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15N 92819

Trip Report*

**CHAD RODENT CONTROL RESEARCH
AND CLOSEOUT OF THE PROJECT**

November 27-December 19, 1992

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OBJECTIVES

The objectives of this TDY were to (1) take inventory and transfer Project equipment and supplies to the Chad Ministry of Agriculture (MOA), (2) prepare and submit a Project Assistance Completion Report to the U.S. Agency for International Development (USAID), and (3) complete any remaining field and laboratory work of the Project. All objectives were met.

ACTIVITIES

A Project Assistance Completion Report was prepared following USAID guidelines and submitted to AID/N'Djamena (Annex I). This brief document described the progress and status of the Project at the time scheduled for closure. Some lessons learned during the Project were included.

The Project equipment and supplies were inventoried on December 3-4, 1992 (listed in Annex II). The disposition of the items was recommended to USAID and the items marked "To the MOA" were turned over to the Director, Crop Protection, on December 17, 1992. The Director indicated a desire to continue the rodent research and control project as an arm of the Direction de la Protection des Vegetaux (DPV) in their new facility at Farcha. DWRC will be most interested in continuing to work with the DPV. The MOA/DPV submitted a workplan (Annex III) in French for continuing work on rodents. The Project vehicle was given to the MOA with the provision that it continue to be used exclusively for DPV rodent control research.

A field trip to N'Gouri and Karal was made to check on the status of rodent populations. At Karal we found normal rodent activity for this time of year. The unusually dense populations trapped by McConnell *et al.* (1992) were undoubtedly due to the rapid rising of Lake Chad and the concentration of rodents just in front of the advancing flood waters. We examined sweet potato fields; there was no evidence of rodent damage at the early growth stage. Burrows of *Tatera* were found, but they were not unusually abundant.

At N'Gouri the situation with the wadi rodent populations was also normal, but on the dunes there was ample evidence that *Gerbillus* populations were extremely abundant. Burrow mounds were found everywhere in previously cultivated millet fields as well as in noncultivated areas. The growth of grasses and weeds had been prolific, and their abundant seedfall led to prolonged breeding by the gerbils. We counted burrows on 1,000-m² (0.1 ha) transects on five dunes (Table 1) and found that the density averaged 725 *Gerbillus* burrows/ha.

Table 1. Mean numbers of *Gerbillus* burrows counted on 4- x 250-m transects on dunes near N'Gouri.

Dune	Transects counted	Mean No. burrows/transect
Oumar	3	65.0
JEB	3	75.7
Kiri Kala	4	71.0
Ghoural	3	70.7
Ygra	<u>2</u>	<u>85.0</u>
Total/Means	15	72.5

To test how many burrows were active, we set 100 snap traps each on three dunes. One team set one trap/burrow; a second team set two traps/burrow. Results indicated that one trap/burrow was almost twice as efficient as two traps/burrow and that about 29% of all trapped burrows contained gerbils. This indicated that there were over 200 *Gerbillus*/ha (29% of 725).

This very high density of gerbils has been reached since breeding started in early August (Table 2). We found the breeding effort was still underway. It was apparent from the animals captured that there were three generations present in December: animals that started the breeding in August, their offspring (born in August/September), and the offspring produced in November (some from a second litter by the older parents and some from the August/September offspring that had now bred--Annex IV). From all indications, the excellent rainfall which produced the first millet crop in years in the N'Gouri area also produced an excellent grass and weed seed crop that may sustain the gerbils well into the dry season.

Table 2. Breeding in *Gerbillus* from N'Gouri, 1992.

Month	No. females examined	No. visibly pregnant	Percent pregnant	Mean litter size
August	4	2	50.0	4.5
September	9	7	77.8	5.6
October	24	13	54.2	3.8
December	20	5	25.0	3.6

In the wadis, we captured 4 *Arvicanthis niloticus*, 8 *Tatera robusta*, 3 *Taterillus lacustris*, 3 *Mastomys natalensis*, 1 *Xerus erythropus*, and 2 *Crocidura* spp. shrews (Annex IV). In road counts on the night of December 9, we counted only 8 *Jaculus*, 1 immature *Gerbillus*, and 1 *Tatera* in 20 km of road, averaging 0.5 rodents/km. This count is 90% less than that Dolbeer (1992) found in late September. This low count could be attributable to the effect of the full moon, which rose about 2 hours before we began our count.

Specimens and skulls were prepared from 6 *Gerbillus*, 2 *Tatera*, and 2 *Taterillus* for training and species identification.

Food preferences studies were completed by Dr. Maho Angaya and Mr. Djibo Koulangar on four species of rodents: *Tatera*, *Gerbillus*, *Jaculus*, and *Mastomys*. Seven cercals were tested: white sorghum, red sorghum, red-white sorghum, maize, rice, millet, and wheat. These studies will be summarized in a technical report.

