Special Report:
Fourteen Arson Attacks on Villages, North Darfur 2-12 October 2024

16 October 2024

Yale SCHOOL OF PUBLIC HEALTH
Humanitarian Research Lab

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I. Key Findings

The Yale School of Public Health's Humanitarian Research Lab (HRL) identifies likely intentional conflict-related arson attacks in at least fourteen rural communities in Kutum locality, North Darfur. Satellite imagery analysis shows that the alleged attacks occurred between 2 and 12 October 2024. These communities are predominantly Zaghawa.[1] These events are consistent with both ongoing hostilities and an established pattern of systematic ethnic targeting of Zaghawa communities by Rapid Support Forces (RSF) and aligned forces.[2]

Local media reported that at least 50 people were killed in these alleged attacks by the RSF on Zaghawa communities in Kutum locality.[3] Yale HRL has previously documented RSF targeting of Zaghawa communities in and around El-Fasher between April and June 2024.[4] These attacks on Zaghawa communities occurred concurrent with reported fighting between RSF and predominantly Zaghawa Joint Forces in Bir Mezza and other villages in northern Kutum locality.[5] The RSF's alleged attacks on these communities may represent both a continuing pattern of systematic ethnic targeting as well as an effort to prevent support to Joint Forces.

Both the alleged arson attacks and clashes between RSF and Joint Forces have caused significant displacement, according to the International Organization for Migration (IOM). The IOM's preliminary reports find that approximately 1,000 households from Bir Mezza, Disa, and surrounding villages in Kutum locality were displaced between 2-3 October 2024, and an additional 3,443 households were displaced from various villages in Kutum locality between 3-9 October 2024.[6]

The RSF and Joint Forces have reportedly been fighting in the Bir Mezza area north of Kutum since at least the beginning of October 2024. On 10 October 2024, local media and Joint Forces reported that RSF attacked rural communities north of Kutum. These sources state that at least six and up to 17 communities have been affected, with limited overlap other than Bir Mezza, Disa, and Khalwa.[7] Yale HRL has identified 14 razed communities. Two of the attacked communities ("Community 2," "Community 4") are within 1 km of Bir Mezza, and one razed community ("Community 5") is within 5.5 km of Disa.

Yale HRL identified these 14 arson attacks through remote sensing and satellite imagery analysis. Many of the communities with visible thermal scarring are in the Bir Mezza and Disa areas, consistent with local media.[8] Twelve of these villages are clustered along Wadi Fugama; two are located near Wadi Anka. These locations reflect the known pattern of Zaghawa resettlement since the 2003 Darfur Genocide in small communities along wadis and are highly vulnerable to drought.[9] These communities range from approximately 43 km to 65 kilometers north of Kutum, North Darfur. The specific names of the razed communities are currently unknown. Yale HRL will continue to investigate the locations attacked and update these findings.

Table 1: Attacked Communities in Kutum Locality, 2-12 October 2024

Name	Coordinates	VIIRS Detection	Visible Thermal Scarring in Satellite Imagery
Community 1	14.70413, 24.58482	6 Oct 2024 10 Oct 2024	5-7 Oct 2024
Community 2*	14.67149, 24.59864	10 Oct 24	2-7 Oct 2024
Community 3	14.68627, 24.59773	5 Oct 24	2-7 Oct 2024
Community 4*	14.6577, 24.59805	No VIIRS	2-7 Oct 2024
Community 5	14.748, 24.61569	11 Oct 24	2-7 Oct 2024
Community 6	14.75675, 24.62753	5 Oct 24	2-7 Oct 2024
Community 7	14.76857, 24.6396	No VIIRS	2-7 Oct 2024
Community 8	14.78694, 24.64387	No VIIRS	2-7 Oct 2024
Community 9	14.79671, 24.60833	5 Oct 24	2-7 Oct 2024
Community 10	14.70553, 24.54649	No VIIRS	2-7 Oct 2024
Community 11	14.73037, 24.53317	No VIIRS	2-5 Oct 2024
Community 12	14.72818, 24.6505	6 Oct 2024	2-5 Oct 2024 7-10 Oct 2024
Community 13	14.5474967, 24.8429445	12 Oct 24	7-12 Oct 2024
Community 14	14.5959655, 24.9001875	13 Oct 24	7-12 Oct 2024

** Indicates that the community may be part of Bir Mezza*

Yale HRL has reviewed the potential human security threat of release the data above and rated the potential civilian risk as minimal. Specific coordinates have been provided to support the further identification and disambiguation of specific place names and community locations.

Yale HRL assesses that each of the 14 communities were likely intentionally attacked. The thermal pattern in all 14 communities shows selective destruction of structures with unburned areas between the houses. These phenomena, known as "selection,"[10] are forensically consistent with armed actors moving structure-to-structure, burning each structure individually (*see Methodology)*.[11] Even in a community that was not fully destroyed, such as Community 3, selection is visible. Thermally scarred structures are present in multiple, distinct locations in Community 3 without ground scarring connecting them. Community 6 exhibits the same absence of thermal scarring between thermally scarred structures indicative of selection and intentional targeting; the overwhelming majority of the structures in Community 6 appear destroyed. Yale HRL has previously documented instances where partially burned villages have been attacked multiple times in other areas of Darfur.[12] Yale HRL expects that RSF, if able, may return to complete the razing of remaining structures.

Yale HRL also identifies a corral with water catchment and nearby vegetated area that has burned during the same period. The thermal scarring appears to have affected

both the corral and surrounding vegetation. Analysts cannot assess whether this damage is conflict-related at this time.

This pattern of attack is consistent with targeted ethnic violence in RSF's attacks across Darfur, specifically El-Fasher, and the Janjaweed's attacks on communities in the 2003 Darfur Genocide. Since April 2023, HRL has confirmed approximately 70 villages arson attacks throughout Darfur; in the wake of these attacks, that number has risen to at least 84.[13] In addition to killing and wounding civilians and displacing populations, these attacks set back livelihoods, worsen severe food insecurity, and force already vulnerable communities to rebuild their homes, negatively impacting populations for years to come.

II. Methodology

Yale HRL utilizes data fusion methodologies of open source and remote sensing data analysis. Yale HRL produced this report through the cross-corroboration of open source data, including social media, local news reporting, multimedia, and other reports, and remote sensing data, including satellite imagery and thermal sensor data. Researchers analyzed open source data across social media, news reports, and other publicly available sources to identify, chrono- and geolocate, and verify incidents. Analysts assess the credibility and reliability of open source data based on a source's level of detail, past credibility, and the corroboration of other independent sources.

Remote sensing and satellite imagery analysis relies on multi-temporal change detection, which involves the comparison of two or more satellite images of the same area captured at different times to detect differences in coloration, visual properties, and presence, absence, or positional change of objects across the images. Analysts used remote sensing thermal anomaly data from NASA, Visible Infrared Imaging Radiometer Suite (VIIRS) to identify thermal anomalies that were co-located at settlements to assess possible destruction. Additionally, VIIRS thermal anomaly data was used to narrow down the possible dates that an event may have occurred. Sentinel-2 low resolution satellite imagery was used in conjunction with high resolution imagery for baseline comparison to observe thermal scarring patterns and their effect on communities in the areas of observation. Analysts used Sentinel-2 false color composite, which uses near-infrared data to better assess damage and thermal scarring. Visual indicators of intentional damage include discoloration to the analyzed structures, including indicators of possible burning or charring; observable difference in structural texture compared to pre-event dates. As regional dry season is under way at the start of October, wildfire can be a common observation. Analysts assess burning intent, versus incidental burning or wildfire, using indicators such as unaffected ground between observed burned structures, and lack of thermal scarring on ground outside individual community areas.[14]

Place names were identified using UN P-codes obtained via the United Nations Humanitarian Data Exchange (HDX) and International Organization for Migration (IOM)'s Displacement Tracking Matrix (DTM) Sudan. This baseline was then verified

and informed through open source analysis by Yale HRL's analysts with relevant cultural and linguistic skills. In some cases, villages may have names similar to other communities or may be known by multiple names. A community identified in this report may not correspond to an individual, officially designated village; communities were identified and delineated according to visible clustering of structures.

Coordinates have been provided to support the further identification and disambiguation of place names and community locations. Human security concerns were accounted for as part of the decision to release coordinates; potential civilian risk was rated minimal because these communities have already been attacked; although in an active conflict zone, it is assessed that the combatants are aware of this situation.

Limitations

There are significant limitations to the data fusion methodology. The information environment in Sudan does not have the breadth of data available in other locations and there is likely a significant reporting bias for those who provide open source reporting. The tools and techniques present significant challenges to assess activities such as extrajudicial detention, conflict-related sexual violence (CRSV), and conflict-related casualties, particularly in environments with limited data.

Satellite imagery analysis is limited by available imagery over time and space. Available nadir angles of satellite imagery can produce challenges to assess structural damage, until multiple angles and ground-level photographic and video materials emerge to help inform the analysis. Image resolution level can also limit the analyst's ability to perceive the full extent of damage present.

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[1] Sudan Tribune, "مناوي يتهم الدعم السريع بحرق قرى في شمال دارفور," October 10, 2024, https://sudantribune.net/article291943/, archived at https://perma.cc/F72A-9P9H; Refugee Documentation Centre, "Sudan – Researched and compiled by the Refugee Documentation Centre of Ireland", January 7, 2013, https://www.ecoi.net/en/file/local/2012356/98885.pdf, archived at https://perma.cc/4PP8-SDBR

[2] Caitlin N. Howarth, Kaveh Khoshnood, Nathaniel A. Raymond et al., "Confirmation of Sudan Armed Forces Bombardment Consistent with Rapid Support Forces Present in El-Fasher." 19 April 2024. Humanitarian Research Lab at Yale School of Public Health: New Haven, https://files-profile.medicine.yale.edu/documents/07e84454-5a4d-4547-8a6c-1e4921df54ea, archived at https://perma.cc/6PP3-CJCY ; | Caitlin N. Howarth, Kaveh Khoshnood, Nathaniel A. Raymond et al. "SPECIAL REPORT El-Fasher: State of Crisis." 5 June 2024. Humanitarian Research Lab at Yale School of Public Health: New Haven, https://files-profile.medicine.yale.edu/documents/207e8922-3c37-4476-97e9-505853311e3e archived at https://perma.cc/4C6Q-VJCP ; ACLED, "Situation Update: May 2024 | Sudan: The RSF sets its eyes on North Darfur", May 17, 2024, https://acleddata.com/2024/05/17/sudan-situation-update-may-2024-the-rsf-sets-its-eyes-on-north-darfur/"https://acleddata.com/2024/05/17/sudan-situation-update-may-2024-the-rsf-sets-its-eyes-on-north-darfur/, archived at https://perma.cc/9ZXC-VTZR; Human Rights Watch, "Darfur Destroyed: Ethnic Cleansing by Government and

Militia Forces in Western Sudan", May 6, 2004, https://www.hrw.org/report/2004/05/06/darfur-destroyed/ethnic-cleansing-government-and-militia-forces-western-sudan, archived at https://perma.cc/QV4T-XW23.

