DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Centers for Disease Control
and Prevention (CDC)

Memorandum

Date: May 9, 2014

From: WHO Collaborating Center for
Research, Training and Eradication of Dracunculiasis, CDC

Subject: GUINEA WORM WRAP-UP #226

To: Addressees

Contain Every Worm! Trace Every Source! Raise Reward Awareness!

IN THE BEGINNING THERE WAS CDC

As the Guinea Worm Eradication Program nears its end, it is worthwhile to recall how it began. The global campaign to eradicate dracunculiasis (Guinea worm disease) was conceived and nurtured at CDC beginning in October **1980** by Dr. Donald Hopkins, Dr. Robert Kaiser, Dr. Myron Schultz and others, including Dr. Ernesto Ruiz Tiben, with the enthusiastic concurrence and support of CDC director Dr. William Foege. Originally promoted as a sub-objective of the International Drinking Water Supply and Sanitation Decade (IDWSSD; 1981-1990), CDC persuaded Dr. Peter Bourne of the United Nations Development Program (UNDP) to champion the idea with the Steering Committee of the IDWSSD, which endorsed it in April **1981** and it was added to the World Health Assembly resolution on the IDWSSD the next month. Dr. Myron Schultz of CDC chaired the first international meeting on the disease, which was proposed by CDC and held in Washington, DC in **1982** under the auspices of the U.S. National Research Council, funded by the United States Agency for International Development (USAID), and co-sponsored by WHO. India officially launched its national eradication program in **1983** after years of advocacy by Dr. M.I.D. Sharma. CDC was named the WHO Collaborating Center for Research, Training and *Control* of Dracunculiasis in **1984** (the name was changed to *Eradication* years later). Nigeria held its first National Conference on Dracunculiasis in **1985**. In **1986** the World Health Assembly adopted its first resolution on *Elimination* of Dracunculiasis in May (with lobbying by Hopkins of CDC, a member of the United States' delegation), and the First African Regional Conference on Dracunculiasis met in Niamey, Niger in July (funded mainly by a grant solicited by CDC from the Carnegie Corporation of New York; co-sponsored by WHO). The campaign accelerated greatly when former U.S. President Jimmy Carter and The Carter Center agreed to spearhead the initiative and launched direct assistance to begin the Guinea Worm Eradication Program in Pakistan with technical assistance by CDC in November 1986. Medical geographer Dr. Susan Watts estimated there were 3.5 million cases of dracunculiasis globally that year. Over the next decade President Carter made advocacy visits in support of Guinea worm eradication to 16 endemic countries. Hopkins retired from CDC and began leading the efforts at The Carter Center in **1987**. The Carter Center began assisting national GWEPs in Ghana in 1987 and Nigeria in **1988**, the year when African ministers of health adopted a resolution calling for the eradication of dracunculiasis by 1995. The Carter Center funded an International Donors Conference for Dracunculiasis Eradication which was co-sponsored by UNDP and UNICEF, in Lagos in **1989**. The World Health Assembly adopted the first global resolution calling for *Eradication* of Dracunculiasis in **1991**. The Carter Center began assisting national GWEPs in Uganda in 1991 and in Mali and Niger in **1992.** Dr. Ernesto Ruiz-Tiben retired from CDC and joined The Carter Center in 1992. WHO established its unit for dracunculiasis eradication in August **1994**. President Carter negotiated the "Guinea Worm Cease-fire" to kick-start the Sudan GWEP, with direct Carter Center assistance to both sides of the civil war, in March **1995**. WHO established the International Commission for the Certification of Dracunculiasis Eradication in May 1995.

Table 3

Number of Reported Cases of Guinea Worm Disease Contained and Number Reported by Month during 2014*

(Countries arranged in descending order of cases in 2013)

COUNTRIES WITH ENDEMIC TRANSMISSION	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED													% CONT.
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	
SOUTH SUDAN	0 / 0	0 / 0	3 / 3	2 / 2	/	/	/	/	/	/	/	/	5 / 5	100
CHAD	1 / 1	1 / 1	1 / 1	1 / 1	/	/	/	/	/	/	/	/	4 / 4	100
MALI §	0 / 0	0 / 0	0 / 0	0 / 0	/	/	/	/	/	/	/	/	0 / 0	
ETHIOPIA	0 / 0	0 / 0	0 / 0	0 / 0	/	/	/	/	/	/	/	/	0 / 0	
TOTAL*	1 / 1	1 / 1	4 / 4	3 / 3	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	9 / 9	100
% CONTAINED	100	100	100	100									100	

COUNTRIES REPORTING CASES	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED													% CONT.
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	
SUDAN	/	/	0 / 0	0 / 0	/	/	/	/	/	/	/	/	0 / 0	0%

TOTAL	1 / 1	1 / 1	4 / 4	3 / 3	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	9 / 9	100

*Provisional

Cells shaded in black denote months when zero indigenous cases were reported. Numbers indicate how many imported cases were contained and reported that month.

Cells shaded in yellow denote months when transmission of GWD from one or more cases was not contained.

§Reports include Kayes, Koulikoro, Segou, Sikasso, and Mopti, Tinbuktu and Gao Regions; in late April, the GWEP deployed one technical advisor to Kidal to oversee the program during the transmission season (for the first time since 2012).

^A Carter Center consultant, deployed to Kafia-Kingi area in South Darfur in March, implemented active village-based surveillance in Kafia Kingi and four other at- risk villages, and began monthly reporting.

Number of Reported Cases of Guinea Worm Disease Contained and Number Reported by Month during 2013*

(Countries arranged in descending order of cases in 2012)

COUNTRIES WITH ENDEMIC TRANSMISSION	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED													% CONT.
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	
SOUTH SUDAN^	0 / 0	1 / 2	1 / 4	18 / 25	19 / 24	13 / 19	8 / 14	7 / 11	7 / 11	2 / 3	0 / 0	0 / 0	76 / 113	67
CHAD	0 / 0	0 / 0	0 / 0	3 / 3	1 / 1	0 / 1	3 / 3	1 / 1	0 / 0	0 / 0	0 / 3	0 / 2	8 / 14	57
MALI §	0 / 0	0 / 0	0 / 0	0 / 0	0 / 3	1 / 1	0 / 0	0 / 0	1 / 1	1 / 2	4 / 4	0 / 0	7 / 11	64
ETHIOPIA	1 / 1	0 / 0	0 / 0	0 / 1	3 / 4	0 / 1	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	4 / 7	57
TOTAL*	1 / 1	1 / 2	1 / 4	21 / 29	23 / 32	14 / 22	11 / 17	8 / 12	8 / 12	3 / 5	4 / 7	0 / 2	95 / 145	66
% CONTAINED	0	50	25	72	72	64	65	67	67	60	57	0	66	

COUNTRIES REPORTING CASES	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED													% CONT.
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	
SUDAN	/	/	/	/	/	0 / 2	/	/	0 / 1	/	/	/	0 / 3	0%

TOTAL	1 / 1	1 / 2	1 / 4	21 / 29	23 / 32	14 / 24	11 / 17	8 / 12	8 / 13	3 / 5	4 / 7	0 / 2	95 / 148	64

*Provisional

Cells shaded in black denote months when zero indigenous cases were reported. Numbers indicate how many imported cases were contained and reported that month.

Cells shaded in yellow denote months when transmission of GWD from one or more cases was not contained.

^ The South Sudan GWEP ceased operations on December 16, 2013 as a result of armed conflicts and insecurity. Zero cases of GWD were reported during December 1-16, 2013. Operations resumed in January 2014.

§ Since April 2012 reports include only Kayes, Koulikoro, Segou,Sikasso, and Mopti Regions; the GWEP was not fully functional in Timbuktu, and Gao Regions throughout 2013, and not at all in Kidal Region.

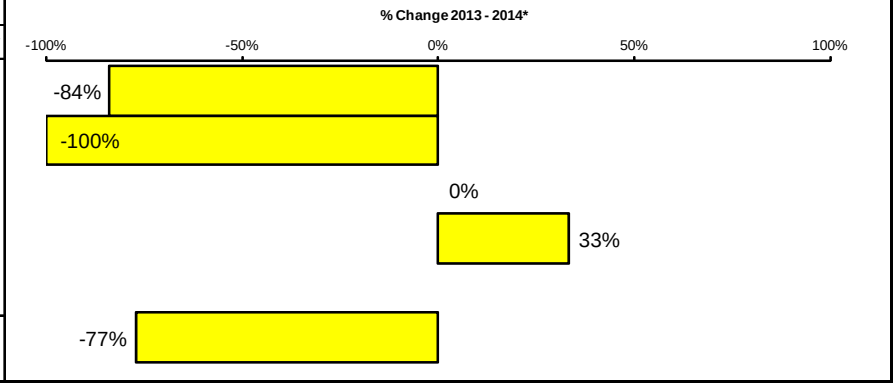
THE STATUS OF ERADICATION AND OF REPORTED CASES OF DRACUNCULIASIS DURING JANUARY – APRIL 2014

The four remaining endemic countries provisionally reported 9 cases of dracunculiasis (all contained) during the first four months of 2014 (Table 1): South Sudan reported 5 cases and Chad four cases; Ethiopia and Mali reported zero cases. These 9 cases of dracunculiasis represent a 77 % reduction from the 39 cases reported during the same period in 2013 (Figure 1, Table 1). The status of eradication in the 21 affected countries is shown in Figure 6 and the inter-country race to end dracunculiasis in Figure 7.

