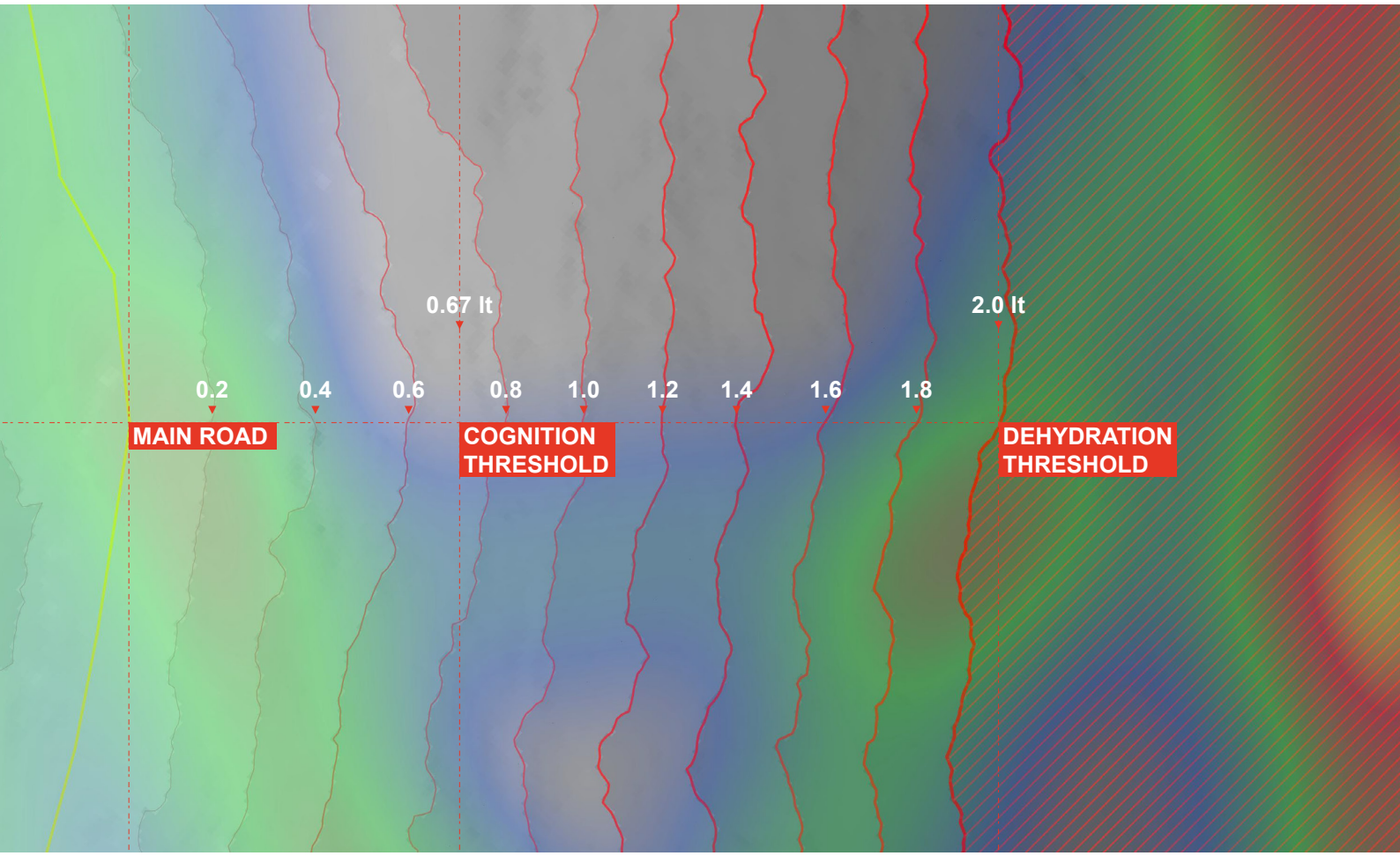
Border Forensics



Investigation Report

Mission accomplished? The deadly effects of border control in Niger

May 2023

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SUMMARY

On May 26, 2015, the Parliament of Niger adopted Law No. 2015-36 on the Illegal Trafficking of Migrants, which resulted in a repressive and security-based approach to migration management. The law was drafted under the auspices of the United Nations Office on Drugs and Crime (UNODC), with financial support from Italy and Denmark. Migrant services providers (transporters, hosts, brokers, etc.) who had until then operated in broad daylight as part of a socially and economically essential cross-Saharan infrastructure of mobility, were suddenly criminalised and threatened by harsh penalties and imprisonment.

New forms of border control were established, with the financial and technical support of EU institutions and Member States seeking to stem migration across the Sahara. In the years that have followed, thousands of incidents of migrant deaths and disappearances have been recorded in northern Niger. Transport drivers – now characterized as negligent and greedy smugglers – were blamed for the increase in deaths and disappearances by the Nigerien government and news media, as well EU agencies such as Frontex. As a result of its tough stance, Niger has been held up as a model in "combating the illicit traffic of migrants".[01] The government of Niger and its international partners have developed a "*mission accomplished*" narrative, in which they boast about their success in curbing the number of "migrants" transiting through Niger and foreground the protection of migrants against smugglers.[02]

Numerous journalists, activists, and researchers have contested this account, arguing instead that life-threatening conditions faced by migrants have in fact been exacerbated by the implementation of the law. They have highlighted the role of Niger as a key strategic partner of mobility control within the EU's policies of border externalization—through which the EU has extended border control beyond its perimeter, including ever further south into the Sahara-Sahel region. Their analysis has shown that the law's effects, along with the many forms of border control that have arisen in recent years, have forced drivers' trajectories into more remote areas of the desert, creating dangerous and often fatal conditions when a vehicle breaks down or drivers abandon their passengers and flee to avoid apprehension. Activists, journalists, and researchers have worked tirelessly for years to draw attention to the ways in which the law's implementation has led to a humanitarian disaster for migrants and Nigeriens alike, as well as leading to economic precarity and fear of severe fines and imprisonment amongst locals, particularly for those living in the region of Agadez.

Despite these efforts, the true scale of migrant deaths across the desert is unknown. This is due to the ways in which the law's harsh penalties have forced

01 Le Sahel, Mme Gogé Maïmouna Gazibo, Directrice générale de l'Agence Nationale de Lutte contre la traite des personnes et le trafic illicite des migrants (ANLTP/TIM) : « Notre pays fait partie des pays qui luttent, le mieux, contre la traite des personnes et le trafic illicite des migrants », 27 septembre 2019: ↗

02 La Tribune Afrique, Migration illégale : le Niger assure le job, selon l'OIM, 17 Octobre 2017: ↗ ; European Union, Les opérations de l'Equipe Conjointe d'Investigation contre les trafiquants de migrants se poursuivent malgré le Covid-19, 16 Juin 2020: ↗

cross-Saharan movement within Niger further underground and into more remote areas of the desert, where incidents can easily go unnoticed. As a result, reliable data on deaths has become even more difficult to gather.

In this context, Border Forensics' investigation mobilizes new and unique geo-spatial analysis and remote sensing methodologies to contribute to a better empirical analysis of the lethal effects of the Law 2015-36 and the heightened border control that ensued. The innovative methodologies presented here are intended to be a building block for an extension of the evidentiary base of the effects of border externalisation, which may support calls for accountability from all actors participating in border management, in particular the Nigerien government, the EU and its member states, as well as UN agencies.

INTRODUCTION

Niger's Law 2015-36, adopted on 26 May 2015 and fully implemented in September 2016, marked a fundamental shift in Niger's bordering practices and policies, with the law's most severe impacts felt in the north-east region of Agadez.[03]

As we describe in detail below, this law is one manifestation of a wider program of border management in Niger, whose interests in restricting the mobility of its own citizens[04] has been articulated with European interests in curbing the arrival of African migrants via the Mediterranean crossing. Border externalization practices, through which European agencies enlist non-European actors in their aims of border control, have been extended across migrants' entire trajectories. Niger, perceived as one of the gateways to Libya, a country of departure for the crossing of the Mediterranean, has been a particular focus of European policies (MAP A00). Upon implementation of the new law, the previously state-sanctioned practice of moving people across the Sahara through Agadez was abruptly deemed illegal, and hefty fines and severe prison sentences were meted out to hundreds of Nigeriens and other West Africans working in the sector of migrant transport, which until then had operated in broad daylight. As a result of its tough stance, Niger has been held up as a model in terms of "combating the illicit traffic of migrants", which should inspire other African states.[05] The government of Niger and its international partners have developed a "*mission accomplished*" narrative, in which they boast about their success in curbing the number of "migrants" transiting through Niger, and foreground their protection of migrants against smugglers.[06]

MAP A00

However, the effect of the law, and the repressive tactics and militarisation across the Agadez region that the law inspired, did not deter migration. Rather, these tactics have forced the migration economy underground, effectively forcing mobilities which were previously public and permitted into clandestinity. Consequently, in the aim of evading heightened border control, drivers tend to take migrants on more remote, and thus more dangerous, routes.

The trope of the "unscrupulous smuggler," now well worn by its application in other deadly border contexts such as the US-Mexico border and the Mediterranean, has been deployed as well against the migrant brokers ("*coxeurs*" in French), drivers, and the owners of housing for migrants in Agadez. After the adoption of the law, these actors have been framed as smugglers and traffickers. Such a narrative serves to deflect responsibility for the ways that anti-migration policies and bordering practices have produced the conditions of increased danger, leading to more deaths and disappearances. In fact, in stark contrast to this characterization of smugglers as "unscrupulous", one survey found that the majority of migrants

03 Niger: Loi No. 2015-36 du 26 mai 2015 relative au Trafic Illicite de Migrants [Niger], 26 May 2015: ↗ [accessed 6 April 2023]

04 In particular, the mobility of certain categories of Nigerien citizens such as women, children and beggars who migrate to West and North Africa during the welding periods. This type of migration is known as the Kantché phenomenon, as described below.

05 Le Sahel, Mme Gogé Maïmouna Gazibo, Directrice générale de l'Agence Nationale de Lutte contre la traite des personnes et le trafic illicite des migrants (ANLTP/TIM) : « Notre pays fait partie des pays qui luttent, le mieux, contre la traite des personnes et le trafic illicite des migrants », 27 septembre 2019: ↗ [accessed 8 February 2023]

06 La Tribune Afrique, Migration illégale : le Niger assure le job, selon l'OIM, 17 Octobre 2017: ↗

identified their *passeurs* as providing the most help on their cross-Saharan journey.[07] Furthermore, it is the very criminalization of migration and the provision of assistance to migrants that has created the need for an underground transport economy, leading to the involvement of more specialised actors engaged in illicit activities. While the testimonies of survivors, as well as numerous academics, human rights and journalistic reports repeatedly cite the increasingly dangerous conditions faced by migrants since the full implementation of the law in September 2016, the empirical evidence of the law's lethal effects upon migrant journeys and the mechanisms that have shaped these effects remains fragmentary.

07 Golovko, Ekaterina, 2018. Players of many parts: The evolving role of smugglers in West Africa's migration economy. Dakar: Mixed Migration Centre, available at: ↗

The following report seeks to offer a methodological contribution towards building a more systematic analysis. We first detail the underlying context for the dramatic shifts in the approach to migration at the national level in Niger, and the role of European actors in developing Niger's border controls from 2015 onwards to thwart migration to Europe. We further discuss the challenges of data collection that has limited the availability of empirical evidence documenting the effects of Law 2015-036. We then describe the unique methodologies we have developed and data sources we have accessed to test our hypothesis concerning the relation between border control, migrants' trajectories, and the dangers of crossing. We then apply our methodology to our multi-sited case study along a section of the Agadez-Sabha route: stretching from the civilian town of Séguédine, through the military outpost of Madama, and up to the Toummo checkpoint at the Niger-Libyan border.

We provide a brief overview of each site before describing the remote sensing and geospatial analysis we conducted at each site. While our analysis of each site reveals varied dynamics of bordering practices and splintering trajectories, a recurring pattern emerges pointing to a clear correlation between increased border control and the dispersal of migrants' trajectories. In turn, we demonstrate how this dispersal sees migrants' trajectories move deeper into the desert, where chances of survival are greatly diminished in the recurring events of vehicle failures, abandonment, or passengers running out of water. We make visible and measurable one of the greatest risks faced in these cross-Saharan journeys: a life-threatening state of dehydration in less travelled and less surveilled areas. We then conclude by discussing the implications of our findings for assigning accountability for the increased dangers of cross-Saharan travel in Niger in the wake of Law 2015-036, and formulate a series of policy recommendations.

Figure 1

Throughout our analysis, in addition to the challenges we faced in accessing reliable data, we also had to reckon with the way knowledge about migration can be used to justify and enable its governance and control. In seeking to engage in

a form of critical spatial knowledge production, we faced two pitfalls which our investigation seeks to avoid.

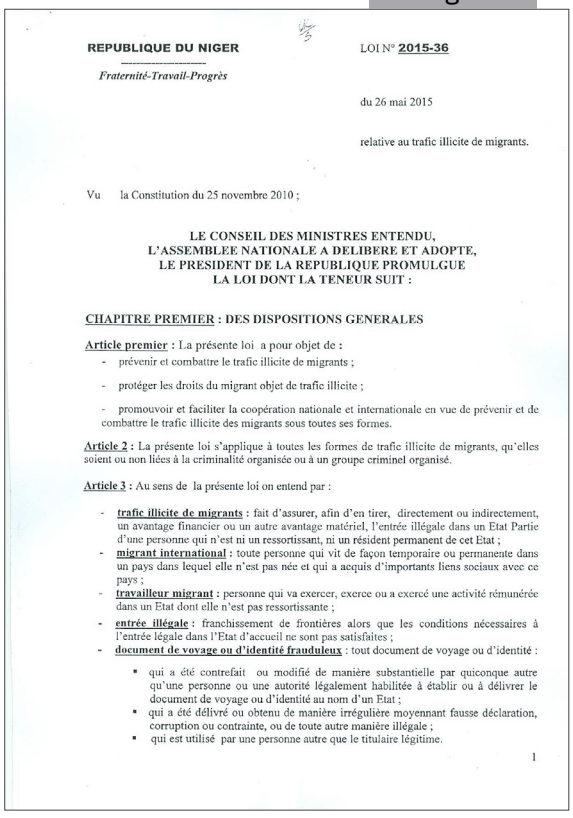
This first concerns the Eurocentrism of the framing of "African migrations" that Europe seeks to stem through its policies of border externalization, but also the Eurocentrism inherent in critiques of border externalization. Europe has long created a "myth of invasion", in which all African migrants (if not the entire African population itself) are framed as heading towards Europe.[08] Instead, when analysing mobilities in Niger, we immediately realised how difficult it was to distinguish between different kinds of mobilities in the region, which involve a wide range of directionalities, subjects, and motivations. As such, against the Eurocentric tropes of "invasion" by African migrants, we foreground the multi-directionality of migration in the region and the indistinguishability between "migrants" bound for Europe and people those moving through this area for a variety of other reasons. If, in the name of "protecting" itself from the "threat" that African migration has been framed as, Europe clearly has engaged in extending and outsourcing the control of its borders beyond the formal perimeter of the EU, critical perspectives of the violence of European border externalization run the risk of framing actors of the Global South as passive recipients of such policies. Instead, in our research we seek to foreground the ways in which the Nigerien government has mobilized European agendas to forward its own interests.

08 Hein de Haas, 2008. "The Myth of Invasion: the inconvenient realities of African migration to Europe," Third World Quarterly, vol. 29(7), 1305-1322; Ghassan Hage, 2016. "Etat De Siège: A Dying Domesticating Colonialism?" American Ethnologist Wiley,. 43: 38–49

Second, we are well aware that the capacity to move of illegalized migrants depends on not being detected by state agencies, and that knowledge about migration, such as that generated by surveillance means, can be used to control and govern migration. In Niger, remote sensing technologies such as satellite imagery which we mobilize in our investigation have precisely been used by agencies such as Frontex towards this aim of border control. The use of these very same technologies entails a risk that we contribute to, despite ourselves, to increasing the knowledge of surveillance. To respond to this challenge, our investigation aims to exercise a "disobedient gaze", which uses remote sensing means and cartography in a way that does *not* reveal the precise spatiality of illegalized migrants' trajectories and reveals instead, in the clearest possible way, the apparatus of border control and its lethal effects.[09] Furthermore, even as we mobilize high tech means and cutting-edge methodologies of spatial analysis developed in the Global North and marked by uneven power relations, we do not consider our approach as the only valid form of spatial knowledge and emphasise instead the multiplicity of spatial knowledges, including that embodied by the local population. These two challenges and our attempts to respond to them are a thread that runs throughout our report.

09 Charles Heller, Lorenzo Pezzani, 2017. "Liquid Traces: Investigating the Deaths of Migrants at the EU's Maritime Frontier", in, The Borders of "Europe": Autonomy of Migration, Tactics of Bordering, Nicholas De Genova (ed), (Duke University Press, Durham).

Figure 1



REPUBLIQUE DU NIGER

Fraternité-Travail-Progrès

LOI N° **2015-36**

du 26 mai 2015

relative au trafic illicite de migrants.

Vu la Constitution du 25 novembre 2010 ;

LE CONSEIL DES MINISTRES ENTENDU,
L'ASSEMBLEE NATIONALE A DELIBERE ET ADOPTE,
LE PRESIDENT DE LA REPUBLIQUE PROMULGUE
LA LOI DONT LA TENEUR SUIT :

CHAPITRE PREMIER : DES DISPOSITIONS GENERALES

Article premier : La présente loi a pour objet de :

- prévenir et combattre le trafic illicite de migrants ;
- protéger les droits du migrant objet de trafic illicite ;
- promouvoir et faciliter la coopération nationale et internationale en vue de prévenir et de combattre le trafic illicite des migrants sous toutes ses formes.

Article 2 : La présente loi s'applique à toutes les formes de trafic illicite de migrants, qu'elles soient ou non liées à la criminalité organisée ou à un groupe criminel organisé.

