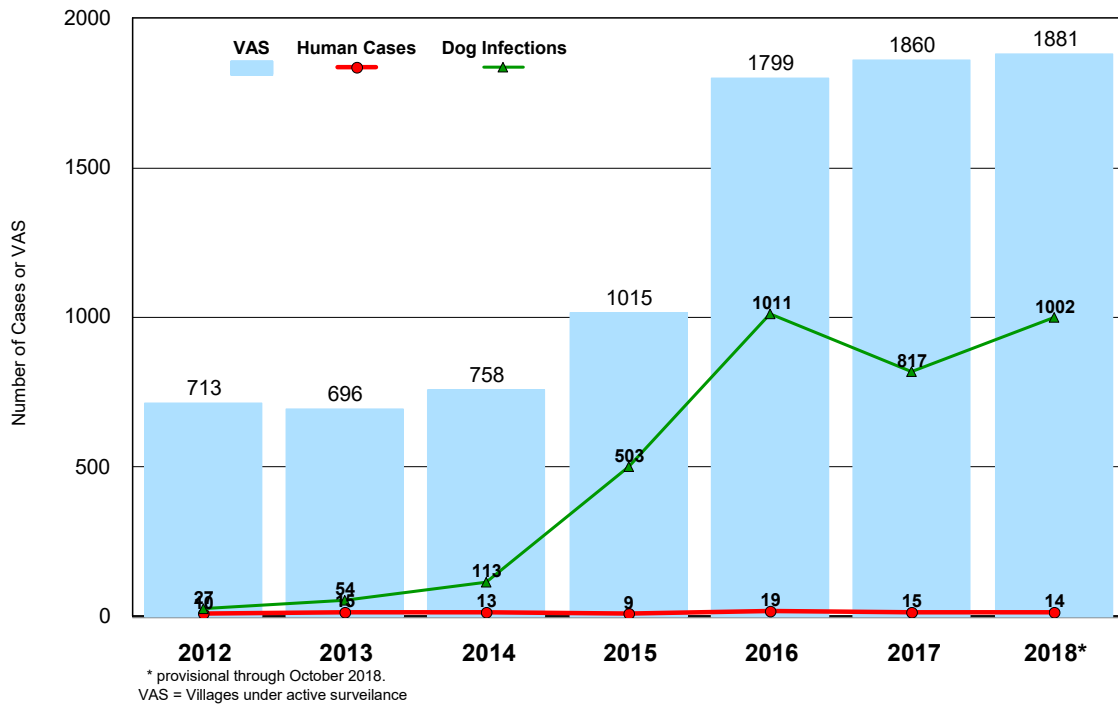


Date: December 21, 2018
From: WHO Collaborating Center for Dracunculiasis Eradication, CDC
Subject: GUINEA WORM WRAP-UP #258
To: Addressees

The war on Guinea worm will be won by village-to-village combat.

Figure 1

Chad: Expanded Surveillance, Reported Dog Infections, 2012 - 2018*



CHAD: NUMBER OF INFECTED DOGS SIMILAR IN 2016, 2017, 2018

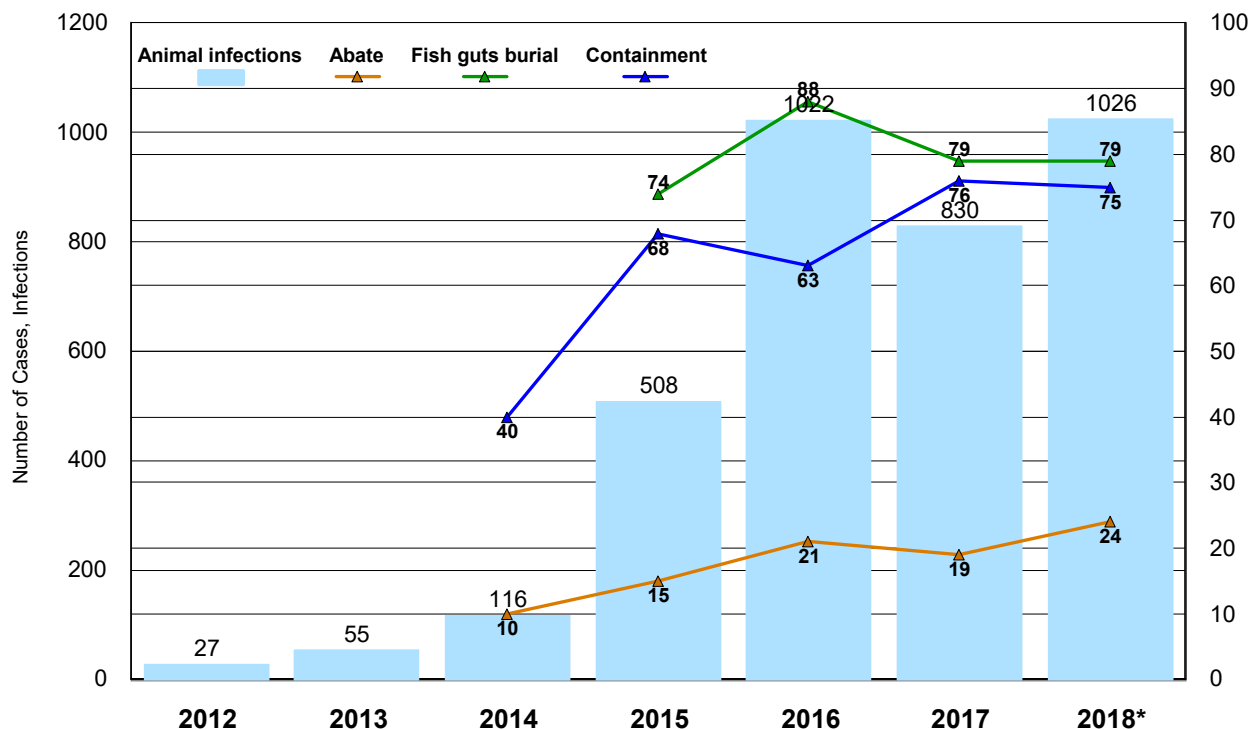
As shown in Figure 1, the small decline in reported dog infections in 2017 (818) compared to 2016 (1,011) has been followed by a similar-sized increase in dog infections between 2017 and so far in 2018 (1,002). The steep annual increases in total numbers of domestic dogs infected with Guinea worms in Chad after 2012 paralleled the rapid expansion of villages under active surveillance (VAS) and reached an apparent plateau in 2016-2018 in parallel with a plateau in VAS, as the extent of active surveillance neared its peak. The sensitivity of Chad’s surveillance for Guinea worm infections also increased after the program launched a nationwide communication campaign in July 2017 to raise awareness of the cash rewards for reporting infected humans or animals. Average reward awareness for human and dog infections in level I (endemic) and level II (high risk) active surveillance areas rose from 56% in 2017 to 74% in January-

September 2018, and Chad’s Guinea Worm Eradication Program (GWEP) received four times as many rumors of Guinea worm infections in humans in January-October 2018 (14,548) compared to all of 2017 (3,454), as well as 11,420 rumors of infected dogs in January-October 2018 compared to 2,826 rumors of infected animals in 2017. A survey in 2016 found an estimated total of 56,000 domestic dogs in villages along the Chari River, where most infections occur.