Figure 1

Number of Indigenous Cases Reported During the Specified Period in 2013 and 2014*, and Percent Change in Cases Reported

Country	Cases Reported	
	2013	2014*
South Sudan (4)	31	5
Ethiopia (4)	2	0
Mali § (4)	0	0
Chad (4)	3	4
Sudan^ (4)	3	0
Total	39	9



* Provisional: Numbers in parentheses denote months for which data received, e.g., (4)= January- April

§ Reports include Kayes, Koulikoro, Segou, Sikasso, and Mopti, Tinbuktu and Gao Regions; in late April 2014, the GWEP deployed one technical advisor to Kidal to oversee the program during the transmission season (for the first time since 2012).

^ Under pre-certification of eradication; reported three cases in 2013 from Kafia Kingi area of South Darfur State. A Carter Center consultant was deployed to Kafia-Kingi area in March 2014 to implement active village-based surveillance and interventions in Kafia Kingi and four other at-risk villages, all of which began reporting monthly as of the end of March.

SOUTH SUDAN: 81% REDUCTION IN CASES IN JANUARY - APRIL

South Sudan has reported a provisional total of 5 cases in January-April 2014, compared to 31 cases during the same period of 2013, for a reduction of 84% in cases so far this year. The sources of two of the five cases have been traced to known endemic villages from last year, and all six cases were contained (Table 2: updated line listing). April was the peak month of cases for South Sudan in 2013 (Figures 2 and 3). No cases have been reported west of the Nile for six consecutive months (Figure 3). The director of South Sudan's Guinea Worm Eradication Program (SSGWEP), Mr. Samuel Makoy Yibi, reports that 26 new borehole wells are planned for 2014: the Rotary Club of Juba has successfully drilled 8 of 11 boreholes in Mogos South and Kauto West already, and mobilization is reported to be underway for 15 boreholes promised by UNICEF. In 2013, the Rotary Club of Juba drilled 5 boreholes in Mogos South, and the Ministry of Defense and Veterans Affairs drilled 4 boreholes in Kassingor payam of Jonglei State. Mogos (16) and Kauto (37) payams in Kapoeta East County of Eastern Equatoria State reported 46% of South Sudan's 113 cases in 2013.

We thank Ms. Lauren Brown (began service in August 2010), Ms. Jami Peterson (began service in July 2011), and Ms. Isha Nyrola (began service in March 2011), all of whom completed their tours of duty with SSGWEP during April as Carter Center Technical Advisors. All three rose to the rank of Regional

Figure 2

South Sudan Guinea Worm Eradication Program
Cases of Dracunculiasis Reported by Month, 2011 - 2014*

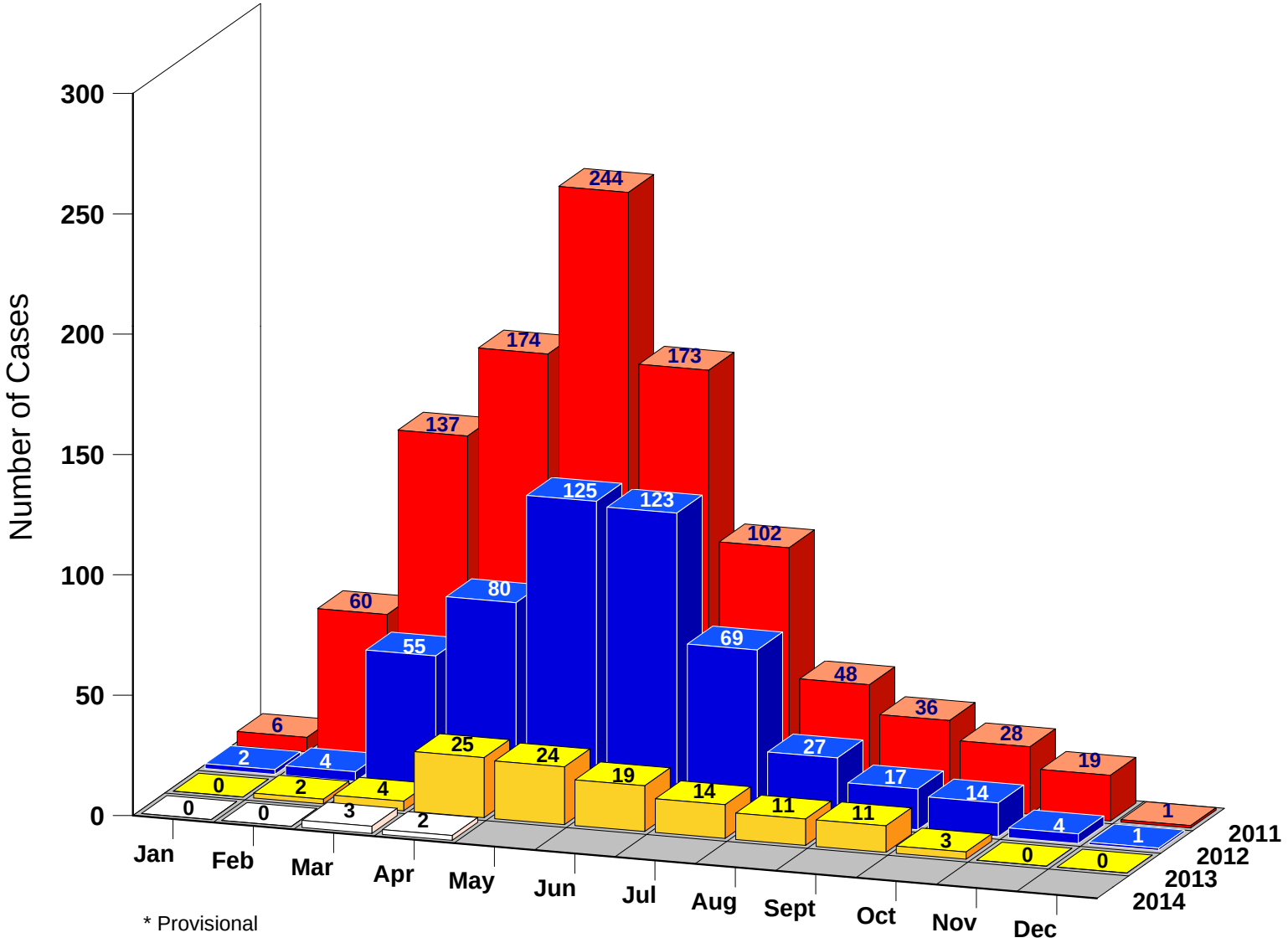


Table 2

South Sudan Guinea Worm Eradication Program
Line Listing of Cases of GWD During 2014*

Case #	Village or Locality of Detection			Payam	County	Age	Sex	Date GW Emerged	Case Contained?		1 = Imported 2= Indigenous	Home Village or Locality			Presumed Source of Infection Identified?		Presumed Source of Infection is a Known EVA?	
	Name	1 = EVAS	2 = NEVAS						(Yes, No, or Pending)	If No, Date of Abate Rx*		Name	1 = EVAS	2 = NEVAS	(Yes / No)	Description	(Yes / No)	Actions?
1.1	CHOKOIN		2	KAUTO	KAPOETA EAST	14	F	11-Mar-14	YES		2	CHOKOIN		2	NO	CLASSIFYING IT AS INDIGENOUS BUT SOURCE OF TRANSMISSION NOT DETERMINED YET		
1.2	CHOKOIN		2	KAUTO	KAPOETA EAST	14	F	19-Apr-14	YES		2	CHOKOIN		2	NO	CLASSIFYING IT AS INDIGENOUS BUT SOURCE OF TRANSMISSION NOT DETERMINED YET		
2.1	LOCHAPIO		2	KAUTO	KAPOETA EAST	32	F	18-Mar-14	YES		2	LOCHAPIO		2	NO	CLASSIFYING IT AS INDIGENOUS BUT SOURCE OF TRANSMISSION NOT DETERMINED YET		
2.2	LOCHAPIO		2	KAUTO	KAPOETA EAST	32	F	17-Apr-14	YES		2	LOCHAPIO		2	NO	CLASSIFYING IT AS INDIGENOUS BUT SOURCE OF TRANSMISSION NOT DETERMINED YET		
3.1	LOBOER		2	KAUTO	KAPOETA EAST	10	F	25-Mar-14	YES		2	LOBOER		2	NO	STILL UNDER INVESTIGATION; CURRENTLY GARDENS IN POONGO/ ROUTE TO CATTLE CAMPS	YES	THE ABATE TEAM TREATED ALL WATER SOURCES LINKED TO THE CASE AND AND THE WATER SOURCES THAT THE CASES ARE CURRENTLY USING, DAILY VISITS AND EARLY MORNING CASE SEARCH IN ALL THE VILLAGES/ GARDENS IN POONGO II CLUSTER, MASS DISTRIBUTION OF FILTERS IN THE ENTIRE ENDEMIC CLUSTER AND STRICTER WATER PATROLLING, VISTITED THE GARDEN PLOTS AND GARDEN WATER SOURCES POTENTIALLY USED BY THE PATIENT AND THEY ARE ALSO TARGETED, NOTIFIED TA JULIE IN POONGO I AND EMILIA IN MOGOS SOUTH TO HEIGHTEN SURVEILLANCE AMONG THE NANYANGDEET MOVING GROUPS IN THEIR
3.2	LOBOER		2	KAUTO	KAPOETA EAST	10	F	3-Apr-14	YES		2	LOBOER		2	NO	STILL UNDER INVESTIGATION; CURRENTLY GARDENS IN POONGO/ ROUTE TO CATTLE CAMPS	YES	THE ABATE TEAM TREATED ALL WATER SOURCES LINKED TO THE CASE AND AND THE WATER SOURCES THAT THE CASES ARE CURRENTLY USING, DAILY VISITS AND EARLY MORNING CASE SEARCH IN ALL THE VILLAGES/ GARDENS IN POONGO II CLUSTER, MASS DISTRIBUTION OF FILTERS IN THE ENTIRE ENDEMIC CLUSTER AND STRICTER WATER PATROLLING, VISTITED THE GARDEN PLOTS AND GARDEN WATER SOURCES POTENTIALLY USED BY THE PATIENT AND THEY ARE ALSO TARGETED, NOTIFIED TA JULIE IN POONGO I AND EMILIA IN MOGOS SOUTH TO HEIGHTEN SURVEILLANCE AMONG THE NANYANGDEET MOVING GROUPS IN THEIR
4.1	LOCHAPIO		2	KAUTO	KAPOETA EAST	6	M	6-Apr-14	YES		2	LOCHAPIO		2	NO	CLASSIFYING IT AS INDIGENOUS BUT SOURCE OF TRANSMISSION NOT DETERMINED YET		
5.1	LOKUTA		2	KAUTO	KAPOETA EAST	12	F	19-Apr-14	YES		1	LOKUTA		2	YES	NAWAYOPAK	YES	