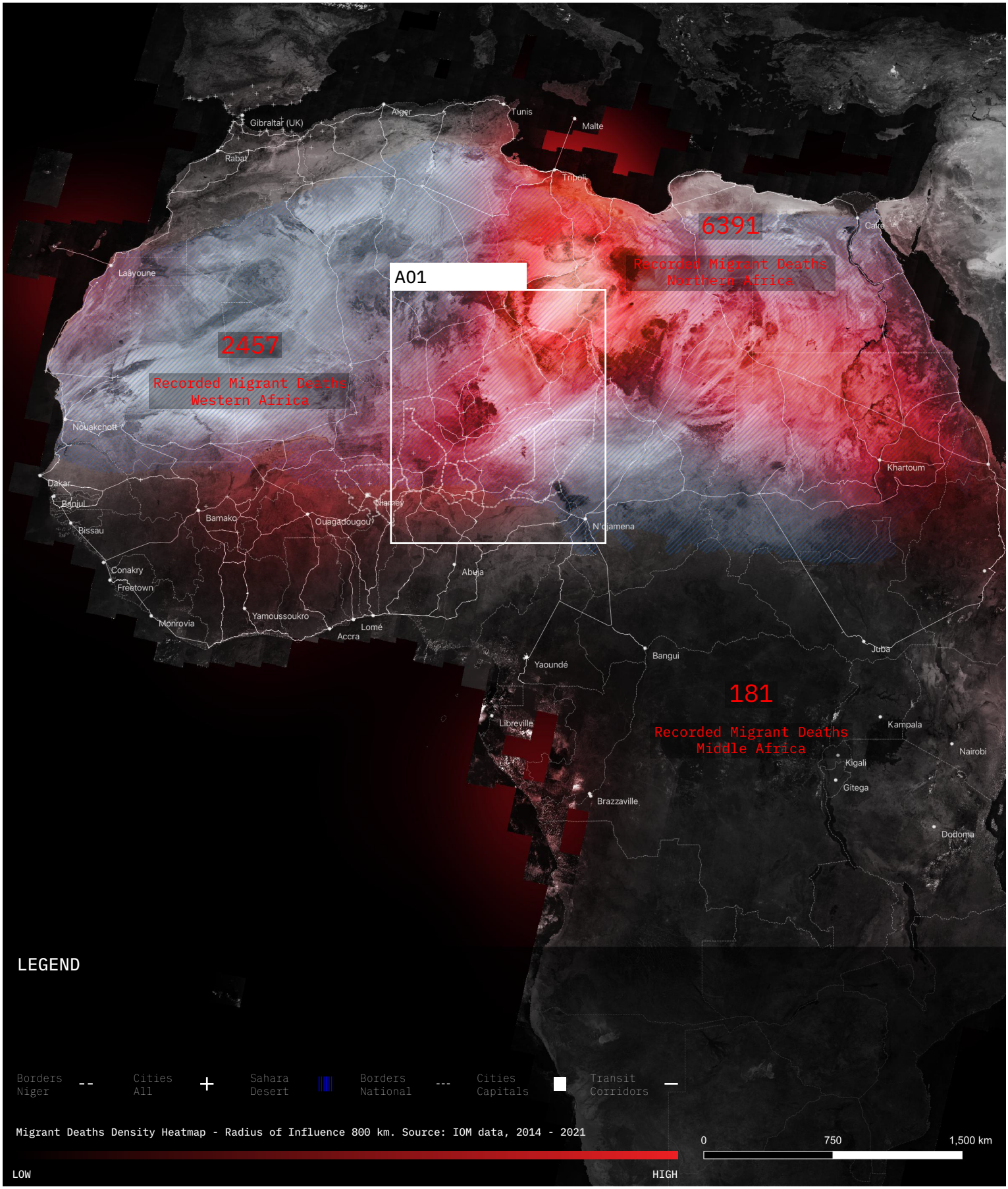
Article 3 : Au sens de la présente loi on entend par :

- **trafic illicite de migrants :** fait d'assurer, afin d'en tirer, directement ou indirectement, un avantage financier ou un autre avantage matériel, l'entrée illégale dans un Etat Partie d'une personne qui n'est ni un ressortissant, ni un résident permanent de cet Etat ;
- **migrant international :** toute personne qui vit de façon temporaire ou permanente dans un pays dans lequel elle n'est pas née et qui a acquis d'importants liens sociaux avec ce pays ;
- **travailleur migrant :** personne qui va exercer, exerce ou a exercé une activité rémunérée dans un Etat dont elle n'est pas ressortissante ;
- **entrée illégale :** franchissement de frontières alors que les conditions nécessaires à l'entrée légale dans l'Etat d'accueil ne sont pas satisfaites ;
- **document de voyage ou d'identité frauduleux** : tout document de voyage ou d'identité :
  - qui a été contrefait ou modifié de manière substantielle par quiconque autre qu'une personne ou une autorité légalement habilitée à établir ou à délivrer le document de voyage ou d'identité au nom d'un Etat ;
  - qui a été délivré ou obtenu de manière irrégulière moyennant fausse déclaration, corruption ou contrainte, ou de toute autre manière illégale ;
  - qui est utilisé par une personne autre que le titulaire légitime.

1

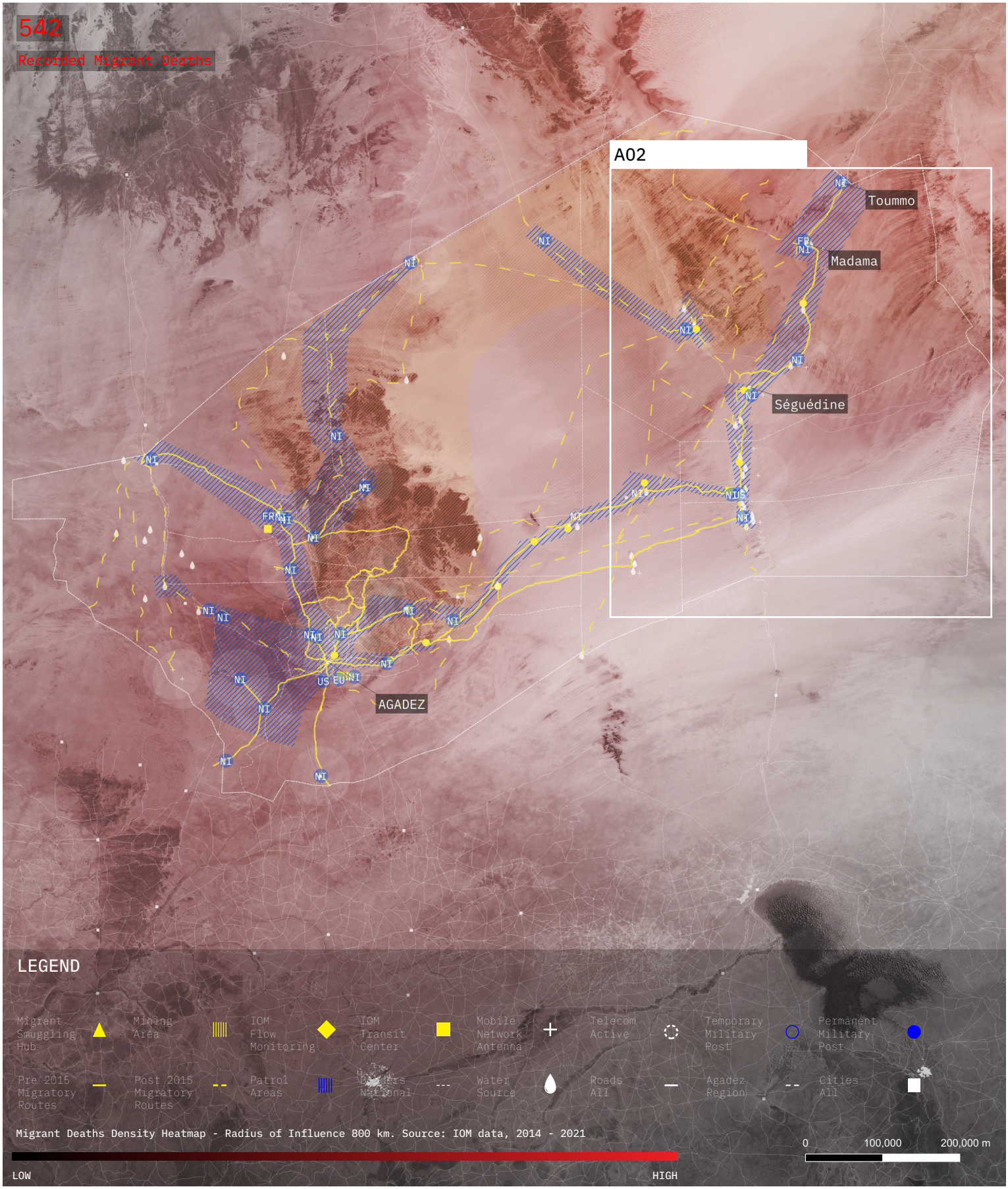
. First Page of Law 2015-036

A00 SAHARA-SAHEL



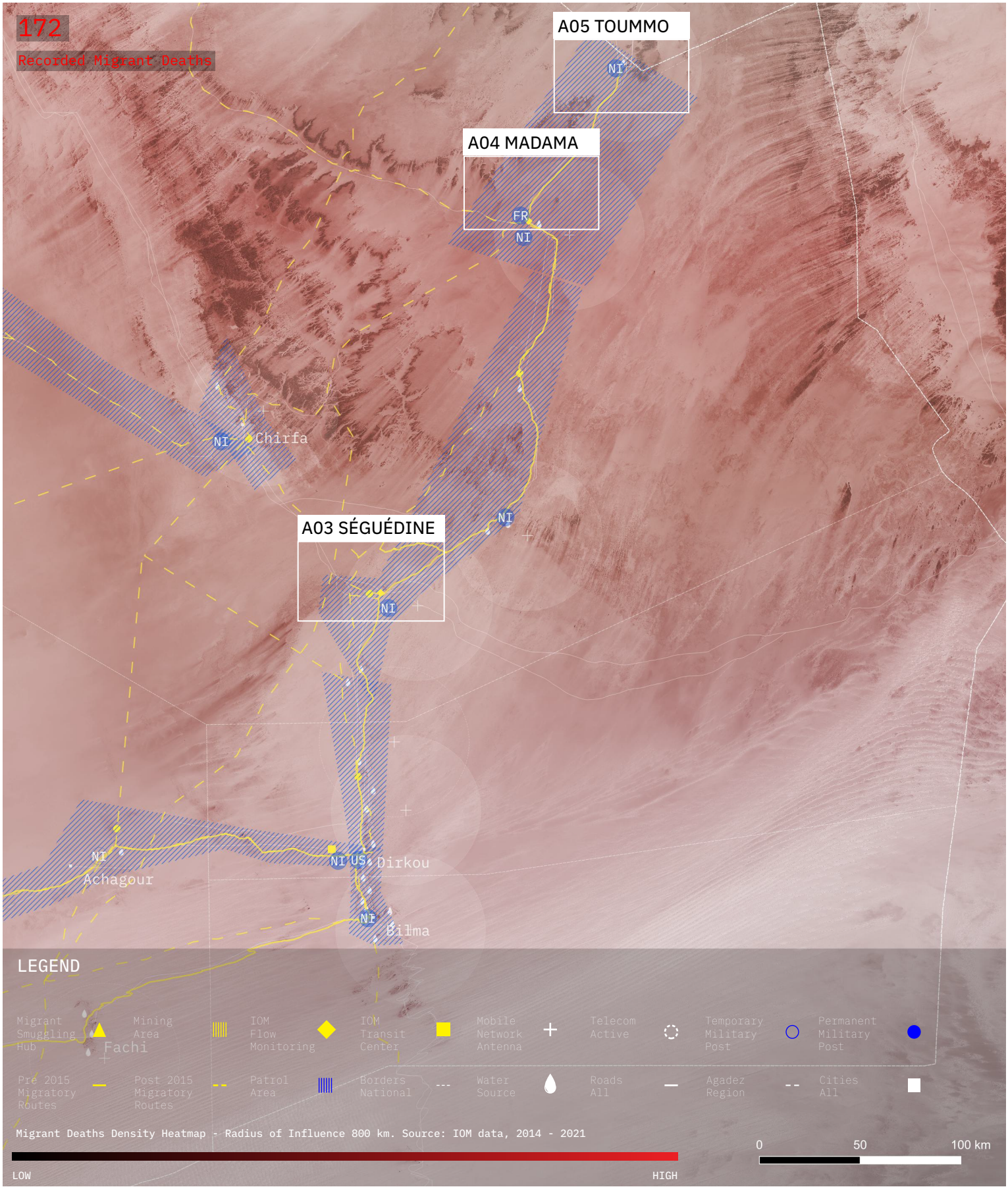
Niger is at a crossroads of Sahara-Sahel mobility, sharing a border with Mali, Algeria, Libya and Chad

A01 AGADEZ REGION, NORTHERN NIGER



Migrant trajectories have changed drastically across the regions of Agadez in northern Niger since the implementation in 2016

A02 CASE STUDY AREA



We have analyzed three sites along a trajectory used by numerous different actors traveling from Agadez towards Sebha, Libya: the civilian town of Séguédine, the military outpost of Madama, the Toummo checkpoint near the Niger-Libya border

CONTEXT

CHANGING PERSPECTIVE, POLICY, AND APPROACH TO MIGRATION IN NIGER

NIGER: CROSSROAD OF MOBILITIES

For a long time, Niger has remained on the sidelines of the European migration agenda. Since 2015, however, it has become a pivotal country in the externalization of European border control mechanisms in the Sahara-Sahel region. Historically, the country has been a place of emigration and transit.[10] For nearly half a century, irregular migration of sub-Saharan Africans to Libya or Algeria was not only tolerated, but even sponsored by Niger. Regardless of their nationality, migrants could move in relative freedom and security on the country's roads, passing through official checkpoints or traveling in the weekly military convoys departing from Agadez towards Dirkou.[11] Until 2006, migrants were able to travel between Agadez and Dirkou on *truck-buse*, also known as "*le defi du désert*" operated by the Nigerien government-owned "Société Nigérienne de Transport de Voyageurs" (the Nigerien Company for the Transport of Travelers) (F2). These transport or *brokerage* agencies were registered, paid their local taxes and even cohabited with the police at the Agadez bus station (F3), effectively authorizing the transport of migrants.[12] Since the early 2010s, Niger has witnessed an increasing overlap between different forms of mobility. In particular, the country has seen an influx of refugees fleeing violence in Mali and Nigeria,[13] as well as an increase in return migration by both Nigeriens and foreigners.[14]

Figure 2

Figure 3

F2

Truck-buse 'Le défi du désert' of the Société Nigérienne de Transport de Voyageurs (SNTV), Source: Brachet (2007), pp.142

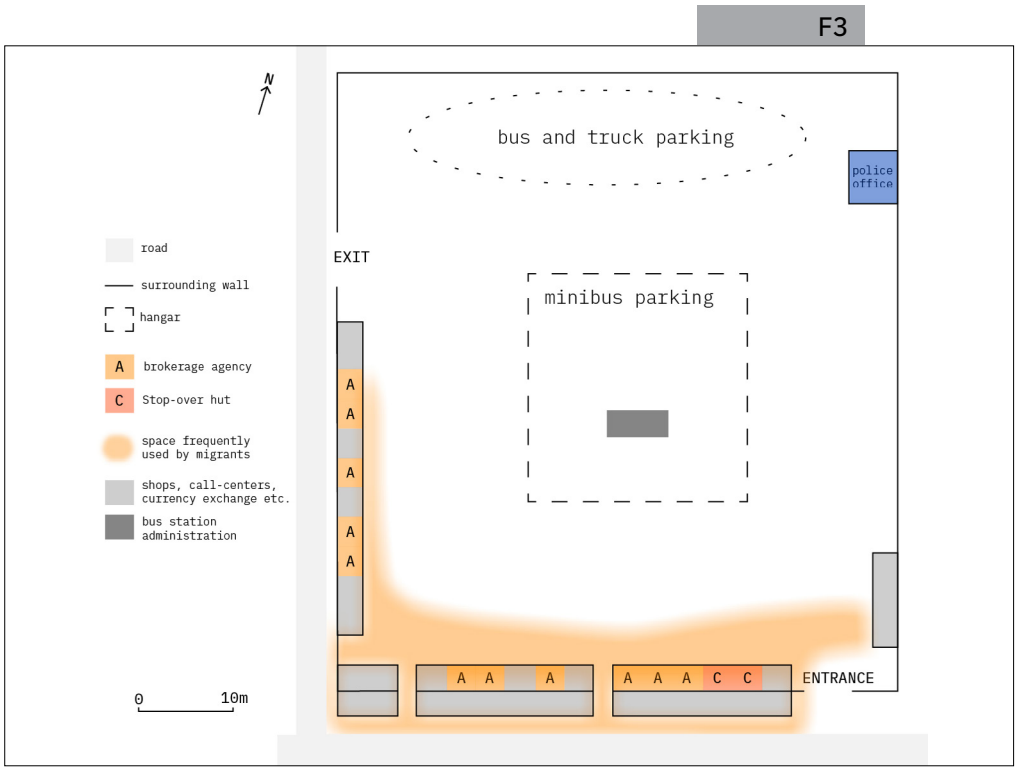
10 Ali Bensaâd, 2003. Agadez, carrefour migratoire sahélo-maghrébin. Revue européenne des migrations internationales, 19, 1-1. ↗

11 Julien Brachet, 2009. Migrations transsahariennes : vers un désert cosmopolite et morcelé (Niger)., Paris, Éditions du Croquant, Collection Terra, 322

12 Julien Brachet, 2007. Un désert cosmopolite. Migrations de transit dans la région d'Agadez (Sahara nigérien). Sciences de l'Homme et Société. Université Panthéon-Sorbonne - Paris I. Français.

13 UNHCR, 2022. Mise à jour opérationnelle, Niger, ↗

14 Harouna Mounkaila, 2015. La Gestion Des Rapatriés de Libye Dans La Commune de Tchintabaraden (Niger) : Les Défis de l'urgence et Du Durable. Africa Development / Afrique et Développement, 40(1), 99-117.



Drawing of Agadez's "gare routière" or bus station indicating the cohabitation between the police, brokerage agencies and migrant transit housing or "cases de passage", Graphic based on Brachet, 2007, 134

These new migration patterns have combined with traditional seasonal movements to West and North Africa, which have historically been part of Nigerien culture,[15] as well as transit migrations to Algeria and Libya.[16] As a result, Niger has become a hub where different forms of mobility converge.

