PN-ABT-873
92781

STATUS OF RODENT POPULATIONS IN CHAD, SEPTEMBER 1993

Richard A. Dolbeer
Denver Wildlife Research Center
October 1993

This work was conducted with funds contributed to the U.S. Department of Agriculture (USDA/APHIS/ADC/DWRC) by the U.S. Department of State, Agency for International Development under the "Africa Emergency Locust/Grasshopper Assistance Project", PASA AFR-0517-P-AG-9042-01.

TRIP REPORT*

STATUS OF RODENT POPULATIONS IN CHAD, SEPTEMBER 1993

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Unpublished Report

6 October 1993

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STATUS OF RODENT POPULATIONS IN CHAD, SEPTEMBER 1993

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INTRODUCTION AND OBJECTIVES

The Chad Rodent Control Research Project was initiated by the Denver Wildlife Research Center in October 1989. Field and laboratory work on rodents in the Sahel region was carried out until December 1992 when the project was completed. All project equipment and supplies, including the project vehicle, were turned over to the Ministry of Agriculture (Ministere de L'Agriculture), Department of Plant Protection (Direction de la Protection des Vegetaux [DPV]) at this time. Brooks (1993) compiled a final report summarizing the findings and accomplishments of the project.

Because rodent populations in the Sahel region of Africa increase periodically to plague levels (the last eruption being in 1986-87), it is important that populations be monitored on an annual basis. Such monitoring can provide the baseline data needed to predict outbreaks and to prepare for timely control measures when such outbreaks are imminent. In addition, evaluations of various monitoring techniques are still needed to refine our methods for monitoring rodent population trends. Thus, the objectives of my trip in September 1993 were to 1) conduct field work with DPV personnel to monitor rodent populations at previously used study sites and 2) determine the status of rodent research and control work being carried out by the DPV since December 1992. My trip itinerary is presented in Appendix A.

RESULTS

Field Research-N'Gouri

Field work was conducted near N'Gouri, about 200 km from N'Djamena on the NE side of Lake Chad, from 14-19 September. We conducted trapping in six wadis (interdune depressions or oases where hand irrigation from shallow wells is used to grow grain and vegetable crops). We also counted lesser hairy-footed gerbil (*Gerbillus gerbillus*) burrows on transects and trapped on four dune areas surrounding the wadis where dryland cultivation of millet is undertaken. Finally, we conducted nighttime censuses of Egyptian jerboa (*Jaculus jaculus*) populations along roadsides.

Wadi Trapping--The six wadis selected for trapping were within 5 km of N'Gouri. All were oval shaped, about 150 to 250 m long by 100 to 150 m wide, and surrounded by thorn fences 0.5 to 1 m high and 0.5 to 1.5 m wide. In each wadi, 50 stations for trapping rodents were established at 10-m intervals along a 500-m section of the thorn fence (generally about 75% to 100% of the total length of the fence was covered). We placed a rat snap trap at each of the 50 stations in all six wadis and in three of the six wadis we also placed a live trap at alternate stations (25 live traps/wadi). We placed traps in rodent runways whenever possible. Snap traps were baited with peanut butter coated with millet grains. Live traps (equal numbers of Tomahawk and Japanese) were baited with fresh sections of maize on the cob. Five of the wadis were trapped for 2 nights and one wadi for 1 night. Traps were checked

at least every morning between 0630 and 0900 and, whenever possible, again in the afternoon between 1600 and 1800.

All rodents captured were identified to species and sex. Females were examined for signs of lactation and were autopsied to determine reproductive status. Males were classified as sexually mature (enlarged testes) or sexually inactive (inconspicuous testes). Traps that were sprung without a capture were noted.

A total of 199 rodents was trapped in the six wadis in 968 trap sets for an overall trap success rate of 20.6%. Overall species composition was unstriped grass rat (Arvicanthis niloticus) (40%), robust gerbil (Tatera robusta) (34%), slender gerbil (Taterillus sp.) (21%), multimammate rat (Mastomys nataiensis) (5%) and ground squirrel (Xerus erythropus) (<1%) (Table 1).

Trap success was similar ($P = 0.40$) for live traps (18.5%) and snap traps (21.0%) but species composition derived from the two trapping methods was different ($P < 0.01$). Arvicanthis niloticus was captured twice as frequently in live traps as in snap traps and Taterillus sp. was captured 5 times more frequently in snap traps than in live traps (Table 2).

