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Livestock Project Unit  
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LIVESTOCK AND LAND USE IN  
SOUTHERN GONGOLA STATE

Working Paper: 11

SEASONAL CHANGES IN THE DISTRIBUTION AND  
ABUNDANCE OF CATTLE IN SOUTHERN GONGOLA STATE

An Assessment Based on Comparison of the Preliminary  
Results from Systematic Low Altitude Aerial Surveys

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## 1 INTRODUCTION.

Resource Inventory and Management (RIM) Limited was contracted by the Nigerian Federal Government's Livestock Project Unit (LPU) to carry out an assessment of livestock and land use in Southern Gongola State, for the purposes of regional development planning. Extensive aerial and ground surveys have now been completed for during both the wet and dry seasons of 1983/84.

RIM's approach and the methods involved were described in a preliminary report submitted to LPU in October 1983, in which the provisional findings of the wet season survey work were also summarised. Comprehensive analysis and integration of the large amount of additional information acquired during the dry season is currently underway, and will be fully reported upon in due course.

In the meantime this working paper, the eleventh in a series of such documents, has been prepared for circulation, discussion and comment amongst, RIM collaborators and LPU staff. The paper outlines some of the major differences in seasonal cattle distribution and abundance, apparent from an initial comparison of results from the two aerial surveys.

The provisional nature of the information and interpretation presented in this working paper is stressed. For immediate comparative purposes, it has been necessary to use similar "uncorrected" data bases, and a simplified method of population assessment. This means that the values presented in this working paper are not definitive, and must at this stage be regarded only as indicative.

The purpose of this working paper is, therefore, to outline some of the major seasonal changes observed in the regional distribution cattle, and indicate the orders of magnitude involved. In due course, detailed computer analysis will produce more refined results and distribution maps, but these are unlikely to invalidate the major trends identified here.

## 2 SEASONAL CHANGES IN CATTLE DISTRIBUTION AND ABUNDANCE.

The region surveyed in both wet and dry seasons occupied a total land area of some 43,900 square kilometers of southern Gongola State. The wet season survey was conducted during the month of July 1983, and the dry season survey was carried out between the middle of February and the middle of March 1984.

The provisional results of both surveys are summarised in Figures 1 & 2 and Tables 1, 2 & 3. Figure 1 indicates the wet season distribution of cattle, while Figure 2 shows that found in the dry season. Table 1 presents the wet season estimates of cattle numbers for the whole area surveyed, and for selected regions. Table 2 gives the comparable figures for the dry season. Table 3 summarises the major seasonal differences.

- 2.1 The total estimated dry season cattle population exceeded that found in the wet season by some 50,000 head, representing a marginal increase of some 7.5%. To a degree, this increase is consistent with the generally recognised pattern of southward movement of cattle during the dry season, but would seem to indicate, at least during 1983 and 1984, that the influx was not very great.
- 2.2 The overall density of cattle was about 15 animals per square kilometer in the wet season, which increased to 16 animals per square kilometer in the dry season. The respective stocking rates were 6.7 and 6.2 hectares per animals.
- 2.3 Notwithstanding the relatively modest difference in the estimates of overall cattle population size and density, comparison of the wet and dry season distribution maps, indicates the very uneven distribution of cattle in both seasons, and also, a distinct seasonal redistribution.
- 2.4 Substantial changes in the distribution and abundance of cattle took place in the lowland floodplains of the major rivers: Benue, Taraba, Donga and Bantaji/Suntai. In the dry season, these areas collectively experienced a four fold increase in cattle numbers.