These developments in Saharan-Sahelian migration dynamics, which give a more central position to Niger, are influenced by a geopolitical context of regional destabilization. The fall of Colonel Gaddafi in 2011, until then the guardian of the southern coasts of Europe; the closure of the Malian route to Algeria and/or Morocco, due to the conflict that broke out in the north of Mali in 2012[17] and the increased surveillance of West African coastal routes to Morocco and/or the Canary Islands,[18] have led to increased population movements and the blocking of certain widely used migratory routes. In this context, the Niger routes, with their relative stability, have emerged as the only alternative for people fleeing violence and conflict in their home countries, or heading to Algeria or Libya in search of seasonal work,[19] and for a minority to cross into Europe.

While international institutions, including the European Union (EU) and the International Organization for Migration (IOM), often reduce the trans-Saharan routes in

15 Florence Boyer & Harouna Mounkaila, 2010. Partir pour aider ceux qui restent ou la dépendance face aux migrations : le sort des paysans sahéliens est-il lié à leur mobilité spatiale ? Hommes et Migrations, 1286-1287, 212-220

16 Julien Brachet. 2007. Un désert cosmopolite. Migrations de transit dans la région d'Agadez (Sahara nigérien). Sciences de l'Homme et Société. Université Panthéon-Sorbonne - Paris I. Français.

17 Florence Boyer & Pascaline Chappart, 2018. Les frontières européennes au Niger. Vacarme, 83(2), 92-98

18 Jocelyne Streiff-Fénart & Aurelia Segatti (eds), 2012. The Challenge of the Threshold: Border Closures and Migration Movements in Africa. Lanham : Lexington Books.

19 Sylvie Bredeloup & Olivier Pliez, 2005. Migrations entre les deux rives du Sahara. Autrepart, 36(4), 3-20.

Niger to mere corridors for transit migrants,[20] these routes in fact see a wide range of complex and overlapping types of mobilities. In addition to migrants heading to Libya, these routes are used for seasonal or circular labor migration, trafficking in goods (fuel, pasta, semolina, etc.) as well as drugs and arms, as well as the movements of artisanal gold miners.[21] Differentiating between who is a "migrant" in this context is often an impossible task. However, the framing of people moving through the Sahara as "migrants" heading towards Europe serves to justify the deployment of control activities.

THE EUROPEAN AGENDA OF BORDER EXTERNALIZATION

As the Saharan routes, and those through Niger in particular, regained their age-old function as a course of transit and of exchange[22] for a growing number of migrants, they also became a source of concern for Europe, which perceives the crossing of the Sahara as the first step towards crossing its southern border.[23] Deprived of its usual interlocutor, Colonel Gaddafi, Europe then turned to the Sahel, in particular to Niger, "to regain control of its southern border".[24] The Valletta Summit (November 2015) served as a political and financial framework for this externalization, which is projected over the entire Sahara-Sahel band, but primarily in Niger. Europe's objective has been to control and block the trans-Saharan routes by paying for the services of Niger in order to strengthen the barrier function of the Sahara.[25] Europe's increased attention to Niger and its goal of externalizing border control there has coincided with an unprecedented paradigm shift in Niger's migration and border management strategies. This dynamic contributes to the country's gradual adoption of a repressive and security-based approach to migration management, breaking with its long-standing *laissez-faire* attitude.

THE KANTCHÉ TRAGEDY, THE FIRST "TURNING POINT" IN NIGER'S MIGRATION POLICY

At the end of October 2013, following the discovery of the bodies of 92 Nigerien migrants[26] at the Niger-Algeria border, Nigerien authorities framed the discovery as trans-Saharan Nigerien migration. However, these women and children, mostly from the department of Kantché in the Zinder region, were travelling to Algeria as part of seasonal labor migration during the dry season, which has historically been part of Nigeriens' coping and crisis management strategies.[27] This dramatic event caused a national stir and contributed to the emergence of a national narrative on irregular migration that marked a turning point in Niger's approach to migration.[28]

As early as 1 November 2013, this tragedy was the subject of a communication by the Council of Ministers, which called for the fight against the "tragedy of clandes-

20 Florence Boyer & Harouna Mounkaila, 2018. Européanisation des politiques migratoires au Sahel: le Niger dans l'imbroglio sécuritaire in Grégoire Emmanuel (ed.), Kobiané J.F. (ed.), Lange Marie-France (ed.). L'Etat réhabilité en Afrique : réinventer les politiques publiques à l'ère néolibérale. Paris: Karthala, 267-285.

21 Peter Tinti & Tom Westcott, 2016. The Niger-Libya corridor: smugglers' perspectives. Institute for Security Studies : ↗

22 Ali Bensaâd, (2003). Agadez, carrefour migratoire sahélo-maghrébin. Revue européenne des migrations internationales, 19, 1-1 ↗

23 Julien Brachet, 2012. "Stuck in the desert: hampered mobility among transit migrants in northern Niger", in The challenge of the threshold: border closures and migration movements in Africa. Lanham: Lexington Books, 91-113.

24 Florence Boyer & Pascaline Chappart, 2018. Les frontières européennes au Niger. Vacarme, 83(2), 92-98

25 Rhoumour Ahmet Tchilouta., (forthcoming) 2023. Les stratégies de gestion des frontières du Niger à l'ère de l'externalisation des politiques migratoires de l'UE: vers des frontières itinérantes? L'Espace Politique.

26 Of these migrants, 33 were women and 52 children.

27 Harouna Mounkaila, 2002. De la migration circulaire à l'abandon du territoire local dans le Zarmaganda (Niger). Revue européenne des migrations internationales, 161-187; Maliki, R., Pale, A. & Zourkalieni, Y., 2021. Les déterminants de la migration des femmes du département de Kantché. Sciences Humaines N°016, 93-117.

tine migration [...] driven by networks of traffickers of all kinds."[29] It announced the closure of migrant housing facilities (known locally as "ghettos") in Agadez, and the identification and prosecution of those involved in migration, now described as criminals. The ghettos were temporarily closed, but these decisions "were at odds with the migratory history of this region, limiting women's right to move and depriving people of resources essential to their daily lives".[30] However, this decision was not followed up with further action until several years later. It was not until the end of 2015, when the narrative and aims of the Nigerien government aligned with European aims for border externalization, that a real paradigm shift in Nigerien migration policy occurred. Europe was engaging in a process of externalizing its responsibilities in terms of flow control and refugee reception, and Niger was now a new node in this externalization.

28 Florence Boyer & Harouna Mounkaila, 2010. Partir pour aider ceux qui restent ou la dépendance face aux migrations: le sort des paysans sahéliens est-il lié à leur mobilité spatiale ? Hommes et Migrations, 1286-1287, 212-220.

29 Niamey.com : Conseil des Ministres du vendredi 1er novembre 2013, 3 novembre 2013: ↗ [accessed 8 February 2023]

30 Florence Boyer, Harouna Mounkaila & Bachirou Ayouba Tinni, 2020. L'externalisation des politiques migratoires au Niger: une action publique opportuniste ? Anthropologie et Développement, 51, 103-119.

TOWARDS LAW 2025-36: THE NATIONAL AND EUROPEAN NARRATIVES MEET

In 2015, when the influx of migrants at Europe's borders profoundly destabilized the Schengen system,[31] the only possible consensus among European leaders was to externalize the control and reception of refugees to countries beyond the Union's borders. Niger, given its geographical position linking the two shores of the Sahara and the resurgence of mobilities crossing it, has been at the center of European plans. From the beginning of 2015, Niger witnessed an unprecedented diplomatic ballet of European chancelleries in Niamey, which led, in May 2015, to the adoption of Law 2015-36, the content of which we detail in the next section. In November 2015, at the Valletta Summit, the EU created the EU Emergency Trust Fund for Africa (EUTF) to address the "root causes" of irregular migration,[32] with an initial envelope in 2015 of 1.8 billion euros (more than €5 billion in 2021), of which Niger is one of the largest beneficiaries. Against the stated objective of combating the root causes of irregular migration (economic opportunities, employment, resilience),[32] in Niger these funds have been primarily invested in securitized migration management to develop and strengthen border mechanisms, which have profoundly transformed both the form and function of Niger's borders.[34]

Figure 4

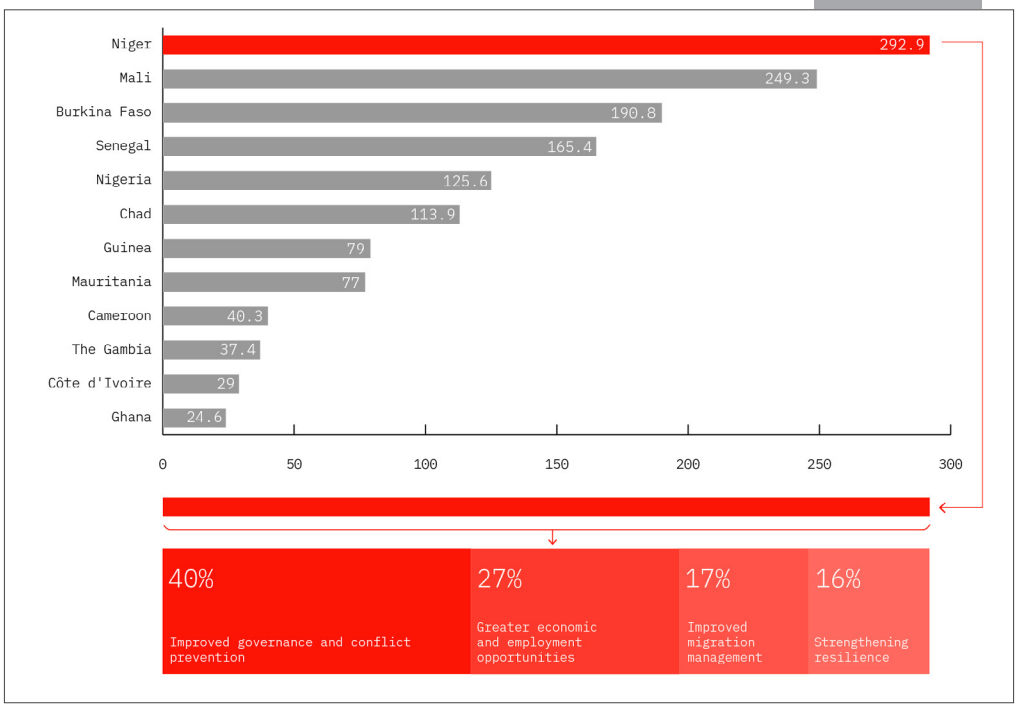
31 Jussi Laine, 2017. The Ethics of Bordering: A Critical Reading of the Refugee 'Crisis'. Dans: Cross-Border Review, Yearbook 2017. Budapest: European Institute of Cross-Border Studies - Central European Service for Cross-border Initiatives (CESCI), 31-50.

32 European Commission, A European Agenda on Migration, 2015 Valletta Summit on Migration: ↗

33 RFI, Invité Afrique « M. Issoufou : je veux m'attaquer à «la pauvreté qui chasse les Africains de leur pays », Novembre 2015: ↗

34 Rhoumour Ahmet Tchilouta, (forthcoming) 2023. Les stratégies de gestion des frontières du Niger à l'ère de l'externalisation des politiques migratoires de l'UE: vers des frontières itinérantes? L'Espace Politique.

F4



Distrubtion of EUTF funds by country in the Sahel-Lake Chad window and distribution of EUTF funds according to strategic objectives in Niger (as of 31 December 2021). Source : Commission européenne, Rapport annuel 2021 : Fond fiduciaire d'urgence de l'UE pour l'Afrique (Bruxelles : Commission européenne , 2021).

Niger's adoption of the 2015 law was followed by the adoption of the National Strategy to Combat Irregular Migration in December 2016,[35] and then the adoption of a National Border Policy in October 2019,[36] followed by the National Migration Policy in September 2020.[37] Both were developed with technical and financial assistance from EU institutions and Member States. The tightening of Niger's border regime, initiated with Law 2015-36 and expanded through the subsequent creation of new border control mechanisms have had a significant impact on both migrants and the Nigerien population, as explained below.

35 République du Niger, 2016. Stratégie Nationale de Lutte contre la Migration Irrégulière: ↗

36 République du Niger, 2019. Politique Nationale des Frontières 2019-2035: ↗

37 République du Niger, 2020. Politique Nationale de la Migration (2020-2035) avec son Plan d'action quinquennal: ↗

THE CRIMINALIZATION OF MIGRATION AND ITS TRANSPORTATION AT THE HEART OF LAW 2015-36

To understand the impact of Niger's security turn on migration dynamics, it is essential to detail the law's content and its ensuing measures. Law 2015-36 was adopted on 26 May 2015, but was not implemented until September 2016. It was developed with technical assistance from the United Nations Office on Drugs and Crime (UNODC) through a French police commissioner and financial assistance from Italy and Denmark. Officially, Law 2015-36 was adopted by Niger to translate into domestic law the *United Nations Convention against Transnational Organized Crime* and its related protocols, known as the Palermo Convention, signed by Niger in November 2010. This law was also an opportunity for the Nigerien government to provide the country with a legal framework to prevent and repress these irregular migrations "tarnishing" the country's image.[38]

This law aims, among other things, to prevent and combat the trafficking of migrants and to protect their rights. A migrant trafficker or smuggler is defined by the 2015-36 Law as as any person who intentionally ensures the illegal entry or exit of a foreign national from the country for the purpose of deriving, directly or indirectly, an advantage or any other material benefit. It is important to note that this law has no implementing decree, which makes its implementation depend not only on the place, but also on the actors and their interpretations. Thus, migrants and those who transport them are exposed to abuses resulting from personal interpretations of the law, since the penalties are huge. For example, being a trafficker or smuggler of migrants is a crime punishable by 5 to 10 years in prison and a fine of 1 to 5 million CFA francs (art. 10), while anyone who manufactures, procures, provides, or possesses a fraudulent travel or identity document to enable the trafficking of migrants is punishable by 3 to 7 years in prison and a fine of 1 to 3 million CFA francs (art. 11). Furthermore, anyone who takes advantage of or abuses the vulnerability or dependence of the migrant (the object of the trafficking) is faced with 20 to 30 years' imprisonment and a fine of 20 to 30 million CFA francs (article 18). Transporters, whether natural or legal persons,[39] who fail to verify that each passenger is in possession of the identity and/or travel documents required for entry into the country of destination are liable for a fine of between 1 and 3 million CFA francs (art. 20) and, in addition to these penalties, are subject to a ban on carrying out the activity of transport, engaging in other commercial activities, and/or creating another legal person in connection with the offense, etc. (art. 19).

38 Le Sahel, Mme Gogé Maïmouna Gazibo, Directrice générale de l'Agence Nationale de Lutte contre la traite des personnes et le trafic illicite des migrants (ANLTP/TIM) : « Notre pays fait partie des pays qui luttent, le mieux, contre la traite des personnes et le trafic illicite des migrants », 27 septembre 2019, ↗ [accessed 8 February 2023]

39 Under law, a natural person means an individual, while a legal person can refer to a corporation or government agency.

THE IMPLEMENTATION OF THE LAW: DIFFERENTIAL GEOGRAPHICAL APPLICATION AND EFFECTS

The application of Law 2015-36 was initially confined to the Agadez region to draw "an imaginary red line", as Bazoum Mohamed, the current president of Niger, has put it, that should not be crossed, before being extended to the entire country.[40] Therefore, transporters who are intercepted beyond Agadez with sub-Saharan Africans on board (even if they are nationals of the Economic Community of West African States, who would normally enjoy freedom of movement within the region) are arrested, usually convicted, and have their vehicles confiscated. It has thus created a crime of intent in the sense that people are arrested (and convicted) several hundred kilometers from the border, based upon their supposed intention to illegally cross the country's northern borders.[41]

The implementation of this law in Agadez occurred at a loaded time. It took place in September 2016 alongside the creation of a Special Investigations Division (DIS) within the *Direction de la surveillance du territoire* (DST, Directorate of Surveillance of Territory), specializing in the illicit trafficking of migrants, human trafficking, and document fraud. The DIS is the operational anchor of the Joint Investigation Teams (JIT) formed by Spanish, French and Nigerien police officers. Moreover, the creation of this JIT comes a few months after the establishment, in June 2016, of the new Migration Partnership Framework between the EU and Niger,[42] which directly aims to implement Law 2015-36.[43] According to several accounts, these European police officers participate in JIT patrols,[44] as well as interrogations at the DST.[45] The JITs are funded by the UTF and are managed by the Spanish International and Ibero-American Foundation for Public Administration and Policy (FIIAPP). The first JIT was established in December 2016 in Agadez as Law 2015-36 came into effect there in September 2016. As the implementation of the law became national, JITs and branches of the "Agence nationale de la lutte contre la traite des personnes et le trafic illicite de migrants" (ANLTP/TIM) were created in other regions. Moreover, the operationalization of the regional branches of the ANLTP is one of the conditions imposed on Niger for the disbursement of budgetary support under the EUTF program, *Appui à la Justice, Sécurité et à la gestion des Frontières* (AJUSEN).[46] The effectiveness of the law also coincides with the opening in April 2016 of a branch of the European Union capacity-building mission (EUCAP Sahel), the EU's police cooperation, in Agadez. EUCAP Sahel's mandate was extended to fight against irregular migration and now provides technical assistance to the JIT (and to all FDS) through various capacity building programs.

Figure 5

40 Florence Boyer, Harouna Mounkaila & Bachirou Ayouba Tinni, 2020.L'externalisation des politiques migratoires au Niger: une action publique opportuniste ? Anthropologie et Développement, 51, 103-119.

41 Julien Brachet, 2020. Chapitre 13. De la profitabilité de l'échec des politiques sécuritaires migratoires au Niger. Dans: E. Chauvin, O. Langlois, C. Seignobos & C. Baroin (dir.), éds. Conflits et violences dans le bassin du lac Tchad : Actes du XVIIe colloque Méga-Tchad. Marseille: IRD Éditions, 231-240.

