



SMALLPOX ERADICATION IN SOMALIA

Status Report - 1 October 1978



1. Introduction

Endemic smallpox in Somalia appears to have been interrupted in 1963. No smallpox was then reported until October 1972; from that month until February 1976, 38 cases were reported, 16 of which were imported into the northern five regions of Somalia.

From March to July 1976, again no cases were reported but between August 1976 and January 1977 a total of 39 cases were detected in Mogadishu following an importation from outside of Somalia. Limited resources precluded a thorough active search of the country at that time.

Special search operations initiated in March 1977 soon detected smallpox outbreaks in Bay and Bakool regions of southern Somalia. As the search widened the epidemic was found to extend to 31 districts of southern Somalia. One case was imported from Middle Shabelli Region into the northern region of Toghdeer; this was the only case detected in the north. Altogether, 3 229 smallpox cases in 947 outbreak localities were reported in 1977. The last case occurred in Merka town, Lower Shabelli Region, with a date of rash onset of 26 October 1977.

Two years of careful surveillance are now in progress.

2. Methodology of Surveillance

Throughout the entire country the following surveillance techniques have been used during 1978 and will continue in 1979:

(a) Periodic active search

- in rural areas
- in urban areas

(b) Surveillance in the inter-search periods

- waterpoint surveys, surveillance at hospitals, markets and fairs
- special surveillance in problem areas (remote and border locations, areas previously smallpox affected, etc.)

(c) Publicity

- where to report smallpox
- the reward for reporting

(d) Reinforcement of reporting system

- emphasis on regular reporting from district "Zeropox" offices

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While all areas of the country are kept under continuous surveillance, highly intensive activities are maintained in "high risk" areas in the south where the major epidemic occurred. Search techniques vary with the specific area, urban or rural, to be searched and the character of its population, settled or nomadic. Field experience has shown that no single technique provides adequate sensitivity and therefore various methods are used simultaneously. Figure 1 summarises the surveillance activities of 1978.

3. Summary of Surveillance Activities

3.1 Search Operations

Periodic active searches have been an essential element of the surveillance started in March 1977. At the time when smallpox transmission was continuing, searches were conducted continuously in the regions of high smallpox incidence. They were less frequent in the smallpox-free regions, being, on average, once every two months.

Between October 1977 and September 1978 all regions have been thoroughly and repeatedly searched, eight times in the southern regions and three to five times in the northern regions. Figure 2 shows the frequency of active searches by month, and the territory covered, in individual regions.

The results of search activities from January to September 1978 are shown in Table 1. There have been five periodic active searches so far in 1978 and the sixth is planned for December. During the inter-search periods activities have been focused on the "high risk" areas including remote and border areas, those missed during the periodic searches, areas made inaccessible by the rain, areas previously smallpox affected and areas not reporting rash-with-fever cases for a long period.

No further case of smallpox has been discovered during these search activities.

3.2 Search Findings - Detection of Rash-with-Fever Cases

When smallpox incidence reached zero it was decided that every suspected case and every case of rash-with-fever should be notified and carefully investigated.

Rash-with-fever cases detected and reported by searchers, supervisory staff or the public, both during active searches and during inter-search activities, are shown in Table 2.

In 1978, to 30 September, 14 490 rumours have been reported. Of these, 22 percent have been found to be chickenpox, 30 percent measles and the remaining 48 percent of cases other skin diseases, including rubella, scabies, syphilis, drug reactions, eczema and other unclassified rashes.

Seventeen cases were suspected to be smallpox but subsequent epidemiological, clinical and laboratory investigations excluded this diagnosis (Table 3).

The high number of rash-with-fever cases detected and investigated suggests that smallpox could not exist undetected in the country for almost one year.

3.3 Search Assessment

With the aim of pinpointing areas where the present surveillance system needs further strengthening, and to ensure that any hidden focus of smallpox would be quickly discovered, assessment of search activities was introduced in late 1977. From October to December 1977, 48 districts were assessed and 49 168 persons (1.5% of the estimated total population) were asked whether they had seen a smallpox searcher and the smallpox recognition card and whether they knew about the reward and where to report suspected smallpox. In more than two-thirds of the districts assessed the proportion of persons giving positive responses was 60% or greater.