Daytime and nighttime trapping also yielded different species compositions of rodents. During daytime trapping, only Arvicanthis niloticus (30) and Xerus erythropus (1) were captured whereas Tatera robusta was the most commonly captured rodent (65 out of 138 total captures) at night (Table 3).

Rodent populations have obviously increased in the wadis above levels recorded during 1990-1992. Brooks (1993) reported a total of 677 rodents captured in wadis during 26 field trips from October 1989 to December 1992 compared to 199 captured during our 1 visit. Our trapping success in the wadis in September 1993 was higher than at any time since the initial trapping done in October 1989. Reproductive data also suggest an expanding population (see section below).

Dune Monitoring and Trapping Activities--We walked a total of 13 transects (250 m x 4 m) on four dunes to census active burrows of Gerbillus gerbillus. Active burrows had fresh, excavated sand. These counts indicated a mean of 188 active burrows/ha, ranging from 150 burrows/ha at the two Boholi Dunes to 263 burrows/ha at Kaya Dune (Table 4). Brooks (1993) projected a mean of 725 burrows/ha for the dune areas in December 1992 based on 15 transects walked at that time.

We placed two mouse snap traps within 0.5 m of each of 25 active rodent burrows (determined by fresh, excavated sand) in each of three dune areas. Traps, baited with peanut butter and millet as in the wadis, were placed at 1730 and checked the following morning at 0630. In 150 trap nights at 75 burrows, we captured 37 Gerbillus gerbillus. Thus, we had a trap success rate of 25% and capture success at 50% of the burrows (Table 4). Capture success at burrows was higher than the ≤29% recorded in September-December 1992 (Dolbeer 1992, McConnell 1992, Brooks 1992, Brooks 1993).

Roadside Census--We conducted two roadside censuses by vehicle at night near N'Gouri to count rodents. Surprisingly, although no *Jaculus jaculus* was captured in snap traps in dunes or wadis, this species was commonly seen at night along the road, averaging 7.1 individuals/km (Table 5). This indicates an increase from the 0.5-4.0 individuals/km counted in September-December 1992 in the same area (Dolbeer 1992, Brooks 1993). *Jaculus jaculus* appeared to be most common in areas of sparse vegetation such as where millet fields were adjacent to the road.

Field Research-Guite and Beltram (Karal Area)

We set snap traps overnight on the SE side of Lake Chad at Guite on 21 September and at Beltram on 22 September. We used the same brush, fallow and agricultural sites as used by McConnell (1992) in November 1992. Overall, we caught 26 rodents in 250 trap sets for a success rate of 10.4% (Table 6). Our success rate was similar to McConnell's for Beltram but considerably lower than that obtained by McConnell at Guite (64% in 1992). However, when McConnell trapped at Guite in November 1992, Lake Chad had risen almost to the village and rodents were concentrated at the trapping sites next to the rising water. Lake Chad was rising but still about 1 km from these sites in September 1993. Species composition of our catch in 1993 was *Mastomys natalensis* (50%), *Taterillus* sp. (38%), *Tatera robusta* (8%), and *Mus* sp. (4%).

Field Research-Gassi Seed Farm

We set 99 rat snap traps in fallow and brush areas at Gassi Seed Farm 15 km east of N'Djamena on 24 September 1993 and captured three *Mastomys natalensis* and five shrews (*Crocidura flavescens*) (Table 7). This is similar to the trap success recorded by Dolbeer (1992) at this site in September 1992.

Sex Ratio and Reproductive Status of Captured Rodents

Of the 265 rodents captured, only eight were juveniles. The sex ratio of adults was skewed ($P \leq 0.05$) toward females for *Arvicanthis niloticus* and *Taterillus* sp. and was not different ($P > 0.05$) from the expected 1:1 ratio for the other species (Table 8).

For all species, $\geq$ 80% of adult females captured were either pregnant or lactating (Table 9). Mean litter sizes were significantly larger ($P < 0.01$) than those recorded in 1990-92 (Brooks 1993) for *Arvicanthis niloticus* and *Mastomys natalensis* (Table 9), indicating excellent conditions for these populations in 1993. *Mastomys natalensis* had a mean litter size of 15.3 with one female captured at Gassi containing 20 embryos.