42 European Commission, Press release, Commission announces New Migration Partnership Framework: reinforced cooperation with third countries to better manage migration: ↗

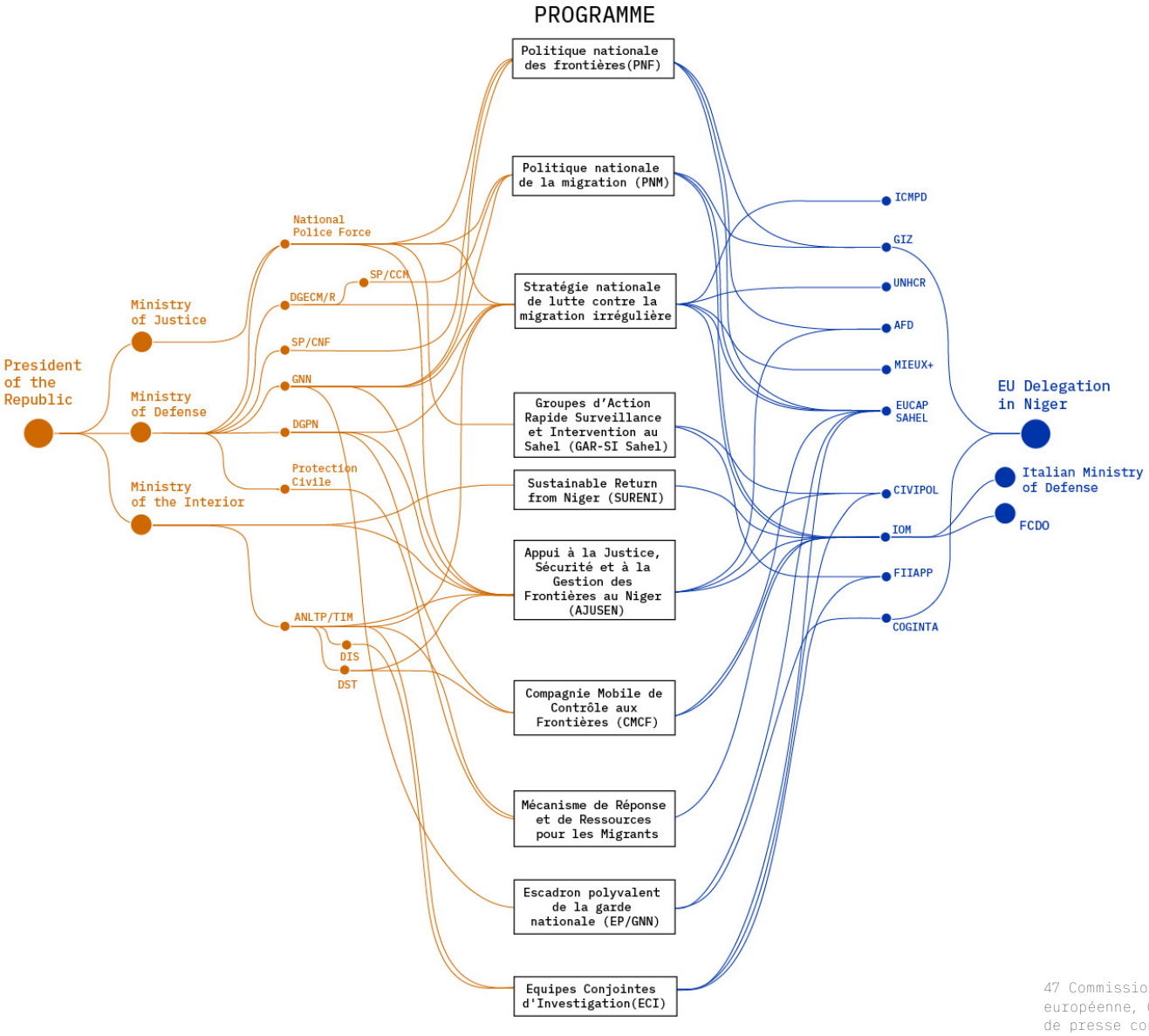
43 Julien Brachet, "Au Sahara, voyager devient un crime", The Conversation, 1 June 2018: ↗

44 Interview with an official of the Direction Régionale de la Police d'Agadez, September 2021

45 Alizée Dauchy, 2020. La loi contre le trafic illicite de migrant·es au Niger. État des lieux d'un assemblage judiciaire et sécuritaire à l'épreuve de la mobilité transnationale. Anthropologie & développement, 51, 121-136.

46 Annexe IV à l'Accord Instituant le Fonds Fiduciaire 'European Union Emergency Trust Fund for stability and addressing root causes of irregular migration and displaced persons in Africa', et ses règles internes: ↗

F5



It is worth noting that this mapping does not include all actors involved in migration and border management in Niger. Only key actors have been mapped.

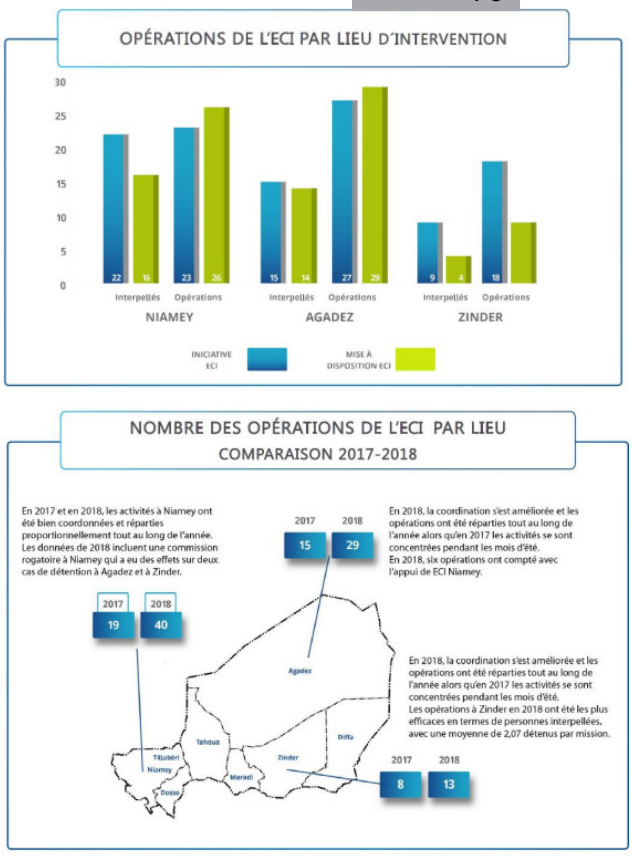
This judicial and security assemblage, devised to combat the economic model of the passeurs, has led to the arrest of more than 700 people, mostly transporters of and or people who house migrants, and the opening of more than 400 legal proceedings since the end of 2016.[47] More than a hundred vehicles have also been seized as well as dozens of "ghettos"[48] closed.

F7

47 Commission européenne, Communiqué de presse conjoint: Renforcement de la coopération dans la lutte contre le trafic de migrants: l'Union européenne et le Niger lancent un partenariat opérationnel de lutte contre le trafic de migrants, 15 juillet 2022 : ↗

48 Term to describe the places where migrants are housed in Agadez.

F6



Number of operations conducted by the Joint Investigation Team (JIT) between 2017 and 2018
Source: EUTF ↗

In addition, the number of migrants intercepted and handed over to the police has also increased sharply. According to figures from the Agadez police, more than 2,000 migrants were referred to them in the six months following the implementation of Law 2015-36, compared to 1,700 for the whole of 2015.[49] The main effect of these repressive and security measures has been to destroy the transportation system and the economy of the Agadez region. As a result, more dangerous and costly underground transportation networks and routes have developed, increasing the number of cases of abandonment, disappearance and death of migrants on the Niger's trans-Saharan routes (F6).

49 Interview with an official of the Direction Régionale de la Police d'Agadez, September 2021

Figure 6

F7

Pick-ups seized from migrant transporters stocked at Zone de défense n°2, the main military base in Agadez
Source: Francesco Bellina, 2018

F8

Migrants abandoned in the desert and found by National Patrol on the Agadez-Dirkou road
Source: Giacomo Zandonini, 2018

THE LETHAL EFFECTS OF THE CRIMINALIZATION OF MIGRATION: AN INCREASE IN DISAPPEARANCES AND DEATHS

Although Law 2015-36 recognizes migrants as victims, its implementation and the resulting criminalization of migration and its transport means has significantly increased the risks faced by migrants. Until 2015, migrants traveling to Libya via Niger could take advantage of the security offered by the weekly convoys of the Nigerien army leaving Agadez for Dirkou every Monday.[50] In the face of repressive measures stemming from the 2015-36 law, this practice has stopped. The transport of migrants is no longer accompanied by state actors. On the contrary, due to criminalization, migrants and those who transport them try by all means to evade the control of state actors by attempting to bypass military patrol zones and the Defense and Security Forces' (FDS) checkpoints. However, in the process, the alternative tracks used by migrants lead them further away from villages and the few water points that exist on these main roads. The areas they now pass through offer no possibility of rescue in case of a breakdown or an accident (F9). This has resulted in a drastic increase in the number of disappearances and deaths of migrants. This increase is more noticeable in the area along the axis leading to the Libyan border, around which the control and surveillance devices of the FDS are concentrated.

50 Julien Brachet, 2018. "Manufacturing Smugglers: From Irregular to Clandestine Mobility in the Sahara", The ANNALS of the American Academy of Political and Social Science, 676(1), 16-35

Figure 9

F9

Vehicle broken down on the Agadez-Libya road causing the death of a dozen migrants in July 2017, Source: Aïr Infos, Ibrahim Manzo Diallo, 2017

The Nigerien Sahara has thus become an open-air tomb for hundreds of migrants who have attempted to cross it, and since 2015, these macabre discoveries have regularly made the headlines in national and international newspapers. For example, 48 bodies were found in the Nigerien desert in June 2015,[51] 34 in June 2016,[52] 44 in May 2017,[53] and 52 in June 2017,[54] just to name a few.

It is likely that just a fraction of deaths are reported and counted; when bodies are found, it is usually by chance and often months or even years later. Note also that the SDF patrols that cover this part of the territory do not always report these tragic discoveries, "perhaps to reduce the official paperwork or avoid negative publicity about their job".[55] Although fine-grained documentation of incidents is often lacking, from the fragments that we do have, recurrent practices contributing to deaths in the desert emerge. In most cases, the deaths are caused by car accidents, or because the migrants are stranded due to vehicle breakdown in remote areas where there is no hope of rescue. Migrants also die because their transporters abandon them in the middle of nowhere, either for fear of being intercepted by FDS patrols or to avoid passing through checkpoints.

If the 2015 law was adopted in the name of preventing migrant deaths across the Sahara, and the "*mission accomplished*" narrative put forward by the government of Niger and its international partners has foregrounded the protection of migrants against scrupulousness smugglers,[56] all the elements reviewed here indicate the contrary. The implementation of the 2015 law has had the effect of increasing the risks faced by migrants during their crossing of the Sahara.

If the analysis of a broad range of actors converges in indicating the increased danger faced by migrants as a result of the passing of the 2015 law, available data on the actual number of deaths is scarce and fragmentary at best. The only actor that has compiled these deaths in a systematic database is IOM, with its Missing Migrants Project (MMP) (see box text). Although the list compiled by IOM is far from being exhaustive, it confirms the analysis of field actors regarding the increased dangers for migrants due to control policies and practices. The number of recorded disappearances and deaths of migrants rose from 56 in 2015 to 433 in 2017,[57] an increase of almost 700%, as Law 2015-36 and the JIT came into force in the Agadez region at the end of 2016. In total, since 2014, IOM has recorded 1,329 migrants who have died or disappeared while attempting to cross the whole Sahara desert, including 1,092 during the Niger desert crossing, while acknowledging that this number is certainly well below reality.

51 RFI, Migrants morts dans le Sahara : des drames difficiles à chiffrer, 16 June 2015, ↗

52 Le Monde, Niger: trente-quatre migrants retrouvés morts dans le désert, 16 June 2016, ↗

53 Al Jazeera, more than 40 migrants 'die of thirst' in Niger, 1 June 2017, ↗

54 BBC, Niger migrants: 52 die during desert crossing, 27 June 2017, ↗

55 Julien Brachet, 2018. "Manufacturing Smugglers: From Irregular to Clandestine Mobility in the Sahara. ", The ANNALS ANNALS of the American Academy of Political and Social Science, 676(1), pp. 16-35.

56 La Tribune Afrique, Migration illégale : le Niger assure le job, selon l'OIM, 17 October 2017: ↗

57 Missing Migrants Project by International Organization for Migration (IOM): ↗ , [accessed 7 April 2023]

Not only has the dispersion of migrant trajectories to avoid control created more risks for migrants, but, by pushing them to more isolated spaces, made it more difficult to document these tragedies has also become more difficult and ad hoc. Indeed, the Sahara desert is a swift killer that leaves few traces. Its heat, a real challenge for human physiology, shrivels the tissues of the dead human body, and its hot and shifting sand covers the remains.[58] Although the shift in migrant trajectories to more isolated spaces has meant that deaths can take place far from the gaze of state actors or civil society, several actors are attempting to document these incidents. This is the case, for example, of Alarme Phone Sahara (APS),[59] a civil society organization based in Agadez. Despite its limited financial and technical resources, it regularly organizes civilian patrols on these remote routes to try to rescue migrants and document the violence they face.[60] Other civil society structures such as Alternative Espace Citoyen (AEC) and local newspapers, such as Aïr Infos, are also active in documenting and monitoring the situation of migrants' rights in Niger. However, despite their best efforts, the vastness of the desert and the elusive routes now taken by migrants make it difficult to accurately document cases of migrant deaths.

That being said, IOM rescue missions or civil society efforts such as APS save many migrants' lives every month. For example, between 2016 and 2019, IOM search and rescue (SAR) operations in the Agadez region, particularly around the towns of Agadez, Bilma, and Dirkou, rescued 1,739 migrants abandoned by their transporters.[61]

Despite the efforts of various actors, the documentation of migrant deaths and their systematic compilation is still far from reflecting reality. Our investigation attempts to contribute to the development of a fine-tuned method of analysis to better account for the lethal effects of border control in Niger.

58 In this part of the world, it is not uncommon for daytime temperatures to reach 50°C. At this point, body temperature regulation (thermoregulation) is draining all energy, and survival becomes impossible for more than a day or two without water: ↗

59 Alarme Phone Sahara, Qui est Alarme Phone Sahara (APS): ↗

60 Alarme Phone Sahara (APS), Civilian patrol in the desert beyond a snag, 30 July 2021: ↗

61 OIM, 2020. Migration Trends from, to and within the Niger: 2016 - 2019, Niamey, Niger: International Organization for Migration (IOM).

THE IMPORTANCE AND LIMITS OF IOM DATA ON MIGRANT DEATHS IN NIGER

IOM's Missing Migrant Project (MMP) consists of a global database, compiled from thousands of sources, including government sources, news reports, and surveys to record instances of migration-related fatalities. Coordinates are ascribed to each incident, and a map of the spatialised data is hosted on the MMP website. Our investigation began with an in-depth analysis of the MMP data for Niger as we believed it would serve as the starting point for our geospatial analysis, in order to understand and visualise the conditions of specific areas and bordering dynamics leading to these deaths. However, a thorough review of the data revealed the extent of under-tabulation and methodological challenges for documenting death and disappearance in the desert. As the MMP collects its data from a variety of sources, including other NGOs or branches of the IOM, accurate recording of the number of incidents is greatly impacted by the compatibility of databases and methodologies. For instance, contributions from IOM's Mixed Migration Hub, which had been a significant source of incident data in Niger, ended in 2017.

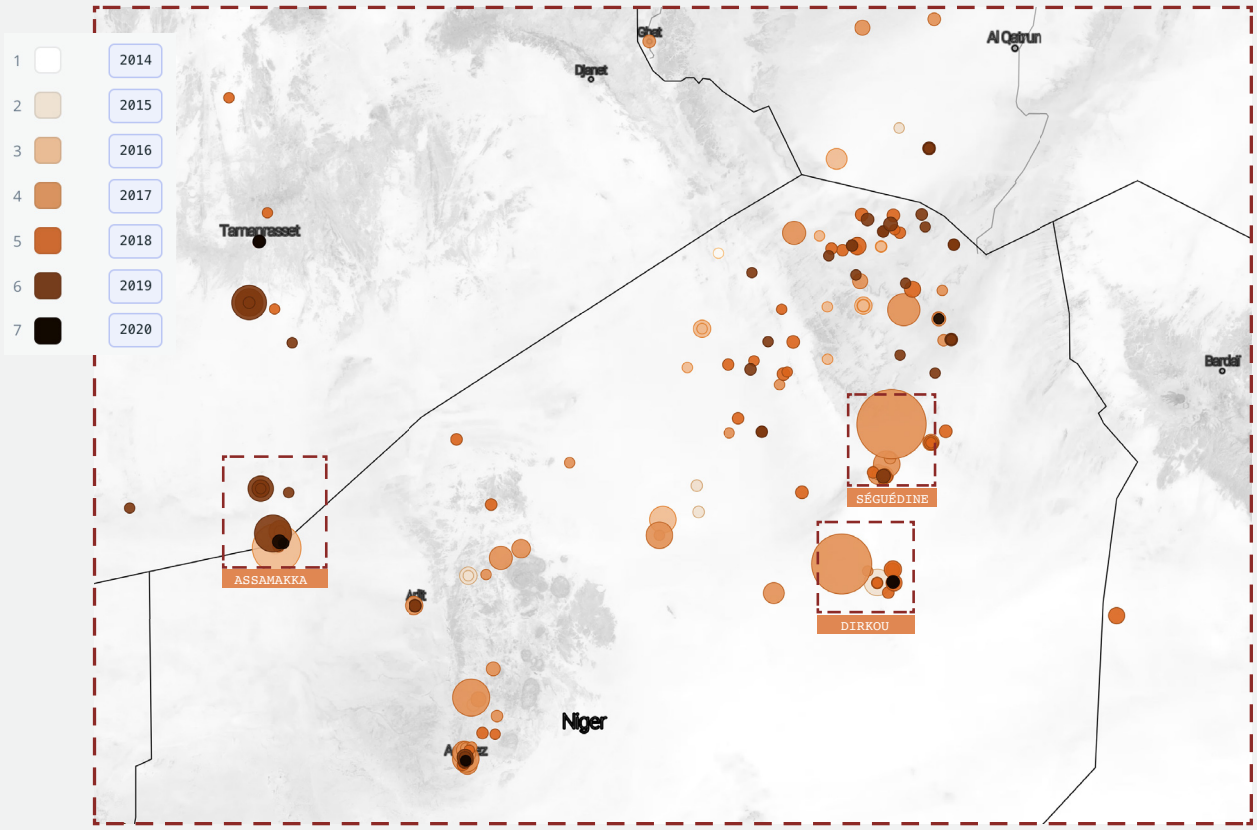
What is captured in IOM's data, then, is not exclusively shifts in the dynamics of mortality in the region, but also shifts in institutional data collection practices. In addition to compiling news sources, social media posts, official reports, and data from other NGOs, MMP information on many of these incidents is collected at IOM migrant reception centres and then only if the information is given unprompted, as it is not part of official surveys. Finally, when incidents are documented, their exact locations are often vague and unverifiable. While the database has a coordinate ascribed to each incident, the description of the location sometimes records the incident as having occurred at "Sahara Desert, between Agadez, Niger and Tripoli, Libya" [FIGURE 1.4]. Therefore, while the data provides a certain level of insight into the general routes and the sparest details of the incidents, it failed to prove useful as a geospatial reference. Ultimately, while the IOM database is important in offering a baseline of documented cases of death, it does not provide a reliable measure of the number of migrant deaths across the desert over time, and its spatial resolution is too low to represent their geographic distribution.[62]