In the first quarter of 1978, 62 214 persons (2% of the estimated total population) were interviewed in 65 districts and a further 32 027 in the second quarter. A further 49 305 persons, including 12 776 nomads were questioned in the third quarter of the year. Results of these surveys are shown in Table 4 and indicate that the level of awareness achieved last year has been maintained up to the present time.

The findings of the third quarter, 1978, inquiry are shown below:

Type of Population	Total number interviewed	Percentage who had seen:		Percentage who knew:	
		Searcher	Recognition card	Reward	Where to report
Settled	36 529	78	79	77	72
Nomadic	12 776	73	73	70	64

It seems unlikely that smallpox transmission could persist without coming to the knowledge of persons well acquainted with the eradication programme, where to report and the reward for reporting.

The surveys detected areas of poor surveillance coverage and sectors of the population which were ill-informed of programme activities. These defects have been remedied by appropriate attention.

3.4 Laboratory Investigations

The large number of specimens collected for laboratory investigation provides further valuable data on the extent of surveillance activities.

In 1977, 937 specimens of crusts or vesicular fluid were collected. Variola virus was isolated in 368 of these (28.6%). In the last quarter of 1977 only eight specimens were positive for variola virus, all from known outbreaks still persisting in Bay, Gedo and Lower Shabelli in October.

A further 1 213 specimens were collected from 1 January to 30 September 1978. None proved positive for variola virus.

In particular, 1 448 specimens have been collected since the last smallpox outbreak in Merka. None have yielded variola virus, further evidence that smallpox transmission has indeed been interrupted.

3.5 Vaccination Performance

A continuous programme of primary vaccination, particularly of children, is maintained through the network of MCH centres.

Also, vaccination is combined with the search activities when they are conducted in remote or "high risk" areas. Smallpox vaccination is available to any citizen on request.

Following is the vaccination performance reported from the beginning of 1978:

Month	Number of Vaccinations performed
January	96 549
February	34 675
March	47 494
April	37 024
May	83 146
June	60 580
July	53 976
August	34 653
September	30 618

The majority of vaccinations have been performed in "bush" areas, where search activities are not reaching the expected level of effectiveness.

3.6 Routine Notification and Reporting

A network of basic reporting units, reporting weekly to the regional level, and through it to the centre in Mogadishu, was gradually established in the second half of 1977. At present, there are 14 reporting centres in Mogadishu capital and 70 district "Zeropox" offices covering the whole of Somalia (Figure 3). A book containing a smallpox rumour register and weekly epidemic report is utilised by all reporting units.

The efficiency of the present weekly epidemic reporting is satisfactory. An average 60% of reporting units sent their report every week in January, 75% in February, 88% in March and from then onwards 97-98% of reports have been filed each month.

3.7 Staff Involved in Surveillance Activities

Programme implementation involved a large number of persons of widely differing backgrounds and experience. The backbone of the work-force was composed of locally hired workers as required and numbering over 3 000 at the peak of the epidemic. The workers included searchers, watch-guards, vaccinators and supervisory staff. As shown in Figure 4, there was a substantial decline in the number of staff, especially in the last quarter of 1977. Since January 1978, the carefully selected staff has remained reasonably stable and is expected to remain so throughout the whole surveillance period.

However, during the periodic active searches, hundreds of additional local workers are temporarily hired to assist the semi-permanent staff in search activities.

At present, 750 dedicated anti-smallpox workers are involved in continuous surveillance activities. This represents one worker for every 4 500 inhabitants and with this ratio it seems highly improbable that smallpox transmission could continue undetected.

4. Future Programme

Two nationwide searches are planned to take place in February and July 1979. National assessment of the programme activities will take place in March and a two-week visit by members of the Global Commission is proposed to start early in October. The country report on "Smallpox eradication in Somalia" will be completed by July 1979 with supplementary information on subsequent search activities to be prepared by the end of September 1979.