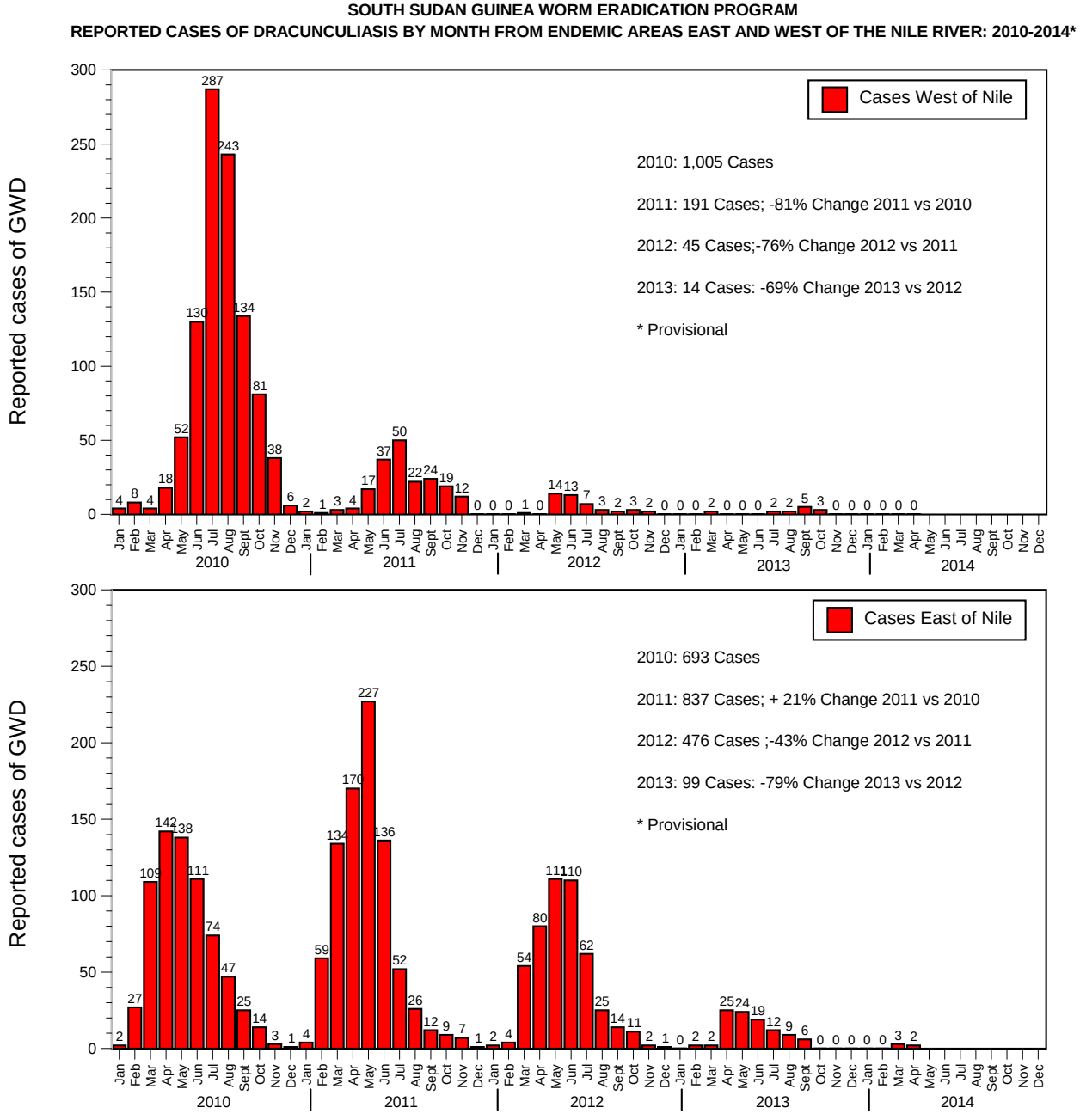
CC = Cattle Camp Gardens = Farming areas of villages CCC = Case Containment Center

* Provisional

^ Specimen confirmed as Guinea Worm by CDC

Coordinators of SSGWEP activities during their service in endemic areas of Eastern Equatoria State. We are very grateful to them for their leadership, contributions, and dedication to the SSGWEP. Their fortitude and tenacity while working in extremely difficult places was exemplary. We wish them success in their new endeavors.

Figure 3



CHAD: ACTIVE SURVEILLANCE UNDERWAY IN 64 OF 81 PRIORITY VILLAGES

Chad's Guinea Worm Eradication Program (GWEP) has detected emerging Guinea worms from humans and/or dogs during 2010-2014 so far in a total of 81 villages, all of which are considered to be at high risk of transmission of the infection to humans and of contamination of water by humans and/or dogs. Epidemiologic evidence suggests most or all recent infections in Chad are likely transmitted to humans by eating under cooked fish, and to dogs by eating raw entrails of fish that are discarded during mass harvesting and preparation of fish, primarily along the Chari River. Transmission is assumed now to be occurring year-round (Figure 4 and 5). The Carter Center is helping the national coordinator of Chad's GWEP, Dr. Mahamat Ali Tahir, to implement active surveillance and all appropriate interventions, including ABATE@ Larvicide, as fully as possible in all 81 villages, including those associated with the recently-discovered focus around the village of Maimou in Sarh District of Moyen Chari Region. As of the end of April 2014, active surveillance was underway in 64 of the 81 high risk villages, along with health education, and more than half of the villages have at least one safe source of drinking water (Table 3). Cloth filters to prevent possible transmission to humans by drinking water are distributed only to households in villages with human cases in two successive years. Use of Abate is limited because of the extremely large sizes, numbers, and heavy vegetation in the shallow lagoons used for fishing that appear to be the main transmission sites.

Chad has reported 4 cases of Guinea worm disease provisionally in January-April 2014. All four were contained, but three are not related to each other with respect to time and place of infection a year ago, nor to other cases in 2013. One case, detected in January 2014 in Maimou village, Sarh, is related to the outbreak of 5 cases during November and December 2013 in that village. The source of infection is suspected to be ingestion of improperly cooked fish (Table 4). Chad reported three cases, all contained, in humans in January-April 2013.

Dr. Dieudonne Sankara, from WHO/Geneva began a visit on May 1 (scheduled till May 11th) to assist the ministry of health GWEP plan for intensified interventions to strengthen surveillance for dracunculiais in areas of Chad which are not now under active village-based surveillance for cases of the disease.

MALI'S NATIONAL COORDINATOR VISITS KIDAL

The national coordinator of Mali's GWEP, Dr. Gabriel Guindo, visited Kidal for a week in early April, accompanied by Mr. Adama Sobingo , a Malian technical assistant to the program. They saw 2 of the 3 cases that were reported in Kidal in May-June 2013; **the third case reportedly had gone to Algeria**. They met with 5 of the 8 zonal agents (*Agent Santé Zonal)* of the region, and also visited the site believed to have been the source of last year's infections. The team left cloth filters and Abate for use in the upcoming months. The only Non-Governmental Organization operating in Kidal at present is *Medecins du Monde, Belgium*. Mali has reported no cases so far in 2014 and no cases in January-April 2013.