ORT (Office for Rehabilitation Through Training) Pitfall Trapping

McConnell (1992) established eight pitfall traps in Ghoural wadi near N'Gouri in October 1992 and hired Mr. Oumar Maddou to record the data weekly of the trap captures. Data were available for a 7-week period (Table 3). Only two lizards and numerous beetles were caught despite the appearance of young *Arvicanthis* and *Taterillus* in the wadis.

Table 3. Weekly captures of animals in pitfall traps at Ghoural.

Date	Captures			
	Rodents	Toads	Lizards	Insects
Oct 27	0	0	0	26
Nov 3	0	0	0	13
Nov 10	0	0	1	51
Nov 17	0	0	0	8
Nov 24	0	0	0	27
Dec 1	0	0	0	16
Dec 8	0	0	1	17
Totals	0	0	2	158

ACKNOWLEDGMENTS

I wish to thank Dr. Maho Angaya and Mr. Djibo Koulangar for conducting the food preference studies during the absence of a project leader. The information gained will be of special value in recommending bait ingredients for field use. I especially appreciate the assistance provided by Mr. Dezoumbe Djonret, Assistant Agricultural Development Officer, in closing out the Project. I extend my warm regards to the rest of the USAID staff at N'Djamena for their able assistance. I greatly appreciate the excellent driving by our chauffeur, Mr. Mahamat El-Hadji N'Gaba.

REFERENCES

- Dolbeer, R. A. 1992. Rodent control training and rodenticide field trials in Chad. Unpublished DWRC Trip Report, October 7, 1992. 20 pp.
- McConnell, J. E. 1992. Chad rodent research and rodenticide field trials. Unpublished DWRC Trip Report, November 19, 1992. 18 pp.

ITINERARY

<u>Date</u>	<u>Location</u>	<u>Activity</u>
Nov 27-28	Denver, Colorado, to N'Djamena, Chad, Africa	Travel
Nov 29-Dec 18	N'Djamena, Chad	Prepared Project Completion Report, conducted field research, inventoried Project equipment, and closed out Project
Dec 18-19	N'Djamena, Chad, to Denver, Colorado	Travel

PERSONS CONTACTED

USAID

Ms. Anne Williams, AID Representative, Chad
Dr. Tribid Mukherjee, ADO
Mr. Son Nguyen, Project Manager, ADO
Ms. Jerry Penno, EXO
Mr. George Zegarac, Controller
Mr. Dezoumbe Djonret, Assistant ADO
Ms. Lenna Flora, GSO Property Manager
Mr. Rodney Johnson, Regional Legal Adviser, Abidjan
Dr. Maho Angaya, Project Assistant

Ministry of Agriculture

Mr. Mahamat N'Garet, Director of Crop Protection
Mr. Djibo Koulangar, Crop Protection Technician

Agricultural Coperative Development International (ACDI)

Mr. John Smith, Project Leader, N'Djamena

Office for Rehabilitation Through Training (ORT)

Mrs. Wendy Asher, Project Leader, N'Djamena
Mr. Tony Johnson, N'Djamena
Mr. Firmin Mansis, N'Djamena

**PROJECT ASSISTANCE COMPLETION REPORT
RODENT CONTROL RESEARCH PROJECT
December 1992**

INTRODUCTION

The Sahelian region encompasses about 3 billion hectares (20%) of Africa and includes portions of 8 African countries (Cape Verde, Senegal, Mauritania, Burkina Faso, Mali, Niger, Chad, and Sudan). More than 30 million people inhabit the Sahel; of these, 80% are rural and directly dependent upon agriculture. The Sahel has one of the world's highest growth rates (3-5% per annum); its population is expected to exceed 50 million people by the year 2000. The Sahel once was a major food-producing area for northern Africa, but it is now a food-deficit region due to droughts and, among other reasons, crop depredations by birds, rodents, and insects.

Lack of Knowledge

In 1986 several Sahelian countries declared national disasters due to massive outbreaks of rodents. USAID was hampered in providing assistance due to a lack of knowledge of the rodent species concerned, their population dynamics, and effective control measures. Short-term technical assistance was provided by the USDA/APHIS/Denver Wildlife Research Center in the form of 8 TDY's to the Sahel between April 1 and November 10, 1987. The crisis response was inadequate due to poor organization in crop protection and lack of trained in-country personnel, materials, transportation, and time in which to implement needed control measures. To ensure the implementation of effective crop protection measures in the future, it was felt essential to conduct research into rodent biology and control methods; therefore, research was initiated in Chad to monitor rodent populations, evaluate control techniques, and train crop protection personnel to effectively address future recurring rodent population irruptions, such as occurred in 1962, 1975-76, and 1986-87 in the Sahel.