- 2.5 In the wet season only 10% of all cattle were to be found on the floodplains, whereas during the dry season these areas accounted for some 40% of the total population. More dramatically, in that part of the Benue floodplain lying within the survey region, the cattle population increased by some than 120 fold. Clearly, the availability of water is a major determinant of cattle distribution in the dry season.
- 2.6 As indicated in Figures 1 and 2, no major changes were evident in the seasonal pattern of cattle distribution on the Mambilla Plateau, with virtually every survey grid cell having at least some cattle present in both seasons. However, the overall cattle population declined by some 103,000 head: from an estimated total of 288,000 in the wet season to 185,000 in the dry season, a reduction of some 35%.
- 2.7 In the wet season the Mambilla cattle population represented some 44% of the estimated total for the whole of the area surveyed; whereas during the dry season this had dropped to some 26%.
- 2.8 A similar decline in cattle numbers was apparent for the highland areas to the west of Ganje. In contrast the cattle numbers on the adjacent Fali plateau, and the lowlands immediately to the north-west of Mambilla increased slightly.
- 2.9 Two lowland areas with substantial cattle were identified. One to the north east, around the town of Ganje, which appeared to support a relatively stable cattle population of between 34,000 head in the dry season and 40,000 during the wet. The other area, in the south-west of the survey zone, to the north-west of Garin Ulu, supported a cattle population of some 38,000 in the dry season, which declined to 11,000 in the wet season.
- 2.10 Further interpretation of cattle distribution, in terms of typical seasonal patterns of movement, traditional grazing areas, the importance of cross border movements and the influence of the rinderpest, must await more detailed examination of recently acquired information obtained from interviews of livestock owners.



Figure 2 : Dry Season Cattle Distribution (Provisional)