Figure 4

Chad Guinea Worm Eradication Program

Cumulative Monthly Distribution of 48 Reported Human Cases (2010-2014*) and of 95 Dogs With Dracunculiasis (2012-2014*)

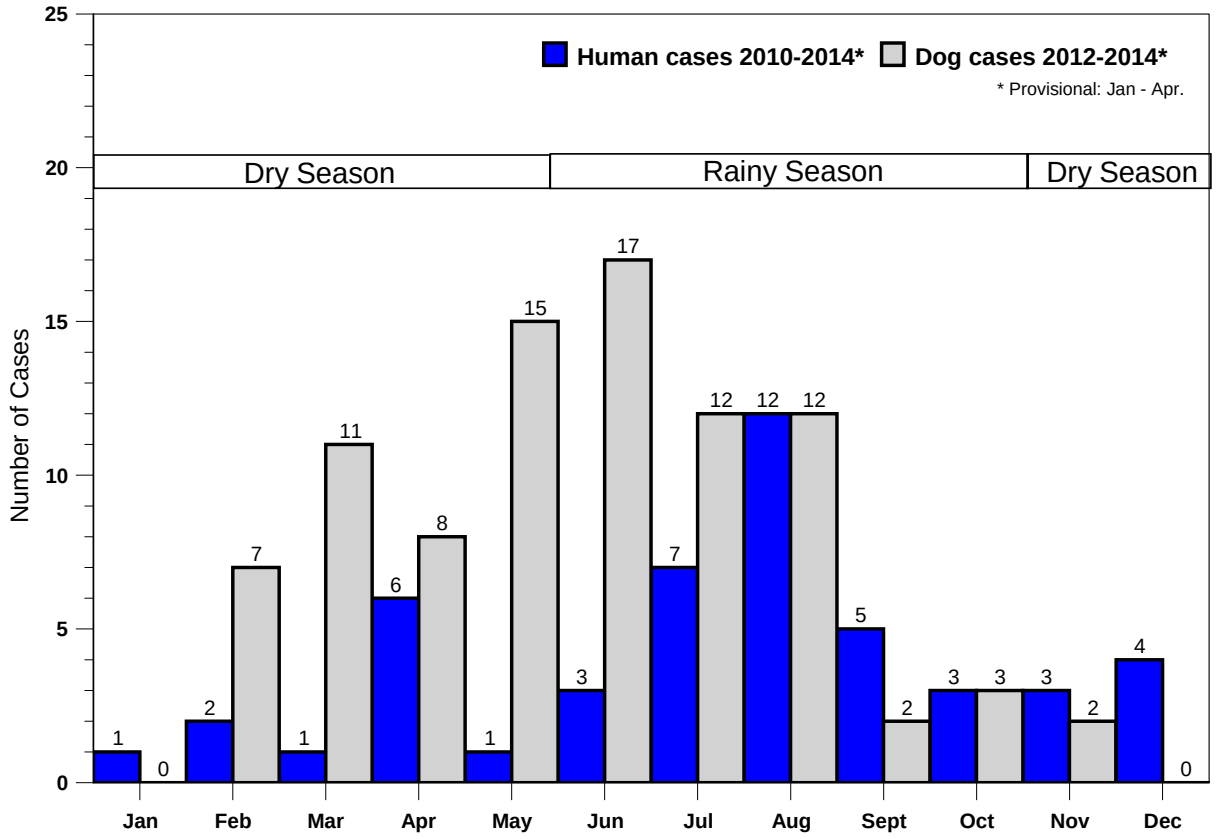


Figure 5

Chad Guinea Worm Eradication Program

Reported Cases of Dracunculiasis by Month of Guinea Worm Emergence: 2010-2014*

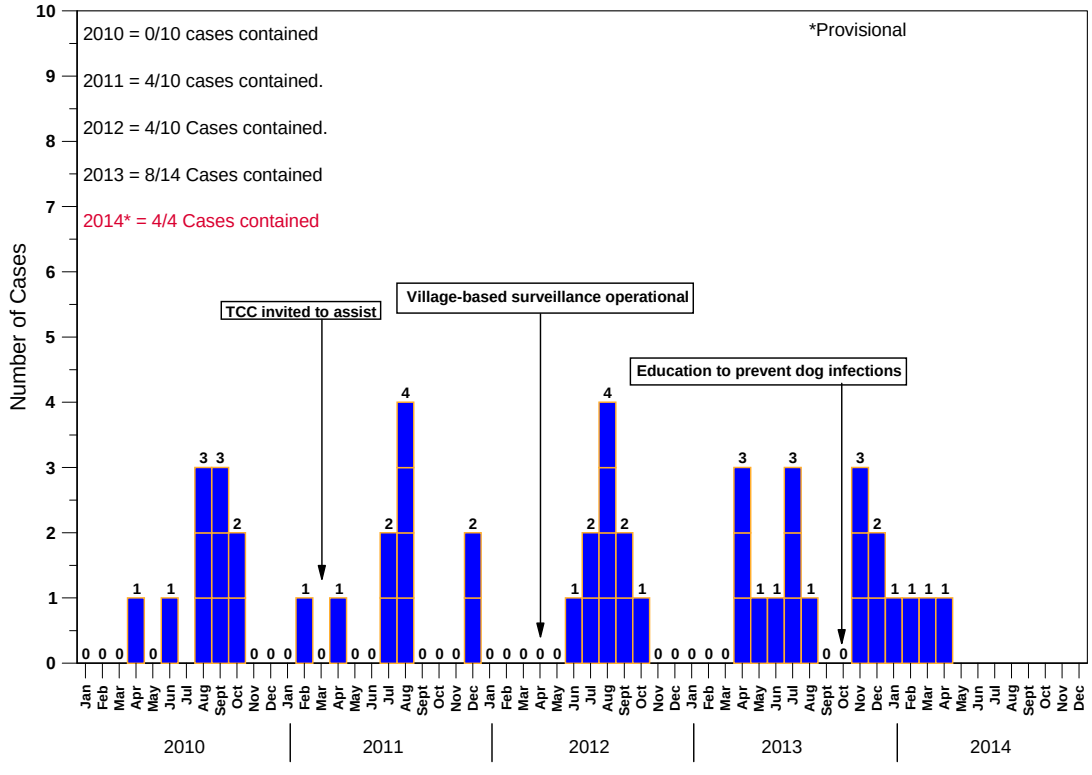


Table 3 **Chad Guinea Worm Eradication Program**

Percent Coverage Of Interventions In 64 Villages Reporting Human Cases Of Guinea Worm Disease During 2010-2014 And/Or Dogs With Guinea Worms

64 of 64 VAS reporting monthly	100%
35 of 64 VAS with 1+ safe sources of drinking water	55%
4 of 64 VAS provided with cloth filters.	6%
1,268 of 13,365 households in 64 VAS provided with cloth filters	9%
6 of 64 VAS provided pipe filters	9%
1,521 of 49,220* residents in 64 VAS provided with pipe filters	3%
64 of 64 VAS received health education sessions	100%
3 of 64 VAS were protected with ABATE	5%

*The target for pipe filer coverage is 80% of total population

17 other villages not yet under active surveillance reported humans and/or dogs with GWD during these years and are also candidates for enhanced interventions during 2014, for a total of 81 priority villages.

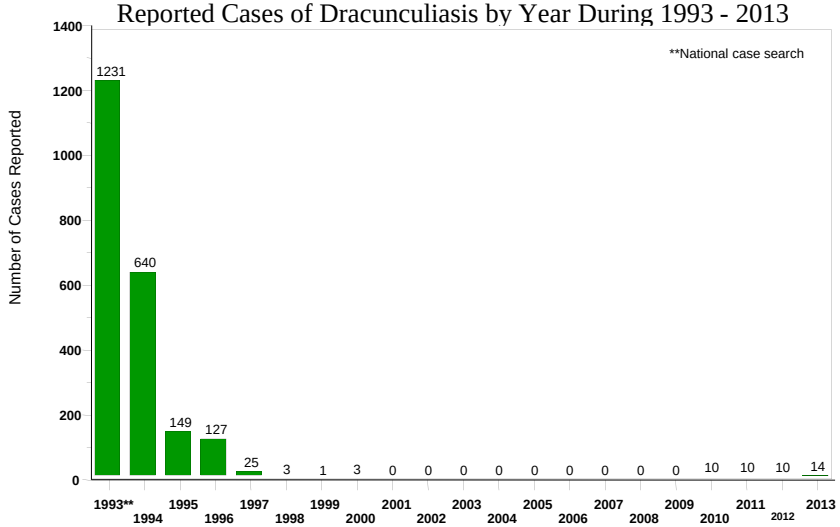
Table 4

Chad Guinea Worm Eradication Program

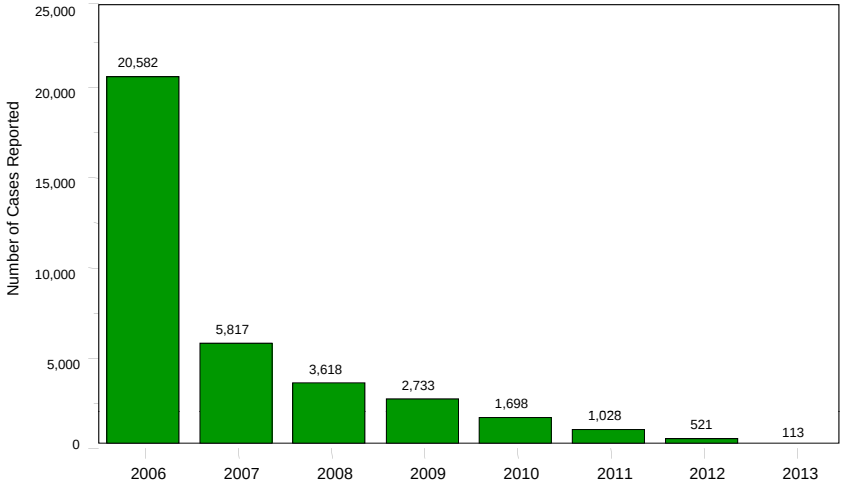
Line Listing of Cases of Dracunculiasis: January - April 2014*