Figure 2 illustrates Chad’s progress in expanding its three key interventions (“ABC strategy”: Abate, Bury fish guts, Containment) to prevent transmission of the parasite to and from dogs. An updated line-listing of the 14 confirmed cases in humans in Chad so far this year is in Table 1. In addition to 1,002 infected domestic dogs, Chad has reported 24 domestic cats with Guinea worm infections so far in 2018. Overall, 80% of the total 1,881 Guinea worms that emerged in Chad so far this year have been contained (75% of all 1,040 infected humans and animals). The infected animals and humans in January-October 2018 have occurred in a total of 322 villages. The two interventions applied widely in Chad up to now, containment of infected dogs and burial of fish guts, apparently have blunted the earlier rapid annual increases in dog infections, but they have not reduced the incidence of infections so far. Expanding Abate treatments to more endemic villages as fast as possible and improving further the quality and extent of containment and fish gut burial should turn the tide. The program aims to scale up monthly Abate treatments to all eligible 1+ villages of 2018. The impact of adding systematic Abate application should begin to be evident soon, a year after that intervention began rolling out in some of the highest endemic villages in October 2017 (Chad also launched its nationwide campaign to increase public awareness of the cash reward and actions to prevent human and dog infections in July 2017). Meanwhile, research to help better understand the mode(s) and locations of Guinea worm transmission in Chad and to discover other potential interventions continues.

Figure 2

Chad: Incidence of GW Infection in Animals, 2012 - 2018* % Coverage** with Key Interventions



* provisional through October 2018. The animal infections are mostly dogs.
 ** Definition of coverage Abate = % cumulative villages treated in 2018/1+ villages same year;
 Burial of fish guts = % people surveyed in VAS level 1 with demonstrated fish burial practices;
 Containment = % infected humans or animals contained or tethered.

Table 1

**Chad Guinea Worm Eradication Program
GWEP Line Listing of Confirmed Cases: Year 2018***

Case #	Age	Sex	Ethnicity	Village/Locality of Detection			Date GW emerged (D/M/Y)	Nb of worms	Case contained? (Yes/No/Pending)	Patient contaminated sources of	Date ABATE applied (D/M/Y)	Source* of infection established? (Yes/No)	Worm Specimen	
				Village	District/ payam/ woreda	County/ Region							Date sent to CDC (D/M/Y)	Diagnosis
1	22	F	Sara Kaba	Madjiyam	Marabe	Moyen Chari	27-Jan-18	1	Yes	No	N/A	No	30-Jan-18	15-Feb-18
2	25	F	Sara Kaba	Dangala Kanya	Marabe	Moyen Chari	19-Feb-18	1	Yes	No	N/A	No	02-Mar-18	26-Mar-18
3	50	M	Djam	Guelbodane	Korbol	Moyen Chari	19-Mar-18	1	Yes	No	N/A	No	22-Mar-18	13-Apr-18
4	7	M	Mouroum	Moursal	Bailli	Chari Baguirmi	28-May-18	1	Yes	No	N/A	No		21-Sep-18
5	25	F	Rachide	Am-Habile	Aboudeia	Salamat	01-Jul-18	1	No	No	N/A	No	09-Jul-18	23-Jul-18
6	56	M	Arabe	Djoballa 4	Bouso	Chari Baguirmi	02-Jul-18	1	No	Yes	6-Jul-18	No	09-Jul-18	15-Aug-18
7	45	F	Foulata	Am-Dabri	Amtiman	Salamat	05-Jul-18	4	Yes	No	N/A	No	09-Jul-18	23-Jul-18
8	20	F	Rachide	Am-Habile	Aboudeia	Salamat	18-Jul-18	2	No	No	N/A	No	28-Jul-18	09-Aug-18
9	20	M	Dadjo	Am-Habile	Aboudeia	Salamat	18-Jul-18	2				No	23-Jul-18	21-Sep-18
10	60	M	Rachide	Am-Habile	Aboudeia	Salamat	29-Aug-18	7				No	14-Aug-18	21-Sep-18
11	10	F	Baguirmi	Boubou Tabana	Bouso	Chari Baguirmi	18-Aug-18	1	No	Yes	28-Aug-18	No	31-Aug-18	18-Sep-18
12	30	M	Sara Kaba	Marakouya 2	Kyabe	Moyen Chari	08-Aug-18	1	No	Possible		No	31-Aug-18	13-Sep-18
13	25	M	Arabe	Am-Dabri	Amtiman	Salamat	26-Aug-18	4	Yes	No		No	06-Sep-18	18-Sep-18
14	39	M	Nangdjere	Kobkouale-yang	Bere	Tandjile	08-Oct-18	1	No	No		No	19-Oct-18	18-Sep-18

* Provisional January - October



SOUTH SUDAN: 10 HUMAN CASES

South Sudan has reported 10 confirmed cases of Guinea worm disease in humans in January-October 2018, of which 3 (30%) were contained (Tables 2 and 5, Figure 3). At the Sudan Guinea Worm Eradication Program’s annual Program Review meeting in Juba on December 6-7, the SSGWEP director Mr. Samuel Makoy noted that access issues related to insecurity and high mobility associated with cattle encampments are major challenges as the SSGWEP addresses the newly discovered chains of transmission. The mass communication campaign to publicize the cash reward for reporting a case of GWD that was launched in October 2017 has reached 36 of the 80 former counties of the country, including the former counties associated with the 10 reported cases. As indicated in Table 3, the SSGWEP had received more rumors of cases by the end of October (29,139) than any other endemic country and investigated 98.7% of them within 24 hours, due to more areas being accessible to the program in 2018. The updated intervention indices for safe water, Abate coverage and containment are 22%, 65% and 25% respectively.