[3]@RadioDabanga (on X, formerly known as Twitter), "منسقية النازحين في شمال دارفور", October 15, 2024, archived at https://x.com/RadioDabanga/status/1846155404306239650, archived at https://perma.cc/7GQE-SYLY ; Sudan Tribune, " مناوي يتهم الدعم السريع بحرق قرى في شمال دارفور", October 10, 2024, https://sudantribune.net/article291943/, archived at https://perma.cc/F72A-9P9H

[4] Human Rights Watch, "Darfur Destroyed: Ethnic Cleansing by Government and Militia Forces in Western Sudan", May 6, 2004, https://www.hrw.org/report/2004/05/06/darfur-destroyed/ethnic-cleansing-government-and-militia-forces-western-sudan, archived at https://perma.cc/QV4T-XW23; Caitlin N. Howarth, Kaveh Khoshnood, Nathaniel A. Raymond et al., "Confirmation of Sudan Armed Forces Bombardment Consistent with Rapid Support Forces Present in El-Fasher." 19 April 2024. Humanitarian Research Lab at Yale School of Public Health: New Haven, https://files-profile.medicine.yale.edu/documents/07e84454-5a4d-4547-8a6c-1e4921df54ea, archived at ; | Caitlin N. Howarth, Kaveh Khoshnood, Nathaniel A. Raymond et al. "SPECIAL REPORT El-Fasher: State of Crisis." 5 June 2024. Humanitarian Research Lab at Yale School of Public Health: New Haven, https://files-profile.medicine.yale.edu/documents/207e8922-3c37-4476-97e9-505853311e3e archived at

[5] Fighting between RSF and Joint Forces has also occurred in other areas of North Darfur, including Malha and Mellit localities. International Organization for Migration, "DTM Sudan Flash Alert: Conflict in Kutum (Birmaza and Disa Villages), North Darfur" October 6, 2024, https://mailchi.mp/iom/dtm-sudan-flash-alert-conflict-in-kutum-birmaza-and-disa-villages-north-darfur-update-001, archived at https://perma.cc/FZ9A-DWXD; Sudan War Monitor, " مصرع واصابة اكثر من ١٠٠مواطن بولاية شمال دارفور" October 3, 2024, https://sudanwarmonitor.com/p/56d, archived at https://perma.cc/D45Z-VQKL; Radio Dabanga, " معارك عنيفة في الفاشر، والمشتركة تسيطر على "بئر مزة"بشمال دارفور" October 2, 2024, https://www.dabangasudan.org/ar/all-news/article/%D9%85%D8%B9%D8%A7%D8%B1%D9%83-%D8%B9%D9%86%D9%8A%D9%81%D8%A9-%D9%81%D9%8A-%D8%A7%D9%84%D9%81%D8%A7%D8%B4%D8%B1%D8%8C-%D9%88%D8%A7%D9%84%D9%85%D8%B4%D8%AA%D8%B1%D9%83%D8%A9-%D8%AA%D8%B3%D9%8A%D8%B7, archived at https://perma.cc/KFZ7-CKFE ; Sudan War Monitor, "Sprawling battles in rural areas north of El Fasher", October 2, 2024, https://sudanwarmonitor.com/p/joint-force-convoy-arrives-north-darfur, archived at https://perma.cc/G9UE-RFXH ; Aljazeera "Fears of all-out ethnic war rise in Sudan's Darfur", November 22, 2023, https://www.aljazeera.com/news/2023/11/22/fears-of-all-out-ethnic-war-in-rise-in-sudans-darfur, archived at https://perma.cc/5G6L-ZD53

[6] International Organization for Migration, "DTM Sudan Flash Alert: Conflict in Kutum (Birmaza and Disa Villages), North Darfur" October 6, 2024, https://mailchi.mp/iom/dtm-sudan-flash-alert-conflict-in-kutum-birmaza-and-disa-villages-north-darfur-update-001, archived at https://perma.cc/FZ9A-DWXD; International Organization for Migration, "DTM Sudan Flash Alert: Conflict in Kutum locality, North Darfur" October 10, 2024, https://mailchi.mp/iom/dtm-sudan-flash-alert-conflict-in-kutum-locality-north-darfur-update-002, archived at https://perma.cc/97GM-XKZN

[7] @RadioDabanga (on X, formerly known as Twitter), "منسقية النازحين في شمال دارفور", October 15, 2024, archived at https://x.com/RadioDabanga/status/1846155404306239650, archived at https://perma.cc/7GQE-SYLY ; Sudan Tribune, "مناوي يتهم الدعم السريع بحرق قرى في شمال دارفور", October 10, 2024, https://sudantribune.net/article291943/, archived at https://perma.cc/F72A-9P9H; Elsadeg Elnor/ الصادق علي النور(@ElnorElsadeg), "في اضافة جديدة لوحشيتها وفي هجوم غير مسبوق", X (formerly known as Twitter), https://x.com/ElnorElsadeg/status/1844433704678195544, archived at https://perma.cc/KMS5-4QMT

[8] Sudan Tribune, "مناوي يتهم الدعم السريع بحرق قرى في شمال دارفور", October 10, 2024, https://sudantribune.net/article291943/, archived at https://perma.cc/F72A-9P9H

[9] Refugee Documentation Centre, "Sudan – Researched and compiled by the Refugee Documentation Centre of Ireland", January 7, 2013, https://www.ecoi.net/en/file/local/2012356/98885.pdf, archived at https://perma.cc/4PP8-SDBR

[10] "Selection" refers to a pattern of destruction to structures where there is unaffected or unburned ground between burned structures and there is a lack of thermal scarring outside the community. This pattern of damage is highly consistent with an intentional attack rather than a wildfire or other form of unintentional destruction.

[11] Brittany Card, Ziad Al Achkar, Isaac L. Baker, and Nathaniel A. Raymond. 9/2015. Satellite Imagery Interpretation Guide: Intentional Burning of Tukuls, https://hhi.harvard.edu/publications/satellite-imagery-interpretation-guide-intentional-burning, archived at https://perma.cc/87WA-QW4Y

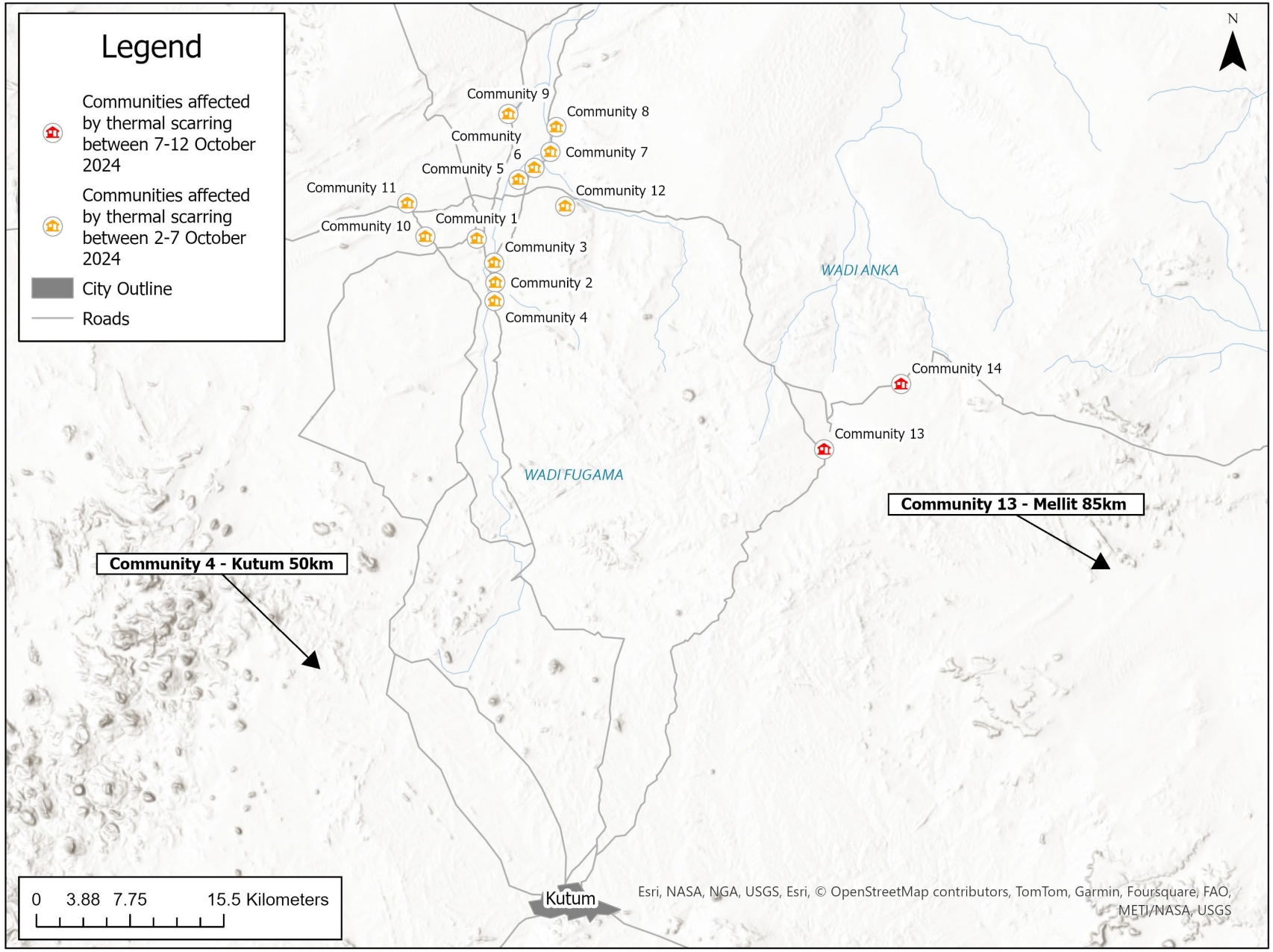
[12] Caitlin N. Howarth, Kaveh Khoshnood, Nathaniel A. Raymond et al. "SPECIAL REPORT El-Fasher: State of Crisis." 5 June 2024. Humanitarian Research Lab at Yale School of Public Health: New Haven.