Project History

Two research sites were selected for detailed studies: a recessional crop area near Karal and a dune and wadi agricultural area around N'Gouri. Field work on the Chad Rodent Control Research Project (RCRP) was begun in October 1989. Monitoring of rodent populations was carried out monthly by snap-trapping on transects. The resident Project Leader, Dr. J. Juan Spillett, arrived in N'Djamena in July 1990. Dr. Spillett and his family were evacuated in early December 1990 due to a coup d'etat in Chad. Spillett returned to the Project in mid-March 1991. In

December 1991, Spillett resigned his position and returned home. No field work was done from December 1991 until August 1992. Beginning in mid-August 1992, four one-month TDY visits were carried out until mid-December 1992, when the Project was closed out.

OBJECTIVES

The Project objectives as given in the PASA are to:

- (1) Begin to determine the life cycles of the major rodent pests of the Sahel;
- (2) Evaluate the efficacy and appropriateness of control methods; and
- (3) Prepare training materials on rodent biology and control for use by the Ministry of Agriculture's (MOA) crop protection personnel.

EXPECTED OUTPUTS

- (1) A prioritized list of preharvest rodent problems in Chad, according to their nature, extent, and importance.
- (2) An initial methodology to assess crop loss due to rodents in vegetable and recession crops.
- (3) A report in French and English on comparative, replicated laboratory and/or field trials of rodenticides or control techniques.
- (4) A draft training manual on rodent biology and management.
- (5) A regional training workshop for at least 15 participants.
- (6) Monthly progress reports submitted to ADO/AID/N'Djamena and USDA/OICD.

EXPECTED INPUTS

- (1) A resident Project Leader for at least 2 years of the Project life.
- (2) Qualified and experienced counterpart personnel appointed by the MOA/DPV who could be trained to assume the responsibilities of the rodent research Project when USAID funding ends.
- (3) A qualified USAID Personal Service Contract (PSC) Project Assistant with a degree in Biology.

- (4) A reasonably well-equipped office/laboratory facility in which to carry out the laboratory research of the Project.

PRESENT STATUS OF THE PROJECT

- **Procurement**: This element is completed. DWRC purchased over \$14,000 in equipment and supplies, and all have been received by the Project in Chad.
- **Construction**: The Project occupied an office and laboratory space in September 1990. The Project needed an animal housing facility but never acquired one at the present space. New offices have been constructed at Farcha to house the rodent control unit but are not yet occupied. An old building at Farcha could be remodeled as an animal facility if some funds were available. After completion of the move to Farcha, this element will have been 90% completed.
- **Technical Assistance**: DWRC provided Technical Assistance in a resident biologist, Dr. J. Juan Spillett, from July 1990 until his resignation in December 1991. During the time no resident was present, DWRC provided 7 man-months of TDY assistance. DWRC further provided three 1-month TDY's during the time the Project Leader was resident to assist him in special studies of rodents and to provide training to counterparts. DWRC provided back-up assistance in procuring supplies and equipment, on literature searches, preparation of a draft training manual, preparation of four technical reports (Attachment 1), and statistical analysis of the trapping data.
- **Training**: DWRC provided training at two workshops. A 2-day seminar was given in November 1990 to 18 participants from the Ministry, NGO's, and PVO's. A 5-day seminar was presented in September 1992 to 15 participants from the Ministry, NGO's, and PVO's. A 110-page draft training manual was prepared, translated into French, and given to the participants at the September 1992 seminar (Attachment 1). Fourteen issues of "Rat Facts," in English and French, were prepared and distributed (Attachment 1). The resident biologist and the TDY biologists have given training to counterpart staff in rodent identification, specimen preparation, population monitoring methods, toxicity determinations, rodenticide field trials, and collection of population biology data. This element has been 100% completed.
- **Inventory**: A physical inventory of the Project equipment and supplies was carried out on December 3-4, 1992, at the storage at USAID annex and at the Project's Ministry offices. All items except for a pair of binoculars were accounted for (listing in Annex II). It is recommended that all items be turned over to the MOA/DPV for continued use in their program.

A BRIEF REVIEW OF PROJECT ACCOMPLISHMENTS

The Project determined that the important rodent species in the Chadian Sahel were the unstriped grass rat (*Arvicanthis niloticus*) and the multimammate rat (*Mastomys natalensis*) along with several species of gerbils that occurred in the same cultivations: the small sand rat (*Gerbillus agag*), the Lake Chad gerbil (*Taterillus lacustris*), and the fringe-tailed gerbil (*Tatera robusta*). On the dunes in millet cultivation, *G. agag* predominated, along with the jerboa (*Jaculus jaculus*). These rodents breed after the beginning of the rainy season, usually in early August through November, in response to the greening of the vegetation and the setting of seed by the grasses and weeds. As the long dry season sets in, they stop breeding and begin their long quest for survival until the next rains.