In October 2018 the SSGWEP Monitoring and Evaluation Team assessed cash reward awareness in three Risk Level 1 counties. The results showed 69% awareness among 361 persons interviewed in former Tonj North County (former Warrap State), 72% awareness (n=266) in former Tumbek County (former Lakes State) and 61% awareness in former Yirol East County (former Lakes State).

The annual review meeting was opened by First Vice President H.E. Taban Deng Gai. The Honorable Minister of Cabinet Affairs Martin Elia Lomoro who was also Acting Minister of Health as Minister Dr. Gai Kok was out of the country, attended the meeting and spoke at the Closing Ceremony. Participants at the review included Vice President Dr. Dean Sienko, Mr. Adam Weiss, Mr. Craig Withers and Country Representative Ms. Sarah Yerian of The Carter Center; African Regional Office GWE Focal Point Dr. Andrew Seidu-Kokor; Mr. Evans Lyosi of the World Health Organization; Ms. Helene Sandbu Ryeng representing UNICEF and a team from the Ethiopia Dracunculiasis Eradication Program.

Table 3 Surveillance Status in Four Guinea Worm Endemic Countries

	#VAS	Reward Amount Humans/Dogs	Reward Awareness***		# Rumors* (Humans)
			Human & Dog I&II	III	
Chad	1,881	\$100/\$20	74%	20%	14,548
Ethiopia	156	\$360/\$40	82%	ND	12,981
Mali	903	\$100/\$20	86%	48%	357
South Sudan	4,046**	\$400/NA	66%	ND	29,139

* as of October 2018

**as of 2017

*** I, II, III surveillance levels; Endemic, high risk, not high risk VAS = Villages under active surveillance

ND = No Data

NA = Not Applicable

Table 2

South Sudan Guinea Worm Eradication Program
Line Listing of Confirmed Cases of Confirmed Dracunculiasis in 2018*

Case #	Age	Sex	Ethnicity	Village/Locality of Detection				Date GW emerged (D/M/Y)	Worm contained? (Yes/No)	Patient contaminated sources of water (Yes/No)	Date ABATE applied (D/M/Y)	Source* of infection established? (Yes/No)	
				Boma	Payam	County	State						
1.1	25	M	DINKA	ADOL	MAYOM	RUMBEK CENTER	WESTERN LAKES	Mid-May	NO	YES	UNSAFE WATER SOURCES DRY AT THE TIME OF DETECTION BUT LATER ABATED ON 20/07/18	NO	
1.2				ABEER	MATANGAI			RUMBEK CENTER	WESTERN LAKES	02/06/18		YES	N/A
1.3						08/06/18	NO						
1.4						01/07/18	NO						
1.5				04/08/18	NO								
2.1	17	F	DINKA	MALEK	MALEK	RUMBEK CENTER	WESTERN LAKES	27/05/18	NO	YES	29/05/18	NO	
2.2				CUEI-CHOK ADUKAN	AMOK PINY	RUMBEK CENTER		05/07/18	NO		11/07/18	NO	
3.1	14	F	DINKA	MEEN (MAYEN)	MEEN (MAYEN)	RUMBEK NORTH	WESTERN LAKES	01/06/18	NO	YES	07/06/18	NO	
3.2				ABEER	MATANGAI	RUMBEK CENTER		WESTERN LAKES	07/06/18	YES	N/A	N/A	NO
3.3									04/07/18				NO
3.4									09/07/18				NO
4.1				35	F	DINKA		MAGUEN	AKOP	TONJ NORTH	TONJ	14/07/18	NO
4.2	ATHIENGPUOL	AKOP	TONJ NORTH				TONJ	17/07/18				YES	N/A
4.3								12/08/18	NO				
4.4								17/08/18	NO				
4.5	18/08/18	NO											
5.1	16	F	DINKA	MEEN (MAYEN)	MEEN (MAYEN)	RUMBEK NORTH	WESTERN LAKES	19/07/18	YES	N/A	N/A	NO	
6.1	24	M	DINKA	MACHAR-ACHIEK	ADIOR	YIROL EAST	EASTERN LAKES	25/07/18	NO	YES	3/8/2018 (THE CATTLE CAMP WAS EMPTY)	NO	
7.1	18	M	DINKA	MEEN (MAYEN)	MEEN (MAYEN)	RUMBEK NORTH	WESTERN LAKES	06/06/18	NO	YES	9/Jun/18	NO	
8.1	29	M	DINKA	ABEER	MATANGAI	RUMBEK CENTER	WESTERN LAKES	20/08/18	YES	N/A	N/A	NO	
9.1	7	F	NUER	TUT	THOL	NYIROL	NORTHERN BIEH	21/08/18	NO	YES	Not abated	NO	
10.1	12	M	DINKA	ABEER	MATANGAI	RUMBEK CENTER	WESTERN LAKES	10/09/18	YES	N/A	N/A	NO	

EVS= Endemic Villages

NEVS = Non Endemic Villages

* Provisional January - September

Figure 3

**South Sudan Guinea Worm Eradication Programme
Cash Reward Awareness Coverage Status through SSGWEP
Intergration Nationwide YTD by Former Counties, n=80
and Endemic Villages in 2018*, n=10**