[13] Caitlin N. Howarth, Kaveh Khoshnood, Nathaniel A. Raymond et al. "SPECIAL REPORT El-Fasher: State of Crisis." 5 June 2024. Humanitarian Research Lab at Yale School of Public Health: New Haven; Howarth, Caitlin N., Kaveh Khoshnood, Andrew Marx, Nathaniel A. Raymond, et al. https://files-profile.medicine.yale.edu/documents/207e8922-3c37-4476-97e9-505853311e3e, archived at https://perma.cc/9NTM-6ZH5

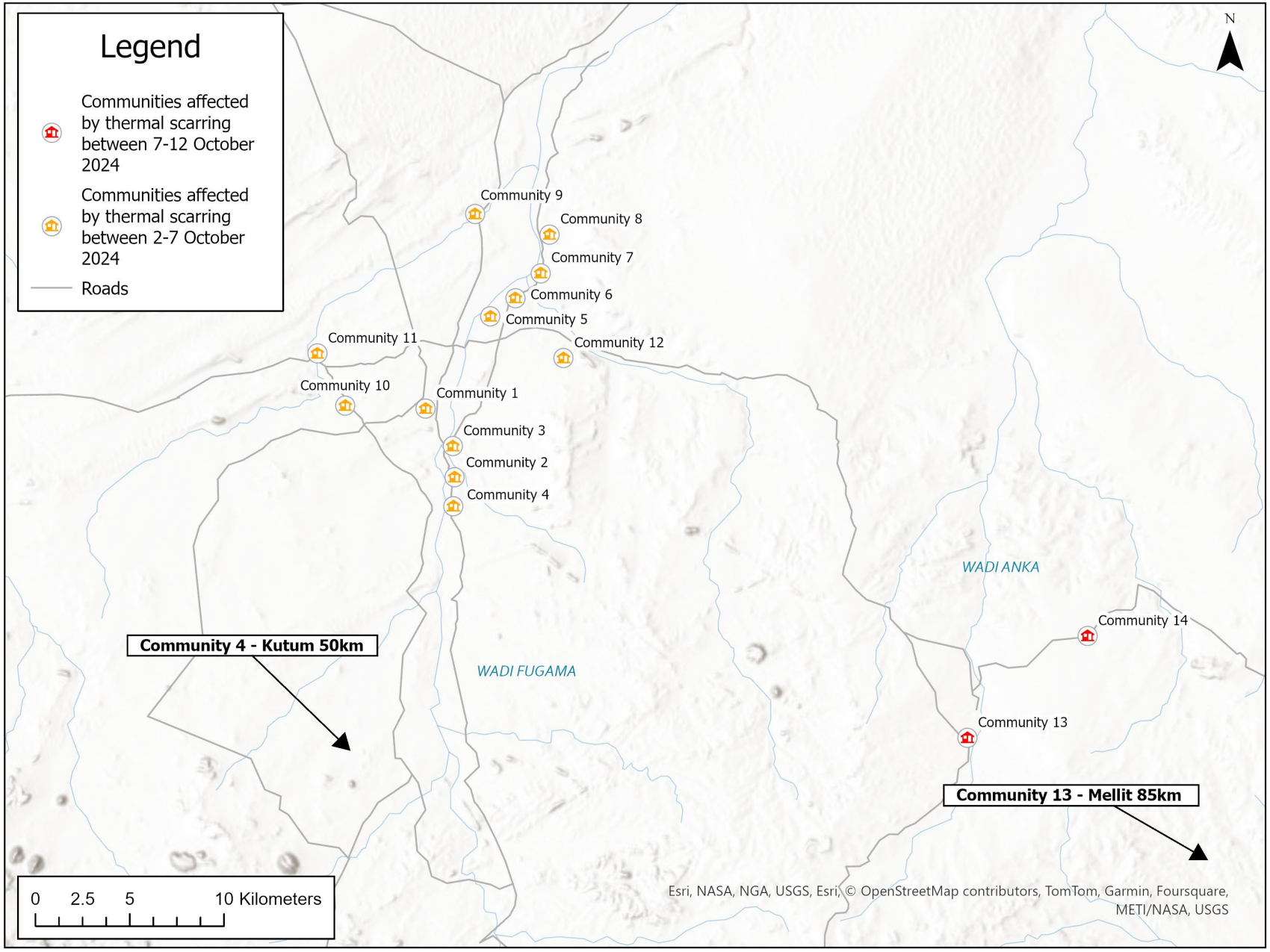
"TITLE: Sirba, West Darfur, 24 July– 30 July, 2023" Report 008 02 Aug 2023, Sudan Conflict
Observatory: Washington, DC. Available at https://sudan.conflictobservatory.org https://hub.conflictobservatory.org/portal/apps/sites/#/sudan/documents/33bda16ddba444a395627050ffa85119/explore; Howarth, Caitlin N., Kaveh Khoshnood, Nathaniel A. Raymond, et al. "Evidence of Alleged Crimes Against Humanity by Rapid Support Forces in Darfur, 15 April – 10 July 2023", 12 July 2023, Sudan Conflict Observatory: Washington,
DC.https://hub.conflictobservatory.org/portal/apps/sites/#/sudan/pages/7cd27a952f1b4a0289adc710524c6ee8

[14] Brittany Card, Ziad Al Achkar, Isaac L. Baker, and Nathaniel A. Raymond. 9/2015. Satellite Imagery Interpretation Guide: Intentional Burning of Tukuls, https://hhi.harvard.edu/publications/satellite-imagery-interpretation-guide-intentional-burning, archived at https://perma.cc/87WA-QW4Y

Thermal Scarring at Communities in Kutum Locality between 2-12 October 2024



Thermal Scarring at Communities in Kutum Locality between 2-12 October 2024

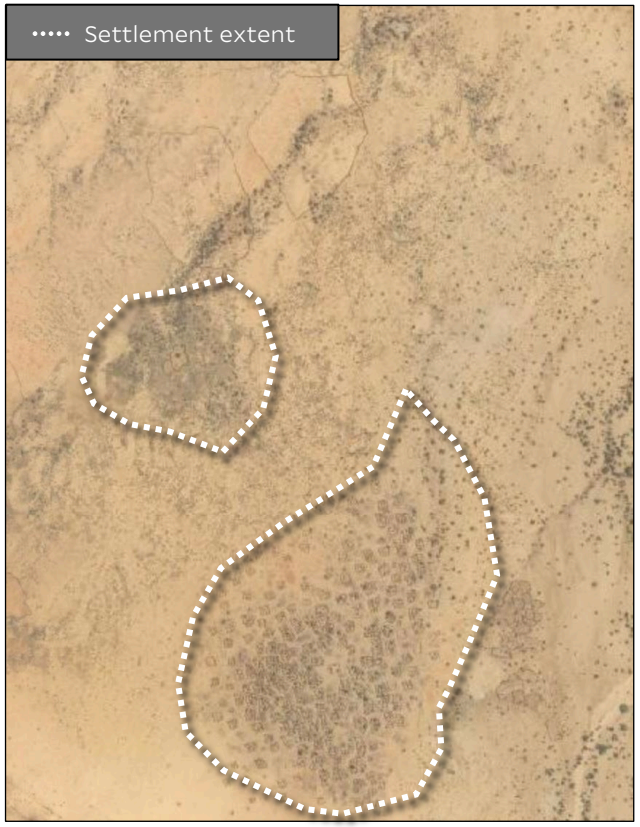


Kutum Community 1

COMMUNITY NORTH OF KUTUM, 2-10 OCTOBER 2024

According to analysis of satellite imagery, thermal scarring was observed at a location, referred to here as “Kutum Community 1,” between 2 and 7 October 2024 and again between 7 and 10 October 2024. This community is located north of Jebel Berakow and west of Wadi Fughma near Qawz Nai. According to analysis of VIIRS data, fire events occurred on 6 and 10 October 2024.

The unaffected ground between burned structures and lack of thermal scarring on ground outside individual community areas is highly consistent with intentional attack targeting structures.



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14.70413, 24.58482

Kutum Community 2

COMMUNITY NORTH OF KUTUM, 2-7 OCTOBER 2024

According to analysis of satellite imagery, thermal scarring was observed between 2 and 7 October 2024 at a community east of Gerasam and referred to here as "Kutum Community 2." According to analysis of VIIRS data, a fire event occurred on 5 October 2024.

The unaffected or unburned ground between observed burned structures, and lack of thermal scarring on ground outside individual community areas is highly consistent with intentional targeting of structures.

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14.67149 24.59864

Kutum Community 3

COMMUNITY NORTH OF KUTUM, 2-7 OCTOBER 2024

According to analysis of satellite imagery, thermal scarring was observed between 2 and 7 October within a community east of Gerasam, referred to here as "Kutum Community 3." According to analysis of VIIRS data, a fire event occurred on 5 October 2024.

The unaffected or unburned ground between observed burned structures, and lack of thermal scarring on ground outside individual community areas is highly consistent with intentional targeting of structures.

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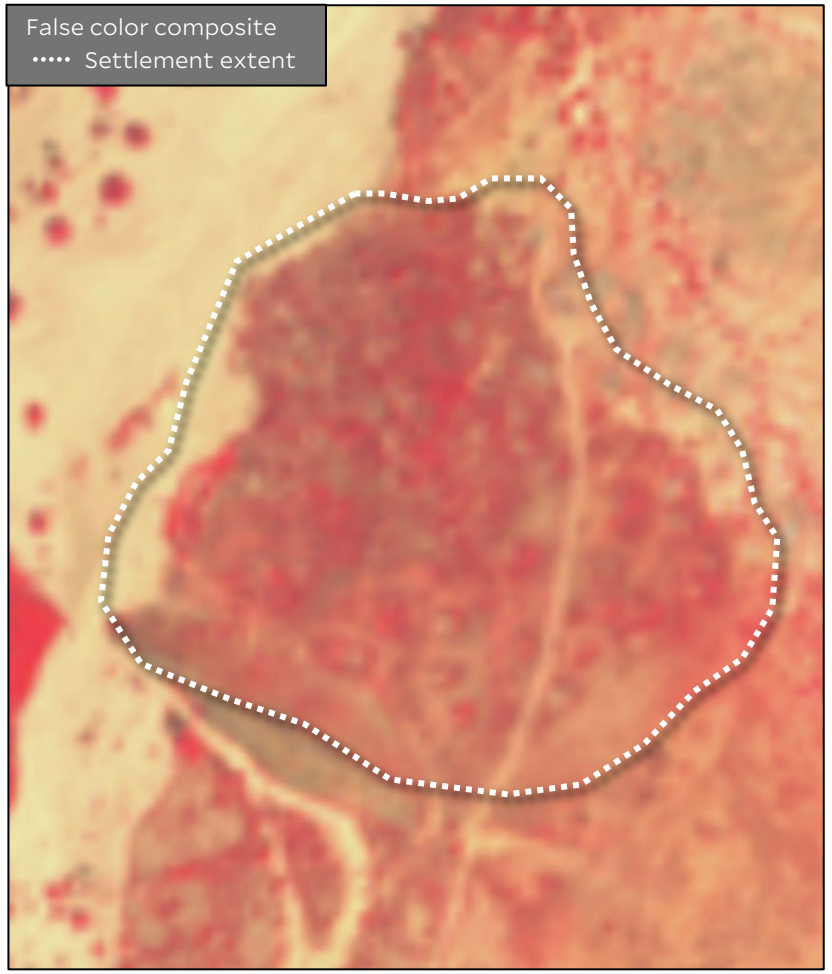