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PART B

SURVEILLANCE DATA



TABLE 1. SUMMARY OF SEARCH RESULTS - SOMALIA - JANUARY - SEPT. 1978

Visited and searched	Jan.	Feb.	Mar.	April	May	June	July	August	Sept.
Settled villages	8 262	8 374	7 096	5 505	5 791	4 500	6 587	2 739	6 845
Nomadic camps	18 442	16 578	18 167	11 129	48 992	17 589	15 872	12 095	18 381
Permanent houses	325 673	303 458	268 675	147 818	184 428	174 181	357 151	158 429	357 025
Nomadic huts	170 114	136 248	119 732	130 527	131 972	158 948	210 407	132 537	192 594
Locality headmen	13 358	10 577	8 749	7 462	6 557	7 593	9 836	6 079	10 548
Schools	6 742	6 226	5 388	4 396	4 712	4 923	6 877	4 144	6 917
Waterpoints	9 258	7 494	8 115	5 713	6 859	6 254	9 624	6 845	11 294
Markets	173	374	315	408	315	236	418	285	608
Tea shops/ Restaurants	1 497	3 156	3 555	3 269	3 966	3 944	6 877	5 760	11 261
Health Establishments	94	149	173	171	264	150	287	122	439
Public offices	165	414	590	709	535	502	794	381	1 202
Type of search	Full search	Full search	Full search	Limited search	Limited search	Limited search	Full search	Limited search	Full search

TABLE 2. SEARCH FINDINGS: RASH-WITH-FEVER CASES, SOMALIA, JAN. - SEPT. 1978

Number of rumours	Jan.	Feb.	March	April	May	June	July	August	Sept.
Reported	1 313	1 022	1 050	1 107	1 592	1 718	2 425	1 949	2 314
Investigated	1 146	1 018	897	1 043	1 413	1 625	2 303	1 942	2 304
Percentage	87	99	85	94	89	94	95	99	99
Rumours verified to be:									
Smallpox	0	0	0	0	0	0	0	0	0
Chickenpox	359	303	387	286	341	291	363	357	483
Measles	101	94	230	318	579	671	878	682	836
Others ^a	852	609	402	502	638	756	1 139	903	985

^a Others - other skin diseases.

* All figures given in the report are preliminary and subject to confirmation.

TABLE 3. SUSPECTED SMALLPOX CASES - SOMALIA 1978

Region	District	Patient initials	Sex	Age	Report	Date Rash	Vaccin. status	Sample Coll.	Contmnt. Started	Final Diagnosis
1 M. Juba	Jelib	A.I.A.	M	24	16/2	6/2	<u>a</u>	15/2	21/2	Secondary syphilis
2 Hargeisa	Dhagahbur	S.M.M.	F	14	25/2	11/2	<u>a</u>	22/2	25/2	Chickenpox
3 Togdheer	Buhodle	D.M.Y.	F	6	2/3	28/2	1978	2/3	no	Camelpox susp.
4 Bakool	Hudur	F.I.A.	F	28	5/3	2/2	1977	no	5/3	Chickenpox
5 Bakool	Hudur	F.I.M.	F	3	5/3	17/1	1977	no	5/3	Chickenpox
6 Bakool	Hudur	A.A.M.	F	10	5/3	25/2	<u>a</u>	no	5/3	Chickenpox
7 L. Juba	Afmadu	A.A.X.	M	15	18/3	11/3	no vaccin.	no	no	Fungus infect.
8 M. Shabelli	Jowhar	M.A.A.	M	13	25/3	2/1	1977	no	no	Chickenpox
9 M. Shabelli	Jowhar	M.A.A.	F	26	25/3	20/1	<u>a</u>	no	no	Chickenpox
10 M. Shabelli	Jowhar	A.A.	M	11	25/3	25/1	<u>a</u>	no	no	Chickenpox
11 M. Shabelli	Jowhar	H.A.	F	3	25/3	30/1	<u>a</u>	no	no	Chickenpox
12 Gedo	Bardhere		M	36	6/4	21/3	1977	31/3	yes	Chickenpox
13 M. Juba	Sakow	C.M.H.	M	60	16/4	12/4	16/4	17/4	16/4	Chickenpox
14 Bakool	Yet	A.A.A.	F	55	21/5	7/4	1978	25/4	yes	Molluscum contagiosum
15 Galbeed	Hargeisa	I.J.A.	F	30	10/6	15/5	<u>a</u>	12/6	12/6	Secondary syphilis
16 L. Shabelli	Merca	A.A.A.	M	3	12/9	6/7	12/7	12/7	12/9	Vaccinia
17 Bari	Iskushuban	A.M.A.	F	45	16/9	7/9	1975	no	no	Drug rash