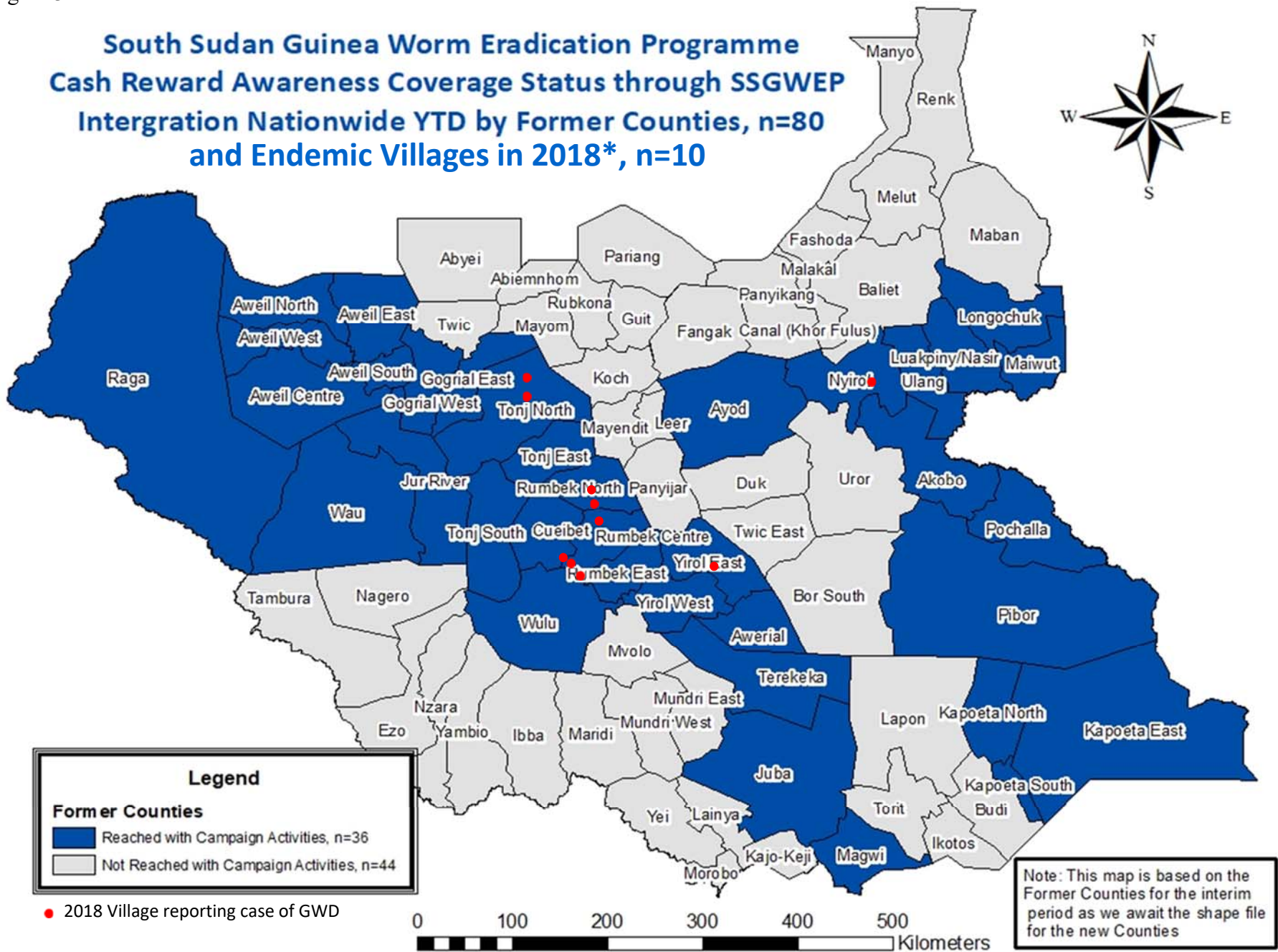


Table 4

Mali Guinea Worm Eradication Program
Listing of Dog Infections: 2018*

Animal Serial No.	Region	District	Health Area	Village	Ethnicity of Animal Owner	Occupation of Animal Owner	No. of GWs	Animal	Containment ^ (Yes/No)	Date of detection	Date GW emergence	Water Source Contamination? (Yes/No/likely)	Abate applied (Yes/No)	Lab Confirmed
1	Segou	Tominian	Fangasso	Tierakuy	Bobo	farming	2	dog	Yes	16-May-18	16-May-18	No	No	YES
2	Segou	Tominian	Togo	Matina	Bobo	farming	1	dog	Yes	9-Jun-18	10-Jun-18	No	No	YES
3	Segou	Markala	Babougou	Barakabougou	Bozo	Fishing	2	dog	No	26-Jun-18	26-Jun-18	Probable	Yes	YES
4	Segou	Macina	Central	Gueda	Bambara	farming	1	dog	No	12-Jul-18	12-Jul-18	Probable	Yes	YES
5	Segou	Macina	Central	Gueda	Bozo	fishing/farming	1	dog	No	11-Jul-18	9-Jul-18	Yes	Yes	YES
6	Segou	Tominian	Ouan	Ouena	Bobo	housewife	1	cat	No	27-Jul-18	27-Jul-18	Probable	Yes	YES
7	Segou	Tominian	Fangasso	Soumankuy	Bobo	farming	3	dog	Yes	14-Jul-18	14-Jul-18	Probable	Yes	YES
8	Segou	Tominian	Fangasso	Mampe	Bobo	farming	1	cat	No	27-Jul-18	15-Aug-18	Probable	Yes	YES
9	Mopti	Djenne	Kouakourou	Yonga Bozo	Bozo	fishing	1	dog	Yes	8-Aug-18	13-Aug-18	No	No	YES
10	Mopti	Djenne	Senossa	Senossa	Peul	farming/fishing	1	dog	Yes	29-Aug-18	31-Aug-18	No	No	YES
11	Mopti	Djenne	Keke	M'Biabougou	Bobo	farming	1	dog	Yes	23-Aug-18	23-Aug-18	No	No	YES
12	Segou	Tominian	Fangasso	Sounde	Bobo	farming	1	dog	Yes	31-Aug-18	4-Sep-18	No	No	YES
13	Segou	Tominian	Fangasso	Masso	Bobo	farming	1	dog	Yes	4-Sep-18	6-Sep-18	No	No	YES
14	Segou	Tominian	Fangasso	Sokoura	Bobo	fish trader	1	dog	Yes	9-Sep-18	17-Sep-18	No	Yes	YES
15	Mopti	Djenne	Central	Djenne	Bozo	fishing	1	dog	Yes	4-Sep-18	17-Sep-18	No	No	YES
16	Mopti	Djenne	Yebe	Kotorodaga(gomitogo)	Bozo	fishing	7	dog	Yes	6-Oct-18	6-Oct-18	Yes	No	PENDING
17	Mopti	Djenne	Central	Djenne(Farmatala)	Fulani	Tailor	1	dog	Yes	2-Oct-18	12-Oct-18	No	No	PENDING
18	Mopti	Djenne	Mourrah	Mourrah	Bozo	fishing	1	dog	Yes	8-Oct-18	8-Oct-18	No	No	PENDING
19	Segou	Tominian	Diamakan	Bonadaga	Bobo	butcher	2	dog	Yes	15-Oct-18	17-Oct-18	No	Yes	PENDING

*Provisional January - October

^ All of the containment criteria must be met:

1. The animal must be detected and tethered with in 24 hours of worm emergence.
2. The animal must not have entered a source of water with an emergent GW.
3. The animal is tethered prior to GW emergence until all worms are extracted, and owners received health education.
4. A supervisor confirms the infection with GW within 7 days of worm emergence.
5. Abate is applied to water sources to prevent the possibility of transmission of GWs within 15 days of the contamination event.