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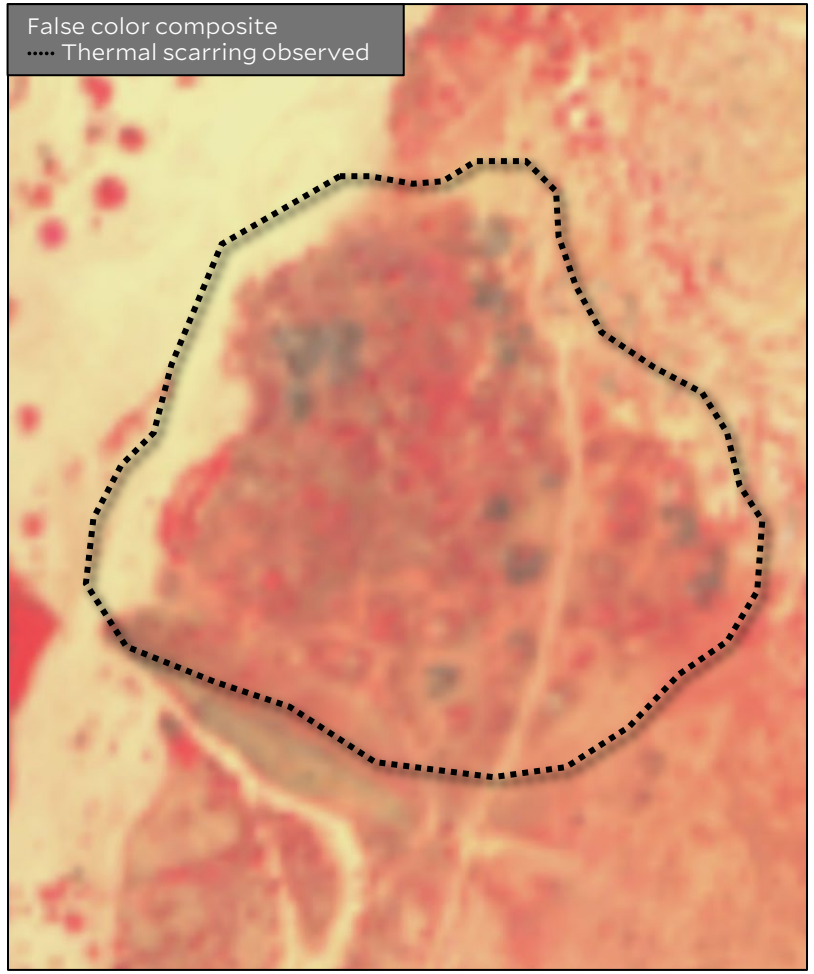

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14.68627, 24.59773

Kutum Community 4

COMMUNITY NORTH OF KUTUM, 2-7 OCTOBER 2024

According to analysis of satellite imagery, thermal scarring was observed between 2 and 7 October 2024 within a community east of Gerasam, referred to here as "Kutum Community 4."

The unaffected or unburned ground between observed burned structures, and lack of thermal scarring on ground outside individual community areas is highly consistent with intentional targeting of structures.

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14.6577, 24.59805

Kutum Community 5

COMMUNITY NORTH OF KUTUM, 2-7 OCTOBER 2024

According to analysis of satellite imagery, thermal scarring was observed within a community, referred to here as "Kutum Community 5," between 2 and 7 October 2024. According to analysis of VIIRS data, a fire event occurred on 11 October 2024.

The unaffected or unburned ground between observed burned structures, and lack of thermal scarring on ground outside individual community areas is highly consistent with intentional targeting of structures.

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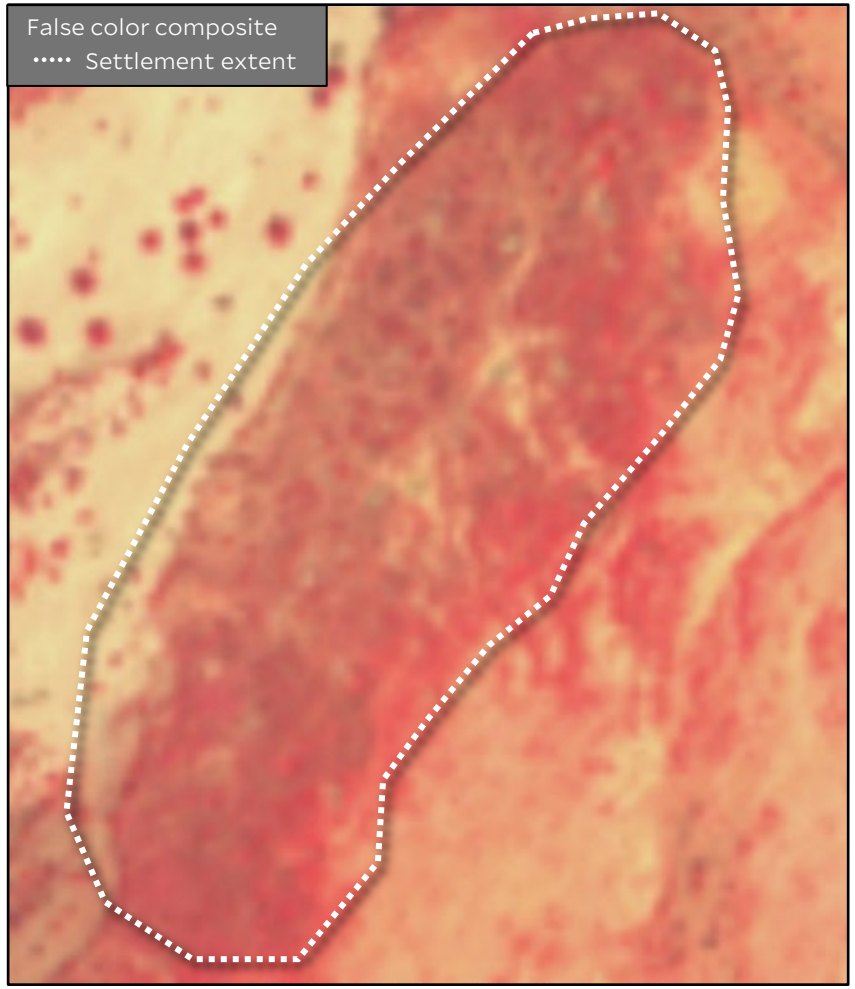

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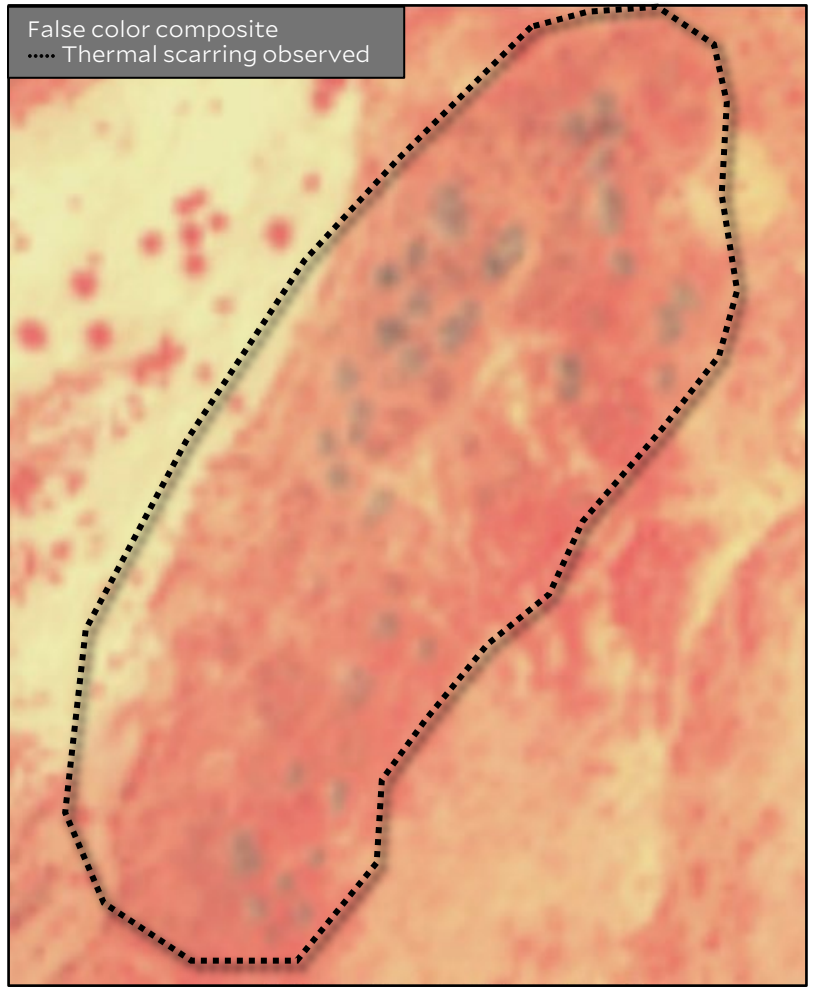