62 Missing Migrants Project, 2023. Methodology, ↗ [accessed 7 April 2023]; DRC & MMC, 2016. Forgotten fatalities: the number of migrants deaths before reaching the Mediterranean: ↗ [accessed 7 April 2023

01

Region	Year	Number Dead	Cause of Death	Location of death	Lat	Long
Western Africa	2017	7	Harsh environmental conditions / lack of adequate shelter, food, water	Outside Séguédine, Niger	12.61118164	20.31903332
Western Africa	2015	2	Harsh environmental conditions / lack of adequate shelter, food, water	Sahara Desert between Agadez, Niger and Libya	15.71238986	4.981831
Western Africa	2019	3	Mixed or unknown	Desert near Agadez, Niger	16.96338	7.9773382
Western Africa	2017	2	Vehicle accident / death linked to hazardous transport	Outside Agadez, Niger	16.9732283	7.98805528
Western Africa	2018	1	Vehicle accident / death linked to hazardous transport	Desert near Agadez, Niger	17.275026	8.339431
Western Africa	2018	2	Harsh environmental conditions / lack of adequate shelter, food, water	Desert near Agadez, Niger	17.288454	8.188231
Western Africa	2017	5	Harsh environmental conditions / lack of adequate shelter, food, water	Desert outside Agadez, Niger	17.66638234	8.14034359
Western Africa	2017	4	Harsh environmental conditions / lack of adequate shelter, food, water	Desert outside Agadez, Niger	18.0114997	8.31612484
Western Africa	2017	8	Harsh environmental conditions / lack of adequate shelter, food, water	Desert outside Arlit, Niger	18.7390511	7.3730705
Western Africa	2017	10	Mixed or unknown	Sahara desert, Niger	18.88071141	11.66320897
Western Africa	2015	1	Sickness / lack of access to adequate healthcare	Sahara Desert, between Agadez, Niger and Tripoli, Libya	19.075158	8.024068
Western Africa	2015	1	Violence	Sahara Desert between Agadez, Niger and Libya	19.075158	8.024068
Western Africa	2015	1	Violence	Sahara Desert between Agadez, Niger and Libya	19.075158	8.02407
Western Africa	2015	7	Harsh environmental conditions / lack of adequate shelter, food, water	Sahara Desert, between Agadez, Niger and Tripoli, Libya	19.075158	8.024068
Western Africa	2015	1	Harsh environmental conditions / lack of adequate shelter, food, water	Sahara Desert, between Agadez, Niger and Tripoli, Libya	19.075158	8.024072
Western Africa	2015	1	Harsh environmental conditions / lack of adequate shelter, food, water	Sahara Desert, between Agadez, Niger and Tripoli, Libya	19.075158	8.024068
Western Africa	2015	1	Mixed or unknown	Sahara Desert, between Agadez, Niger and Tripoli, Libya	19.075158	8.024068
Western Africa	2015	1	Mixed or unknown	Sahara Desert, between Agadez, Niger and Tripoli, Libya	19.075158	8.02407
Western Africa	2017	1	Violence	Sahara desert, Niger	19.08848603	8.23547459
Western Africa	2017	1	Mixed or unknown	Desert outside Dirkou, Niger	19.12634	12.7798059
Western Africa	2017	4	Mixed or unknown	Outside Dirkou, Niger, near the border with Libya	19.14190917	13.08054879
Western Africa	2017	44	Harsh environmental conditions / lack of adequate shelter, food, water	Desert outside Dirkou, Niger	19.2078834	12.4693292
Western Africa	2017	12	Violence	Sahara desert, Niger	19.27526061	8.41125584
Western Africa	2017	8	Vehicle accident / death linked to hazardous transport	Sahara desert, Niger	19.37893248	8.65295506
Western Africa	2016	34	Harsh environmental conditions / lack of adequate shelter, food, water	Desert near Assamaka, Niger near border with Algeria	19.3862108	5.7323297

02



A selection of IOM Missing Migrant Project Data highlights the disparity between the coordinates (1) ascribed to reported incidents of cross-Saharan migration deaths and "Location of death" (2) which is often a much vaguer description and cannot be precisely mapped. See cartographic trial of visualising the dataset in the map above.

METHODOLOGY

Our aim has been to answer the following question: *how has increased border control shaped the danger migrants have faced in crossing the Sahara in Niger?* The relation between bordering practices, spatial shifts in migrant trajectories and increased danger of crossing has been demonstrated by studies of migration in other border zones. While contexts differ, time and again analysis has shown that border militarization does not stop migrants' movements, but forces them to move through other areas or use different tactics that render their mobility more dangerous.[63] This effect is precisely the one that has been observed through qualitative methods in the context of Niger by researchers, journalists and human rights activists, as discussed above. Our investigation has sought to develop new methods of geospatial analysis, allowing us to empirically analyse these phenomena and the possible causal relations between them.

63 The ways in which border control affects shifts in migrant trajectories and, as a consequence, the danger of crossings has been studied by a number of scholars focusing on different geographical areas. A key insight from this literature is that increased border controls, surveillance, and militarisation often have the effect of pushing migrant trajectories into alternative and often more dangerous routes. For a review see Charles Heller, 2015. "Liquid Trajectories - Documenting Illegalised Migration and the Violence of Borders." Phd Thesis. Available at: ↗

While we aimed to conduct a spatial analysis of trends in border control and migrant trajectories, and relate them to the evolution of the danger of crossing, our review of available data – which included IOM's Missing Migrants Project data, IOM Flow Monitoring Point data, IOM Search and Rescue data, reporting by Alarm Phone Sahara, and a review of reports published by 4mi, amongst other sources – quickly revealed that data concerning these phenomena is fragmentary. There did not exist a comprehensive data set with which to immediately test our hypotheses concerning the relationship between bordering practices, the splintering of migrants' trajectories and the increased danger this entailed. A particular challenge was revealed concerning the migrant mortality rate which in studies for other contexts (such as the Mediterranean) has functioned as a measure of the danger faced by migrants. A migrant mortality rate is calculated on the basis of the number of people crossing and the number of people who die in the process. In the context of Niger, reliable data is lacking for both variables. Since migration has been pushed underground it is thus harder to account for, making reliable data on the number of crossings of the Sahara unavailable. As for the number of deaths, the Missing Migrants database offers a baseline of documented deaths but is far from offering a reliable measure and lacks adequate spatial resolution to identify more precise locations. Thus, achieving a reliable measure of the migrant mortality rate is not possible at this stage.

In light of the limitations of existing data, our approach draws on, and adapts to the context of Niger methods of geospatial analysis that have been effectively mobilized to analyse the lethal effects of border control across the US-Mexico border. We rely upon a number of data sources and methods, which we cross-reference and combine.

First, our analysis builds upon the qualitative insights concerning the evolution of border control and the dynamics of migration in Niger generated throughout several years of field work by Université Grenoble Alpes' PhD candidate and Border Forensics researcher Rhoumour Ahmet Tchilouta.

Second, we utilise a range of spatial analysis methods, in particular remote sensing analysis of border infrastructures and shifting tracks used to travel across the desert, as well as geostatistical modelling to understand the relation between border control and changes in migrant trajectories. In the absence of a reliable measure of migrant mortality, we modelled the variations of sweat loss depending on the changing spatiality of migrant trajectories (along the main road or on tangential tracks leading migrants into more remote areas), which offers an indication of the danger faced by migrants travelling in and through Niger.

Through these methods we were able to test empirically the hypothesis that the proliferation of diverse bordering practices following the passage of Law 2015-36 has resulted in the proliferation of alternative tracks that bypass sites of increased border controls. Along these post-2015 trajectories, the chances of aid or finding assistance become increasingly unlikely or even non-existent.

Below, we further describe our rationale for the choice of our multi-sited case study along a section of the Agadez-Sabha route – the civilian town of Séguédine, the military outpost of Madama, and the Toummo checkpoint – and present the specificities of each of these sites, before applying our methodology for the spatial analysis of bordering practices, dynamics of migration and danger.

ANALYZING DESERT BORDER DEATHS THROUGH SPATIAL ANALYSIS METHODS

The methodologies developed in this investigation draw upon years of counter-mapping and activist resistance in the Arizona-Sonora borderlands at the United States-Mexico border. Activist and humanitarian aid groups in southern Arizona in the United States and northern Sonora in Mexico began to form and take action in the early 2000s, when the deadly consequences of mid-90s US border policy began to be felt and seen in the rising numbers of border crossing deaths in the region. Over the past twenty years, these groups have sought to not only thoroughly document the deadly effects of checkpoints, surveillance towers, and Border Patrol tactics but to use robust data collection and mapping techniques to maintain life-saving food and water caches on cross-border trails and to conduct volunteer-led search and rescue operations.

These efforts are not only a direct response to the human rights violations by the US government, which has failed to protect the rights of migrants, but are a way of re-attributing culpability for the increased death and suffering that are a direct result of border controls and policy, which have otherwise been attributed by the US government to “unscrupulous smugglers.” Considering the importance of these fine-grained geospatial methods developed to analyse the lethal effects of border controls across the US-Mexico border, Border Forensics has developed a collaboration with some of the researchers who developed and implemented them, in particular Sam Chambers, so that these methods could be adapted to the context of Niger.[64] We have adapted two specific methodologies from that context and those long-standing efforts to create a parallel, but situated, argument in the context of the Sahara. The models take into account the specific qualities and dynamics of our sites of analysis, while building upon the work of anti-border activists in a uniquely different desert but similarly deadly militarized border environment.

Our analysis of water loss and detection by border policing in Niger consisted of the adaptation of two geographic models previously tested and verified in forensic analysis of border militarization in the Sonoran Desert of the US-Mexico borderlands. The first is the viewshed analysis. Since the late 1990s, among many other uses, this method has been used to locate places that people may use to avoid visibility[65] and to locate surveillance technology installed by both military[66] and border regimes.[67] But recently, it has been implemented in

countermapping to measure the degree to which border surveillance has impacted crossings by increased mortality rates and the difficulty of traversing landscapes in borderlands.[68]

The second model, a cost distance analysis, builds upon one developed for search and rescue operations in the Sonoran Desert[69] but with an update to account for the exertion of walking on sand dunes as compared to harder surfaces such as bare rock.

Our findings show the effects of border militarisation in the Sahara parallels those documented in the Sonoran Desert: that border militarization is not stopping or deterring movement but is instead making such movement drastically more dangerous.

64 In July 2021, an online workshop organized by Border Forensics and the Human Rights Project at Bard College brought together researchers, activists, and researchers, human rights activists, artists, and architects working across the US-Mexico and Sahara border zones. The aim of the workshop was to create a space of common thinking from which new methods and practices may emerge so as to better document, prevent, and seek accountability for border violence.

65 Jay Lee Dan Stucky, 1998. "On applying viewshed analysis for determining least-cost paths on digital elevation models", International Journal of Geographical Information Science, 12(8), 891-905..

66 George, Stephen, Xing Wang & Jyh-Charn Liu, 2015. "MECH: A model for predictive analysis of human choices in asymmetric conflicts." Social Computing, Behavioural-Cultural Modeling, and Prediction: 8th International Conference, SBP 2015, Washington, DC, USA, March 31-April 3, 2015. Proceedings 8, 302-307. Springer International Publishing.

67 U.S. Customs and Border Protection (USCBP), 2010. Supplemental Environmental Assessment for the SBInet Tucson West Tower Project Nogales and Sonoita Stations' Area of Responsibility. ↗ ; ervé Touron.& Yannick Arnaud, 2018. "Geospatial Intelligence in Support of European Defence and Security: Use Cases and Experience", Esri National Security and Public Safety Summit Proceedings. ↗

68 Samuel Norton Chambers, Geoffrey Alan Boyce & Jake Jacobs, 2021. "Constructing a desert labyrinth: The psychological and emotional geographies of deterrence strategy on the US/Mexico border", Emotion, Space and Society, 38 100764; Samuel Norton Chambers, Geoffrey Alan Boyce & Sarah Launius, 2021. "Mortality, surveillance, and the tertiary "funnel effect" on the US-Mexico border: a geospatial modeling of the geography of deterrence", Journal of Borderlands Studies, 36(3), 443-468..

69 Samuel Norton Chambers & Molly Miranker, 2022. "Dehydration rate and a novel model to aid search and relief for undocumented border crossers in the Sonoran Desert", The Professional Geographer, 74(4), 642-658.

CASE STUDY

BORDER, MIGRATION AND DANGER DYNAMICS ALONG THE SÉGUÉDINE-MADAMA-TOUMMO AXIS

A02

A number of factors directed us in our selection of the site of analysis: availability of high resolution satellite imagery, the potential for a specific case study, prominence as a migration hub, the presence of military and security forces, the proximity of mining operations and their influence on migration dynamics, the existence of IOM Flow Monitoring Points to provide supporting data, as well as any published testimony that might direct and support our claims.

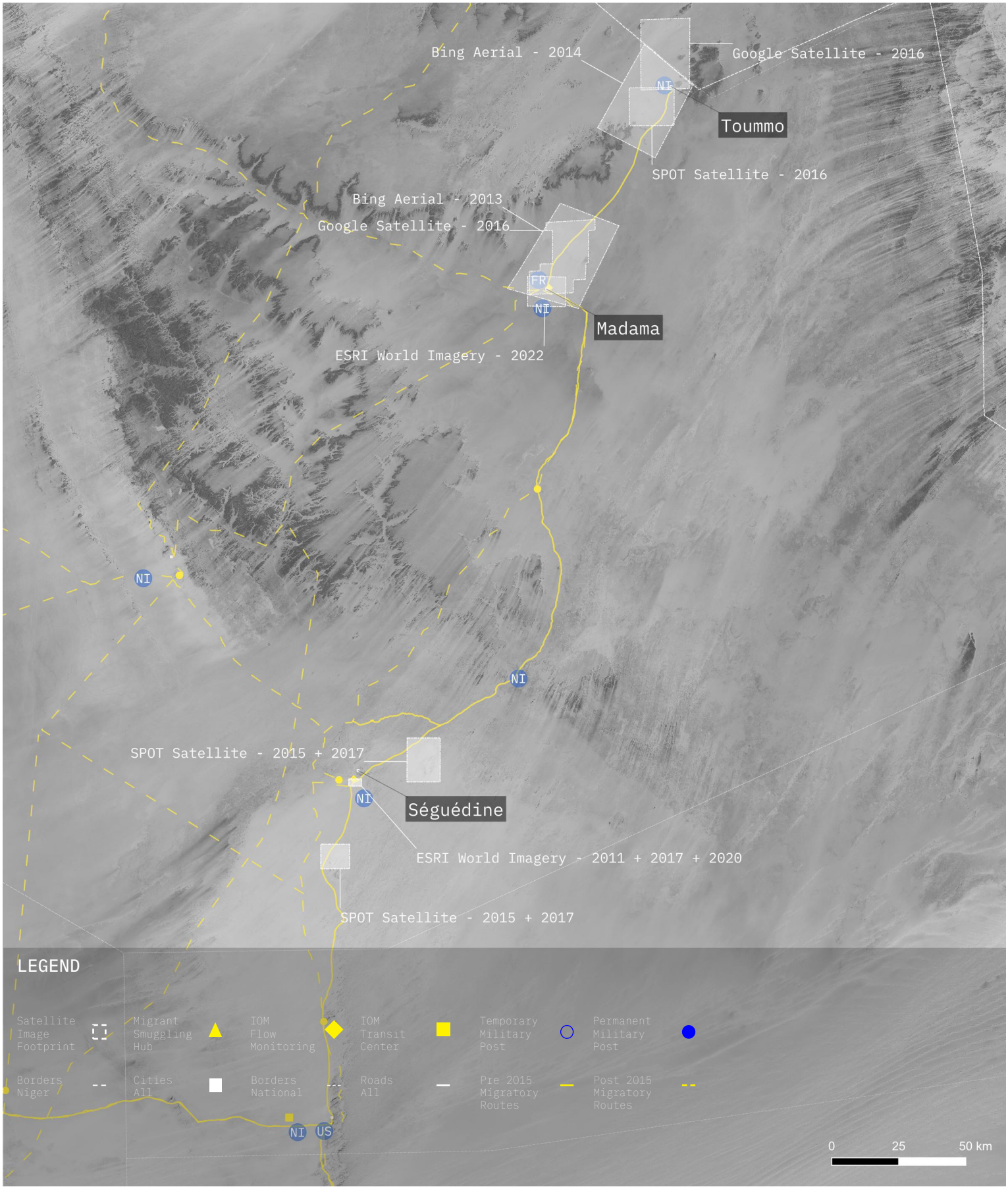
After considering these factors at length, we moved forward in the development of our methodologies at the site of Madama, a former French colonial fort situated approximitly 100km south of the Libyan border. We selected this site due to its prominence as a key transit point and the potential it had to exemplify Law 2015-36's far reaching ramifications, beyond the mandate of any one defence agency or security formation, as we describe below. We then expanded our analysis and applied our methodologies to two additional sites: the civilian town of Séguédine to the south, and the checkpoint of Toummo to the north.