Bird Damage

Similar to what I observed in September 1992 (Dolbeer 1992), there was considerable bird activity in and around many of the upland (dune) millet fields which were beginning to ripen in mid-September. Golden sparrows (*Passer luteus*) were common in the area, often seen in millet fields and in nesting colonies in thorn trees. Other finch-like birds were also present in

the millet, including Quelea quelea, but our impression was that Passer luteus was the most common bird. No nesting colonies of Quelea were noted. In spite of the bird activity, virtually no bird damage was noted in five millet fields that I walked through on the dunes. Perhaps bird damage occurs later as the crop reaches final maturity. Bird damage was obviously of concern to farmers because most fields had some type of scarecrow or flagging to frighten birds. The DPV expressed interest in setting up a research/demonstration program to use mist nets to capture these seed-eating birds in millet fields, not only to reduce damage but to use these birds as a food source.

Another bird problem noted was a severe aviation hazard at the N'Djamena Airport caused by large flocks of cattle egrets (Ardeola ibis) and lesser flocks of other species including wood ibises (Ibis ibis). These birds commonly fly over the airport and congregate on the ground and in shrubs near the runways. In the hour before sunset on 25 and 26 September, I counted an average of 17 cattle egrets and four wood ibises per minute flying over the outside bar at the Novotel Hotel from the direction of the airport (1 km away). The French military has lost at least two aircraft because of bird strikes in the N'Djamena area in the past year (A. Mackie, USAID, Pers. commun.).

Status of DPV Rodent Research Program

Overall, the DPV has done an excellent job of maintaining the vehicle and equipment since the project was turned over to them in December 1992. The DPV has moved to new facilities at Farcha Laboratory in N'Djamena that provide excellent laboratory space for rodent work. I found their personnel to be well trained and eager to continue with a rodent research and control program to protect agricultural crops in Chad. To this end the DPV has proposed a 3-year project costing about 15,000,000 CFA ($50,000)/year (Appendix B). Funding to date has not been forthcoming from the Ministry of Agriculture, and the USAID Representative in Chad informed me on 23 September that no Mission funds would be available. It is certain that rodent populations will erupt again in the Sahel region, probably within the next few years, causing a major impact on agricultural production. Thus, an active program needs to be in place. I recommend that the International and Special Programs Unit at Denver Wildlife Research Center attempt to secure funding for the DPV (including funds for a once-a-year consultancy by DWRC biologists to monitor the program) so that the rodent work can continue and investments made to date will not be completely lost. At a minimum, a rodent monitoring program should be conducted each year in September.

Acknowledgements

I thank the Ministry of Agriculture for the support which made this trip possible. I especially note the support of Mr. Mahamet N'Garet, Director of DPV, for providing a vehicle, driver, technician, and field supplies. I acknowledge Dr. Idriss Allfarouk, Director of the Laboratory of Farcha, for providing a 2-week leave of absence for Dr. Maho Angaya to assist us in the field work. Dr. Angaya, DPV Technician Djibo Koulanger, and driver Mahamet Adoam all did outstanding jobs in the field. Working with these three people was a rewarding and pleasurable experience during a challenging assignment. I

also note the excellent assistance provided to us by Oumar Maddu, who served as our guide and helper at N'Gouri.

I appreciate the cooperation, assistance and interest in the project by the AID Representative, Anne Williams and her assistant, Richard Fraenkel. I appreciate the assistance provided by Anita Mackie, GDO/AG Officer and by Dezoumbe Djonret, Assistant to the GDO/AG at USAID. A special thanks goes to Darrel Plowes for his kind hospitality.

The kindness of the Sous-Prefecture at N'Gouri, Suliman Mahamet, is acknowledged as is the hospitality of Abdoulaye Adamy, Sodelac de N'Gouri for use of their facilities, without which much of the field work would have been very difficult. The same thanks go to the Association de Groupements pour le Development Rural Mani-Karal (AGDERUMKA) for the use of their facilities in Karal. The hospitality and friendliness of these people helped ease the conditions of field work in the bush.

Persons Contacted

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LITERATURE CITED

Brooks, J. E. 1993. Chad Rodent Control Research Project: Final Report (October 1989-December 1992). U.S. Dept. of Agric., Denver Wildlife Research Center, Denver, Colorado 80225, USA. 28pp.

Brooks, J. E. 1992. Chad Rodent Control Research and Closeout of the Project. Unpublished trip report (27 Nov-19 Dec), U.S. Dept. of Agric., Denver Wildlife Research Center, Denver, Colorado 80225, USA. 24pp.