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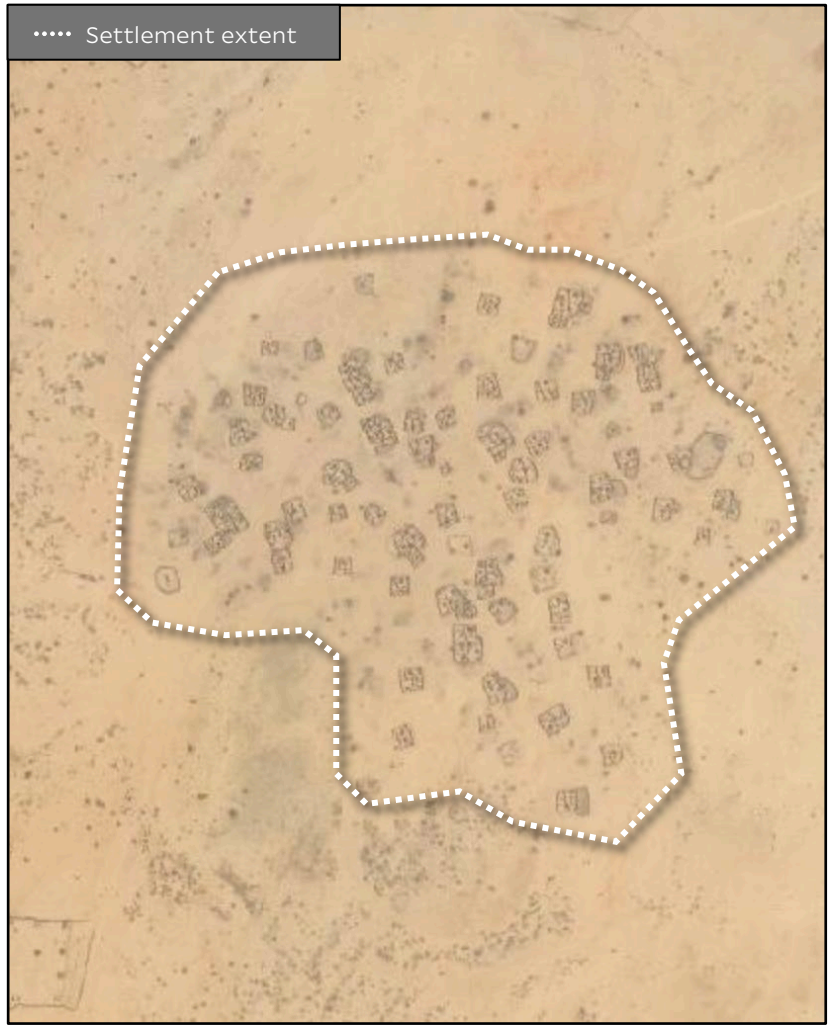
14.748, 24.61569

Kutum Community 6

COMMUNITY NORTH OF KUTUM, 2-7 OCTOBER 2024

According to analysis of satellite imagery, thermal scarring was observed within a community, referred to here as "Kutum Community 6," between 2 and 7 October 2024. According to analysis of VIIRS data, a fire event occurred on 5 October 2024.

The unaffected or unburned ground between observed burned structures, and lack of thermal scarring on ground outside individual community areas is highly consistent with intentional targeting of structures.



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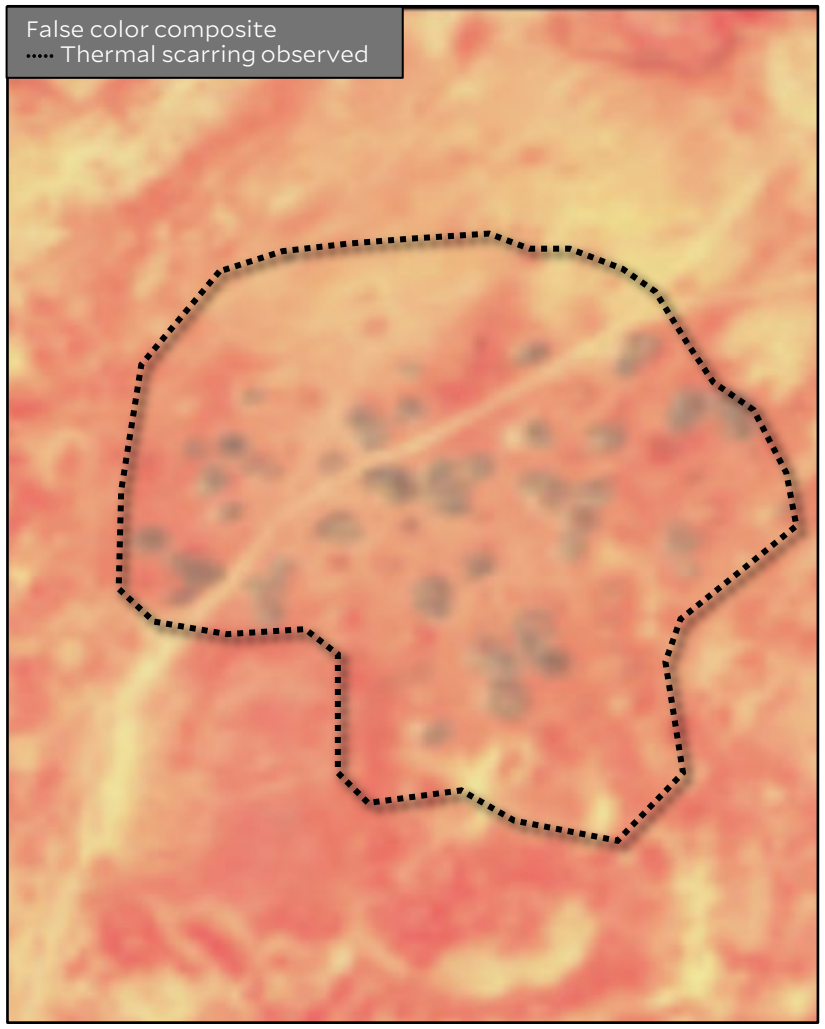

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14.75675 24.62753

Kutum Community 7

COMMUNITY NORTH OF KUTUM, 2-7 OCTOBER 2024

According to analysis of satellite imagery, thermal scarring was observed in structures at a community, referred to here as “Kutum Community 7,” between 2 and 7 October 2024.

The unaffected or unburned ground between observed burned structures, and lack of thermal scarring on ground outside individual community areas is highly consistent with intentional targeting of structures.

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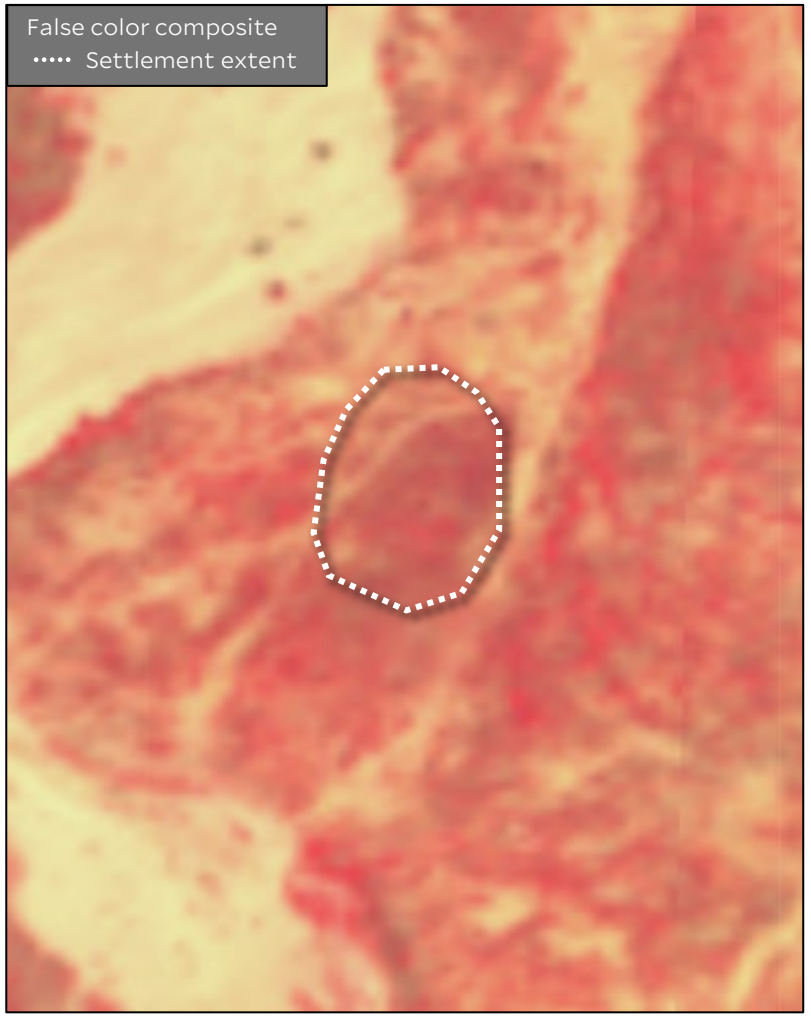

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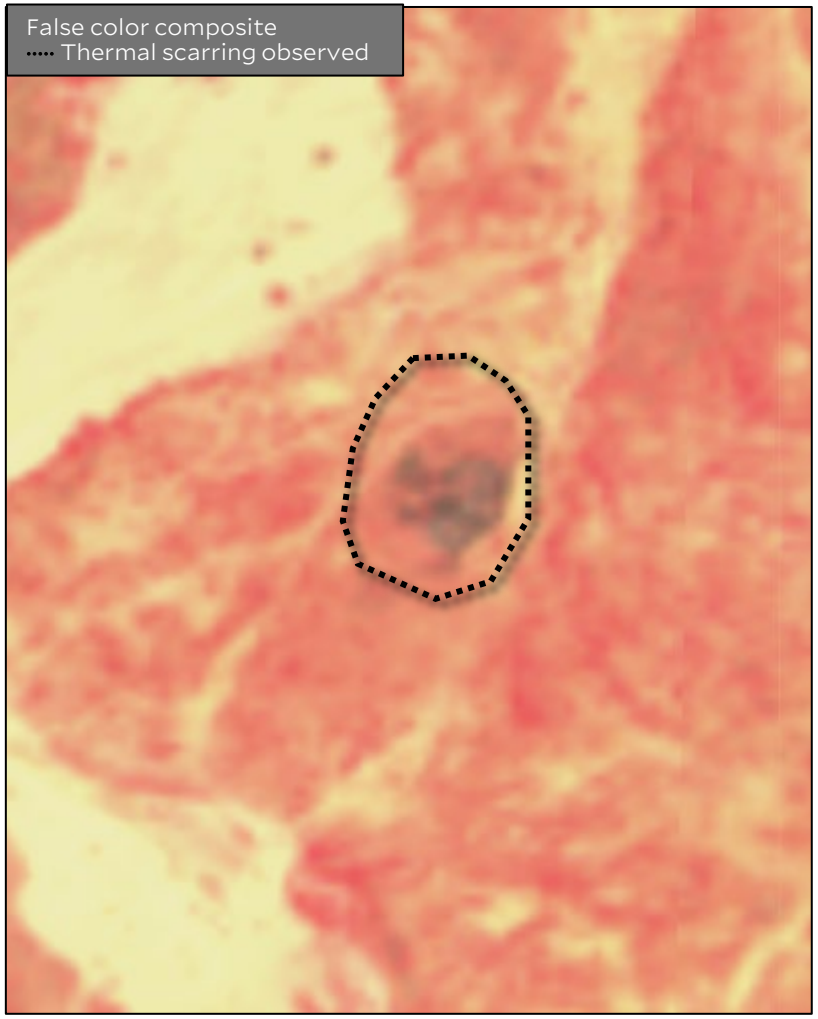