Case #	Age	Sex	Ethnicity	Occupation	Village of Detection	Zone	District	Region	Date (day/month/year)						Isolated (Yes/No)	Imported Local/Int'l (Yes/No)	Localisation of Worm	Prescence of safe water in village	Village Under Active Surveillance
									Detection	Emergence	Confirmation	Admitted to Health Center	Extraction	Discharged from Health Center					
1.1	9	F	Sara Madjigay	Student	Maimou	Bemouli	Sarh	Moyen Chari	18-Jan-14	18-Jan-14	18-Jan-14	18-Jan-14	21-Jan-14	23-Jan-14	**Yes**	No	inner right ankle	no	no
2.1	52	F		Farmer/ Fisherwomen, housewife	Yadime	Kouno	Bousso	Chari Bagurmi	14-Feb-14	14-Feb-14	14-Feb-14	14-Feb-14	14-Feb-14	28-Feb-14	**Yes**	No	posterior left ankle	no	no
3.1	11	F	Sara	Child	Nanguigoto	Nanguigoto	Guelendeng	Mayo Kebbi Est	8-Mar-14	7-Mar-14	8-Mar-14	8-Mar-14	21-Mar- 14 (broke)	27-Mar-14	**Yes**	No	left exerior ankle	yes	yes
4.1	11	M	Massa	Student	Bongor	Bongor	Bongor	Mayo Kebbi Est	12-Apr-14	12-Apr-14	13-Apr-14	12-Apr-14	14-Apr-14 (broke)	pending	**Yes**	Yes- Guelende ng town	right interior ankle	yes	no

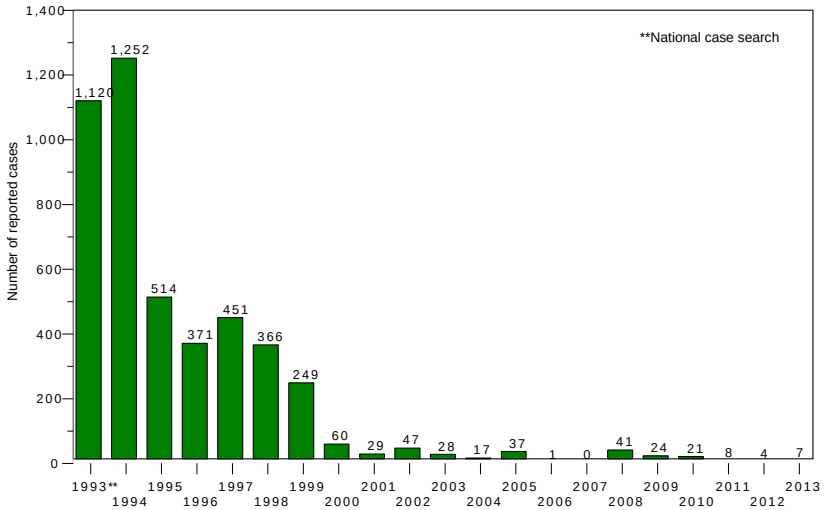
Chad Guinea Worm Eradication Program
Reported Cases of Dracunculiasis by Year During 1993 - 2013



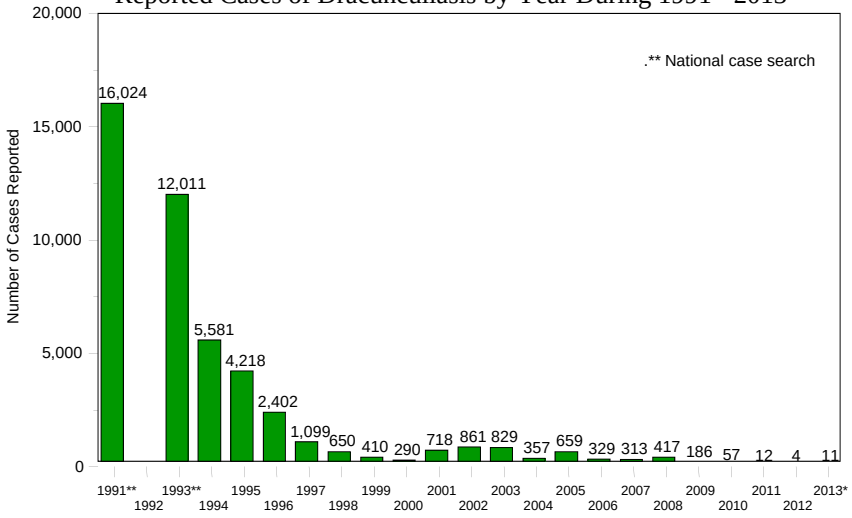
South Sudan Guinea Worm Eradication Program
Reported Cases of Dracunculiasis by Year During 2006 - 2013