Dolbeer, R. A. 1992. Rodent Control Training and Rodenticide Field Trials in Chad. Unpublished trip report (26 Aug-27 Sep), U.S. Dept. of Agric., Denver Wildlife Research Center, Sandusky, Ohio 44870, USA. 20pp.

McConnell, J. E. 1992. Chad Rodent Research and Rodenticide Field Trials. Unpublished trip report (11 Oct-11 Nov), U.S. Dept. of Agric., Denver Wildlife Research Center, Denver, Colorado 80225, USA. 18pp.

Table 1. Rodents captured in live and snap traps in six wadis near N'Gouri, Chad, 16-19 September 1993.

Wadi	No. of trap sets[a]	No. of traps sprung or lost[b]	No. (% of total) rodents captured				
			Tatera robusta	*Arvicanthis niloticus*	*Taterillus* sp.	*Mastomys natalensis*	Total
Guinie	224	19	28	27	5	1	61
Kaya	99	13	8	3	8	2	21
Tomasi	216	12	8	13	4	3	28
Tomasi-2	217	20	11	24	5	1	41
Kaya-2	114	12	0	10	17	3	31[c]
Isakandori	98	8	13	2	2	0	17
Total	968	84	68 (34)	79 (40)	41 (21)	10 (5)	199[d]

[a] See footnotes for Table 2 for definition of trap set.

[b] Traps sprung without capturing rodent or lost during interval between setting and hecking.

[c] One ground squirrel (*Xerus erythropus*) also was captured in a snap trap in Kaya-2 nd is included in totals.

[d] Three shrews (*Crocidura flavescens*) were also captured (not included in totals).

Table 2. Rodents captured in six wadis near N'Gouri, Chad, 16–19 September 1993, compared by method of trapping and time of day.

Type of trap	Time of trapping	No. of trap sets	Traps sprung or lost	No. (% of total) rodents captured				
				Tatera robusta	*Arvicanthis niloticus*	*Taterillus* sp.	*Mastomys natalensis*	Total
Snap	Night[a]	412	41	53 (49)	24 (22)	28 (26)	4 (4)	109
Snap	Day[b]	214	18	0 (0)	19 (100)	0 (0)	0 (0)	19
Snap	24 hr[c]	126	18	3 (10)	10 (33)	11 (37)	6 (20)	30
Total Snap		752	77	56 (35)	53 (34)	39 (25)	10 (6)	159[d,e]
Live	Night[a]	121	4	12 (41)	15 (52)	2 (7)	0 (0)	29
Live	Day[b]	72	1	0 (0)	11 (100)	0 (0)	0 (0)	11
Live	24 hr[c]	23	2	0	0	0	0	0
Total Live		216	7	12 (30)	26 (65)	2 (5)	0 (0)	40[e]
Grand Total		968	84	68 (34)	79 (40)	41 (21)	10 (5)	199

[a] Traps set in late afternoon (1600–1800 hr) and checked the next morning (0630–0900 hr).

[b] Traps set in morning (0630–0900 hr) and checked the same afternoon (1600–1800 hr).

[c] Traps set for 24-hr period.

[d] One ground squirrel (*Xerus erythropus*) also was captured and is included in totals.

[e] The proportion of snap and live trap sets capturing a rodent was not different (X^2 = 0.71, 1 df, P = 0.40); the species composition derived from snap and live traps was different (X^2 = 16.60, 3 df, P < 0.01).

Table 3. Comparison of trap success for night trapping and day trapping in wadis near N'Gouri, Chad, 16-19 September 1993.

Type of trap	Time of trapping	No. of trap sets	No. of rodents captured				
			Tatera robusta	*Arvicanthis niloticus*	*Taterillus* sp.	*Mastomys natalensis*	Total
Snap	Night	412	53	24	28	4	109
Live	Night	121	12	15	2	0	29
Total	Night[a]	533	65	39	30	4	138
Snap	Day	214	0	19	0	0	19
Live	Day	72	0	11	0	0	11
Total	Day[b]	286	0	30	0	0	30

[a] Traps set in late afternoon (1600-1800 hr) and checked the next morning (0630-0900 hr).

[b] Traps set in morning (0630-0900 hr) and checked the same afternoon (1600-1800 hr).

Table 4. Counts of active burrows of *Gerbillus gerbillus* on 250-m x 4-m transects on dune areas near N'Gouri, Chad and number of *Gerbillus gerbillus* captured in snap traps set at burrows, 15-18 September 1993.