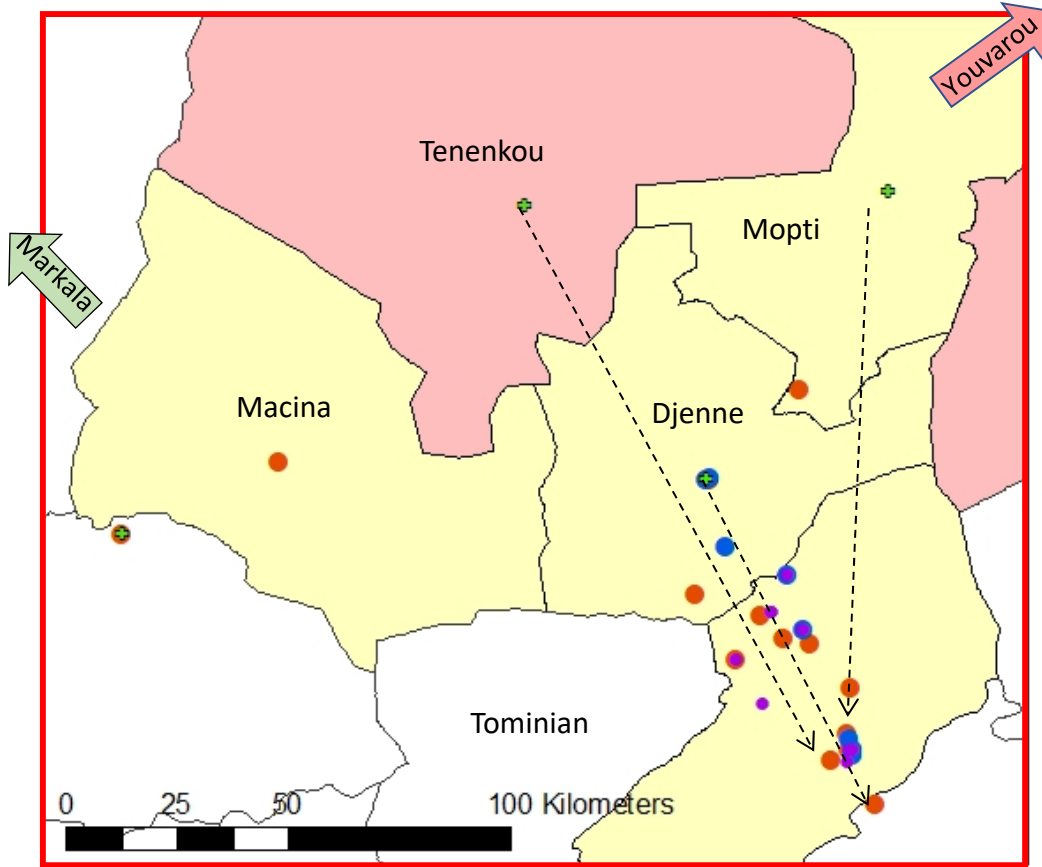
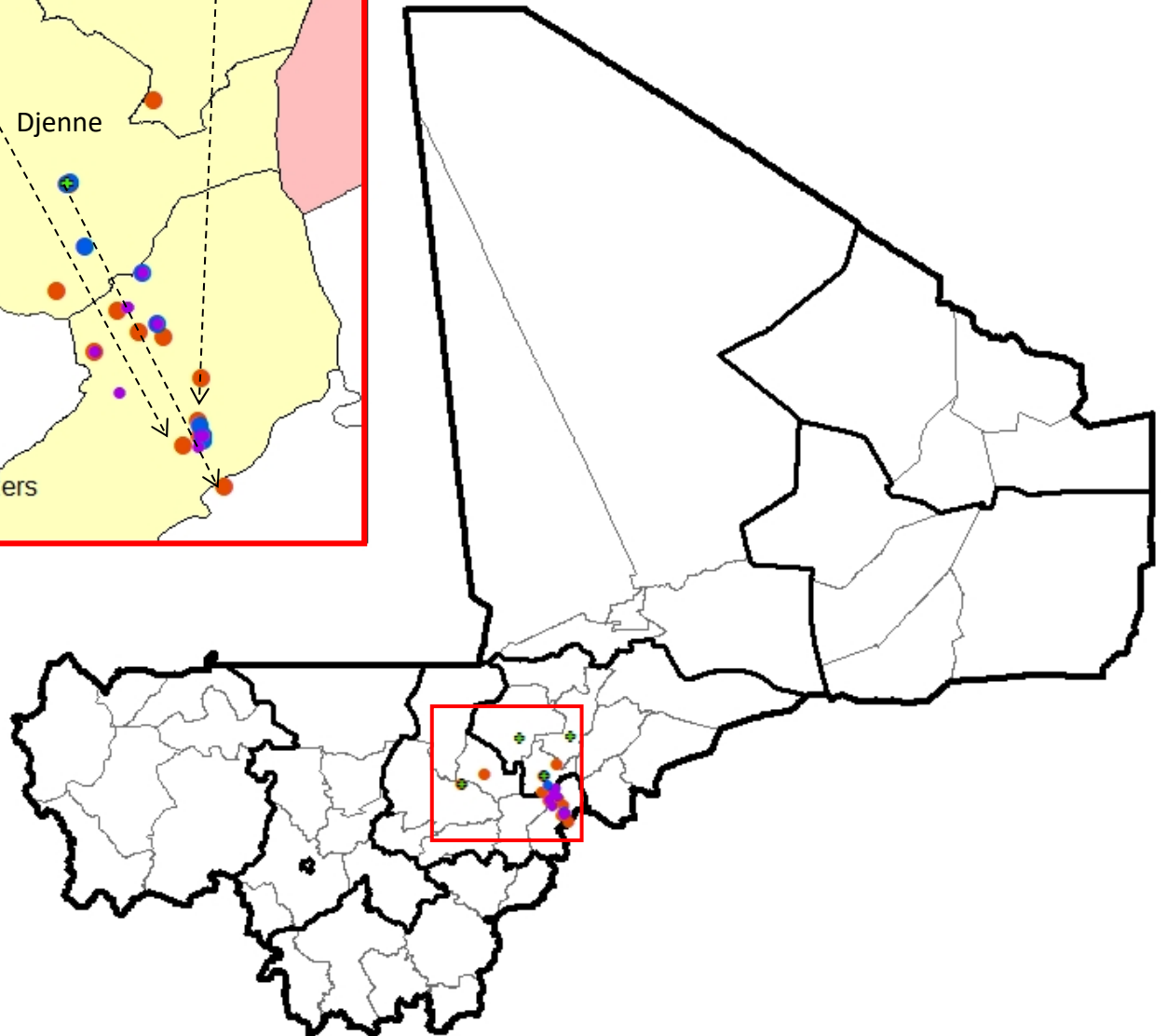