In studies testing the toxicity and efficacy of rodenticides against these several rodent species, it was determined that 1% zinc phosphide and 0.005% chlorophacinone and bromadiolone are all effective poisons to use. Studies of the rodents' preferences for baits revealed that millet was preferred by gerbils and the unstriped grass rats, while the multimammate rats preferred rice. The addition of 1 to 2% peanut oil improved the consumption of baits.

Formal training was given to 33 participants in two workshops/seminars. A draft training manual in English and French was prepared (Attachment 1). Four technical reports were issued, along with 14 issues of "Rat Facts." Two project progress reports were prepared and submitted.

AN ASSESSMENT OF THE EXTENT TO WHICH THE PROJECT HAS RESOLVED OR IS RESOLVING THE ORIGINAL PROBLEM

This has been a difficult project. Project continuity was interrupted for 4 months beginning in December 1990 with the evacuation of the Project Leader and his family due to political instability. The resident Project Leader resigned his position in December 1991. Project activities virtually stopped for 8 months. They were resumed with a series of four TDY visits between mid-August and mid-December 1992, when the Project was closed down. This lack of project continuity made it extremely unlikely the original objectives and outputs could be met.

Because of persistent drought during the period 1990 and 1991, rodent populations were low in the Project sites. On resumption of the Project activities in August 1992, we found that rodent populations were increasing to levels first seen in October 1989, due to abundant rainfall in 1992. This encouraged us to try to meet the originally proposed outputs.

Despite the loss of 12 months of activity, all but one of the original outputs have been met. (1) The major rodent pest species have been identified and the crops they potentially damage have been prioritized, (2) a report on the comparative, replicated laboratory and field trials of the toxicity and efficacy of rodenticides was

issued, (3) a technical report on the food preferences of Sahelian rodents was prepared, (4) a draft training manual on rodent biology and management was written and translated into French, (6) training was presented in two seminars for 33 Chadian participants, and (7) monthly trip reports have been provided to AID/N'Djamena and USDA/OICD. Only the output on an initial methodology to assess crop losses in vegetable and recession crops due to rodents has not been produced, mainly because of very low rodent populations during most of the life of the Project.

The Project has not resolved the issues confronting the country regarding inadequate organization in crop protection and lack of materials and transportation to organize a proper response to outbreaking rodent populations. These issues lie beyond the Project's responsibilities. What the Project did resolve was the issue of training Chadian crop protection personnel in rodent management methods and how to monitor rodent populations in order to predict outbreaks. Recommendations were made concerning baits and rodenticides to use in times of peak populations and the usefulness of trapping as an alternative control method.

DEFINITION OF CONTINUING AND/OR POST-PROJECT USAID MONITORING RESPONSIBILITIES

The Ministry of Agriculture's (MOA) Direction of Crop Protection will take over the functions and responsibilities of the rodent research and control program at the conclusion of the USAID-funded Chad Rodent Control Research Project. The Project will occupy new offices at Farcha shortly. USAID and DWRC should do a followup evaluation of the MOA's rodent control program within the first year after the end of USAID funding. This would involve a 1-month TDY visit by a DWRC biologist. DWRC is interested in extending program advice, providing literature on request, and sending training materials in French when these are completed.

A REVIEW OF DATA COLLECTION RESULTS AND EVALUATIONS REMAINING TO BE UNDERTAKEN

The damage assessment evaluations to vegetable and recession crops by rodents remains to be done. Suggested methodologies are given in the draft training manual. These essentially will have to be done by the crop protection technicians of the MOA/DPV.

Rodent population monitoring, using simple methods such as (1) inked tracking tiles laid in straight lines at 10-meter intervals in wadis and dunes in cultivated and noncultivated areas, (2) evening road counts of rodents seen per kilometer, (3) burrow counts on transects on dunes, and (4) snap trapping of rodents for reproductive data, should continue to be done in the N'Gouri and Karal areas by DPV personnel.

LESSONS LEARNED

Language: Neither reading nor speaking French, the local language, was a serious disadvantage for the resident project leader and consulting biologists provided by the DWRC. In the future, local language proficiency should be required for any resident project leader. Even for short-term assignments, it would prove beneficial.

Institution-building: When the host country ministry assigns only technicians to work as counterpart staff, it is difficult to build institutionalization into the Project. What is needed is counterpart staff with qualified biological experience and education so they can absorb the training and build a continuing local-based program.

