sheeshum* (50) *Seemul* 5-10

(8c)

(8b) *E. munja* (7) *I. cylindrica* (1) *D. bipinnata* (1) *S. fusca* (1)
high & low grow *Seemul* (5) *Sheeshum* (5) *teak* (10)

(9a) *E. munja* (8) *I. cylindrica* (1) *D. bipinnata* (1) High grow.

(9b) *I. cylindrica* (3) ~~*D. bipinnata* (3)~~ *S. Spontaneum* (3) *D. bipinnata*
(2) *E. munja* (1) *S. fusca* (1)
high grow.

(9c) *E. munja* (5) *S. Spontaneum* (3) *S. fusca* (2)
high & low grow

(9d) C. martini (3) E. munja (3) S. spontaneum (2) Cyprus
nevensis (2) high grow.

(9e) I. cylindrica (3) C. martini (3) E. munja (2) S. spontaneum
(1) C. nevensis (1)

Ho (10a) E. munja (4) I. cylindrica (4) D. bipinnata (2)

(10b) I. cylindrica (6) D. bipinnata (3) E. munja (1)
high grow.

Chapra

1a Cymbopogon Martini (6) Erianthus Munja (4)
High ground. Tree cover 0

1b Imperata cylindrica (5) Erianthus munja (2) Saccharum
spontaneum (1) Desmostachya bipinnata (1)
High ground & low ground. Tree cover 0

4a

2a I. cylindrica (6) E. munja (3) C. martini (2)
High ground. Scattered Sheeshum, seemul, ficus (40)

2b E. munja (5) I. cylindrica (5)
low & high ground. few khair & sheeshum.

3a harrowed. I. cylindrica (7) E. munja (3)
30+ khair low ground.

3b I. cylindrica (6) E. munja (3) S. spontaneum (1)
khair 25 seemul 3 high ground.

3c I. cylindrica (4) S. fusca (3) E. munja (2) S. spontaneum (1)
high & low ground. Tree cover 0

3d I. cylindrica (6) S. fusca (3) D. bipinnata (1)
high ground tree cover 0

(4) Schlerostachya fusca (8) Phragmites karka (1.5) Arundo
donax (1.5) low lying. Khair (15-20) scattered.

(5a) E. munja (4) S. fusca (2-5) D. bipinnata (2-5) I. cylindrica
(1) Khair 20 Seemul 3 high ground.

(5b) D. bipinnata (6) E. munja (2) I. cylindrica (2)
high ground. Tree cover 0.

(6) E. munja (5) I. cylindrica (2-5) S. fusca 1.5 D. bipinnata (1)
Khair (5) Sheeshum (5) high ground.

(11a) E. munja (5) Cq. martini (5) high ground.

(11b) C. martini (6) E. munja (4) high ground.

(11c) C. martini (3.5) E. munja (2.5) S. spontaneum (2)
D. bipinnata (0.5)

(11d) I. cylindrica (3) E. munja (3) S. spontaneum (3)
D. bipinnata (1) low & high

Navalkhad.