Figure 4
Distribution of Animal GW Infections in Mali: 2016, 2017, and Jan. – Oct. 2018*



Legend

- not accessible
- partially accessible
- fully accessible
- origin of animal infection
- 2016 animal infection detected
- 2017 animal infection detected
- 2018 animal infection detected

* Provisional



MALI: NO HUMAN CASES, 15 ANIMAL INFECTIONS

Mali has reported no human cases of Guinea worm disease in 2016, 2017 or in January-October 2018. It has reported 13 dogs (10 contained) with confirmed Guinea worm infections and 2 cats (both uncontained) with confirmed infections in the same period of 2018 (Table 4). This is the third consecutive year Mali has had no case of Guinea worm disease in humans; its most recent case was in November 2015. Most of the infected domestic dogs and cats in Mali have been detected in Tominian district of Segou Region, where they are imported and sold for food. The dogs are bred and become infected in adjacent districts of Mopti and Segou Regions that are part of the inland delta of the Niger River. The infected cats were born in Tominian district and became infected there.

As described in the previous issue, six of the seven districts of concern in Mali are partly or completely inaccessible to the program because of insecurity (Figure 4). During the peak transmission season (July-October), parts of Mopti, Tenenkou, Djenne and Youvarou districts have limited access due to flooding in addition to insecurity. The level of reward awareness for reporting infected humans and dogs in surveillance level I (endemic) and II (high risk) areas of Mali is good, but the number of rumors of human infections is comparatively low (452 in 2017, 357 in January-October 2018) (Table 3).

In October 21-30, 2018 the National Program Coordinator of Mali's Guinea Worm Eradication Program (GWEP), Dr. Cheick Omar Coulibaly, and Carter Center Country Representative Mr. Sadi Moussa and driver Mr. Moussa Guindo made a supervisory visit to Segou, Mopti and Sikasso Regions. The new Regional Director for Health in Segou Region, Dr. Drissa Toure, was formerly a Guinea worm warrior when he was medical officer in Gourma Rharous district of Timbuktu Region, and he promised to support the GWEP in his new position. In Tominian district the team recommended that local workers include messaging about burial of fish guts in health education sessions. In Djenne district Dr. Coulibaly introduced Dr. Elie Timbine, who was just appointed technical advisor for the GWEP in that district. In Macina district the team's visit coincided with the inauguration of a new borehole well provided by the Turkish NGO (Non-Governmental Organization) Fatima Vesile Buyukgezirci Su Kuyusu Turkiye in the endemic village of Gueda, where two infected dogs were detected in July 2018.