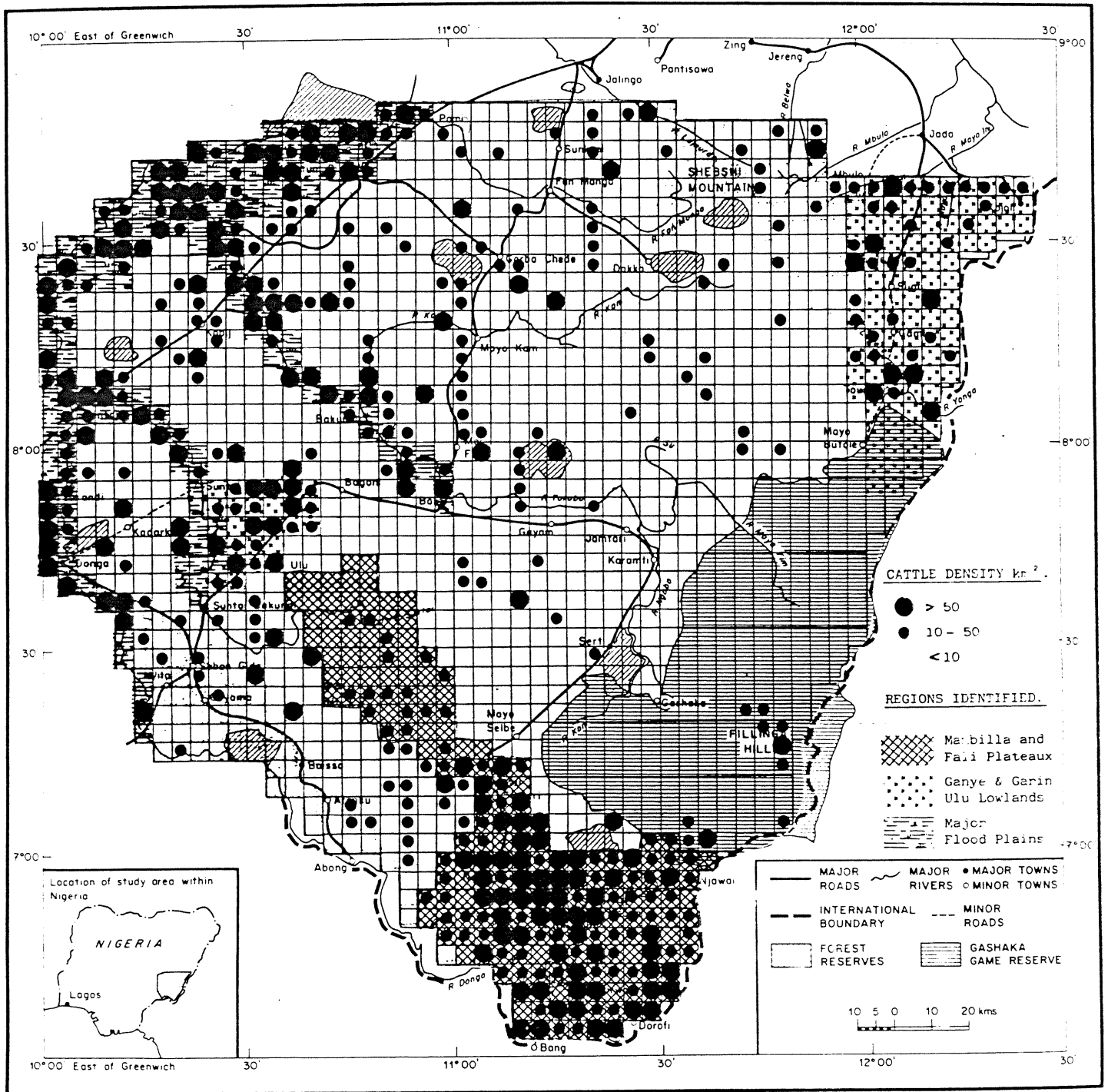


Table 1 :  
WET SEASON CATTLE POPULATION ESTIMATES (PROVISIONAL).

	LAND AREA SQ KM	% ALL LAND	CATTLE			
			NUMBER	% TOTAL	DENSITY /SQ KM	STOCK RATE HA/ANIMAL
PLATEAUX	4975	11.33	295942	45.06	59.49	1.68
Mambilla	3475	7.92	287641	43.80	82.77	1.21
Fali	1500	3.42	8301	1.26	5.53	18.07
LOWLANDS	3100	7.06	51297	7.81	16.55	6.04
Ganye	2450	5.58	40549	6.17	16.55	6.04
Garin Ulu	650	1.48	10748	1.64	16.54	6.05
FLOODPLAINS	4350	9.91	67223	10.24	15.45	6.47
Benue	1925	4.38	1039	0.16	0.54	185.27
Taraba	950	2.16	34417	5.24	36.23	2.76
Donga	825	1.88	28515	4.34	34.56	2.89
Suntaji	650	1.48	3252	0.50	5.00	19.99
REMAINDER	31475	71.70	242291	36.89	7.70	12.99
TOTAL	43900	100.00	656753	100.00	14.96	6.68

Table 2 :  
 DRY SEASON CATTLE POPULATION ESTIMATES (PROVISIONAL).

	LAND AREA SQ KM	% ALL LAND	CATTLE			
			NUMBER	% TOTAL	DENSITY /SQ KM	STOCK RATE HA/ANIMAL
PLATEAUX	4975	11.33	198000	28.04	39.80	2.51
Mambilla	3475	7.92	184670	26.16	53.14	1.88
Fali	1500	3.42	13330	1.89	8.89	11.25
LOWLANDS	3100	7.06	72243	10.23	23.30	4.29
Ganye	2450	5.58	34097	4.83	13.92	7.19
Garin Ulu	650	1.48	38146	5.40	58.69	1.70
FLOODPLAINS	4350	9.91	279136	39.54	64.17	1.56
Benue	1925	4.38	125612	17.79	65.25	1.53
Taraba	950	2.16	66806	9.46	70.32	1.42
Donga	825	1.88	70524	9.99	85.48	1.17
Suntaji	650	1.48	16194	2.29	24.91	4.01
REMAINDER	31475	71.70	156631	22.19	4.98	20.10
TOTAL	43900	100.00	706010	100.00	16.08	6.22



Table 3 :

## SEASONAL CHANGES IN GONGOLA CATTLE POPULATION (PROVISIONAL).

	DRY - WET (NUMBERS)	DRY / WET (RATIO)	DRY - WET (/SQ KM)	DRY - WET (HA/ANIMAL)
PLATEAUX	-97942	0.67	-19.69	0.83
Mambilla	-102971	0.64	-29.63	0.67
Fali	5029	1.61	3.35	-6.82
LOWLANDS	20946	1.41	6.76	-1.75
Ganye	-6452	0.84	-2.63	1.14
Garin Ulu	27398	3.55	42.15	-4.34
FLOODPLAINS	211913	4.15	48.72	-4.91
Benue	124573	120.90	64.71	-183.74
Taraba	32389	1.94	34.09	-1.34
Donga	42009	2.47	50.92	-1.72
Suntaji	12942	4.98	19.91	-15.97
REMAINDER	-85660	0.65	-2.72	7.10
TOTAL	49257	1.00	1.12	-0.47

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