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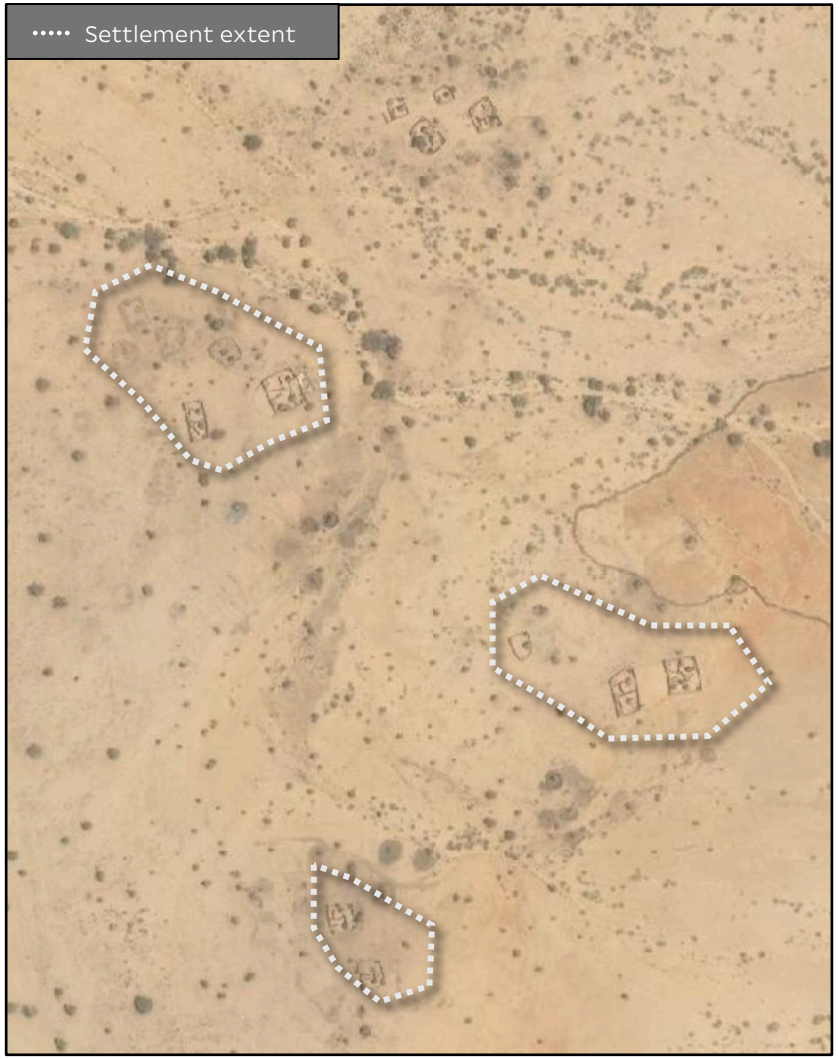
14.76857, 24.6396

Kutum Community 8

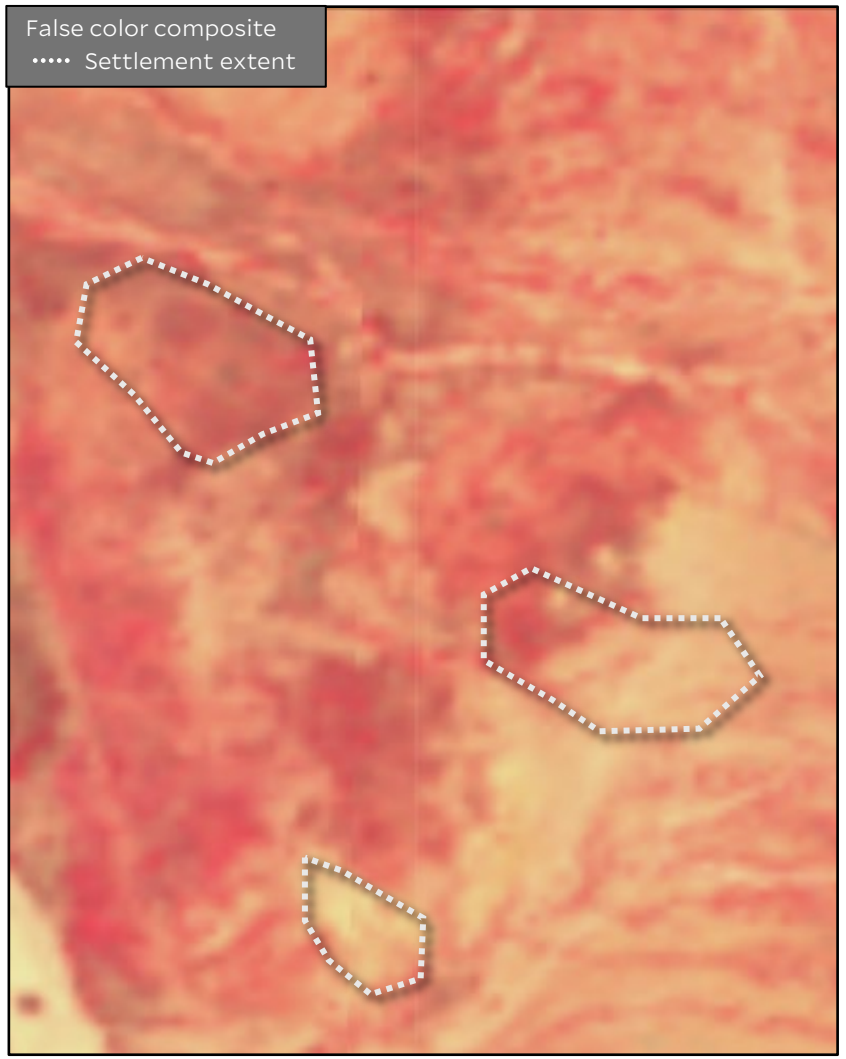
COMMUNITY NORTH OF KUTUM, 2-7 OCTOBER 2024

According to analysis of satellite imagery, thermal scarring was observed within a community, referred to here as “Kutum Community 8,” between 2 and 7 October 2024.

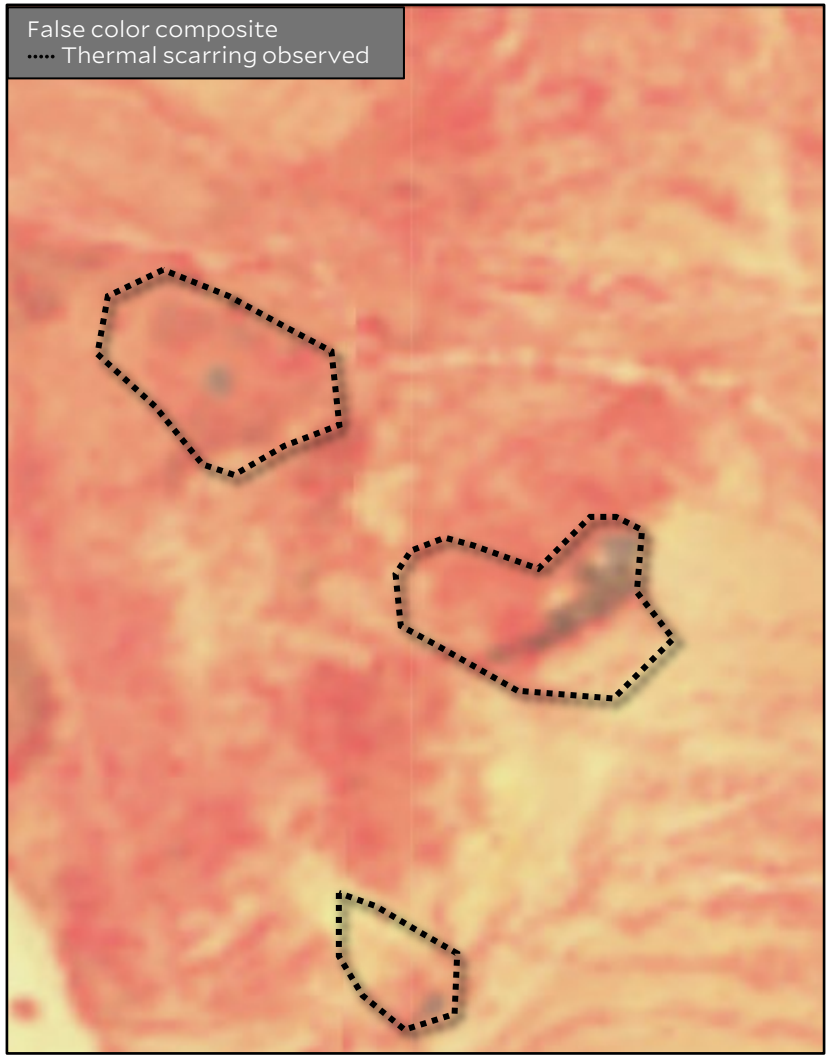
The unaffected or unburned ground between observed burned structures, and lack of thermal scarring on ground outside individual community areas is highly consistent with intentional targeting of structures.



25 February 2024 © 2024 Maxar, USG-Plus



2 October 2024 © 2024 Copernicus Sentinel



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14.78694, 24.64387

Kutum Community 9

COMMUNITY NORTH OF KUTUM, 2-7 OCTOBER 2024

According to analysis of satellite imagery, thermal scarring was observed within a community, referred to here as “Kutum Community 9,” between 2 and 7 October 2024. According to analysis of VIIRS data, a fire event occurred on 5 October 2024.

The unaffected or unburned ground between observed burned structures, and lack of thermal scarring on ground outside individual community areas is highly consistent with intentional targeting of structures.