Dune location	No. of transects	Burrows/ transect		Projected no. of burrows/ hectare		No. of burrows at which traps[a] set	No. of *Gerbillus* captured	% of burrows with capture
		$\bar{x}$	SD	$\bar{x}$	SD			
Kaya	4	26.3	8.0	263	80	25	15	60
Boholi 1	4	15.0	6.3	150	63			
JEB	3	16.7	1.2	167	12	25	13	52
Boholi 2	2	15.0	0	150	0	25	9	36
Total	13	18.8	7.3	188	73	75	37	49

[a] Two mouse snap traps were set within 0.5 m of burrow.

Table 5. Number of *Jaculus jaculus* counted from the vehicle on two stretches of road driven after dark near N'Gouri, Chad, 1993.

Date	Time of census	Sky condition	Distance (km) driven	No. of *Jaculus jaculus* counted	Mean no./km
15 September	1930-2000	Clear, no moon	5	40[a]	8.0
16 September	1915-1945	Clear, no moon	5	31	6.2
Total			10	71	7.1

[a] One *Gerbillus gerbillus* was also seen.

Table 6. Rodents captured in snap traps* in areas near Guite and Beltram, Chad, 21-22 September 1993.

Location	Habitat	No. of trap sets	Traps sprung or lost	No. (% of total) rodents captured				
				Taterillus sp.	*Mastomys natalensis*	*Tatera robusta*	*Mus* sp.	Total
Guite	Brush-flood plain	50	1	0	1	2	0	3
Guite	Fallow next to cultivated in flood plain	50	8	0	7	0	0	7
Beltram	Millet field in dunes	100	15	5	0	0	1	6
Beltram	Millet-flood plain	25	0	0	0	0	0	0
Beltram	Fallow-flood	25	0	5	5	0	0	10
Total		250	24	10 (38)	13 (50)	2 (8)	1 (4)	26

* Large (rat) snap traps were used in all locations except the Beltram millet field in the dunes where 50% of the traps were small (mouse) snap traps. Traps were set at 1600-1800 hr and checked the following morning at 0700-0900 hr.

Table 7. Rodents and shrews captured in rat snap traps in fallow and brush areas at Gassi Seed Farm near N'Djamena, Chad, 24 September 1993.

No. of trap sets[a]	Traps sprung or lost	*Mastomys natalensis*	*Crocidura flavescens*
99	12	3	5

[a] Traps set at 1500 hr and checked the following morning at 0700 hr.

Table 8. Sex of adult rodents and shrews captured in Chad, 15-24 September 1994.

Location	*Tatera robusta*		*Arvicanthis niloticus*		*Taterillus* sp.		*Mastomys natalensis*		*Gerbillus gerbillus*		*Crocidura flavescens*	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Wadis (N'Gouri)	40	26	26	49	15	25	7	3			1	2
Dunes (N'Gouri)									13	23		
Guite	0	2					5	3				
Beltram					3	7	3	2				
Gassi							1	2			0	4
Total	40	28	26[a]	49[a]	18[b]	32[b]	16	10	13	23	1	6

[a] Different ($P<0.01$) than expected ratio of 1:1 ($X^2 = 7.05$, 1 df).

[b] Different ($P = 0.05$) than expected ratio of 1:1 ($X^2 = 3.92$, 1 df).

Table 9. Reproductive status of female rodents and shrews captured and examined at N'Gouri, Karal and Gassi, Chad, 15-24 September 1993.

Species	Adults pregnant				No. of adults lactating	Adults not pregnant or lactating	No. of juveniles	Total females examined
	N	Litter size						
		$\bar{x}$	SD	(Range)				
Arvicanthis niloticus	38	9.5[a]	2.5	(6-15)	10	1	0	39
Tatera robusta	9	5.1	1.2	(4-7)	11	5	0	25
Taterillus sp.	8	6.3	1.0	(4-7)	18	3	2	31
Mastomys natalensis	8	15.3[b]	2.6	(12-20)	1	0	1	10
Gerbillus gerbillus	7	4.9	1.6	(3-7)	4	0	2	13
Crocidura flavescens	5	4.4	1.1	(3-6)	0	1	0	6

[a] Significantly (t = 3.91, 69 df, $P < 0.01$) greater than the mean litter size of 6.9 ± 3.1 reported for Chad in 1990-1992 (Brooks 1993).