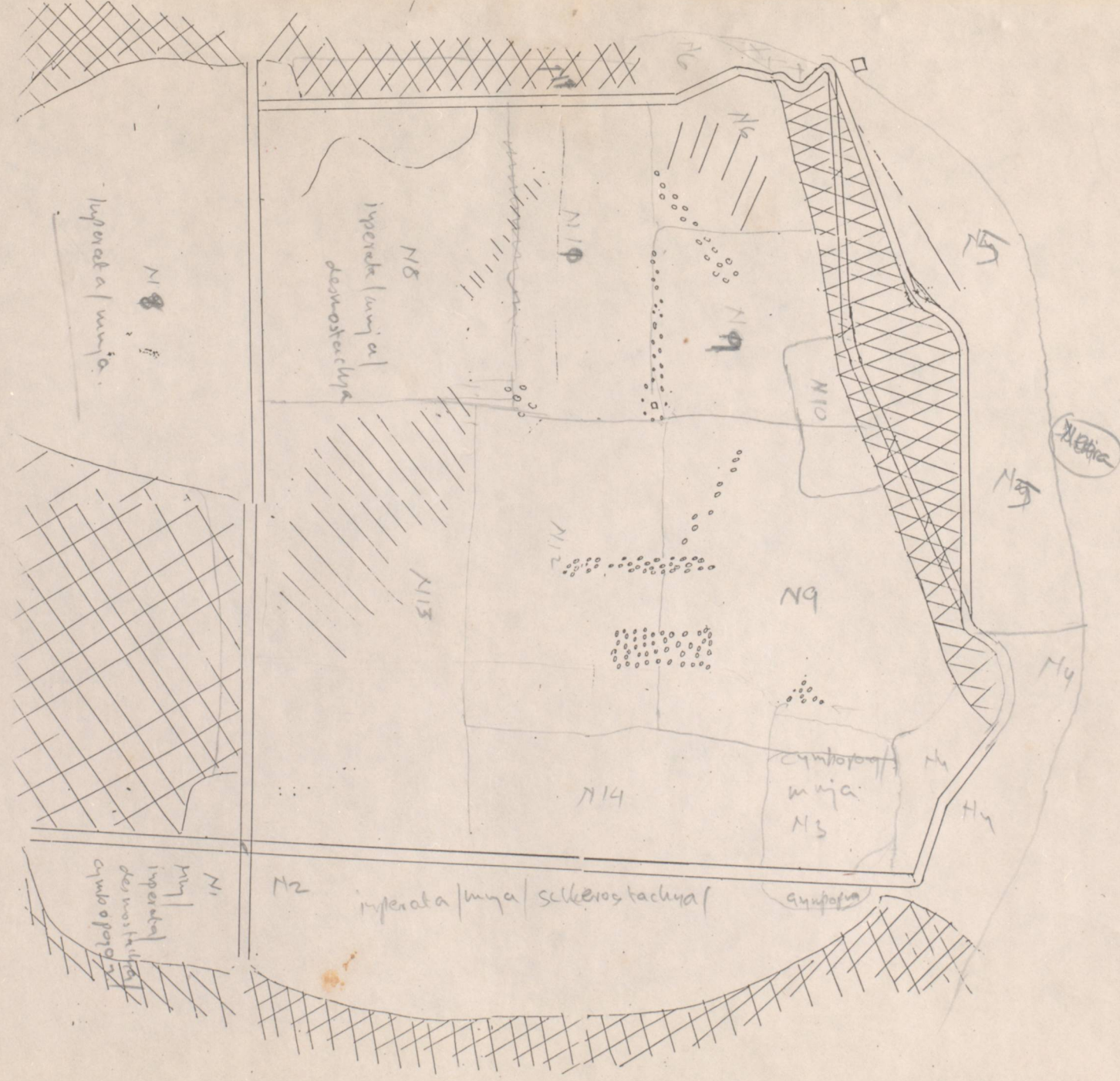
- (N1) E. munja (4) I. cylindrica (3) D. bipinnata (2)
C. martini (1) Seemul (25) Khair (25)
- (N2) I. cylindrica (5) E. munja (2-5) S. fusca (15)
D. bipinnata (1) 25 seemul 20 khair.
- (N3) C. martini (6) E. munja (4)
- (N4) E. munja (6) I. cylindrica (2-5) S. fusca (15)
low & high. Seemul (50+) Sheeshum (50)
- (N5) E. munja (5) S. fusca (2) D. bipinnata (2)
I. cylindrica (1) seemul (10) sheeshum (5) Higharoul.
- (N6) I. cylindrica (5) E. munja (4) D. bipinnata (1) low & high
I. cylindrica (1.5)
- (N7) E. munja (7) D. bipinnata (1.5) I. cylindrica (1.5)
high
- (N8) I. cylindrica (8) E. munja (13) D. bipinnata (1.5)
High grad.
- (N9) E. munja (35) I. cylindrica (2) S. spontaneum (2)
C. nevens (1.5) D. bipinnata (1) high.
seemul scattered, 10+
- (N10) E. munja (35) C. martini (3) S. spontaneum (1.5)
C. nevens (1.5) D. bipinnata (1) high.