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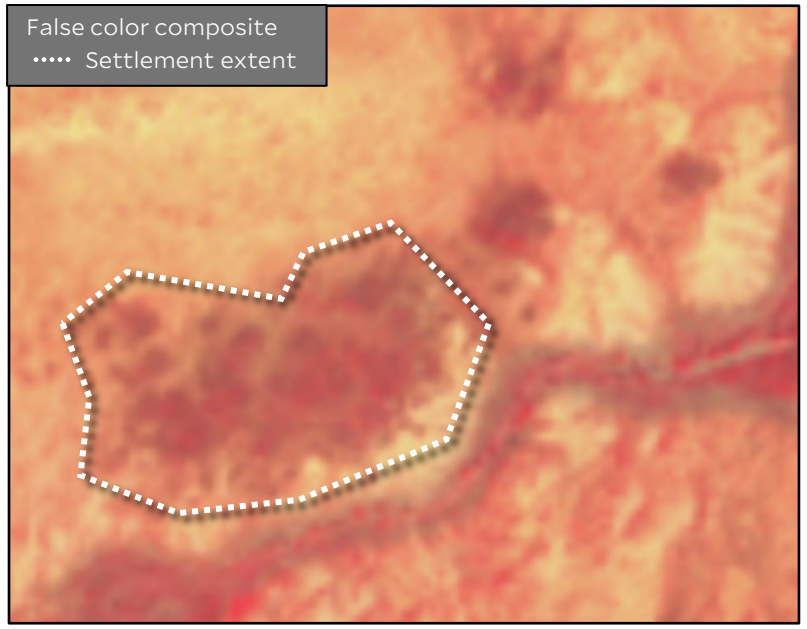
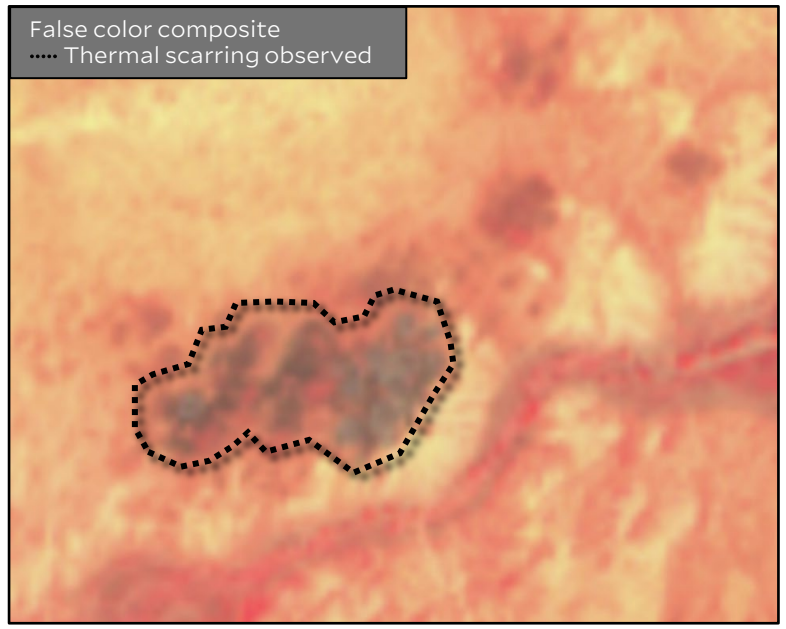


2 October 2024 © 2024 Copernicus Sentinel



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14.79671, 24.60833

Kutum Community 10

COMMUNITY NORTH OF KUTUM, 2-10 OCTOBER 2024

According to analysis of satellite imagery, thermal scarring was observed within a community, referred to here as “Kutum Community 10,” between 2 and 7 October 2024.

The unaffected or unburned ground between observed burned structures, and lack of thermal scarring on ground outside individual community areas is highly consistent with intentional targeting of structures.

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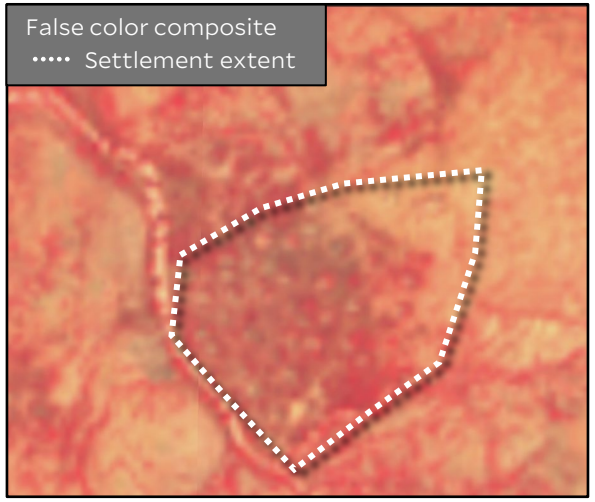

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7 October 2024 © 2024 Copernicus Sentinel

10 October 2024 © 2024 Copernicus Sentinel

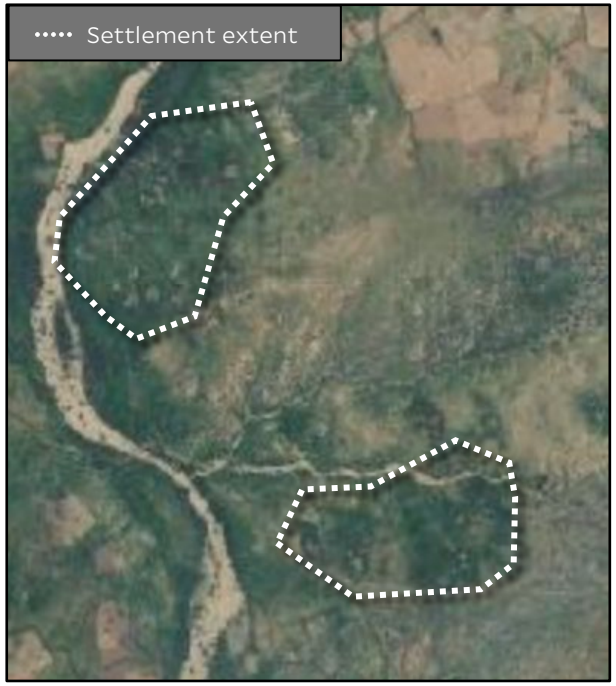
14.70553, 24.54649

Kutum Community 11

COMMUNITY NORTH OF KUTUM, 2-7 OCTOBER 2024

According to analysis of satellite imagery, thermal scarring was observed within a community, referred to here as "Kutum Community 11," between 2 and 5 October 2024 and again between 5 and 7 October 2024.

The unaffected or unburned ground between observed burned structures, and lack of thermal scarring on ground outside the community is highly consistent with intentional targeting of structures.



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2 October 2024 © 2024 Copernicus Sentinel

5 October 2024 © 2024 Copernicus Sentinel

7 October 2024 © 2024 Copernicus Sentinel

14.73037, 24.53317

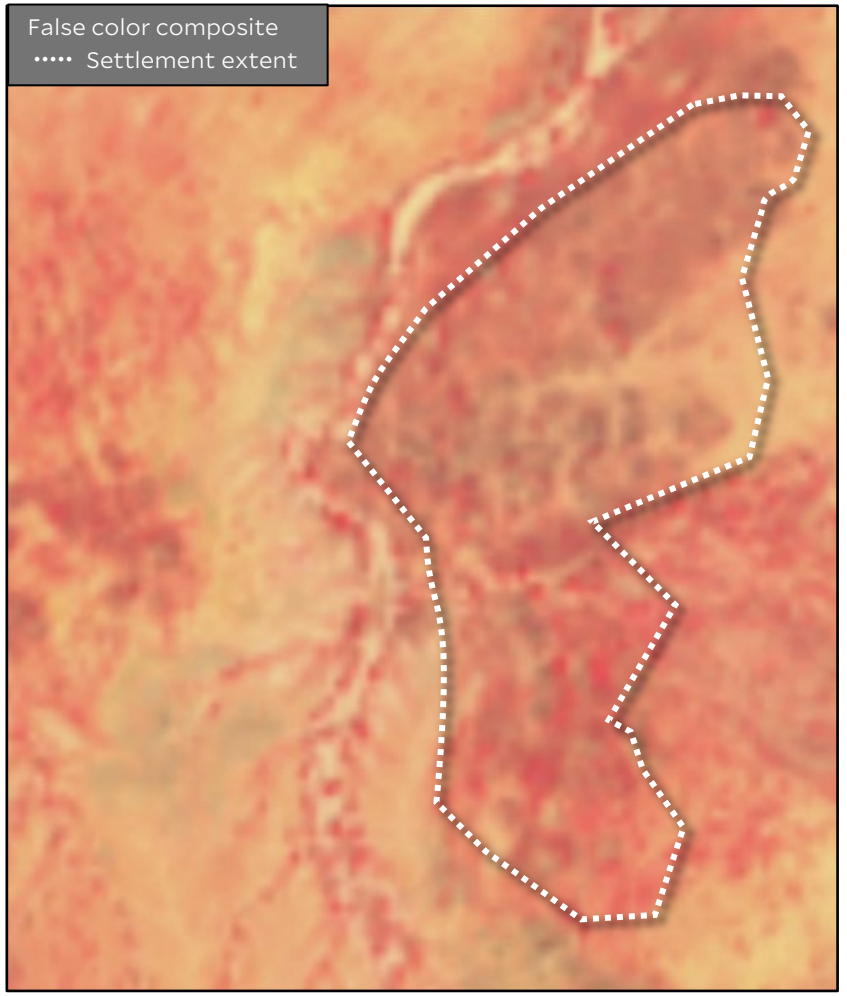
Kutum Community 12

COMMUNITY NORTH OF KUTUM, 7-12 OCTOBER 2024

According to analysis of satellite imagery, thermal scarring was observed within a community, referred to here as “Kutum Community 12,” between 7 and 12 October 2024. According to analysis of VIIRS data, a fire event occurred on 6 October 2024.

The unaffected or unburned ground between observed burned structures, and lack of thermal scarring on ground outside the community is highly consistent with intentional targeting of structures.

04 June 2024 © 2024 Maxar, USG plus



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12 October 2024 © 2024 Copernicus Sentinel

14.72818 24.6505

Kutum Community 13

COMMUNITY NORTH OF KUTUM, 7-12 OCTOBER 2024

According to analysis of satellite imagery, thermal scarring was observed within a community, referred to here as "Kutum Community 13," between 7 and 12 October 2024. According to analysis of VIIRS data, a fire event occurred on 12 October 2024.

The unaffected or unburned ground between observed burned structures, and lack of thermal scarring on ground outside the community is highly consistent with intentional targeting of structures.