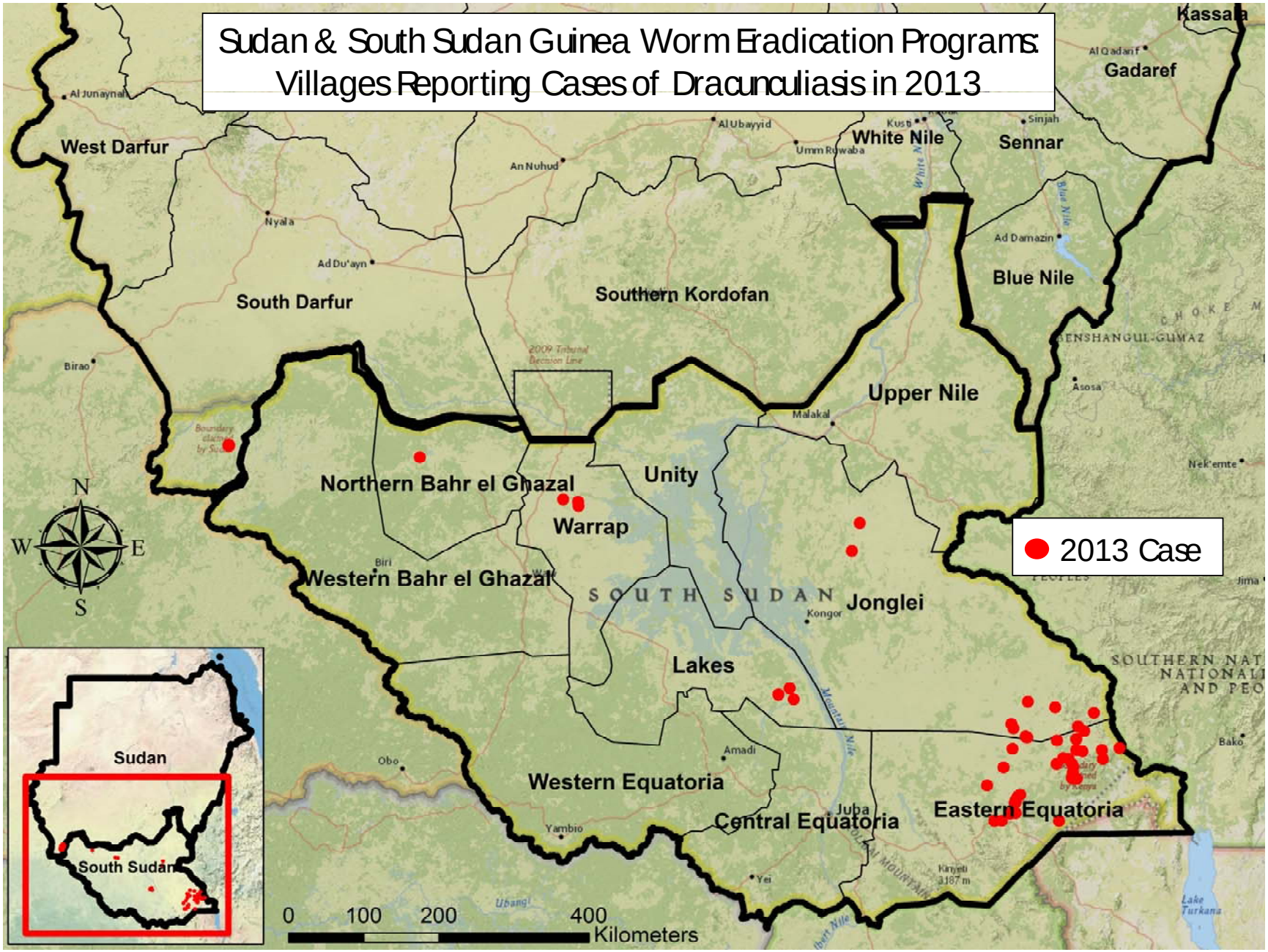


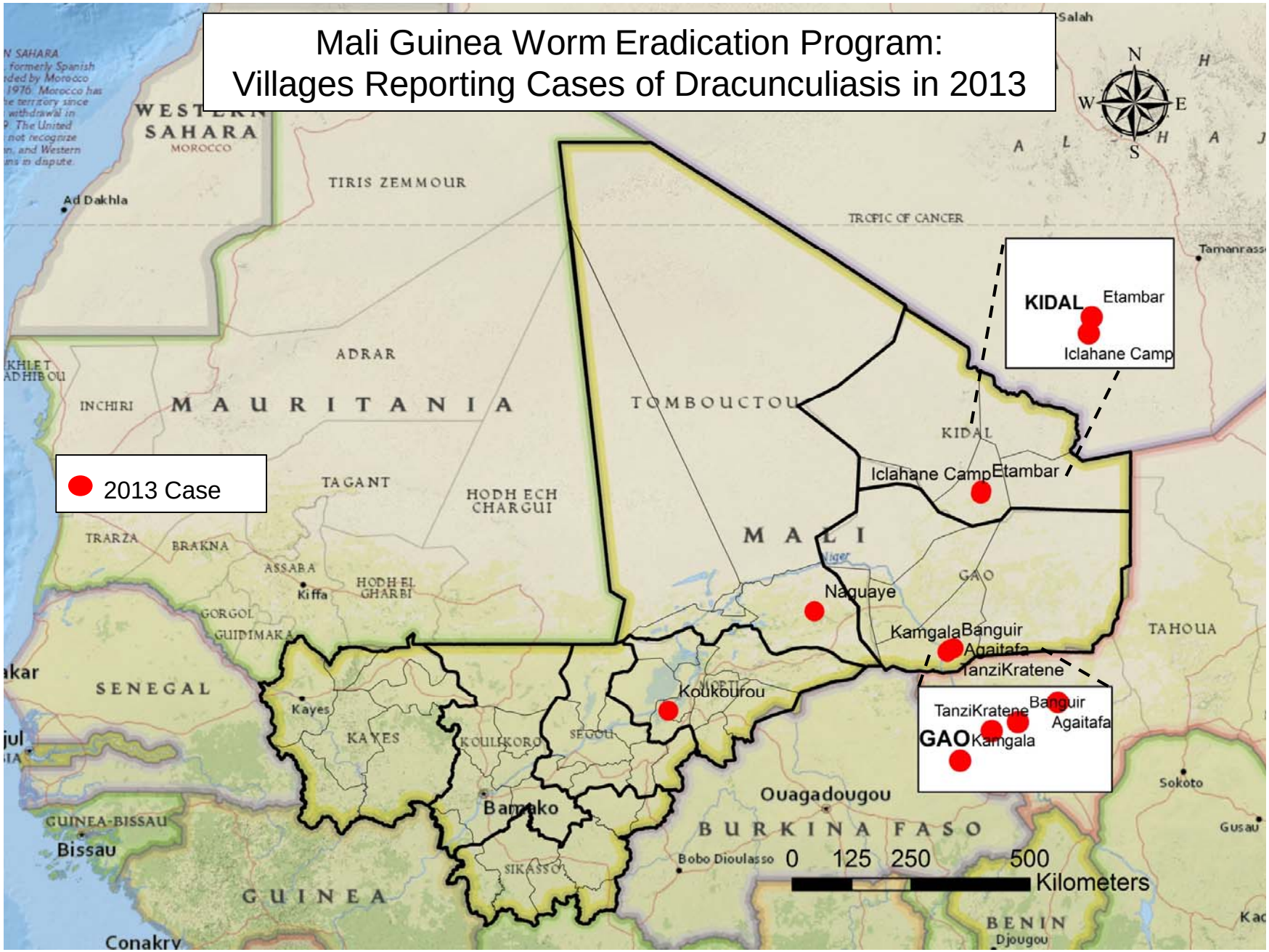
Ethiopia Guinea Worm Eradication Program
Reported Cases of Dracunculiasis by Year During 1993 - 2013