Rodent population monitoring: The Project relied mainly upon snap trapping on transects as the method of rodent population monitoring. Later experience has shown that several methods should be used in conjunction with each other. Burrow counts on transects, along with snap trapping, are probably the best for monitoring *Gerbillus* populations. Road counts at night are best for monitoring *Jaculus* populations since these rodents rarely come into traps. Tracking tiles and snap or live-trapping are best for monitoring *Arvicanthis*, *Mastomys*, *Tatera*, and *Taterillus* populations.

**Chad Rodent Control Research Project Reports,
Training Manual, and "Rat Facts"**

Technical Reports

- No. 1. A preliminary research bibliography of rodent pests of the Sahel, Africa. November 1991.
- No. 2. Preference by the Nile rat (*Arvicanthis niloticus*) for five cereal grains and two oil additives. February 1992.
- No. 3. The toxicity and efficacy of several rodenticides to Sahelian rodent species in Chad. November 1992.
- No. 4. Prediction and monitoring of rodent abundance in agricultural areas of Chad, Africa. December 1992.

Training Manual

Les recherches et la lutte contre Rongeurs: Manual de la Formation. September 1992. 110 pp. (French version). Training Manual: Rodent research and control. September 1992. 90 pp. (English version).

"Rat Facts" (English and French)

- No. 1. The Sahel and rodents. September 1990.
- No. 2. Rodent pests in the Sahel. November 1990.
- No. 3. Rodent population dynamics. March 1991.
- No. 4. Assessing crop losses to rodents. April 1991.
- No. 5. Rodent pests in Africa. May 1991.
- No. 6. Rodents and disease. June 1991.
- No. 7. The unstriped grass rat. July 1991.
- No. 8. Cricetid rodents and the genus *Gerbillus*. August 1991.
- No. 9. Rodent control. September 1991.
- No. 10. The "sand" gerbil (*Gerbillus andersoni*) of Sahelian Chad. October 1991.
- No. 11. The multimammate rat--Africa's most common rodent pest. November 1991.
- No. 12. Bait preference by the Nile rat. December 1991.
- No. 13. Prevention is better than cure. January 1992.
- No. 14. Habitat and food habits of the unstriped grass rat and gerbil. February 1992.

Scientific Manuscripts

Notes on the breeding of *Gerbillus agag* in the Sahel, Chad. (In preparation).

Notes on the occurrence of the Lake Chad gerbil at N'Gouri, Beltram, and Guité, Chad. (In preparation).

Physical Inventory of the Chad Rodent Control Research Project Equipment,
Supplies, and Furniture, December 3-4, 1992

Item Description	S. N.	Model	Source	Quant.	Recomm. disp.
Rangefinder	N/A	# 1200	DWRC	1	To the MOA
Rangefinder carrying case	N/A	# 1200	DWRC	1	" " "
Rotatape	N/A	394	DWRC	1	" " "
Refrigerator, Vehicle	N/A	--	DWRC	1	" " "
Respirator, Comfo	N/A	--	DWRC	4	" " "
Respirator filters	N/A	--	DWRC	4	" " "
Dissecting pans	N/A	--	DWRC	2	" " "
Dissecting kits	N/A	--	DWRC	8	" " "
Spring scale, heavy	N/A	--	DWRC	1	" " "
Spring scale, all-duty	N/A	--	DWRC	1	" " "
Transformer, 1,000 kw	N/A	10F1009	DWRC	1	" " "
" " "	N/A	10F1008	DWRC	1	" " "
Transformer, 500 kw	N/A	10F1009	DWRC	1	" " "
Calipers, dir. reading	N/A	--	DWRC	2	" " "
Cylinder, grad. 25 ml	N/A	--	DWRC	2	" " "
Cylinder, grad. 100 ml	N/A	--	DWRC	2	" " "
Cylinder, grad. 500 ml	N/A	--	DWRC	2	" " "
Balance, electronic	2530	Ohaus	DWRC	1	" " "
Balance, electronic	2858	Ohaus	DWRC	1	" " "
Weight set, metric	N/A	Ohaus	DWRC	1	" " "
Camera, Minolta	2835432	X700	DWRC	1	" " "
" lens, 50 mm			DWRC	1	" " "
" " "					
telephoto	11686225	--	DWRC	1	" " "
Flash, Minolta	4102994	320	DWRC	1	" " "
Forceps, tissue, 10"	N/A	--	DWRC	2	" " "
Forceps, dissecting, 6"	N/A	--	DWRC	3	" " "
Forceps, curved, 4.5"	N/A	--	DWRC	3	" " "
Funnel, polypropylene	N/A	--	DWRC	1	" " "
Video camera, JVC	09500416	GR60	DWRC	1	" " "
Video cam carrying case	N/A	--	DWRC	1	" " "
Filter, pocket, KATADYN	F01070	--	DWRC	1	" " "
Filter, replacement cartridge		--	DWRC	1	" " "
Calculator, TI Scientific		--	DWRC	1	" " "
Bottles, water	N/A	--	DWRC	36	" " "
Tubes, water, ball-point	N/A	--	DWRC	36	" " "
HOLDERS, water bottles	N/A	--	DWRC	36	" " "
Chain, tow	N/A	--	DWRC	1	" " "
Hose, garden	N/A	--	DWRC	2	" " "
Cable, towing	N/A	--	DWRC	1	" " "
Smoke alarms	N/A	--	DWRC	2	" " "
Screwdriver, rechargeable	N/A	--	DWRC	1	" " "
Drill, rechargeable	N/A	--	DWRC	1	" " "