^a Challenge vaccination positive.

TABLE 4. PUBLIC AWARENESS OF SMALLPOX PROGRAMME ACTIVITIES
 JAN. - SEPT. 1978 - SOMALIA

Distribution of districts by:

a. percentage of assessed population who had seen a smallpox searcher

Percentage	Number of Districts		
	1st Quarter	2nd Quarter	3rd Quarter
0-20	0	0	1
20-39	0	4	0
40-59	7	9	12
60-79	25	35	34
80-100	33	20	21
Total districts assessed	65	68	68

b. percentage of assessed population who knew about the 200 Sh. reward

Percentage	Number of Districts		
	1st Quarter	2nd Quarter	3rd Quarter
0-20	0	0	0
20-39	1	4	0
40-59	11	11	17
60-79	30	37	35
80-100	23	16	16
Total districts assessed	65	68	68

c. percentage of assessed population who had seen the smallpox recognition card

Percentage	Number of districts		
	1st Quarter	2nd Quarter	3rd Quarter
0-20	0	0	0
20-39	1	4	0
40-59	8	7	14
60-79	31	34	28
80-100	25	23	26
Total districts assessed	65	68	68

d. percentage of assessed population who knew where to report a smallpox case

Percentage	Number of districts		
	1st Quarter	2nd Quarter	3rd Quarter
0-20	0	2	0
20-39	3	7	3
40-59	15	13	21
60-79	32	38	35
80-100	15	8	9
Total districts assessed	65	68	68

TABLE 5. SPECIMENS SUBMITTED FOR LABORATORY TESTING 1977-1978

Year	Month	Total no. of specimens collected	Variola Virus detected	
			Number	Percentage
1977	January	23	8	34.7
	February	11	0	-
	March	5	0	-
	April	86	51	59.3
	May	53	29	54.7
	June	77	51	66.2
	July	81	43	53.1
	August	123	52	42.3
	September	138	26	18.8
	October	105	8	7.6
	November	139	0	-
	December	96	0	-
	Total 1977	937	268	28.6
1978	January	103	0	-
	February	117	0	-
	March	117	0	-
	April	121	0	-
	May	111	0	-
	June	98	0	-
	July	178	0	-
	August	150	0	-
	September	213	0	-