[b] Significantly (t = 3.36, 15 df, $P < 0.01$) greater than the mean litter size of 9.3 ± 4.4 reported for Chad in 1990-1992 (Brooks 1993).

Appendix A. Trip itinerary for Richard A. Dolbeer, 1993.

Dates	Locations	Activity
6-7 September	Sandusky, OH to N'Djamena, Chad	Travel via Cleveland, Washington, DC and Paris
7-12 September	N'Djamena, Chad	Briefed AID and DPV personnel on objectives, organized and prepared vehicle, equipment and personnel for field studies
13-19 September	N'Gouri area	Field studies trapping rodents in wadis and dunes, burrow censuses, roadside censuses
19-22 September	Karal-Guite area	Field studies trapping rodents in dune and flood plain agriculture areas
23-24 September	N'Djamena, Gassi Seed Farm	Debriefing with AID Rep and DPV Director, seminar presentation to AID and DPV personnel, field studies trapping rodents at Gassi
25-27 September	N'Djamena	Data analysis, report writing
27-28 September	N'Djamena to Sandusky, OH	Travel via Paris, Washington, DC and Cleveland

Appendix B.

RODENT RESEARCH

AND

MONITORING PROJECT

PROPOSED
BY
CHADIAN MINISTRY OF AGRICULTURE
DEPARTMENT OF PLANT PROTECTION

REPUBLIQUE DU TCHAD

UNITE - TRAVAIL - PROGRES

MINISTERE DE L'AGRICULTURE ET
DE L'ENVIRONNEMENT

DIRECTION GENERALE

DIRECTION DE LA PROTECTION DES VEGETAUX
ET DU CONDITIONNEMENT

PROJET DE FORMATION ET DU SUIVI DE LA POPULATION DES RONGEURS AU TCHAD

COUT 45.598.220 FCFA

DUREE 3 ANS

NDJAMENA, 1993

INTRODUCTION

La grande région sahelienne d'Afrique est une large bande s'étendant à travers le continent juste au Sud du Sahara. Elle represente 20% de l'Afrique et comprend 9 nations qui sont de l'Ouest à l'Est la Mauritanie, le Sénégal, le Mali, le Burkina-Faso, le Niger, le Nigeria, le Tchad, le Soudan et l'Ethiopie. Cette bande était au début une zone de production, mais compte tenu des sécheresses et les attaques des déprédateurs, elle devient déficitaire en vivres. Les rongeurs sont l'un des causes bien que souvent leur pullulation est sporadique. Les années 1962, 1977 et 1986-87 ont connu une forte pullulation et les attaques étaient sevères reduisant ainsi la production alimentaire.

A cause de l'étendue significative des domages infligés aux cultures résultant de la population de rongeurs au sahel, une coopération avait été initiée entre le Ministère de l'Agriculture du Tchad, USAID/ADO et USDA/APHIS/S&T/DWRC avec un financement du Bureau Africa/AID sous AELGA. C'est ainsi que le projet de recherche sur les rongeurs était initié en Octobre 1989 et a pour buts:

- le developpement sain, efficace, économique et acceptable de mesures de contrôle de rongeurs pour protèger les cultures vivrières et amèliorer la sécurité alimentaire;

- fournir au Tchad de grandes lignes de stratégie de contrôle des rongeurs.

Le projet rongeur a pris fin en Décembre 1992 après 3 ans de fonctionnement. L'USAID a remis a la Direction de la Protection des Végétaux (DPVC) tous les matériels de recherche pour la continuité des travaux.

Le présent projet de formation et de suivi de la population des rongeurs dont le plan et le dévis sont ci-dessous permettra à la DPVC de poursuivre la recherche sur les rongeurs.

OBJECTIF

Au cours des périodes de recherche sur le terrain d'Août 1989 à Décembre 1991 à Ngouri et d'Août 1990 à Décembre 1991 à Karal et surtout la période d'Août à Novembre 1992, selon Joe Broders, 1992, on remarque qu'il y a une augmentation de la population. Cela nécessite donc une surveillance encore plus rigoureuse. Malheureusement, le Projet doit cesser ses activités en Décembre 1992.

Ainsi compte tenu de ses resultats montrant l'augmentation sensible de la population des rongeurs dans les sites de recherche, le Ministère de l'Agriculture est obligé de continuer les travaux de terrain pour cerner les populations de rongeurs non seulement dans les anciens sites mais aussi dans d'autres régions qui ont fait l'objet des attaques en 1987.