Séguédine, Madama and Toummo form an integrated axis of mobility and border control. It is a segment of the road leading from Agadez to Libya routinely used by migrants, but also used for a wide range of complex and overlapping forms of mobility. These range from Nigeriens' seasonal or circular labour movements through to the trafficking of goods, drugs, and arms. Moreover, since the end of 2014, there has been an unprecedented influx of artisanal gold miners attracted by rapidly expanding gold mining sites located across northern Niger, such as those found across the Djado Plateau, located in the Chirfa municipality north - west of Séguédine.

A study has shown that since the discovery of these gold mining sites, the number of heavy trucks and 4x4s markedly increased. For example, two weeks after the discovery of the Djado site in May 2014, the mayor of the commune of Chirfa recorded 2,235 vehicles and 13,042 people, and a month later the foreign presence (more than fifteen nationalities, mainly Chadians and Sudanese) was estimated to range between 25,000 and 30,000.[70] Given the complexity and diversification of mobility patterns in the area of interest north of Agadez, it would be inaccurate to label all movements through this axis as those of "migrants". However, as a result of the criminalization of the transport of migrants through the 2015 law, it is primarily migrants who, in the aim of avoiding controls, are led to use alternative tracks far from the main road and encounter situations of increased

70 Emmanuel Grégoire and Laurent Gagnol, "Ruées vers l'or au Sahara: l'orpaillage dans le désert du Ténéré et le massif de l'Aïr (Niger)", Echo-Géo ↗

A02 CASE STUDY AREA



High resolution images were collected from open sources (Bing Maps, 2014; ESRI World Imagery, 2016; and Google Earth, 2021-22), and in instances where open source images were of insufficient resolution, imagery was purchased from LAND INFO

danger and death as a result. Below, we provide a brief context overview for each site before deploying each step of our spatial analysis.

SÉGUÉDINE

Located in the oases of Kawar in northern Niger, Agadez region, Séguédine is a small civilian town situated at the junction of roads that join Madama to Dao-Timmi and Kawar-Djado. While prior to the passage of Law 2015-36 the nearby city of Dirkou had been a key stopover hub for migrant caravans to refuel, the post-2016 influx of repressive security measures and intensification of military patrols in that city resulted in the emergence of towns such as Lateye and Séguédine as preferred stopovers in early 2016.

What followed was the arrival of NGOs in early 2016, and then the massive deployment of Nigerien defence and security forces in 2017. The IOM established a Flow Monitoring Point (FMP), medical teams and mobile clinics were mobilized by Médecins Sans Frontières (MSF), and the Nigerien Red Cross (CRN) arrived to provide mobile phone services to transiting migrants at the Séguédine station. Beginning in 2017, Nigerien authorities tightened their security control and increased the presence and intensity of police, defence, and security forces including: the arrival of national police and a customs unit, new barriers, and surrounding patrols by Niger Armed Forces (FAN). The visit of the Minister of the Interior in May 2017 was a clear indication of the important role of Séguédine in the fight against irregular migration.

The effects on migration by this inflated securitization was captured by the data collected at the IOM Flow Monitoring Point: between January and September of 2016, over 230,000 foreign migrants heading to Libya were observed at the Séguédine FMP. This number dropped to 1,400 for the entire year of 2017.[71]

71 OIM, 2020. "Migration Trends from, to and within the Niger: 2016 – 2019", Niamey, Niger: International Organization for Migration (IOM).

MADAMA

Approximately 250km north of Séguédine, Madama is a military fort built by France in 1930 during its colonial occupation. From the outset, the fort's role was to control trans-Saharan caravan traffic, the nomadic population who live and circulate in this area (Toubous in particular), and to defend Niger's northern border against Italian expansion from Libya. Historically, the site has been both a strategic location for controlling the trafficking of contraband (predominantly cigarettes and drugs) as well as a traditional transit area for migrants travelling from Agadez or Dirkou to Libya. Before the passage of Law 2015-36, there was no need to avoid the Mad-

ama military post as the FAN stationed there posed little risk of apprehension, and the fees they collected were tolerable. Following the law's enactment, the fees required have increased ten-fold, a major factor in drivers' motivations to bypass Madama. Simultaneously, from January 2015 until July 2019, the military base saw a proliferation of activity, including the deployment of approximately 250 French soldiers as part of Operation Barkhane and the establishment of a temporary forward operating base. The purpose of the Barkhane base was to disrupt the logistical flows and transit of terrorist armed groups between Libya and northern Mali. While migration exceeded the scope of Barkhane's mission, the mere presence of the French Army in Madama constituted a significant deterrent effect for migrant transporters, as is reflected in our analysis. According to drivers, migrant convoys can sometimes be intercepted by Barkhane soldiers, who then hand over the cars, drivers and migrants to the Nigerien army. Also present on site after 2015 have been Nigerien Armed Forces (FAN), Nigerien Customs police, which have operated as a de facto border force in this area, and the IOM who has been operating a Flow Monitoring point since 2019.

TOUMMO

Roughly 95km north of Madama, and 5km south of the Libyan border lies the checkpoint of Toummo. Though it is on Nigerien territory, the site was held by Libyan military forces from the 1980s until the fall of Gaddafi in 2011, after which it eventually became occupied by Toubous militia. Toubous militiamen hold this checkpoint and various others on the route to Sabha, collecting fees from drivers and migrants in order to pass. It is their self-proclaimed mission to manage Libya's southern borders, to combat irregular migration, and to fight terrorism alongside other anti-trafficking and customs missions. The Toubou communities have gained a certain autonomy and have set up governance and security systems in Gatrone under local leadership. It is notable that Toubous militia are under resourced, in comparison to the various agents present in Séguédine and Madama, and they themselves are heavily involved in the transporting of migrants in this region. Considering these specificities, we expect that Toummo will reveal different patterns than Séguédine and Madama, as migrants and those who transport them will have less incentive to avoid check points located along the main road.[72]

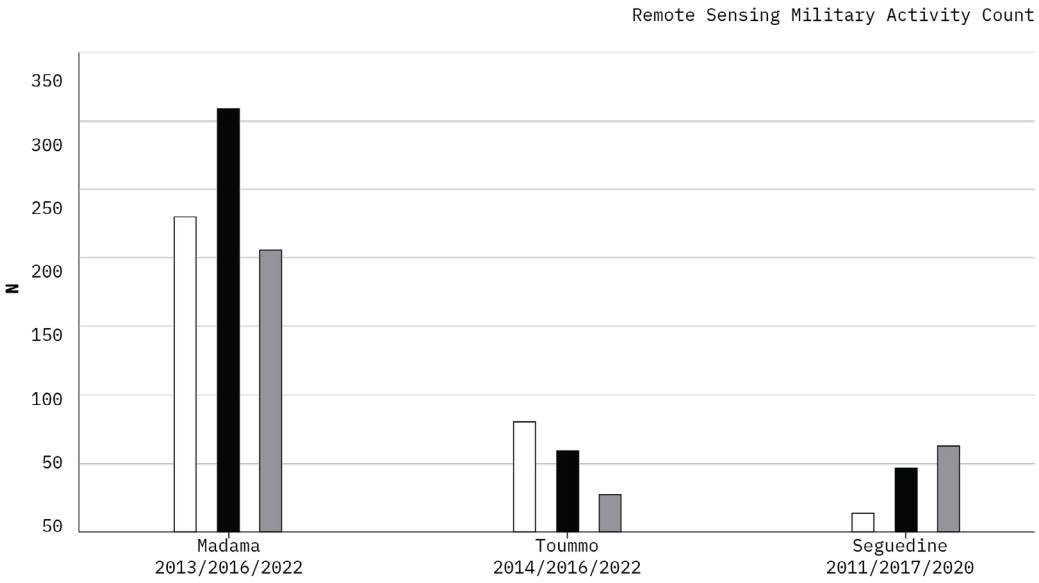
In our analysis of these three sites, each a key node along a 350km segment of the Dirkou-Sabha route, we applied our methodologies in a consistent way. Our empirical results offer a contribution to answering our question: *how have the different kinds of border control present along this route impacted migrants' trajectories and the level of danger faced on their cross-Saharan journeys?*

72 Peter Tinti & Tom Westcott, 2016. "The Niger-Libya corridor: smugglers' perspectives". Institute for Security Studies : ↗

Tom Westcott, 2018. The Tebu: the little-known community at the heart of Libya's people smuggling trade, The New Humanitarian: ↗

Tom Westcott, 2018. "Destination Europe: Overlooked", The New Humanitarian: ↗

As we will now demonstrate in detail, each case we analyse shows evidence of migrants' routes being pushed off the well-travelled thoroughfares and deeper into the desert in response to the emergence of a myriad of implicit and explicit forms of border controls from 2016 onward. While the variables at each site vary, the patterns between them are clear and demonstrate the relationship between the diverse implementations of Law 2015-36 and the increased danger faced by migrants travelling along this route and across Agadez more broadly.



Graph shows a cumulative count of all military activity, including the presence of trucks, across each year of investigation, at each site; Séguédine, Madama & Toummo. The graph shows a relative increase in military activity at both Séguédine and Madama. Whilst the Toummo checkpoint, which has been increasingly less resourced since the collapse of the Gaddafi government, exhibits an overall decrease in military activity

Ahmet Tchilouta Rhoumour (forcoming 2023), « Les stratégies de gestion des frontières du Niger à l'ère de l'externalisation des politiques migratoires de l'UE : vers des frontières itinérantes ? ». L'espace politique, n°45 (Après le Sommet de la Valette (2015) : quelles pratiques et politiques migratoires en Afrique ?).

FRONTEX'S USE OF SATELLITE IMAGERY TO MONITOR MIGRANTS' SHIFTING ROUTES

In its effort to control migration on land, Frontex has sought operational cooperation with EU agencies and commercial partners that provide surveillance services from space and geospatial analysis products.[73] Within the context of the Africa-Frontex Intelligence Community (AFIC), Frontex has published annual reports presenting its use of geospatial technologies in Niger's border management strategy. The 2016 Africa-Frontex Intelligence Community Joint Report[74] reveals that Frontex uses analysis of high resolution satellite imagery to identify routes, means of transport, patterns of increasing militarization, and border crossing dynamics (Image 1).

Image 1: Satellite image showing tracks deviating from the main road as they approach Madama, a village on Niger's north-eastern .border with Libya

Source: Africa-Frontex Intelligence Community Joint Report, 2016, pp. 12

Operational support by geospatial agencies is improving and continuously evolving to respond to Frontex and other state actors' security needs. Among the important developments is the increased use of Artificial Intelligence (AI) and imagery scanning tools. The AFIC 2016 report details the use of a GeoHIVE (Geospatial Human Imagery Verification Effort)[75] crowdsourcing campaign to automatically geotag trucks in Agadez over time. This tool uses collective intelligence to identify objects using very high-resolution satellite imagery banks. One of the objectives of the campaign was to analyse the correlation between truck activity in Agadez and activities related to migrant smuggling. The images from this campaign, whose data is used by Frontex, was analysed by nearly 260 participants, and enabled the geotagging of nearly 14,000 trucks (Image 2).

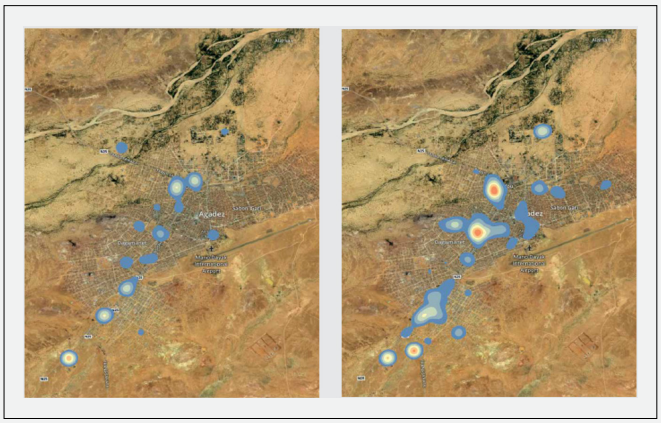


Image 2: Heatmaps of truck presence in Agadez: comparison between Q1 2014 and Q1 2016. Source: Africa-Frontex Intelligence Community Joint Report, 2016, pp. 13

Frontex's use of satellite imagery has paved the way for other Nigerien security services, such as customs, to use satellite imagery to analyse cross-border flows (Image 3) with the aim of combating various forms of trafficking, in particular drugs, gold, and human beings in the north of the country. Based on such studies, border agents are able to deploy new measures of control in a targeted way, thus in turn leading to additional risks for migrants.[76] While our analysis also uses remote sensing, we seek to avoid replicating the gaze of surveillance and its contribution to border control, and instead seek to shed light on the lethal effects of bordering practices.

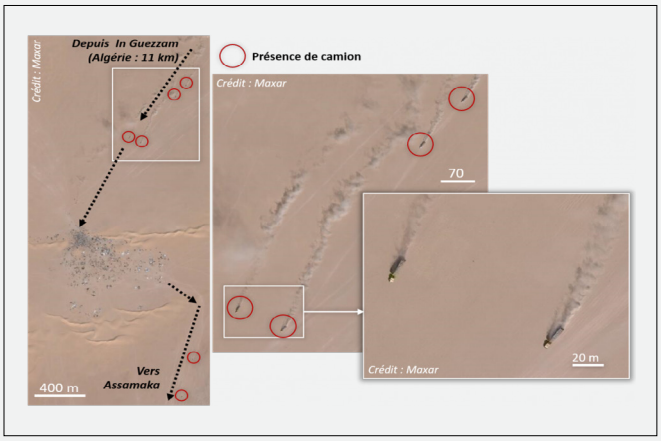


Image 3: High resolution image of a well frequented transit zone at the Algeria/Niger border, taken from a report commissioned by the Nigerien Customs. Source: OMD Actu 97 - Edition 1 / 2022, p. 39

73 Satcen, 2020, 5 Year Anniversary of Operational SatCen Support to Frontex: ↗
74 Frontex, 2016, Africa-Frontex Intelligence Community Joint Report: ↗
75 Maxar, 2020. GeoHIVE Crowdsourcing, Data Sheet: ↗
76 OMD Actu 97 - Edition 1 / 2022 > Dossier: Destination données. Les données géospatiales au service de la Douane du Niger: ↗

SPATIAL ANALYSIS OF SECURITY AND MILITARY ACTIVITY

While each site of analysis varies in its dynamics of security and military activity, there are clear patterns observed across all of them. Our remote sensing confirmed that in the years immediately following the passage and implementation of law 2015-36, there is an increase in military and security activity—observable by remote sensing in the construction of checkpoints, police stations, customs, and military fortification. We have verified the nature of the activities, construction, and new buildings as revealed by our analysis of satellite imagery through interviews with drivers and ex-drivers and other sources.[77]

A03 SÉGUÉDINE 2011 Z01

In Séguédine prior to 2015, only the southern entrance to the town was controlled through a National Guard barrier [FIG 4.2 SEG 2011] on the road from Dirkou. According to testimony from local sources and ex-drivers, this barrier was not intended to stop movement through Séguédine but rather to exploit those passing through – charging 1,000-10,000 CFA francs per vehicle depending on citizenship and proof of a receipt from the Commune of Chirfa. The road entering or exiting the town from the north remained without any checkpoint or controls. With the arrival of the national police and customs in the aftermath of the 2015-36 law, all entrances and exits of Séguédine are now controlled.

A03 SÉGUÉDINE 2017 Z02

Witness testimony indicated the arrival of national police and customs units in 2017, and additional controls to the route exiting Séguédine to the north towards Madama. Remote sensing by satellite imagery from January 2017 confirms this, as it exhibits a marked increase in buildings, road blocks, and the presence of trucks that sources on the ground indicate belong to the National Police. [FIG 4.2 SEG 2017] The increase in activity observed by satellite imagery can be supported by testimony from an elected official, who claims the presence of National Guard personnel has “doubled or even tripled” alongside the increase in patrols by the FAN.[78]

A03 SÉGUÉDINE 2017 Z02

Madama shows a similar pattern of development, even though the military activity observed there is not intended to control migration. Since Madama is not a civilian town, as in the case of Séguédine, most, if not all, activity observed by satellite can be attributed to militarization and security forces. Elements identified in the area across the years of analysis include minefields, roadblocks, dumping sites, excavation sites, the existing military base, and the construction of new structures and an airfield.[FIG 4.2 SEG 2017] Our remote sensing analysis shows a significant increase in activity between 2013-2016, and a marked cooling off of this activity following the end of Operation Barkhane in 2019. Not captured by satellite imagery

77 This testimony was collected in January-2023 by co-investigator Rhoumour Ahmet Tchilouta during fieldwork and through correspondence.

78 Interview with a local elected official from the commune of Djado. January, 2023.

is the significant increase in fees for vehicles passing through collected by military personnel. In 2013, according to the local newspaper Aïr Infos, the fees ranged from 1,000-2,000 FCFA and 10,000 FCFA per vehicle. Due to the restrictions imposed under the 2015-36 law, the amounts have increased tenfold, with vehicles carrying migrants required to pay 100,000 FCFA to the military, motivating drivers to bypass the area.

A05 TOUMMO
2014-2022

The case study of Toummo diverges from the development observed in Séguédine and Madama, as there is very little change in activity at the checkpoint observable by satellite. The checkpoint present throughout the period shows little change from 2014-2022 [TOUMMO MILITARIZATION...]. This reflects how border control activities in Toummo have been less influenced by the 2015 law and less intense, as military and militias stemming from south Libyan communities have been far less well-resourced. As a result their capacity to monitor and control passages in the area have been less significant than that of Nigerien police forces and the French army in the other two locations examined. The factors that divert migrants' trajectories at this point are primarily influenced by the cost of the fees that migrants are forced to pay at the checkpoint. It should also be noted that drivers sometimes have their passengers seized by other militias or bandits to be sold in Libya's "*gidan bashi*" or loan houses.[79] [FIG 4.2 SEG 2011]

A03 SÉGUÉDINE
2011 Z01

Our analysis of the dynamics of security and military activity, founded on qualitative research and remote sensing analysis, confirms for each site the increase in military and security activity following the passage and implementation of law 2015-36. In the context of the heightened criminalization of migration (and its assistance), the presence of checkpoints, police stations, customs, and military fortification we have identified are all incentives for migrants and drivers to divert their trajectories away from the locations of these border and security infrastructures.