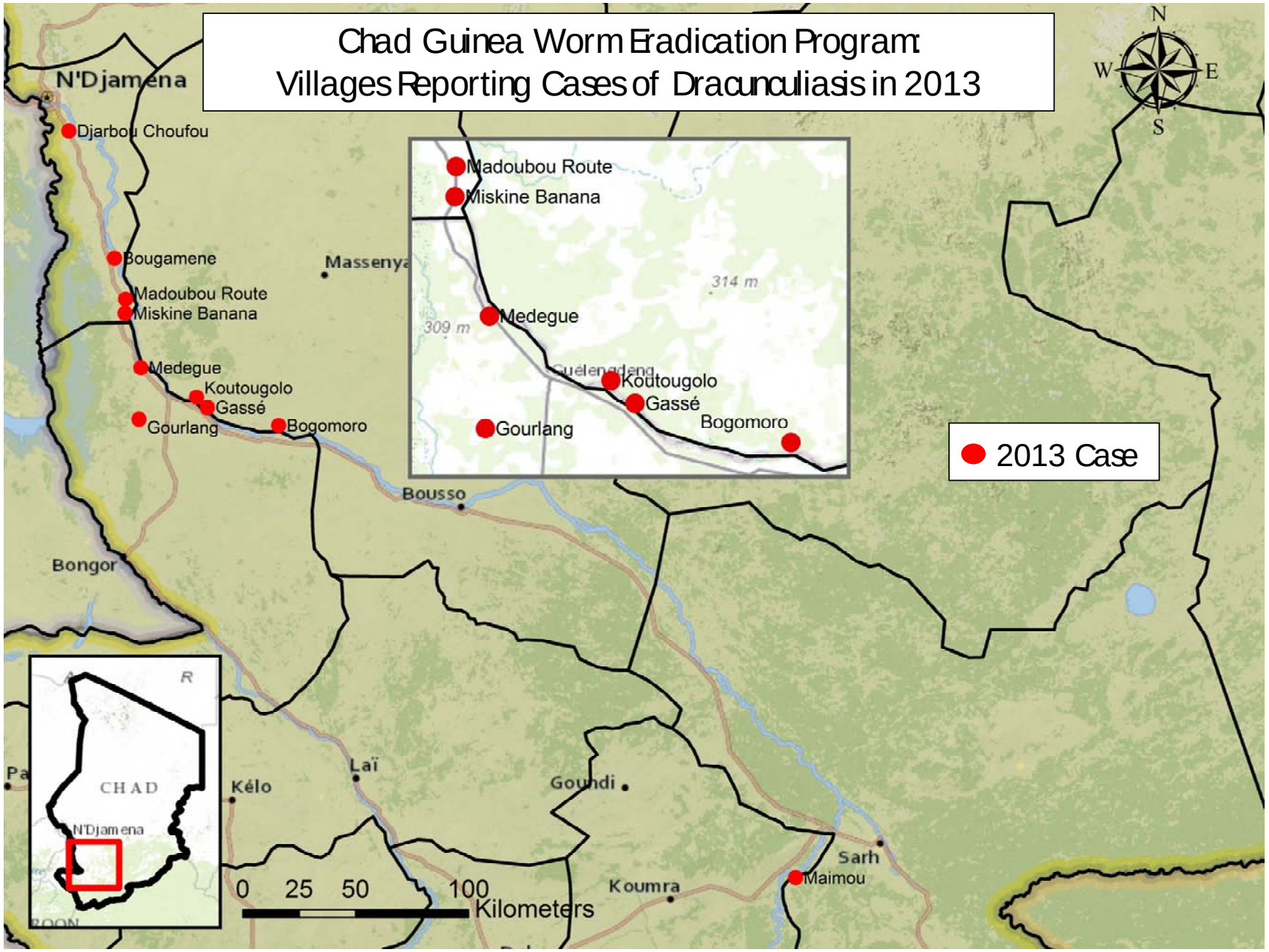


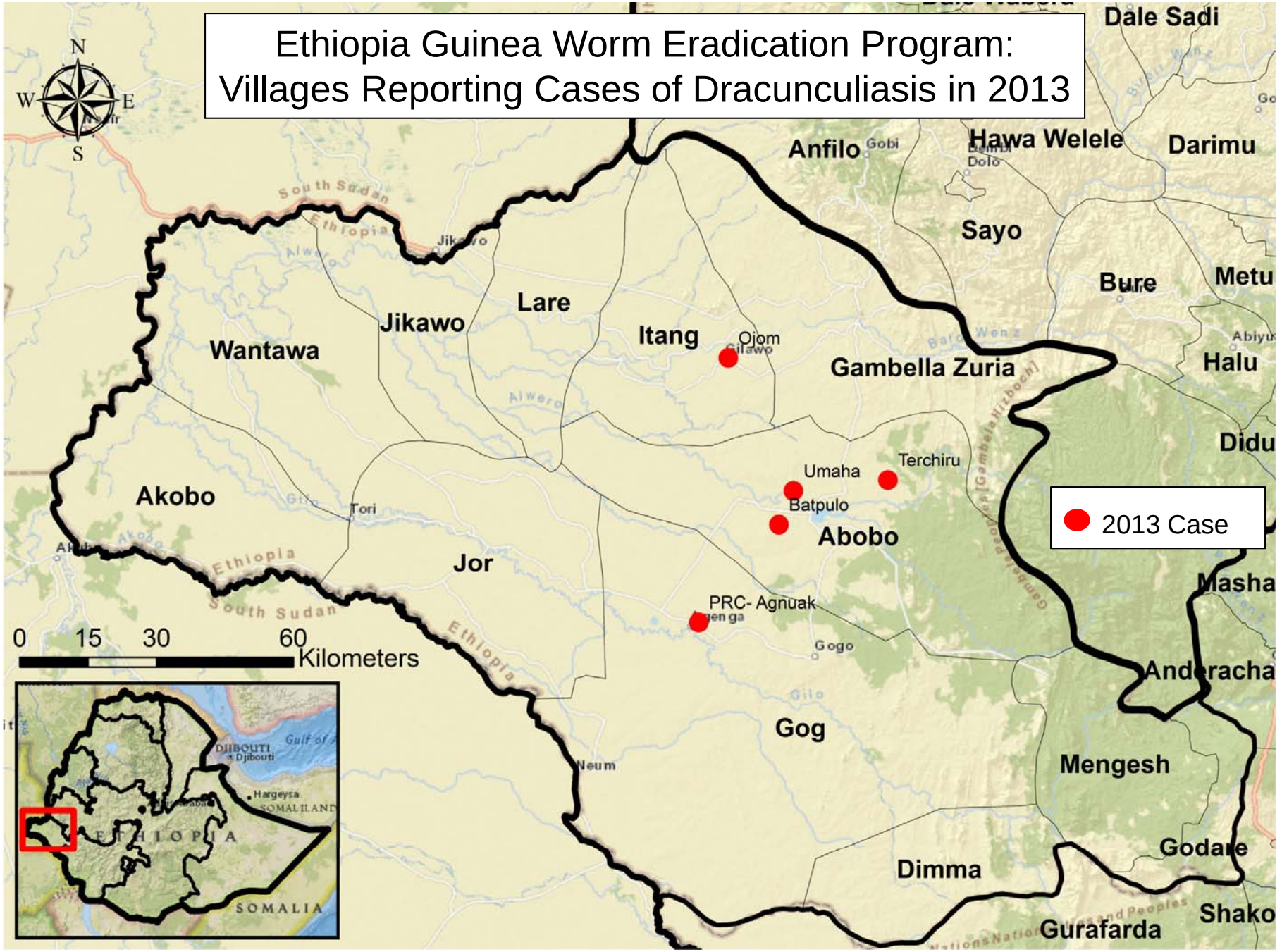
Mali Guinea Worm Eradication Program
Reported Cases of Dracunculiasis by Year During 1991 - 2013




Sudan & South Sudan Guinea Worm Eradication Programs:
Villages Reporting Cases of Dracunculiasis in 2013
West Darfur
South Darfur
Southern Kordofan
White Nile
Sennar
Blue Nile
Upper Nile
Unity
Northern Bahr el Ghazal
Warrap
Western Bahr el Ghazal
Jonglei
Lakes
Western Equatoria
Central Equatoria
Eastern Equatoria
SOUTH SUDAN
Gadaref
Kassala
Al Junaynah
Nyala
Ad Du'ayn
An Nuhud
Al Ubayyid
Umm Ruwaba
Kusti
Sinjah
Ad Damazin
Malakal
Asosa
Birao
Biri
Kongor
Obo
Amadi
Yambio
Juba
Yei
Bako
Nek'emte
Jima
N
W
E
S
2013 Case
Sudan
South Sudan
0
100
200
400
Kilometers


Mali Guinea Worm Eradication Program:
Villages Reporting Cases of Dracunculiasis in 2013
2013 Case
KIDAL
Etambar
Iclahane Camp
GAO
Kamgala
Banguir
Agaitafa
TanziKratene
Koulikourou
Naguaye
Kayes
Bamako
Bissau
Conakry
Ouagadougou
Bobo Dioulasso
Djougou
Sokoto
Gusau
Tamanrasset
Ad Dakhla
Kiffa
0 125 250 500
Kilometers
WESTERN SAHARA
MOROCCO
MAURITANIA
MALI
SENEGAL
GUINEA-BISSAU
GUINEA
BURKINA FASO
BENIN
TIRIS ZEMMOUR
ADRAR
INCHIRI
TAGANT
HODH ECH CHARGUI
HODH EL GHARBI
TRARZA
BRAKNA
ASSABA
GORGOL
GUIDIMAKA
TOMBOUCTOU
GAO
TAHOUA
KAYES
KOULIKORO
SEGOU
SIKASSO
TROPIC OF CANCER


Chad Guinea Worm Eradication Program:
Villages Reporting Cases of Dracunculiasis in 2013
N'Djamena
Djarbou Choufou
Bougamene
Massenya
Madoubou Route
Miskine Banana
Medegue
Koutougolo
Gassé
Gourlang
Bogomoro
Bousso
Bongor
Laï
Kélo
Goundi
Koumra
Sarh
Maimou
Madoubou Route
Miskine Banana
314 m
309 m
Medegue
Koutougolo
Gassé
Bogomoro
Gourlang
2013 Case
N
W
E
S
CHAD
N'Djamena
0 25 50 100
Kilometers



Note of Label Change: *Terchiru, Ojom and Umaha were previously labeled as Abidoc, Ojwom and Uma respectively.*

ETHIOPIA NOW TEN MONTHS WITH NO KNOWN CASES

Ethiopia's most recent case of Guinea worm disease was reported in June 2013 (Table 1). All but one of that year's 7 cases were reported in April (1 case), May (4 cases) or June (1 case). The two cases reported in April and June 2013 were not contained. The Ethiopia Dracunculiasis Eradication Program (EDEP) now has all 145 villages in Gog (1 case in 2013) and Abobo (5 cases in 2013) districts and 6 villages in Itang district (1 case in 2013) under active surveillance with the assistance of The Carter Center (Table 5). EDEP Coordinator Mr. Gole Ejeta brought a mobile health education van to Gambella Region for two weeks in early April 2014 to help reinforce health education messages in the affected and high risk districts. The WHO country office has recruited 4 Guinea worm officers for Gambella, two of which will be deployed to help augment surveillance in camps housing refugees from South Sudan. During March 24-April 4, Mr. Gole Ejeta, EDEP Coordinator, Dr. Abdulhakeem Alkohlani, member of the International Commission for Certification of Dracunculiasis Eradication (ICCDE), and Dr. Dieudonne Sankara, WHO/Geneva Epidemiologist visited Gambella Region to assess the status of the program, with particular attention to improving surveillance and response to possible cases of dracunculiasis in areas now free of the disease, while a second team led by Dr. Andrew Seidu Korkor from WHO/AFRO and Dr. Seyede Zeleke, WHO focal point for dracunculiasis in Ethiopia visited the Southern Nations and Nationalities Peoples Region (SNNPR), an area free of endemic dracunculiais since 2001, to assess the status of surveillance and response there. Both teams identified critical issues that need to be addressed in order to improve surveillance for dracunculiasis in non-endemic areas. The Gambella Regional Water Bureau and UNICEF began drilling borehole wells in four villages, 2 each in Gog and Abobo districts, in April.

SUDAN: ACTIVE SURVEILLANCE ESTABLISHED IN KAFIA KINGI AREA

Sudan's GWEP has now established active surveillance in the village of Kafia Kingi and 3 nearby villages, after training 10 village volunteers and 2 supervisors in the area, where 3 contained cases were discovered in June and September 2013. All four villages are reporting monthly, and house to house active case searches were conducted twice in April, with health education and raising awareness of the cash reward for reporting a case of Guinea worm disease. The village volunteers have conducted 7 health education sessions in villages under surveillance and one health education session in the military garrison. Distribution of cloth household filters and pipe filters is underway. Only one of the villages has a safe source of drinking water, but those villagers still prefer drinking from ponds. The four villages have a total of 21 ponds and numerous shallow hand-dug wells that are used to obtain drinking water. Application of Abate in the ponds every 28 days began in April. (The survey reported in *Guinea Worm Wrap-Up* #225 that showed 24% awareness of the cash reward among 42 persons surveyed was conducted in Abo Gebisha locality of South Kordofan State in March 2013.)

COMPLEMENTARY ROLES OF THE CARTER CENTER AND THE WORLD HEALTH ORGANIZATION

The Carter Center has lead responsibility for helping endemic countries interrupt transmission of Guinea worm disease.

The World Health Organization is responsible for certification of eradication, assisting countries in the pre-certification stage, and helping countries provide adequate surveillance in Guinea worm-free areas.