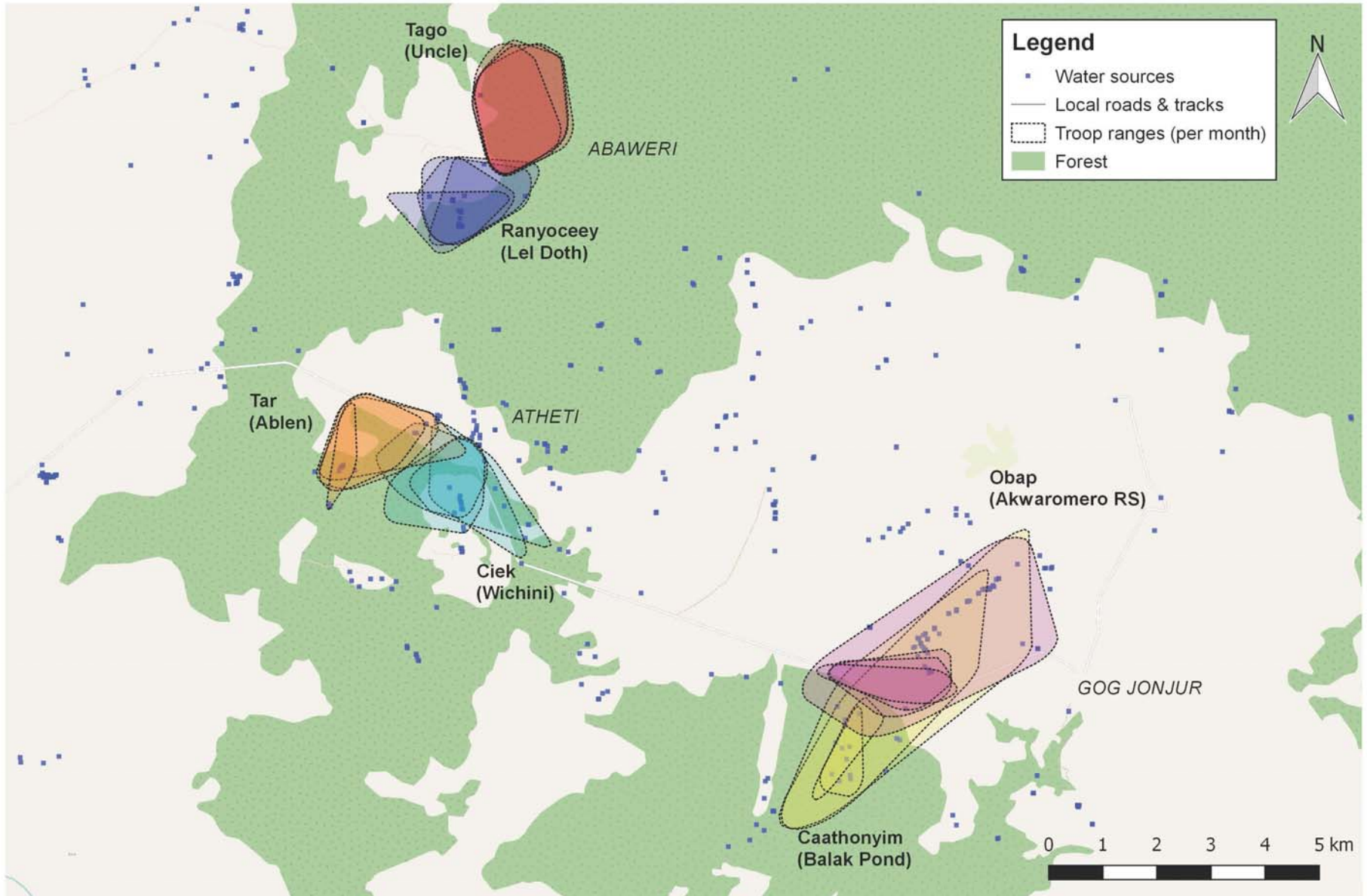
ETHIOPIA: NO HUMAN CASES, 17 ANIMAL INFECTIONS

Ethiopia has reported no human cases of Guinea worm disease in January-October 2018 which is a remarkable achievement following the 15 cases detected in the outbreak in September-December 2017. So far this year the program has reported confirmed Guinea worm infections in 10 dogs (6 contained), 5 cats (1 contained) and 1 baboon (see line listing in previous issue). All of the animal infections occurred in Gog district of Gambella Region and all of the cat infections occurred in the refugee camp PRC Agnuak. The latest surveillance indicators are summarized in Table 3.

The Ethiopia Dracunculiasis Eradication Program (EDEP) has proactively tethered 704 dogs in high risk villages of Gog and Abobo districts and 117 cats in Gog district as of October. One of the dogs that had a Guinea worm infection in Atheti village (Gog) in 2017 was among those tethered proactively this year and developed another infection on September 17, 2018. The challenges of identifying all surface water sources in densely forested areas of Gog district that might be sources of infection for humans and animals was underscored on November 1st when some boys who were chasing a baboon in the forest found a shallow new water source that was "covered by bushes and grass" and was previously unknown to the EDEP. The new water source is in the home range of a baboon troop with a history of Guinea worm infection. The program treated the water source with Abate the next day.

Figure 5

Home ranges for six baboon troops at risk of Guinea worm infection, Gog woreda, Ethiopia, July-September 2018



Base map: OpenStreetMap c.2016

Table 5

Number of Laboratory-Confirmed Cases of Guinea Worm Disease, and Number Reported Contained by Month during 2018*
(Countries arranged in descending order of cases in 2017)

COUNTRIES WITH TRANSMISSION OF GUINEA WORMS	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED													% CONT.
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	
CHAD	1 / 1	1 / 1	1 / 1	0 / 0	1 / 1	0 / 0	1 / 5	1 / 4	0 / 0	0 / 1	/	/	6 / 14	43%
ETHIOPIA	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	/	/	0 / 0	0%
SOUTH SUDAN	0 / 0	0 / 0	0 / 0	0 / 0	0 / 2	0 / 2	1 / 3	1 / 2	1 / 1	0 / 0	/	/	3 / 10	30%
MALI §	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	/	/	0 / 0	0%
ANGOLA^	/	/	/	0 / 1	/	/	/	/	/	/	/	/	0 / 1	0%
TOTAL*	1 / 1	1 / 1	1 / 1	0 / 1	1 / 3	0 / 2	2 / 8	2 / 6	1 / 1	0 / 0	0 / 0	0 / 0	9 / 25	36%
% CONTAINED	100%	100%	100%	0%	33%	0%	25%	33%	100%				36%	

*Provisional

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

Shaded cells denote months when one or more cases of GWD did not meet all case containment standards.

§Reports include Kayes, Koulikoro, Segou, Sikasso, and Mopti, Timbuktu and Gao Regions; contingent on security conditions during 2018, the GWEP continued to deploy one technical advisor to Kidal Region to oversee the program.

^ Investigation of the origin of this case is ongoing. Preliminary outcomes indicate there is no current or historical evidence of human or animal infections in the district of residence.

Number of Laboratory-Confirmed Cases of Guinea Worm Disease, and Number Reported Contained by Month during 2017*
(Countries arranged in descending order of cases in 2016)

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*	
CHAD	0 / 0	1 / 1	1 / 1	1 / 2	2 / 2	1 / 2	2 / 2	0 / 1	0 / 2	1 / 1	0 / 0	1 / 1	10 / 15	67%
SOUTH SUDAN	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0%
ETHIOPIA^	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	2 / 8	0 / 4	1 / 2	0 / 1	3 / 15	20%
MALI §	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0%
TOTAL*	0 / 0	1 / 1	1 / 1	1 / 2	2 / 2	1 / 2	2 / 2	0 / 1	2 / 10	1 / 5	0 / 0	1 / 2	13 / 30	43%
% CONTAINED	0%	100%	100%	50%	100%	50%	100%	0%	20%	20%	0%	50%	43%	

*Provisional

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

Shaded cells denote months when one or more cases of GWD did not meet all case containment standards.

^ 10 of 12 cases laboratory confirmed; 2 of 12 declared cases based on where and when these became infected in 2016, and having had signs and symptoms of GWD at the same time as others.

§Reports include Kayes, Koulikoro, Segou, Sikasso, and Mopti, Timbuktu and Gao Regions; contingent on security conditions during 2017, the GWEP continued to deploy one technical advisor to Kidal Region to oversee the program.

Figure 5 shows some preliminary results of work by Dr. Jessica Bryant of Roehampton University (UK) and attending veterinarian Dr. Fekadu Shiferaw, Carter Center Ethiopia consultant, and displays data compiled by teams tracking six troops of *Papio anubis* baboons in areas of Gog district that are at high risk for Guinea worm infections in dogs, people and baboons, including the “Guinea worm triangle” villages of Atheti, Wichini and Ablen. This work is complemented by tracking and research on movements, social behavior and diet of domestic dogs in the Guinea worm triangle that is being done by Mr. Jared Wilson-Aggarwal of the University of Exeter (UK) under the supervision of Professor. Robbie McDonald. The entire dog-baboon ecology project is supervised by Carter Center veterinarian epidemiologist Dr. James Zingesser and Carter Center Country Representative Dr. Zerihun Tadesse and conducted in cooperation with the Ethiopia Public Health Institute.