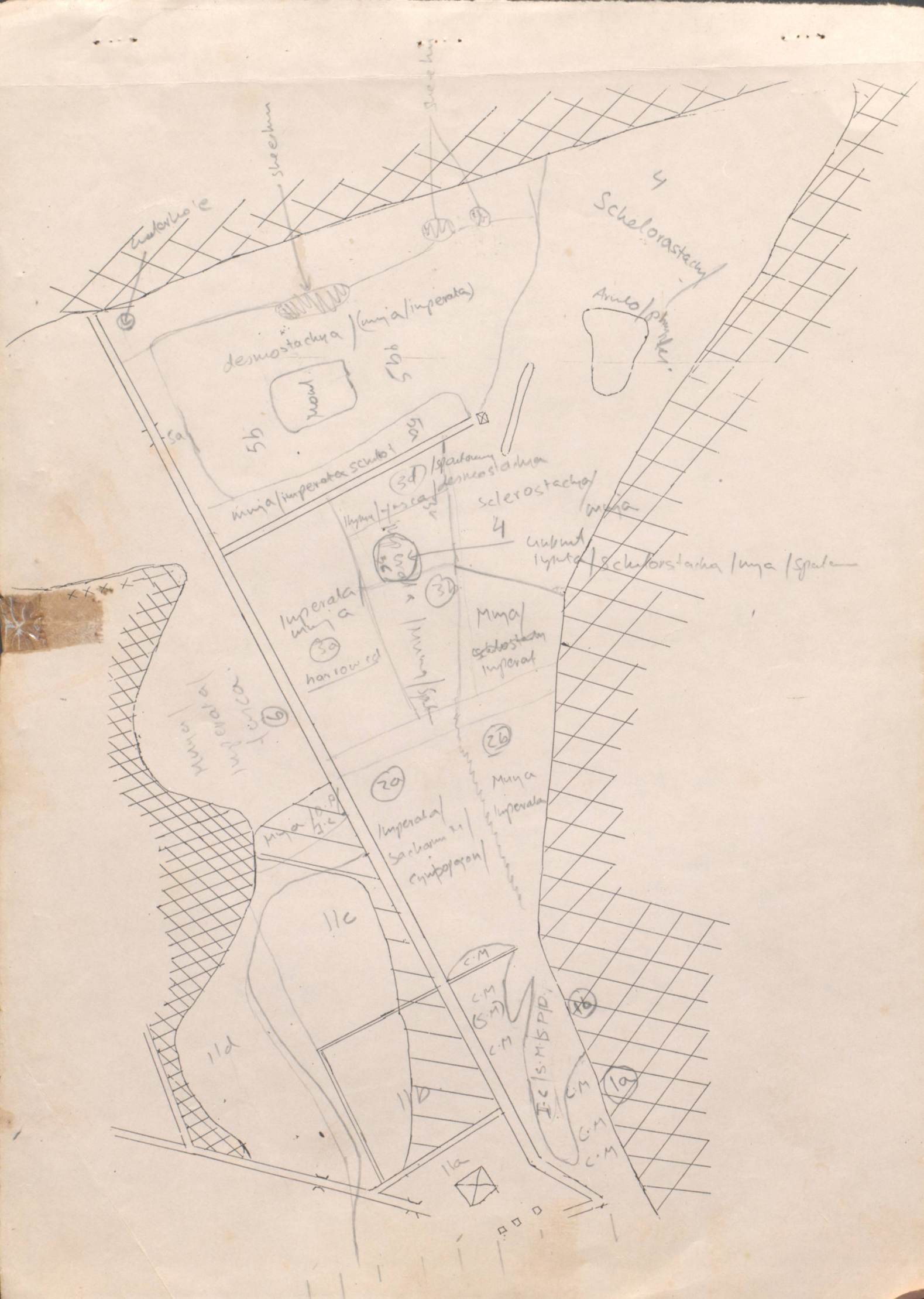
(N11) I. Cylindrica (4) D. bipinnata (3) S. Spontaneum (2)
E-munja (1) No trees high & low.

(N12) S. Spontaneum (3) D. bipinnata (3) I. cylindrica (1.5)
C. nevenum (1.5) E. munja (1) high

(N13) E. munja (4) D. bipinnata (2.5) S. Spontaneum (2)
C. nevenum (1) S. furca (1.5)

(N14) E. munja (4) D. bipinnata (3) S. Spontan (2)
S. furca (1) high grad Seemul (1.5) Scattu shern (10)





Amulo/plumbe

Sclerostachya

4
Sclerostachya

desmostachya (mija/imperata)