FIG. 1: CALENDAR OF SEARCH AND SURVEILLANCE ACTIVITIES, 1978

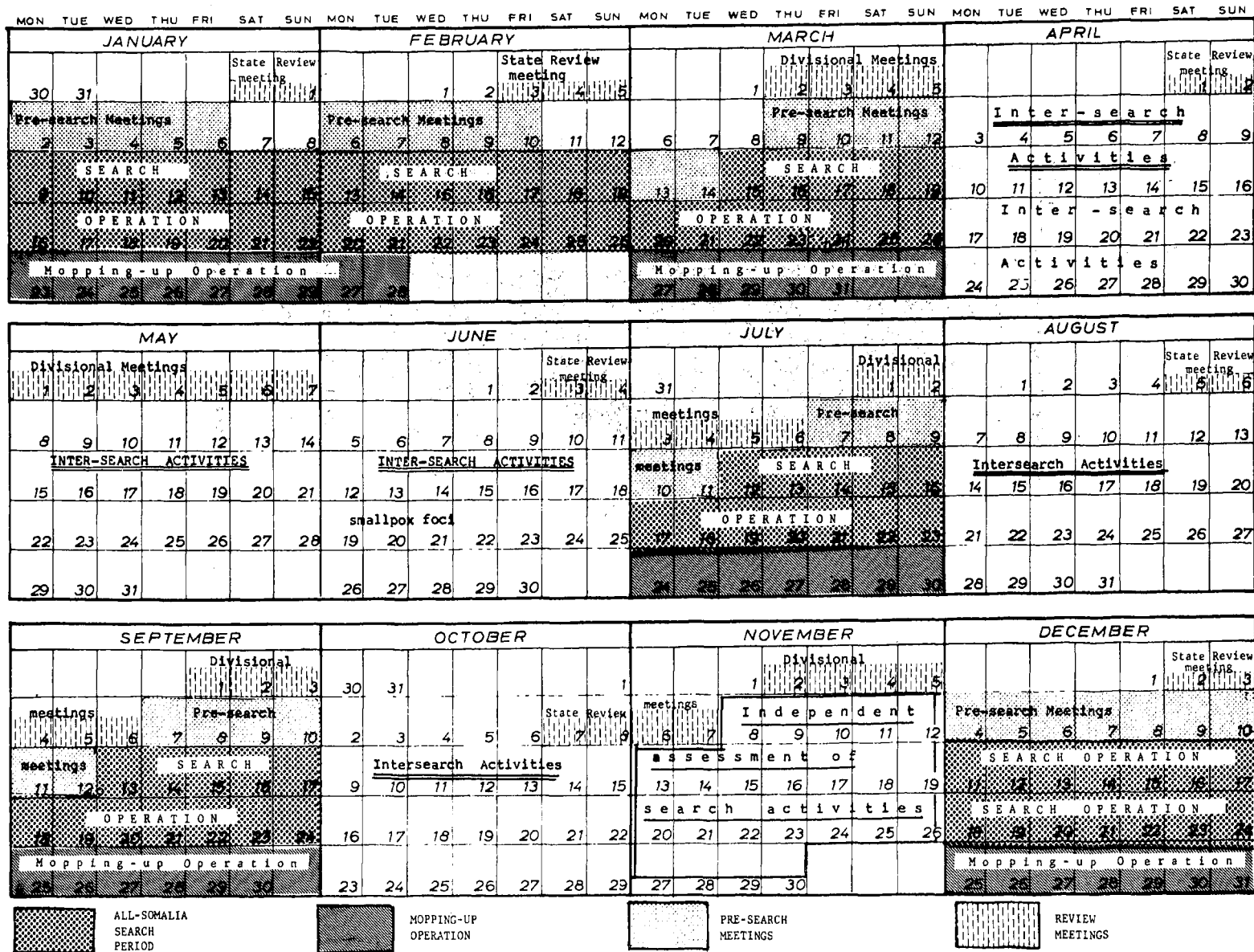


FIG. 2: FREQUENCY OF SEARCH OPERATIONS BY REGION

Month \ Region	1977						1978								
	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.
Bakool	S	S													
Bari															
Bay	S	S	S												
W. Galbeed															
Galgadud															
Gedo	S	S	S	S											
Hiran	S	S													
L. Juba	S														
M. Juba	S	S	S												
Mogadishu	S														
Mudug															
Nugal															
Sanaag															
I. Shabelli	S	S	S	S											
M. Shabelli	S	S													
Togdheer		S													
Total districts searched	49	58	49	46	42	45	50	63	66	67	67	69	70	70	71
Percentage	70	82	70	66	60	64	71	90	94	96	96	99	100	100	100