Item Description	S. N.	Model	Source	Quant.	Recomm. disp.
Books:					
Kingdon, East African Mammals			DWRC	1	To the MOA
Rosevear, Rodents of W. Africa			DWRC	1	" " "
Happold, Mammals of Nigeria			DWRC	1	" " "
Bruggers, Quelea quelea			DWRC	1	" " "
Meehan, Rats and mice			DWRC	1	" " "
Dorst & Dandelot, Field guide to larger African Mammals			DWRC	1	" " "
Collins Field Guide to Birds of West Africa			DWRC	1	" " "
Pliers	N/A	--	DWRC	1	" " "
" , needle-nose	N/A	--	DWRC	1	" " "
Tin snips	N/A	--	DWRC	1	" " "
Wrench, adjustable	N/A	--	DWRC	1	" " "
Air compressor, tire	N/A	--	DWRC	1	" " "
Chest, ice	N/A	--	DWRC	1	" " "
Shovel	N/A	--	DWRC	1	" " "
Rake	N/A	--	DWRC	1	" " "
Syringes, disposable	N/A	--	DWRC	4 boxes	" " "
Needles, syringe	N/A	--	DWRC	4 boxes	" " "
Traps, assorted rat & mouse		--	DWRC	24 boxes each	" " "
Saw, bone	N/A	--	DWRC	1	" " "
Tape, plastic, colored	N/A	--	DWRC	15 boxes	" " "
Tarpaulins, plastic	N/A	--	DWRC	3	" " "
Coats, laboratory	N/A	--	DWRC	4	" " "
Bottles, plastic w caps	N/A	--	DWRC	6 boxes	" " "
Charger, battery	N/A		DWRC	1	" " "
Calculator, desk, elec.	N/A	Schumacher # 121	DWRC	1	" " "
Animal choker, pole	N/A	--	DWRC	1	" " "
Gloves, disposable	N/A		DWRC	3 boxes	" " "
Scales, spring, Pesola	N/A	--	DWRC	12	" " "
Rack, drying, plastic	N/A	--	DWRC	1	" " "
Vials, assorted plastic	N/A	--	DWRC	4 boxes	" " "
Bags, plastic, assorted	N/A	--	DWRC	2 boxes	" " "
Aprons, lab	N/A	--	DWRC	2	" " "
Misc. office supplies	N/A	--	DWRC		" " "
Specimen boxes, wood	N/A	--	USAID	2	" " "
Multiple outlet, elec.	N/A	--	DWRC	2	" " "
Rope, nylon, 100 ft.	N/A	--	DWRC	2	" " "
Caulking gun	N/A	--	DWRC	2	" " "
Caulking, silicon	N/A	--	DWRC	6 tubes	" " "
Siphon, gas	N/A	--	DWRC	1	" " "
Cassettes, video TC20	N/A	--	DWRC	6	" " "
Cassette, video, TC10	N/A	--	DWRC	1	" " "
Film, 35 mm, Kodak	N/A	--	DWRC	9 rolls	" " "

698-0517

RECEIVED AID / CHAD
Date DEC 11 1992

REPUBLIQUE DU TCHAD
MINISTERE DE L'AGRICULTURE
DIRECTION GENERALE
DIRECTION DE LA PROTECTION DES
VEGETAUX ET DU CONDITIONNEMENT

* Unité - Travail - Progrès *

N'Djaména, le 08 DEC. 1992

N° 1977 /MA/DG/DPVC/92

LE MINISTRE DE L'AGRICULTURE

A

Son Excellence Madame la représentante
de l'USAID

N'DJAMENA

Deuzoumbé
Action: ~~Ado: [unclear]~~
Date: 12/11 Des: 12/22
Info: Palma, [unclear] Mako
Action taken:

J'ai l'honneur de vous rappeler que par lettre N° 984/MA/DG/DPVC/92 en date du 28-08-92 dont copie ci-jointe, mon département avait exprimé son désir de voir le projet sur la recherche et la lutte contre les rongeurs poursuivre ses activités sous le contrôle de la Direction de la Protection des Végétaux et du Conditionnement. Depuis quelques temps des messages parvenus de la région du Ouaddaï font état d'une recrudescence des rongeurs. Les responsables actuels du projet ne pourront pas s'y rendre en raison de l'approche de la date annoncée pour la fin du projet. Monsieur DJIBO KOULENGAR qui travaille déjà dans le projet sera appuyé par d'autres agents de la Direction de la Protection des Végétaux et du Conditionnement pour mener à bien les travaux.