Amulo/plumbe

road

mija/imperata scult 3a

3d / spataum
desmostachya

sclerostachya
mija

4
Cuboid lignite / sclerostachya / mija / spataum

imperata
mija
3a
narrow rd

Mija
sclerostachya
imperata

imperata
mija
3a

2a
imperata
Saccharum 21
chytopogon

2b
Mija
imperata

11c

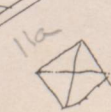
11d

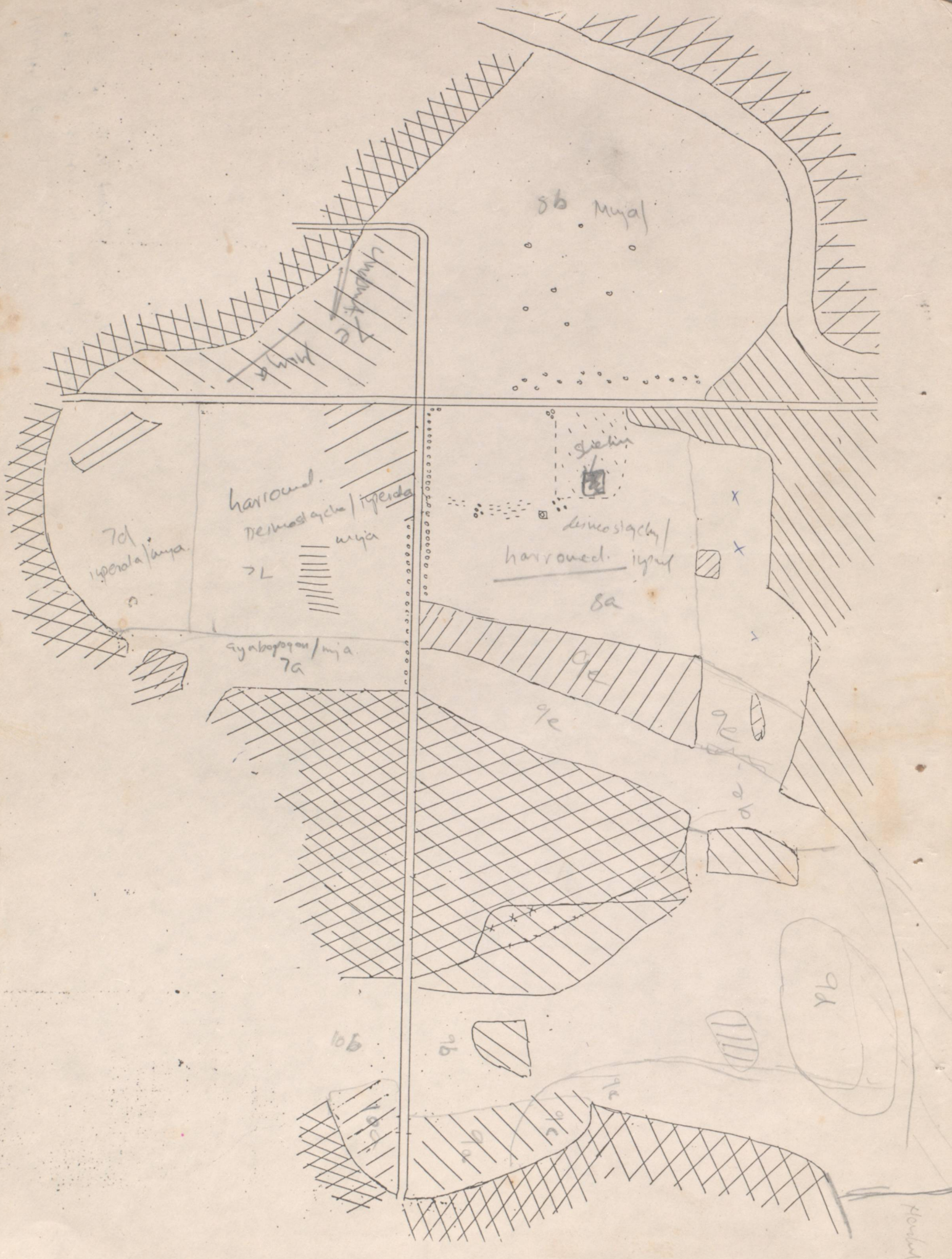
11b

C.M.
C.M.
C.M.
C.M.

I-C/S-M-B-P-D

C.M.
C.M.
C.M.





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GRASSLANDS - DUDHWA NATIONAL PARK - 1988

① SATIANA:-

As of 2/2/88

Area ~~out~~ occupied by male partly harvested by forest department for thatch grass needs within the park.

Harvesting started c. 25 Dec. 1987 and ended by 15 Jan 1988

Rest of area with more ~~or around~~ ^{than} 50% of male's territory still has ~~used~~ grass varying from thigh deep to

shoulder high with tall flower stalks. ^{More cutting done on} 27/2/25/2/Burnton 11/3 & 4/3

Opp. ♂'s territory grass burnt ^{cut} a few metres from road - rest dense with grass in various stages of drying: - this area burnt on 11/2/88

Satiana west grassland more or less completely burnt including grass patches upto ~~rest house~~ ^{1st} road bifurcation near rest house.