Table 5

ETHIOPIA DRACUNCULIASIS ERADICATION PROGRAM

STATUS OF INTERVENTIONS IN 151 VILLAGES UNDER ACTIVE SURVEILLANCE (VAS) DURING JANUARY - MARCH 2014^

GOG WOREDA: (68 VAS; 39,208 POPULATION ; 7,762 HOUSEHOLDS (HHS); 140 BOREHOLE WELLS

68 OF 68 VAS REPORTED MONTHLY	100%
118 OF 140 BOREHOLE WELLS WERE FUNCTIONAL	84%
49 OF 68 VAS WITH FUNCTIONAL BOREHOLE WELLS	72%
2,347 OF 7,762 HHS PROVIDED WITH CLOTH FILTERS	30%
54 OF 68 VAS PROVIDED WITH CLOTH FILTERS	79%
2,220 OF 31,366* RESIDENTS PROVIDED WITH PIPE FILTERS	7%
44 OF 68 VAS PROVIDED WITH PIPE FILTERS	65%
68 OF 68 VAS PROVIDED WITH HEALTH EDUCATION	100%
0 OF 68 VAS PROTECTED WITH ABATE	0%
232 SUSPECT PATIENTS MONITORED FOR GWD; 0 CASES CONFIRMED	

ITANG WOREDA: 6 VAS; 958 POPULATION;190 HOUSEHOLDS (HHS); 3 BOREHOLE WELLS

6 OF 6 VAS REPORTED MONTHLY (AS OF MARCH 2014)	100%
2 OF 3 BOREHOLE WELLS WERE FUNCTIONAL	67%
2 OF 6 VAS WITH FUNCTIONAL BOREHOLE WELLS	33%
0 OF 190 HHS PROVIDED WITH CLOTH FILTERS	0%
0 OF 6 VAS PROVIDED WITH CLOTH FILTERS	0%
0 OF 766* RESIDENTS PROVIDED WITH PIPE FILTERS	0%
0 OF 6 VAS PROVIDED WITH PIPE FILTERS	0%
6 OF 6 VAS PROVIDED WITH HEALTH EDUCATION	100%
0 OF 6 VAS PROTECTED WITH ABATE	0%
0 SUSPECT PATIENTS MONITORED FOR GWD	

ABOBO WOREDA: 77 VAS; 21,092 POPULATION; 4,478 HOUSEHOLDS (HHS);79 BOREHOLE WELLS

77 OF 77 VAS REPORTED MONTHLY	100%
67 OF 79 BOREHOLE WELLS WERE FUNCTIONAL	84%
67 OF 77 VAS WITH FUNCTIONAL BOREHOLE WELLS	87%
2,507 OF 4,478 HHS PROVIDED WITH CLOTH FILTERS	56%
55 OF 77 VAS PROVIDED WITH CLOTH FILTERS	71%
1,789 OF 17,522* RESIDENTS PROVIDED WITH PIPE FILTERS	10%
46 OF 77 VAS PROVIDED WITH PIPE FILTERS	60%
77 OF 77 VAS PROVIDED WITH HEALTH EDUCATION	100%
0 OF77 VAS PROTECTED WITH ABATE	0%
306 SUSPECT PATIENTS MONITORED FOR GWD; 0 CASES CONFIRMED	

TOTAL: 151 VAS: 61,258 POPULATION;12,430 HOUSEHOLDS (HHS); 222 BOREHOLE WELLS

151 OF 151 VAS REPORTED MONTHLY	100%
187 OF 222 BOREHOLE WELLS WERE FUNCTIONAL	84%
118 OF 151 VAS WITH FUNCTIONAL BOREHOLE WELLS	78%
4,854 OF 12,430 HHS PROVIDED WITH CLOTH FILTERS	39%
109 OF 151 VAS PROVIDED WITH CLOTH FILTERS	72%
4009 OF 49,846* RESIDENTS PROVIDED WITH PIPE FILTERS	8%
90 OF 151 VAS PROVIDED WITH PIPE FILTERS	60%
151 OF 151 VAS PROVIDED WITH HEALTH EDUCATION	100%
0 OF 151 VAS PROTECTED WITH ABATE	0%
538 SUSPECT PATIENTS MONITORED FOR GWD; 0 CASES CONFIRMED	

^ Provisional. Active village based surveillance in Itang Woreda was initiated in March.

* Target for pipe filter coverage is 80% of population

RECENT PUBLICATIONS

Al-Awadi AR, Al-Kuhlani A, Breman JG, Doumbo O, Eberhard ML, Guiguemde RT, Magnussen P, Molyneux DH, 2014. Guinea worm (Dracunculiasis) eradication: update on progress and endgame challenges. Trans Roy Soc Trop Med Hyg doi:1093/trstmh/tru039.

World Health Organization, 2014. Monthly report on dracunculiasis cases, January-February 2014. Wkly Epidemiol Rec 89:151.

Foster JM, Landmann F, Ford L, Johnston KL, Elsasser SC, Schulte-Hostedde AI, Taylor MJ, Slatko BE. 2014. Absence of Wolbachia endobacteria in the human parasitic nematode Dracunculus medinensis and two related Dracunculus species infecting wildlife. Parasit Vectors. 2014 Mar 31;7(1):140.

Definition of a contained case:
A case of Guinea worm disease is contained if all of the following conditions are met:

1. The patient is detected before or within 24 hours of worm emergence; **and**
2. The patient has not entered any water source since the worm emerged; **and**
3. The village volunteer has properly managed the case, by cleaning and bandaging until the worm is fully removed, and by giving health education to discourage the patient from contaminating any water source (if two or more emerging worms are present, the case is not contained until the last worm is pulled out); **and**
4. The containment process, including verification that it is a case of Guinea worm disease, is validated by a supervisor within 7 days of the emergence of the worm.

Working definition of a case source:
The source of a case is considered "probably known" if the patient resided in or visited a community under surveillance where a case of Guinea worm disease occurred within 10-14 months before the patient's worm emerged. Attribution to such a village or community is sufficient. Exact location of contaminated water source is not necessary.

Inclusion of information in the Guinea Worm Wrap-Up
does not constitute "publication" of that information.
In memory of BOB KAISER

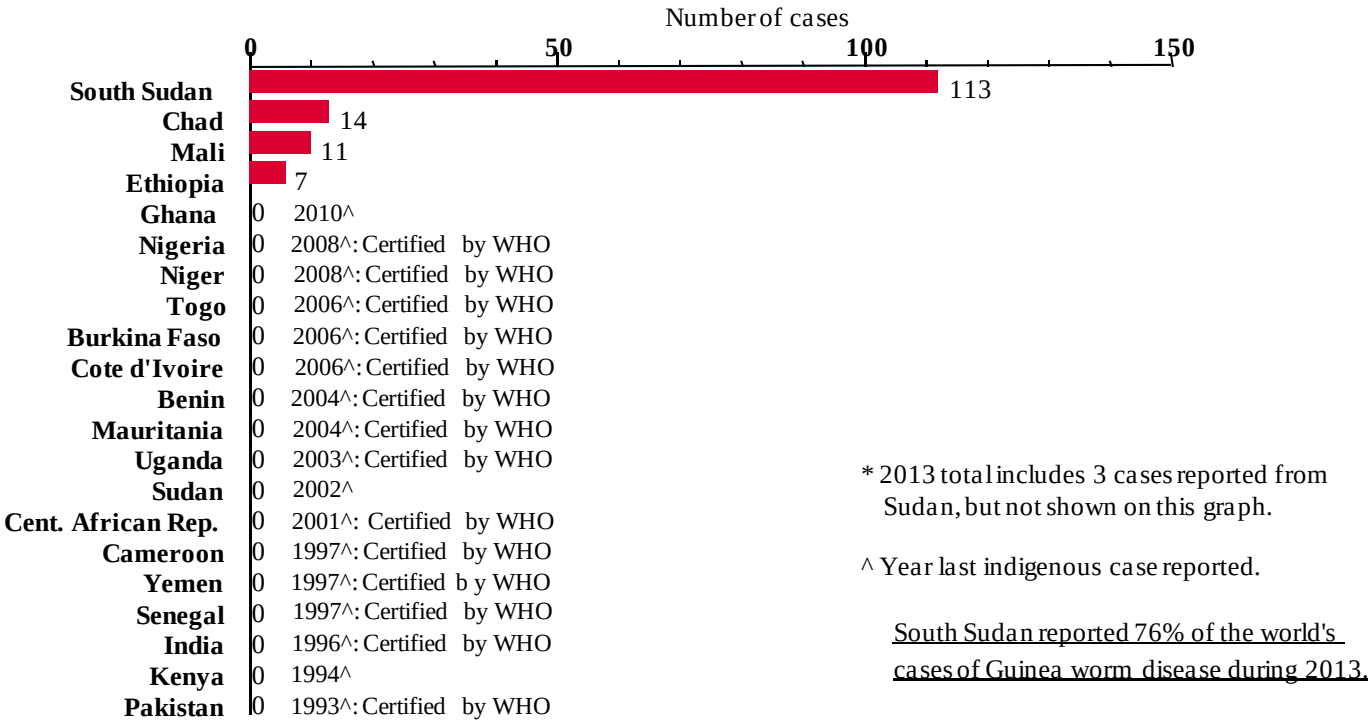
Contributors to this issue were: the national Guinea Worm Eradication Programs, Drs. Donald R. Hopkins and Ernesto Ruiz-Tiben of The Carter Center, and Drs. Sharon Roy and Mark Eberhard of CDC.

WHO Collaborating Center for Research, Training, and Eradication of Dracunculiasis, Center for Global Health, Centers for Disease Control and Prevention, Mailstop C-09, 1600 Clifton Road NE, Atlanta, GA 30333, USA, email: gwwrapup@cdc.gov, fax: 404-728-8040. The GW Wrap-Up web location is http://www.cdc.gov/parasites/guineaworm/publications.html#gwwp

Back issues are also available on the Carter Center web site English and French are located at
http://www.cartercenter.org/news/publications/health/guinea_worm_wrapup_english.html.
http://www.cartercenter.org/news/publications/health/guinea_worm_wrapup_francais.html

Figure 6

Distribution of 148 Indigenous Cases of Dracunculiasis Reported during 2013*



* 2013 total includes 3 cases reported from Sudan, but not shown on this graph.

^ Year last indigenous case reported.

South Sudan reported 76% of the world's cases of Guinea worm disease during 2013.

Figure 7