Un local est déjà mis à la disposition du projet dans l'enceinte de la Direction de la Protection des Végétaux et du Conditionnement à Farcha. Aussi, pour permettre à l'équipe de pouvoir continuer normalement les activités, je vous saurais gré de bien vouloir mettre à la disposition de la Direction de la Protection des Végétaux et du Conditionnement le véhicule dudit projet.

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J'ose espérer que cette requête trouvera un écho favorable auprès de vous et vous remercie d'avance des dispositions que vous voudriez prendre pour autoriser la mise à la disposition de ce véhicule à la Direction de la Protection des Végétaux et du Conditionnement.

Je vous prie de croire Madame la représentante, à l'assurance de ma considération distinguée./.-



The image shows a handwritten signature in black ink over a circular official stamp. The stamp contains the following text: 'ROYAUME DU TOGO' at the top, 'LE MINISTRE DE L'AGRICULTURE ET DE LA PÊCHE' around the inner border, 'LE MINISTRE' at the bottom, and 'DANSALA' in the center. The name 'BAMBE' is written on the left side of the stamp, and 'DANSALA' is written on the right side. The signature is a stylized, cursive script.

REPUBLIQUE DU TCHAD

UNITE - TRAVAIL - PROGRES

MINISTERE DE L'AGRICULTURE

DIRECTION GENERALE

DIRECTION DE LA PROTECTION DES VEGETAUX

ET DU CONDITIONNEMENT

PLAN DE TRAVAIL DE CONTINUATION
DE PROJET RONGEURS SUR UNE ANNEE

INTRODUCTION

Au cours de la période de recherche de terrain d'Août 1989 à Décembre 1991 (27 mois) à NGOURI et d'Août 1990 à Décembre 1991 (17 mois) à KARAL, le Projet de Recherche sur les Rongeurs au Tchad avait capturé 943 rongeurs dont 96 à KARAL (dans les cultures de décrue) et 847 à NGOURI (dans les Ouaddis et sur les dunes) (J.Spillet 1991; Progress Report 1989-1991; MAHO A 1992; Rapport Trimestriel du 11 Novembre 1991 - 17 Février 1992).

De Janvier à Juillet 1992, aucune activité de terrain n'a été effectuée à défaut du Chef de Projet. D'Août à Novembre 1992, les activités de terrain et de laboratoire ont repris grâce à trois missions successives de biologistes de Denver (JOE BROOKS en Août - Septembre; RICHARD DOLBEER en Août - Septembre et JOHN MCCONNELL en Octobre - Novembre).

Au cours de cette période d'Août à Novembre (4mois), 225 rongeurs ont été capturés dont 68 à KARAL et 187 à NGOURI soit plus d'un tiers des captures effectuées sur 27 mois (JOE BROOKS, 1992, Trip Report, Chad Rodent Project, Administration, Recherche and Training; RICHARD DOLBER 1992; trip Report: Rodent Control Training and Rodenticide Field Trial in Chad, et JOHN MCCONNELL 1992; Trip Report; CHAD Rodent Research and Rodenticide Field Trials).

On remarque qu'il ya augmentation de la population. Cela nécessite donc une surveillance encore plus rigoureuse. Malheureusement, ce Projet arrive à la durée prévue, doit cesser ses activités en Décembre 1992.

Ainsi, compte tenu des résultats actuels de piégeages 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 au Ministère de prévenir les éruptions de populations de rongeurs et donc de limiter les dégâts agricoles. En même temps, la surveillance dans les autres zones permettra de connaître les espèces nuisibles. La surveillance dans les anciens sites de recherche et les zones attaquées en 1987 se fera selon un plan de travail suivant:

I- 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 des techniques de piégeages et de préparation des spécimens. La formation pourra être assurée par MAHO ANGAYA et DJIBO KOULENGAR pendant 2 à 3 jours.

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.

II- EQUIPE DE N'DJAMENA

DJIBO KOULENGAR, spécialiste dans le domaine de rongeurs, renforcés 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 piégeage 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'excèdera 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 Ouaddis à NGOURI, dans les cultures de décrue à KARAL.

Les différentes méthodes de piégeage seront utilisées: carreaux de marqueurs, pièges 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.