79 Gidan bashi is a Hausa term designating houses in Libya where migrants are held captive and tortured, and from which they are not allowed to leave until they pay a substantial sum of money. Hausa term for houses in Libya where migrants are held captive and tortured, and from which they are not allowed to leave until they pay a substantial sum of money (ransom). Those who cannot pay are auctioned off or sold to other criminal networks.

ANALYSIS OF BORDERING INFRASTRUCTURES

Over the course of our investigation, we have identified the various manifestations of bordering infrastructures, elements, and actors present in the region. Some of these elements are explicitly intended as a form of bordering and migration control, such as checkpoints or the Joint Investigation Team (JIT), while others are not intended for migration control but nonetheless have an impact on the choice of routes taken by drivers and therefore the level of danger.

2015 Figure 1

2015 Fig.2

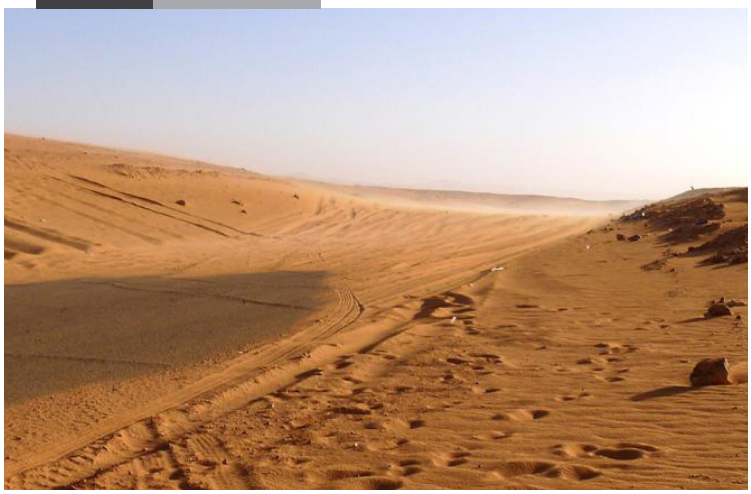
2021 Fig.3

In tandem with this taxonomy of infrastructures of border control, we used high-resolution satellite imagery to monitor activity over time at each site, Ségué-dine, Madama, and Toummo. We have identified and labelled evidence of activity such as the establishment of police stations, checkpoints, customs, and road blocks before and after 2016 in order to test the relationship between this activity and shifts in migration trajectories.

2015 Figure 1

The Toummo Border Crossing © Tom Westcott / IRIN

2015 F2



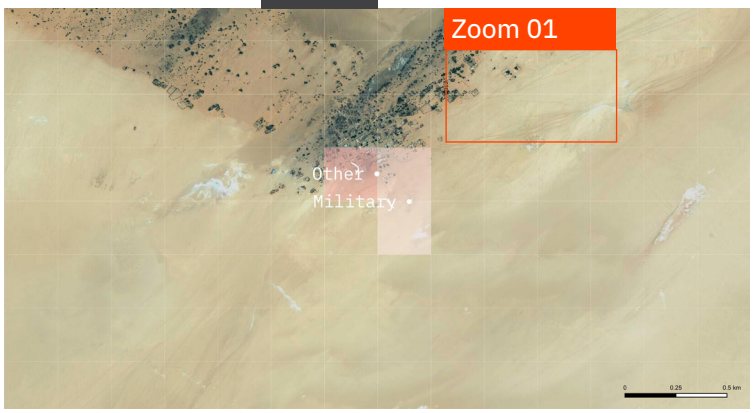
The Road from Toummo to Sebha © Tom Westcott / IRIN

2021 F3

Example of military monitoring point © ET

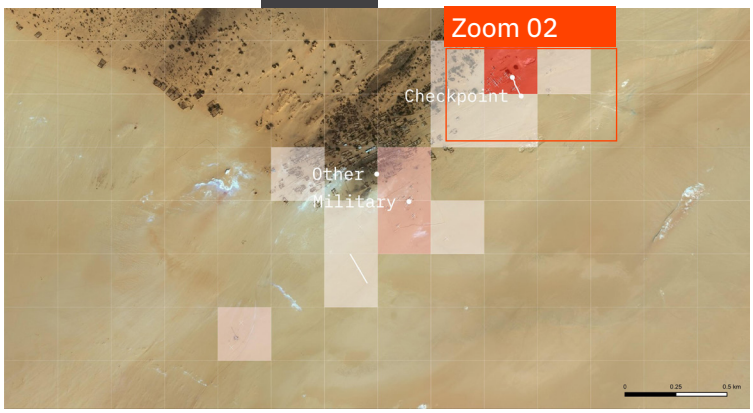
SÉGUÉDINE – SECURITY AND MILITARY BUILDUP

A03 SÉGUÉDINE 2011



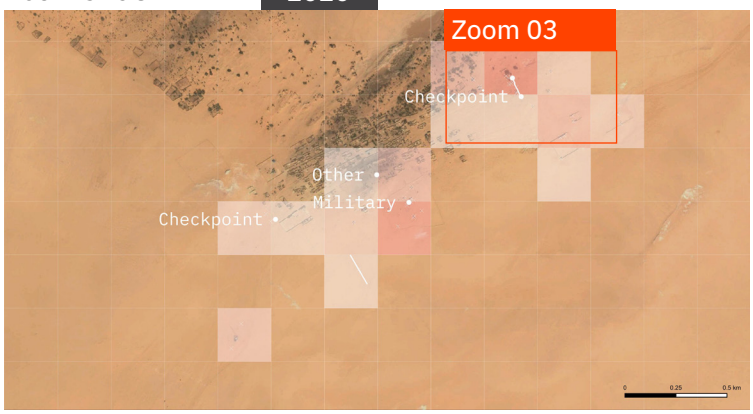
Z01

A03 SÉGUÉDINE 2017



Z02

A03 SÉGUÉDINE 2020



Z03

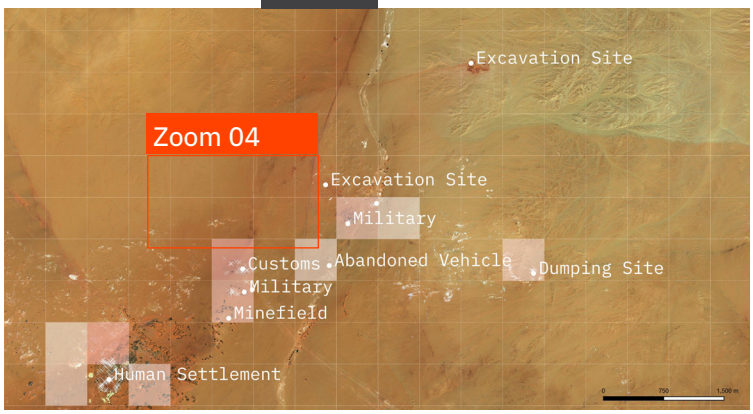
Military Activity Concentration

0 20+

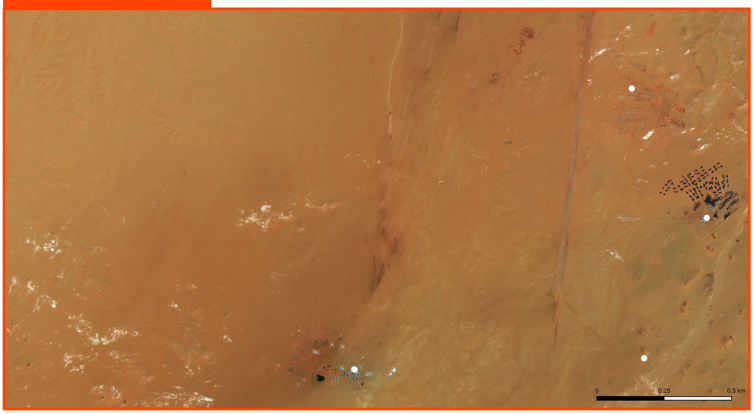
A comparison of military and security activity at Séguédine across the years of 2014, 2016, and 2022. Figures show a gridded count of overall military activity related to the creation of a new border post, including trucks and vehicles related to the border and costums activity. Areas in darker reds signify areas of high activity. Our remote sensing findings, verified by local accounts and testimony show a sustained increase in military activity from 2014 until 2022

MADAMA – SECURITY AND MILITARY BUILDUP

A04 MADAMA 2014



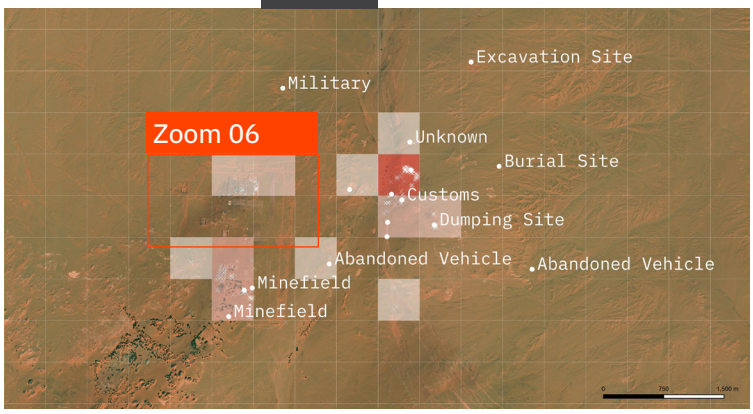
Z04



A04 MADAMA 2016

Z05

A04 MADAMA 2022



Z06

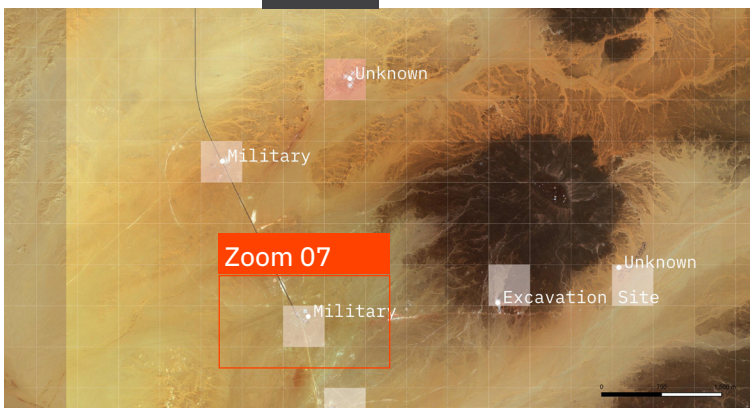
Military Activity Concentration

0 20+

A comparison of military and security activity in Madama across the years of 2013, 2016, and 2022. Figures show a gridded count of overall military activity, including trucks and vehicles related to the border and costums activity. Areas in darker reds signify areas of high activity. Our remote sensing findings, verified by local accounts and testimony show a steep increase in military activity from 2013 until 2016

TOUMMO – SECURITY AND MILITARY BUILDUP

A05 TOUMMO 2014



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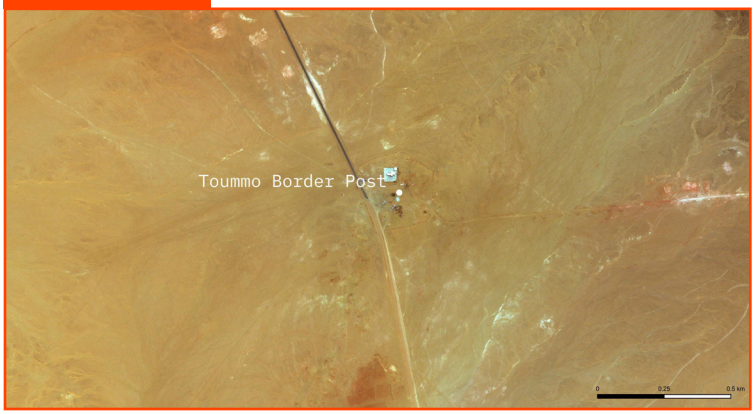
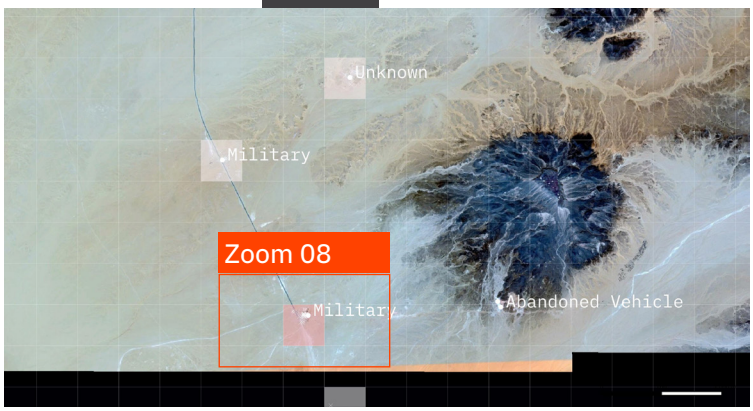


A05 TOUMMO 2016



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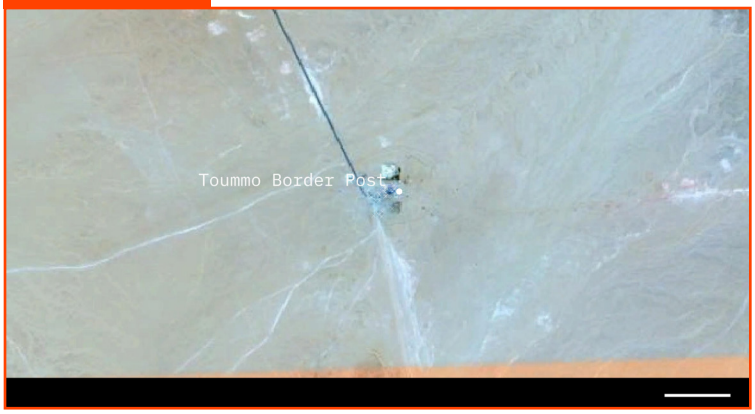
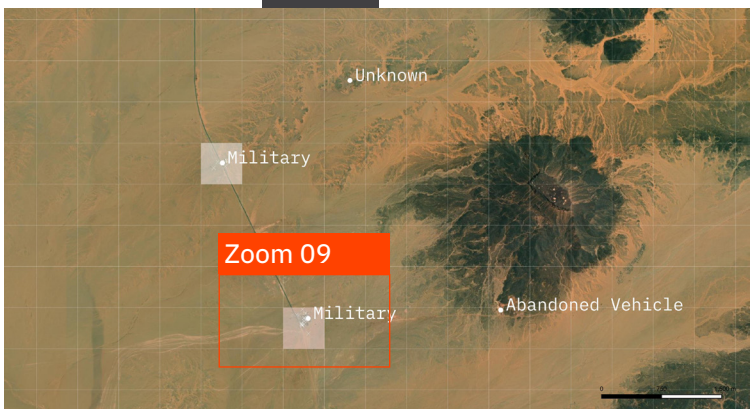
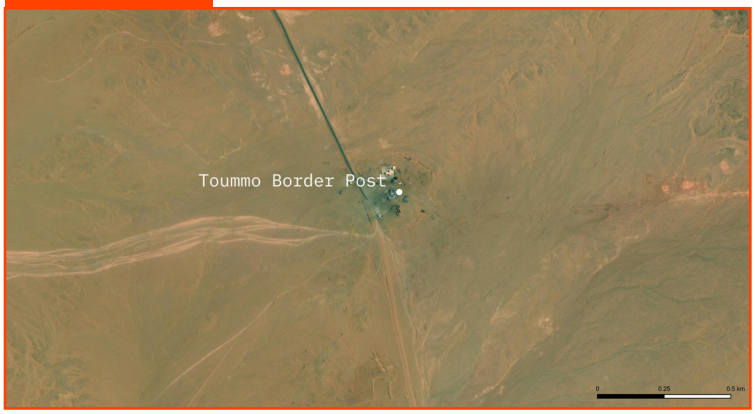


A05 TOUMMO 2022



Z09



Military Activity Concentration

0 20+

A comparison of military and militia activity at Toummo across the years of 2014, 2016, and 2022. Figures show a gridded count of overall military activity related to the border post, including trucks and vehicles related to both border and costums activity. Areas in darker reds signify areas of high activity. Changes are less distinct at the Toummo checkpoint, which has remained far less resourced by the Libyan government

SPATIAL ANALYSIS OF SHIFTING TRACKS AND DANGER

REMOTE SENSING METHODS TO ANALYSE SHIFTING TRACKS

In addition to the intensification of bordering demonstrated at the three sites of analysis, we combined different methods of spatial analysis to empirically analyse changing spatial dynamics of migration and the impact these had on the danger faced migrants faced during the crossing.