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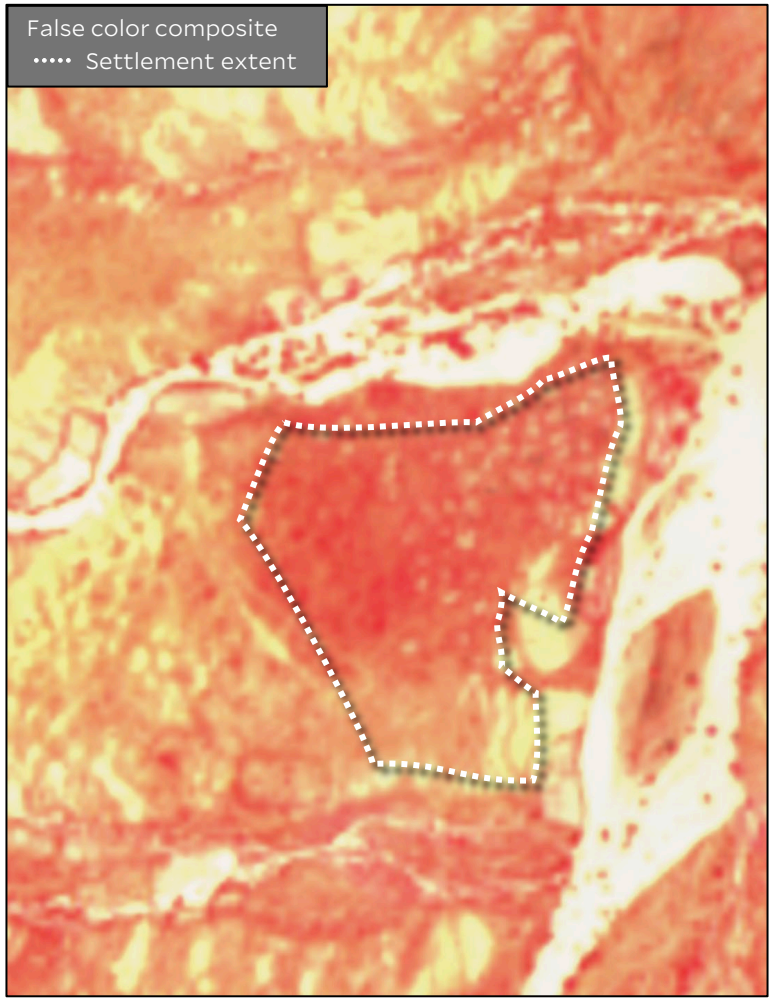

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12 October 2024 © 2024 Copernicus Sentinel

14.5474967, 24.8429445

Kutum Community 14

COMMUNITY NORTH OF KUTUM, 7-12 OCTOBER 2024

According to analysis of satellite imagery, thermal scarring was observed within a community, referred to here as "Kutum Community 14," between 7 and 12 October 2024. A VIIRS signal for a fire event appeared on 13 October 2024.

The unaffected or unburned ground between observed burned structures, and lack of thermal scarring on ground outside the community is highly consistent with intentional targeting of structures.

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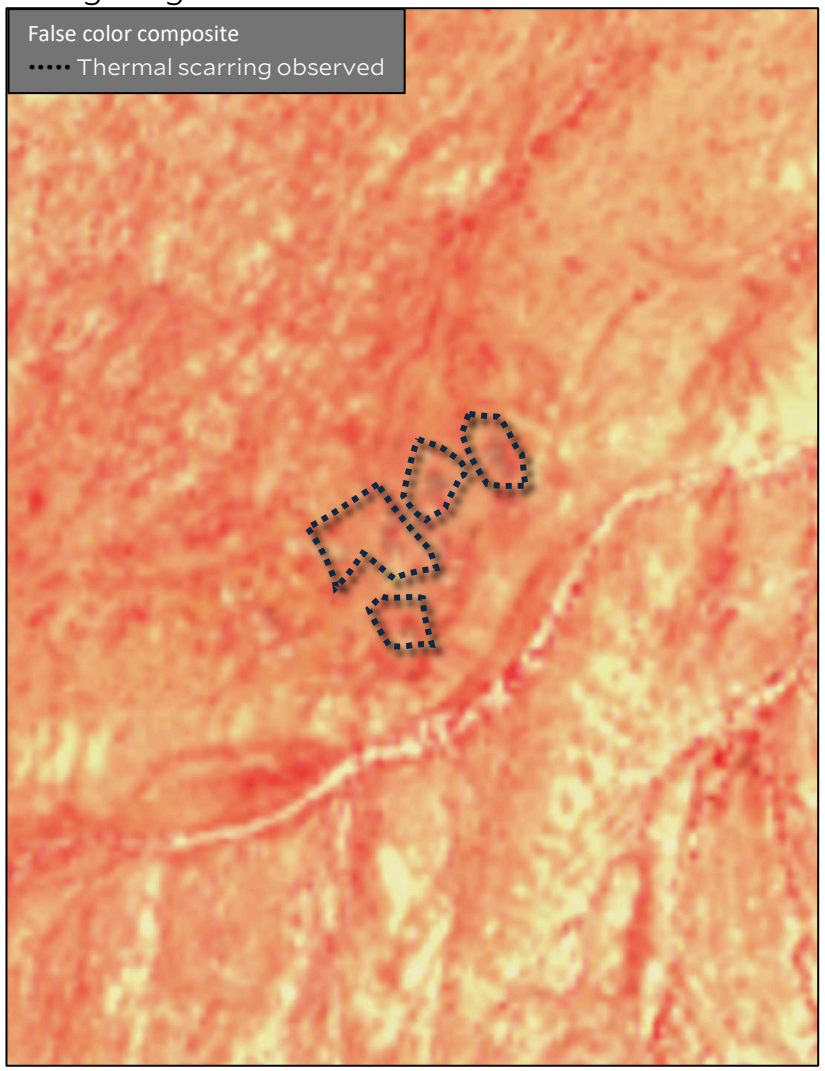

12 October 2024 © 2024 Copernicus Sentinel

14.5959655, 24.9001875

Water Catchment Pond

WATER CATCHMENT POND NORTH OF KUTUM, 7-12 OCTOBER 2024

According to analysis of satellite imagery, thermal scarring was observed at the location likely seasonal water catchment pond between 7 and 12 October 2024.

This distinctive ring shape around a tree is consistent with a seasonal water catchment pond with a corral. This thermal scarring affected potential water catchment and vegetation.

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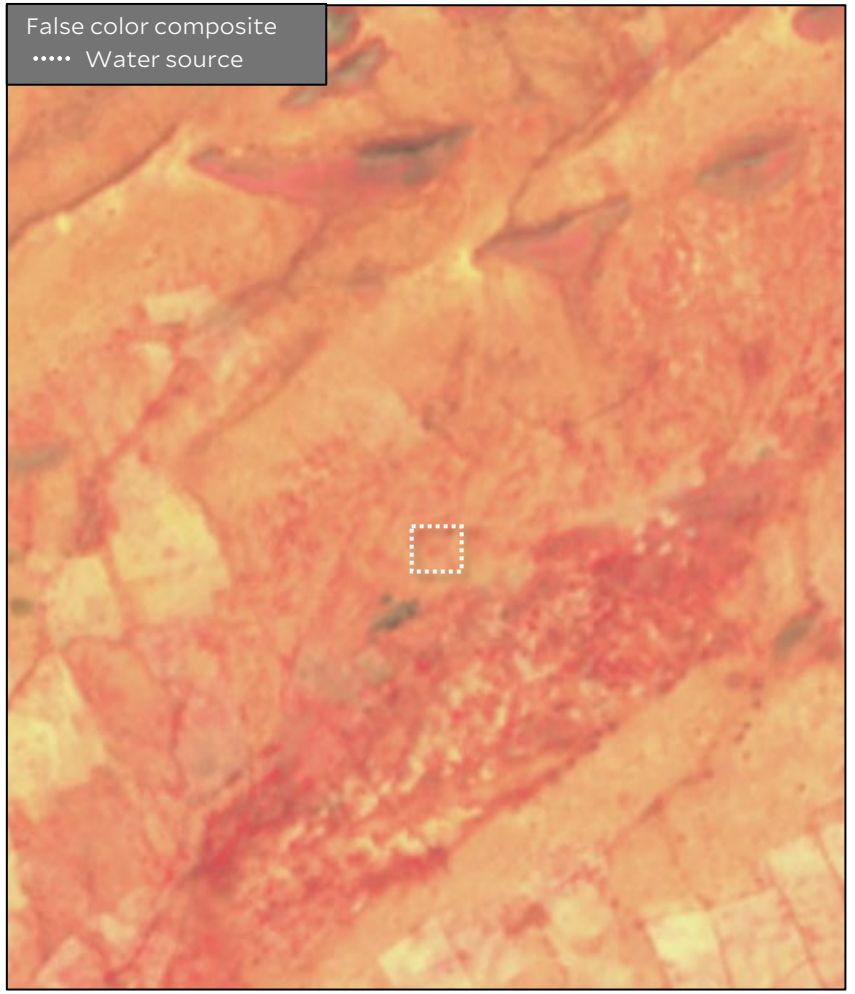

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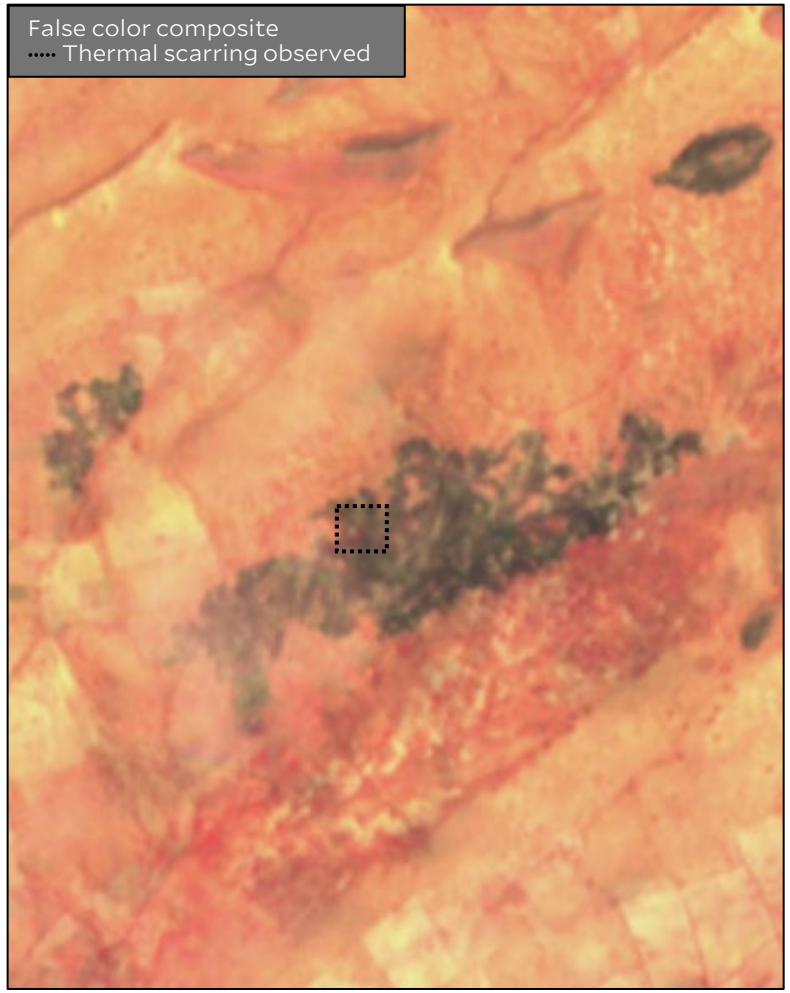

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14.79013, 24.53085

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