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

III - DETAIL DU PLAN DE JANVIER - DECEMBRE 1993

a)- Formation et distribution de pièges: Janvier 1993:

- préparation et formation de Chef de bases dans le domaine de technique de capture et méthodes de préparation de spécimens.

- Distribution des pièges aux Chefs de bases.

b)- Suivi de la population des rongeurs par l'équipes de N'Djaména:

1er - 5 Février: Piégeage à NGOURI et KARAL

1er - 5 Mars: Piégeage à NGOURI et KARAL

1er - 15 Avril: Contrôle général.

Deux ou trois bases peuvent être visitées au cours de ce voyage. Un à trois jours de piégeage peuvent être effectués 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 - 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 (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 de toutes les données

REMARQUES

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

Measurements of rodents trapped at N'Gouri, December 1992

Species	Sex	Wt.	HBL	Tail	H.F.	Ear	Remarks
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Trapped on dunes*Gerbillus agag*:Animals present in August (6)

M	33	98	125	26.5	14.5	Scrotal
F	30	100	114	25	-	2 sets scars
F	31	102	110	25	14	Preg + 1 set scars
F	30	105	123	26	16	2 sets scars
F	34	102	131	25	14.5	Preg + 1 set scars
M	34	101	121	26	16	Scrotal

Animals born in August/September (39)

M	31	101	121	26	13	Scrotal
M	31	101	126	26	14.5	"
M	30.5	100	115	25	16	"
M	29.5	90	130	26	16	"
M	28.5	95	130	26	16	"
M	27	101	123	25	-	"
M	27	95	113	25	14	"
M	27.5	95	125	25	16	
M	26	95	123	26	16	
F	28	99	128	25	-	1 set scars
F	31	94	122	25	15	1 set scars
F	23	92	112	24	13	1 set scars
F	20	90	125	24	13	1 set scars
F	27	90	117	25	14	1 set scars
F	25	97	120	26	-	Preg no scars
F	22	93	121	25	14	1 set scars
F	24	93	121	25	-	1 set scars
F	25	87	115	25	14.5	1 set scars
F	24	97	130	26.5	-	1 set scars
F	25	93	122	26	-	Preg no scars
F	25	95	122	25	13	No scars
F	20	93	128	26.5	-	No scars
F	23	98	127	25	14	1 set scars
F	23.5	92	111	25	15	Preg no scars

Species	Sex	Wt.	HBL	Tail	H.F.	Ear	Remarks
	F	22.5	80	110	26	16	
	F	20.5	90	110	25	U	
	F	21.5	85	108	25	14	
	F	24	95	110	23	13.5	
	M	22	90	121	26	15	
	M	22.5	90	112	25	15	
	M	20.5	90	110	26	15	
	M	24	95	117	25	U	
	M	22	90	110	24	15	
	M	24	90	115	25	16	
	M	23	80	110	26	15	
	M	22	80	108	25	15	
	M	25	90	114	25	14	
	M	23	91	117	26	12	
	U	20	88	114	25	14	

Animals born in November (21)

	F	17	90	108	26	15	
	F	16.5	80	110	24	U	
	F	17	80	106	25	15	
	F	19.5	85	104	23	14	
	F	17	80	110	23	15	
	F	18	89	114	25	14	
	F	14.5	80	95	25	14	
	F	12.5	75	85	22	U	
	U	13	78	92	24	13	
	F	U	70	95	24	U	
	M	15	80	110	25	14	
	M	17	80	106	25	15	
	M	16.5	80	97	26	15	
	M	16.5	80	115	25	15	
	M	17.5	80	112	24	15	
	M	18.5	90	120	25	14	
	M	18.5	85	105	26	15	
	M	10.5	65	80	25	14	
	M	10	65	70	23	14	
	F	U	70	92	24	15	
	F	U	75	95	25	U	

Species	Sex	Wt.	HBL	Tail	H.F.	Ear	Remarks
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Trapped in Wadis

Arvicanthis niloticus:

M	136	150	140	32	18	
F	90	145	125	33	17	
M	74	140	-	25	15	
M	40	110	95	25	14	Immature

Tatera robusta:

F	80	140	172	37	18	
M	72	140	165	36	18	
M	58	137	140	35	16	
F	U	U	115	32	U	
F	U	U	140	30	18	
U	U	135	165	40	20	
F	73	144	160	40	21	
M	84	149	187	40	22	

Taterillus lacustris:

M	48	127	152	35	18	
M	62	141	165	35	20	
F	U	U	U	U	U	

Mastomys natalensis:

M	42	115	125	25	19	
M	24	95	105	20	16	Immature
M	26	100	110	22	16	

Crocidura sp.:

F	12	85	55	17	10	
F	14	90	55	15	9	