The EDEP held its annual in-country Program Review in the town of Gambella on December 11-12. The review meeting was officially opened by H.E. Omod Ojulu, President of Gambella Regional State, and was graced by the presence of the Most Honorable World Laureate Dr. Tebebe Yemane Berhane and Minister of Health Dr. Amir Aman. Participants at the review included Vice President Dr. Dean Sienko, Mr. Adam Weiss, Dr. James Zingesser, Ms. Karmen Unterwegner and Country Representative Dr. Zerihun Tadesse of The Carter Center; African Regional Office GWE Focal Point Dr. Andrew Seidu-Korkor and Dr. Zeyede Zeleke Kebede of the World Health Organization. The National Program Coordinator Mr. Mesfin Wossen described the progress of the EDEP.

DONATIONS



The Carter Center welcomes the United Kingdom government’s recent support of £25 million to support the Guinea Worm Eradication Program between 2018 and 2022.



The Carter Center welcomes the Kuwait Fund for Arab Economic Development’s contribution of \$1 million spread over three years (2018-2020) to support the Guinea Worm Eradication Program.

GUINEA WORM WARRIOR KOMI AKPLA IGNACE AMEGBO (1947-2018)



We profoundly and sadly mourn the passing of Mr. K. Ignace Amegbo, the former director of Togo's Guinea Worm Eradication Program (GWEP) from 1992 to 2005. He was an exceptionally dedicated, courageous, and effective national coordinator, who persevered through chronic unrest, political intrigue, long strikes and many other challenges to free Togo and its people of Guinea worm disease. Togo reported 10,349 cases of the disease in 1993 when its GWEP began, and reached zero cases in 2006.

By collaborating actively with the GWEP of neighboring Benin and Ghana—including joint bi-national Abate teams to treat villages on both sides of the Togo-Benin border, and holding a Togo GWEP program review in Accra one year back-to-back with Ghana's annual GWEP review—Mr. Amegbo helped those programs indirectly, while benefitting his own. An avid footballer, he occasionally arranged football (soccer) matches between staff of Togo's GWEP (including himself) and local players of endemic villages or between rival endemic villages in order to raise awareness of the GWEP. During the 6th International Meeting of National Program Managers of GWEPs at Lome in 2001 he and other members of his "Togo Guinea Worm Football Club" sang a memorable, beautifully haunting a capella anthem they composed, lauding former U.S. President Carter, Malian former head of state General Amadou Toumani Toure, Nigerian former head of state General Yakubu Gowon, and Togolese President Gnassingbe Eyadema for their support of the GWEP. He arranged local "War Councils" of medical, political and traditional leaders to build support for the program, and under his leadership Togo's GWEP pioneered using hand-painted drawings and Guinea worm messages on wood placards at ponds and was one of the earliest adopters of case containment centers. He welcomed President Carter to Togo twice, in 1992 and in a joint visit with WHO Director General Dr. Jong-wook Lee in 2004. After reaching the mandatory retirement age from the Ministry of Health, he served as a consultant to Togo's GWEP on behalf of The Carter Center in 2005-2008, as a member of the World Health Organization's International Certification Teams to the GWEPs of Cote d'Ivoire and Niger, and as a resident representative of Health and Development International for Togo's Lymphatic Filariasis Elimination Program in 2009-2013.

Trained in entomology at the University of Montreal, Amegbo returned to Togo in 1975 and was director of the Parasitology Service in the Ministry of Health before being appointed to lead the GWEP, where he was assisted from the beginning by the local offices of WHO, U.S. Peace Corps, UNICEF and Global 2000/The Carter Center, and later by Health and Development International. During much of his tenure as director of his country's GWEP, he also headed the National Hygiene Institute and chaired the National Committee for Eradication of Dracunculiasis (CNED). He stayed the course even after being robbed of his vehicle and other belongings and beaten in front of his family in 1997 when he returned home at night from one of his many field trips. Amegbo was determined, tenacious, creative, focused and possessed of boundless energy. Togo is a healthier country because of this native son's dedication.

Heartfelt tributes by three of his fellow Guinea Worm Warriors:

- "A wonderful person, always imaginative in finding creative, highly effective ways to achieve important public health goals...The Togolese have a great deal to thank Ignace Amegbo for!"
Anders Seim
- "He was not only a colleague but a good friend who taught me a lot of real practical public health lessons that I would have never learned in class." *Jim Ting*
- Amegbo had the mind of a great general, the tenacity of a true believer, the sense of humor of a favorite and loving *tonton*, the energy of a hurricane and the great warm heart of a compassionate, true friend. *Le combatant Amegbo will never leave us!* *Jim Zingesser*

MEETINGS

Chad's Guinea Worm Eradication Program will hold its annual Program Review in N'Djamena on January 23-24, 2019.

CORRECTION: Mali's Guinea Worm Eradication Program will hold its annual Program Review in Bamako on January 28-29, 2019.

The 23rd International Preview Meeting of Guinea Worm Eradication Program Managers will occur at The Carter Center in Atlanta, USA on March 21-22, 2019.

RECENT PUBLICATIONS

Hopkins DR, Ruiz-Tiben E, Weiss AJ, Roy SL, Zingeser J, Guagliardo AJ, 2018. Progress toward global elimination of dracunculiasis-January 2017-June 2018. MMWR Morbid Mortal Wkly Rpt 67:1265-1270. <http://dx.doi.org/10.15585/mmwr.mm6745a3>

World Health Organization, 2018. Monthly report on dracunculiasis cases, January-September 2018. Wkly Epidemiol Rec 93:602-603.

World Health Organization, 2018. Monthly report on dracunculiasis cases, January-October 2018. Wkly Epidemiol Rec 93:659-660. <http://apps.who.int/iris/bitstream/handle/10665/276217/WER9348.pdf?ua=1>

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

Note to contributors: Submit your contributions via email to Dr. Sharon Roy (gwwrapup@cdc.gov) or to Adam Weiss (adam.weiss@cartercenter.org), by the end of the month for publication in the following month's issue. Contributors to this issue were: the national Guinea Worm Eradication Programs, Dr. Donald Hopkins and Adam Weiss of The Carter Center, Dr. Sharon Roy of CDC, and Dr. Dieudonne Sankara of WHO.

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<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



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CDC is the WHO Collaborating Center for Dracunculiasis Eradication