Cette surveillance permettra à la DPVC de prévenir les erruptions de populations de rongeurs et de limiter les dégâts. En même temps, la surveillance dans les autres zones permettra de connaître les espèces nuisibles.

Cette surveillance se fera selon un plan de travail, ci-dessous cité.

I. PLAN DE TRAVAIL

1.1. AU NIVEAU DES BASES

a) Formation des Chefs de Bases

Tous les chefs de bases des zones exposées ou ayant fait l'objet d'attaque en 1987 seront formés dans le domaine de techniques de piégeages et de préparation des spécimens. La formation pourra être assurée par 3 ou 4 cadres de la DPVC. pendant 6 à 8 Jours. Elle se deroulera:

1. au début de la 1ère campagne;
2. au début de la 2ème campagne (deux ans)

b) Distribution des pièges

200 à 400 pièges seront ensuite distribués à chaque chef de base qui pourra piéger 2 à 5 jours par mois dans sa zone.

1.2. EQUIPE DE NDJAMENA

Le spécialiste dans le domaine de rongeurs, renforcé par d'autres agents, auront pour tâche :

a) Travail de laboratoire

- analyse des données collectées
- préparation du matériel de lutte
- autres travaux

b) Surveillance générale de la population

Cette équipe effectuera une fois tous les deux mois une sortie dans les différentes bases pour collecter les données et vérifier les piégeages effectués par les chefs de bases. Elle procédera à un piègeage maximum de 3 jours pour vérifier les techniques utilisées par les chefs de bases de différentes zones sensibles. Les espèces inconnues ou nouvelles seront ramenées au laboratoire en vue de leur identification ultérieure.

c) Surveillance spéciale

L'équipe de N'Djaména effectuera presque chaque mois le piégeage dans les anciens sites de Karal et Ngouri afin de comparer l'évolution de la population de ces zones avec les autres. La durée de voyage n'excédera pas 5 jours (avec 3 jours à Ngouri et 2 jours à Karal). Des piégeages se feront dans les lieux habituels : sur les dunes et dans les ouadis à Ngouri, dans les cultures de décrue à Karal.

Les différentes méthodes de piègeage seront utilisées : Carreaux de marqueurs, piéges à jarres, tapettes, pièges à captures vivantes.

Les appâts utilisés tiendront compte des résultats de préférence alimentaire effectuée au laboratoire.
L'usage d'appât variera en fonction de l'écologie, habitat et l'espèce associée.

N.B : Au niveau de chaque base, l'usage d'appât sera fonction de l'espèce.

II. DETAIL DU PLAN DE JANVIER - DECEMBRE 1993

a) Formation et distribution de pièges Janvier 1993

- préparation et formation de chefs de bases dans le domaine de techniques de captures et méthodes de préparation des spécimens.
- Distribution des pièges aux chefs de bases.

b) Suivi de la population des rongeurs par l'équipe de N'Djaména

1er - 5 Février : piègeage à Ngouri et Karal
1er - 5 Mars : piègeage à Ngouri et Karal

1er - 15 Avril : contrôle général

* Deux ou trois bases peuvent être visités au cours de ce voyage .
* 1 à 3 jours de piègeage peuvent être effectuer pour vérifier et comparer les différentes méthodes et résultats

15 - 30 Avril : analyse et comparaison de différents résultats des zones
1er - 5 Mai : voyage à Ngouri et Karal
1er - 5 Juin : voyage à Ngouri et Karal

1er - 5 Juin :	voyage à Ngouri et Karal
1er - 15 Juillet :	- voyage de contrôle général - formation ou sensibilisation des paysans de chaque zone exposée - recherche et description des origines de dégâts agricoles (semences)
15 - 30 Juillet :	analyse et comparaison des résultats
1er - 5 Août :	voyage à Ngouri et Karal
1er - 5 Septembre :	voyage à Ngouri et Karal
1er - 15 Octobre :	- voyage de contrôle général - vérification et contrôle des données - recherche des origines des dégâts agricoles (récoltes)
15 - 30 Octobre :	analyse et comparaison des données
1er - 5 Novembre:	voyage à Ngouri et Karal
1er - 5 Décembre:	voyage à Ngouri et Karal
6 - 30 Décembre:	analyse des toutes les données

REMARQUES

Au cours de suivi de la population des rongeurs, des mésures de lutte pourront être envisagées en fonction des activités ou indice de la population.