 Completely searched
  Partially searched
  Pending Smallpox cases

FIG. 3: REGIONAL AND DISTRICT 'ZEROPOX' OFFICES
STATUS AS AT 1st OCTOBER 1978

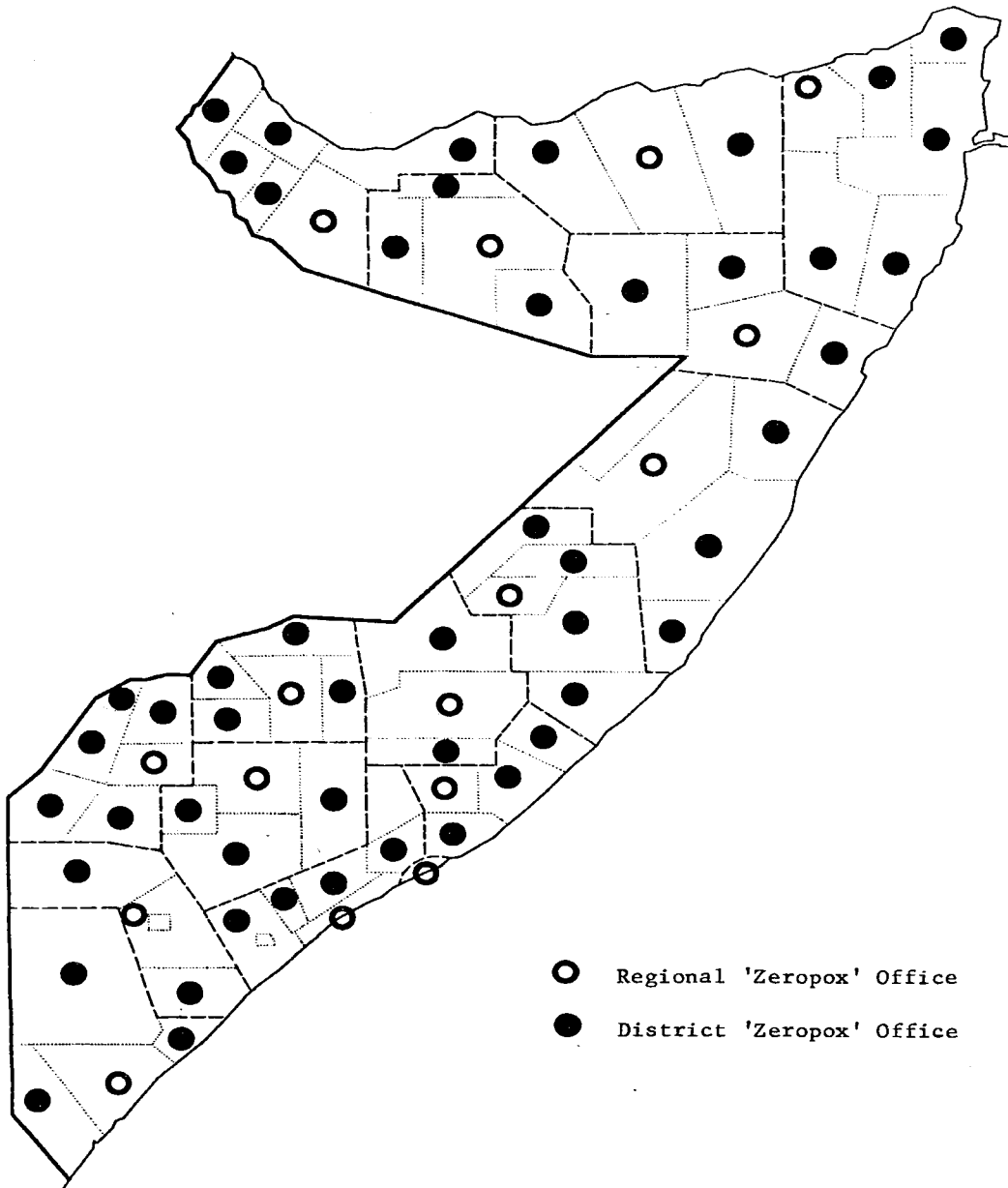


FIG. 4: STAFF INVOLVED IN SURVEILLANCE ACTIVITIES - SOMALIA 1977/1978