② Chapra.

Area of florican activity almost completely burnt

(only unburnt ^{partly burnt} stalks and a few small patches of unburnt grass left. Burning took place around 15th January.

Around Chapra machan grass unburnt and still very dense.

east of chopra adjacent to chittal choraha grassland burnt partly. Rest still very dense? - burnt on 7th from near river. ~~Rest~~ only grass upto Machan burnt. Rest burnt on 11/2/88

③ Navalkhad :-

First ~~bu~~ attempt at burning around 27-28th of December 1987 off road adjacent to Navalkhad east ♂'s territory. Being much too early for grass burning, the stalks which must have been still green still stand and make visibility very poor. Burning took place between 50 & 100mts off

(STALKS & remainings at Navalkhad were cut by Tharus of
on 29/2 & 1/3/88 for thatching (leaving all quite bare open)
road.

the night of

Rest of Navalkhad burnt on 28th/29th Jan. Burning
almost complete leaving only waist to shoulder high stalks
it at all. ~~grass~~

Grassland opp. west of's territory that continues towards
Sati Satimat burnt already on our arrival.

Grassland ^{area} adjoining the road that exits Navalkhad
towards Satiana not burnt yet and still very dense. :- This
grassland burnt on 11/2/88

(upto and little beyond
the satimat)

(4) Other grasslands :-

Except for 2-3 big patches on the Satimat Rd, all
other grassland area approachable by road burnt on the
Afternoon of 29th Jan. Grassland adjoining Navalkhad Machan
and bordering river burnt on 3/1/88. Remainder of Satimat burnt ~~on 11/2/88~~
on 11/2/88

(5) Madraiya :-

Burnt in patches and appears to be still very dense
in the interior. Though a ~~large~~ ^{good} percentage of the
grassland adjoining the road has been burnt.

Area approaching pukka machan still under very tall
grass and due to this almost unapproachable.

Area around Muthna machan and as far as eye can see
still under tall green grass. :- burning of this area commenced
on 10/2/88.

(6) Masankhamb :-

Not burnt at and beyond railway line grassland patches
under water. Burnt on around 16-18 February. Burnt well.

(7) Salukapur:-

According to Tariq Aziz most of Salukapur enclosure area burnt ~~of~~ over 3-4 days around 20th January. On visiting on the 6th ^{of Feb,} found chetuan was burnt and most of kurmanla was burnt as well. Area around kahrahataal yet to be burnt. Could not visit the area extensively.

(8) Bhaadi taal phanta burnt at least 4-5 days prior to our visit on 8/2/88

(9) Churela phanta unburnt as of 8/2/88.

(10) Sonaripur florican phantas not yet burnt including the phanta between Louhi Kuan and the railway line (8/2/88).

19/2/88 Sonaripur florican phanta extending ^{towards} ~~the~~ Rankhiatal burnt at least 60% / display area upto R.H. unburnt. Grass sprouting.

(11) Kusumba chowki phanta burnt at least 7-10 days prior to our visit on 8/2/88

(12) lohti phanta on Sonaripur to Chandanchauki (metal rd) forest Rd - definite for florican. seemed to be burnt at least in part.

Maduraiya

M1 - S. fusca (7) U. zizinioides (2) Carax (1)
lowly my

M2 S. spontaneum (2) D. bipinnata (2) I. cyllurica (2)
U. zizinioides (2) E. munja (2) S. fusca (1)

M3 D. bipinnata (5) I cyllurica (5)

M4 part 2 S. fusca (5.5) U. zizinioides (1.5) D. bipinnata (1.5)

A. donax & phumites (0.5) E. myla other Ha
Hemithereca compressa print.

scattered khair 950 seen at 25 zizyphus 150+

M4 S. spontaneum (3) S. fusca (7)

M5 S. fusca (7) S. spontaneum (2) Carax etc (1)

M6 D. bipinnata (4) S. spontaneum (4) E. munja (2)

scattered khair (20)

M7 S. fusca (7) A. donax ^{& p. karka} (1.5) S. spontaneum (1.5)

M8 U. zizinioides (8) S. spontaneum (2) khair (20)

M9 U. zizinioides (5) S. spontaneum (2-5) D. bipinnata (1.5)
kasaila (1) scatter seed (10) khair (15)

M10 Harround D. bipinnata (4) S. spontaneum (4)
kasaila (1) seed (1)
seed (15) khair (25)