III. COUT ESTIMATIF DE LA FORMATION

3.1. - Le transport des agents de leur base aux centres de formation sera assuré par le projet rongeur. Par ailleurs, il faudra prévoir du carburant, un véhicule avec un chauffeur pour effectuer les sorties sur le terrain, notamment à GASSI.

- Le nombre de jour sera de huit (8): 2 jours pour le voyage aller/retour des chefs de base; 6 jours pour la formation dont 3 jours de théorie et 3 jours de pratique.

3.2. PARTICIPANTS

- 10 chefs de base ou leurs adjoints
- 3 formateurs et 1 coordinateur

3.3. FRAIS DE FORMATION (Perdiems)

a) Participants 10 x 8 j x 5000 f/j x 2 ans..... 800.000 FCFA

b) Formateurs et Coordinateur
4 x 6 j x 7500 f/j x 2 ans..... 360.000

3.4. FOURNITURES

(Achat blocs notes, bics, rames, etc..pour 2 ans).. 500.000

3.5. APPAT 50.000

3.6. FRAIS DE TRANSPORT POUR 10 PARTICIPANTS.. 500.000

TOTAL FORMATION ..... 2.210.000 FCFA

IV. SUIVI DE LA POPULATION DES RONGEURS PROGRAMME POUR TROIS ANS

4.1. DANS LE CHARI BAGUIRMI

4.1.1. PERDIEMS

- Cadre. 5000 f/j x 2 agents x 90 j/an x 3 ans ..... 2.700.000 FCFA
- Chaufeurs 2500 f/j x 1 x 90 j/an x 3 ans 675.000

Total (perdiems)..... 3.375.000 FCFA

4.1.2. CARBURANT ET LUBRIFIANT

a)- Carburant

Le kilométrage N'Djaména - Karal - Ngouri plus sortie en brousse et N'Djaména (aller/retour) est d'environ 800 km pour une sortie

800km x 12 sorties/an x 270 f/L x 20 L/100km x 3 ans= 1.555.200 FCFA

b)- Lubrifiant - 10 % du carburant = ... 155.520

Total (carburant/lubrifiant) 1.710.720 FCFA

TOTAL (4.1.) ..... 5.085.720 FCFA

4.2. DANS LES NEUF BASES PHYTOSANITAIRES

4.2.1. PERDIEMS

Cadres 9 x 5000 f/j x 90 j x 3 ans..... 12.150.000
Chauffeurs 9 x 2500 f/j x 90 j x 3 ans 6.075.000

Total (perdiems pour les bases).....18.225.000 FCFA

4.2.2. CARBURANT ET LUBRIFIANT

a)- Carburant

Pour le suivi des rongeurs le chef de base ou son adjoint ne doit pas depasser plus de 750 km (aller/retour)

750 km x 12 x 9 bases x 270 f/L x 20 L/100 x 3ans.. 13.122.000 FCFA

b)- Lubrifiant = 10 % du carburant = 1.312.200

Total (carburant/lubrifiant pour les bases) = 14.432.200 FCFA

4.2.3. ACHAT APPAT POUR LES 9 BASES ET LA BASE DU CHARI BAGUIRMI

50.000 f/base x 10 bases x 3 ans..... 1.500.000 FCFA

Total (4.2.) ..... 34.157.200 FCFA

TOTAL (IV) ..... 39.242.920 FCFA

IMPREVUS ..... 4.145.292 FCFA

COUT FORMATION ET SUIVI DES RONGEURS 45.598.212 FCFA

R E C A P I T U L A T I F

NO	DESIGNATION	DUREE (3 ans)		
		1ère Année	2ème Année	3ème Année
1	FORMATION	1.105.000 fcfa	1.105.000 fcfa	----
2	SUIVI DES RONGEURS			
	- Perdiems	7.200.000 fcfa	7.200.000 fcfa	7.200.000 fcfa
	- Carburant/lubri.	5.380.975 fcfa	5.380.975 fcfa	5.380.975 fcfa
	- APPAT	500.000 fcfa	500.000 fcfa	500.000 fcfa
3	- IMPREVUS	1.381.765 fcfa	1.381.765 fcfa	1.381.765 FCFA
	TOTAL	15.567.740 FCFA	15.567.740 FCFA	14.462.740 FCFA
	COUT	45.598.220 FCFA		