F4 V1

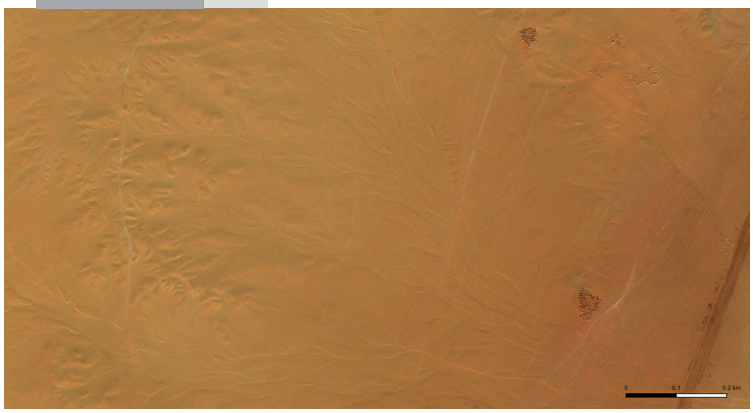
F4 V2

F4 V3

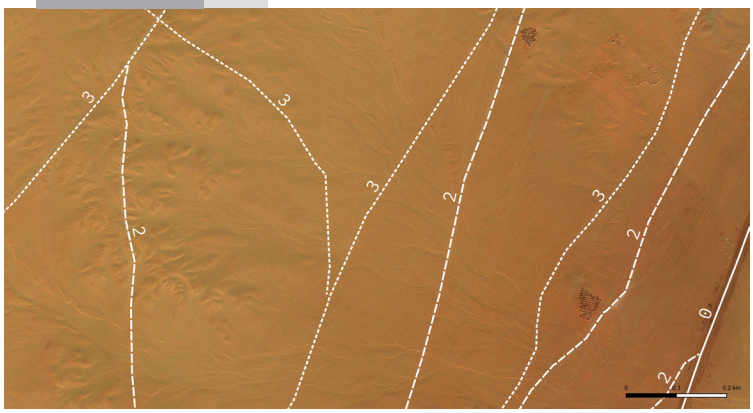
F5

The analysis of high-resolution satellite imagery allowed us to see the *pistes*, or the main unpaved roadways, alongside alternative tracks created by driving new pathways across the desert. In our findings, we present the proliferation and intensity of alternative tracks used by, amongst others, illegalized migrants, through the use of "heat maps," which ascribe a color gradation to the quantity of tracks and frequency of their usage. A classification system was ascribed to alternative tracks that translates their visual qualities (such as brightness) to a rating system of 1-3 that describes numerically how heavily they are travelled. A point system was then assigned to the tracks, ultimately producing a heat map that depicts intensity of travel in a certain area at key moments of analysis. Through this mapping, we are able to compare border control activity alongside patterns of alternative tracks in the wake of the implementation of Law 2015-036. Beyond its analytical value, the heat map visualization of tracks registered via remote sensing data allows us to remain empirically grounded and specific in our analysis and representation, without revealing the specific areas used by migrants to evade border control. This knowledge, if accessed by state agencies, might further endanger migrants. In this we use surveillance technologies against the grain, and with precisely the opposite aims of its use by the EU border agency Frontex.

F4 V1



F4 V2



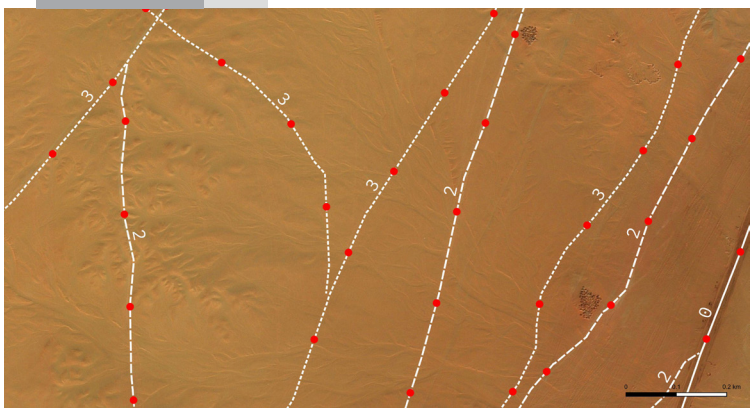
Visual Identification

Bypass tracks are visible from high resolution satellite imagery as the sand around regularly trafficked routes is displaced.

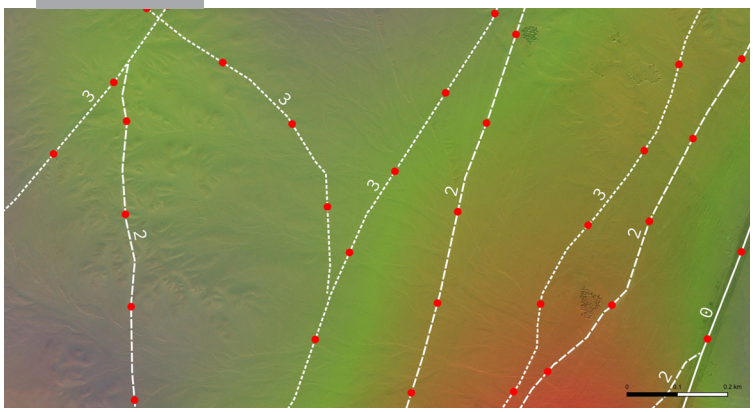
Categorisation

Each track was rated on a scale of 1-3 according to estimated usage, which could be assessed based on visual attributes such as brightness (high usage) or darker shades (where sand has blown over less traveled tracks). 1. heavily traveled 2. well traveled 3. lightly traveled

F4 V3



F5



Point Matrix

In order to facilitate the creation of a heatmap, in which the exact location of tracks would be obscured, points are first placed at intervals relevant to the scale and resolution of the drawing. The sparser the points, the less geographically precise the resulting heatmap will be.

Heatmap

In order to generate the heatmap, a value of influence is defined relevant to the spacing of the point matrix. A value of influence equal to 10 x the spacing of points provides a heatmap which sufficiently obscures the tracks' location, ensuring their location is not exposed, whilst clearly indicating the density of trafficked areas.

Track Point

Track Points Density

LOW HIGH

COST DISTANCE ANALYSIS OF RISK OF DEHYDRATION

F6 V1

F6 V2

F6 V3

F7

Given the distance that the new bypass routes are from the main route, drivers and their passengers find themselves in greater danger in the event of a vehicle breakdown or if passengers are abandoned, with a high risk of dehydration. To measure the impact of dispersed trajectories on the danger of migrants' crossings, we apply a cost distance analysis originally developed in the context of the dangers of crossing the United States-Mexico border through the Sonoran Desert. A cost distance analysis comprises an algorithm which produces a measure of the lowest cumulative 'cost' to traverse the landscape.[80] In our case, we used remotely sensed data for wind velocity, land surface type, humidity/aridity, solar radiation, slope, and air temperatures to estimate the minimum amount of water a person could expect to lose walking towards the main road if left stranded.[81] The resulting map indicates the amount of sweat (in litres) that a stranded person would lose attempting to walk back to the main road in the aim of reaching either a source of water or a site of human activity where they may be rescued. Even before reaching the point of fatal dehydration, a person would be cognitively impaired by water loss potentially leading to disorientation and compromised decision-making abilities. These limits are identified as the "dehydration threshold" at two litres of sweat loss and "cognition threshold" at 0.67 litres on the maps.

80 Michael John De Smith, Goodchild Michael & Paul Longley. Geospatial Analysis: A Comprehensive Guide to Principles, Techniques and Software Tools. Troubador Publishing Ltd., Leicester.

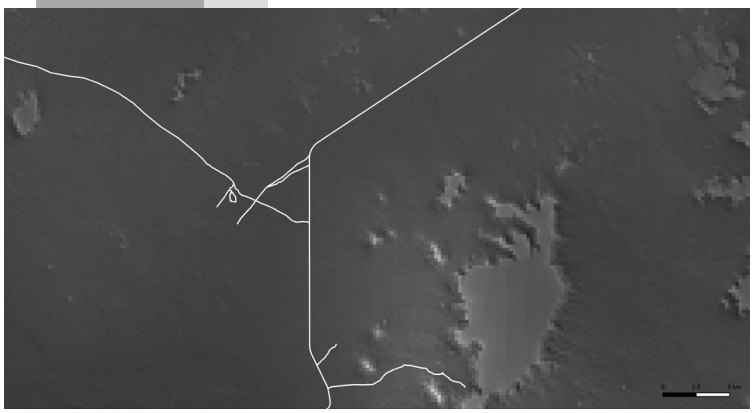
81 Richard Gonzalez, Samuel Cheuvront, Brett Ely et al. 2012. "Sweat rate prediction equations for outdoor exercise with transient solar radiation", Journal of Applied Physiology, 112(8), 1300-1310.

F6 V1

SRTM Digital Elevation Model

The cost distance modeling is derived, in part, from Digital Elevation models extracted from SRTM 30m data sets, provided by NASA.

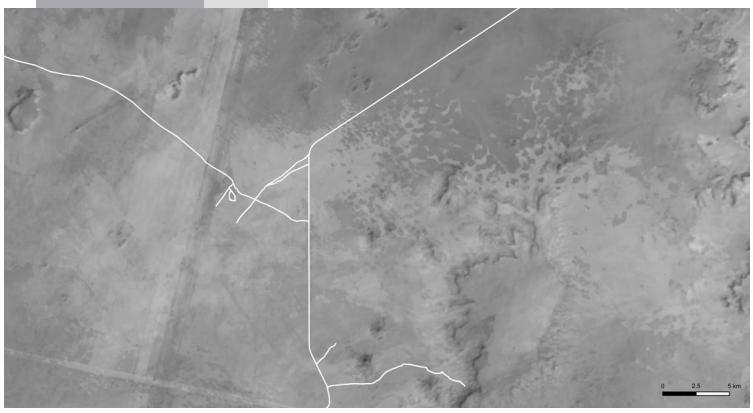
F6 V2



Average Temperature

The cost distance modeling is derived, in part, from an Average Temperature Global Temperature Index, produced with Landsat 8 data and provided by NASA.

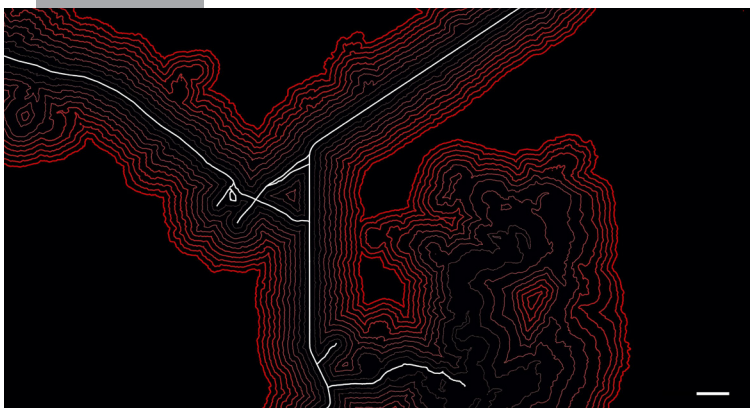
F6 V3



Wind Velocity

The cost distance modeling is derived, in part, from wind velocity values based upon DTUWind's (Technical University of Denmark Department of Wind and Energy Systems) Global Wind Atlas.

F7



Cost Distance Analysis

The output Cost Distance Analysis indicates 0.2 litre increments of sweat loss, calculated in relation to a person walking away from the road. Beyond the Dehydration Threshold walking to the road would be impossible given the conditions, making it an extremely dangerous area.

0.2 Sweat Lost

2 Lt Sweat Lost

Temperature in Degree

19.93 - 35.17

Wind Velocity in Miles Per Hour

0.31 - 12.90

Elevation in Meters Above Sea Level

125.0 - 3304.0

LOW

HIGH

In our analysis, we combined the remote sensing analysis of shifting tracks and the cost distance analysis. Through our remote sensing analysis we have been able to identify the emergence of new tracks that bypass the areas where border and security infrastructures have been deployed. A comparison of the heatmaps before and after the implementation of law 2015-36 across all three sites shows how alternative tracks proliferate from 2016 onward, in some instances clearly departing from the main piste before reaching sites of intense securitisation (such as Séguédine) and re-joining the main route on the other side.

Our cost distance analysis reveals that in the case of Séguédine, traveling on one of the new bypass roads that has emerged in the aftermath of law 2015-36 means an increased distance of 16 km from the main road, and pushes travelers who might encounter a vehicle breakdown or be left behind by their drivers in this area into acute danger that is far beyond both the cognition and dehydration thresholds. [FIG SEG 2017 A00]

A03 SEGUDINE
2011-2017

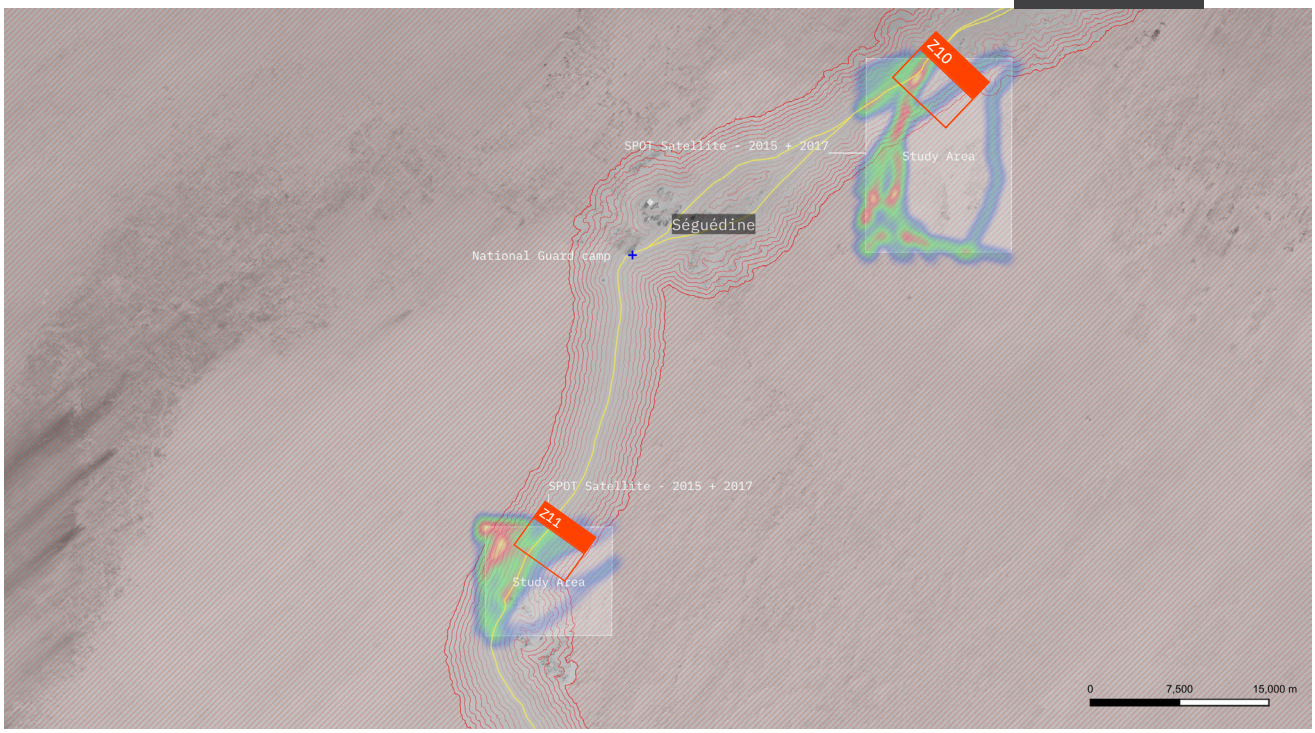
A04 MADAMA
2014-2022

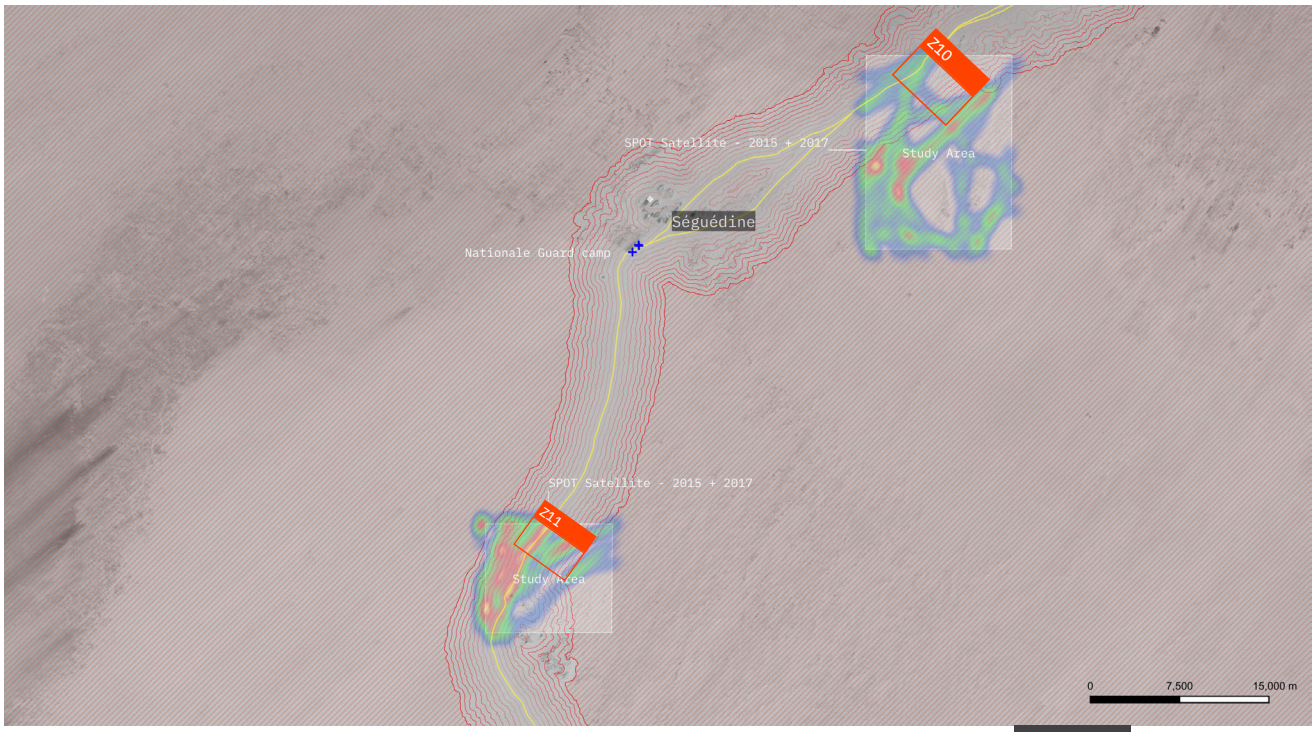
We can see a similar trend in Madama [FIG Madama 2014-2017], where the intensity of alternative tracks shifts from 1.5 km from the main road in 2014 to 3.0 km in 2017. While the bypass tracks can be seen within the limits of the cognition threshold in 2014, they are pushed outside of that limit and to a distance that implies an increased sweat loss of approximately one additional litre should migrants attempt to walk back to the main road.

In the case of Toummo, in 2016 new bypass tracks appear widespread in the areas west of the checkpoint, approximately 5.5 km from the main piste and up to 1.2 km beyond the dehydration threshold. [FIG TOUMMO 2014-2016] Notably, a significant decrease can be observed in 2016 in the number of alternative tracks that run closely parallel to the main road. Thus, as might be expected from the analysis of security infrastructures and the specificities of the Toummo context described above, the 2015 law had less effect on migrant trajectories in Toummo than in Seguedine and Madama.

A05 TOUMMO
2014-2022

A03 SÉGUÉDINE 2011+2015 A03





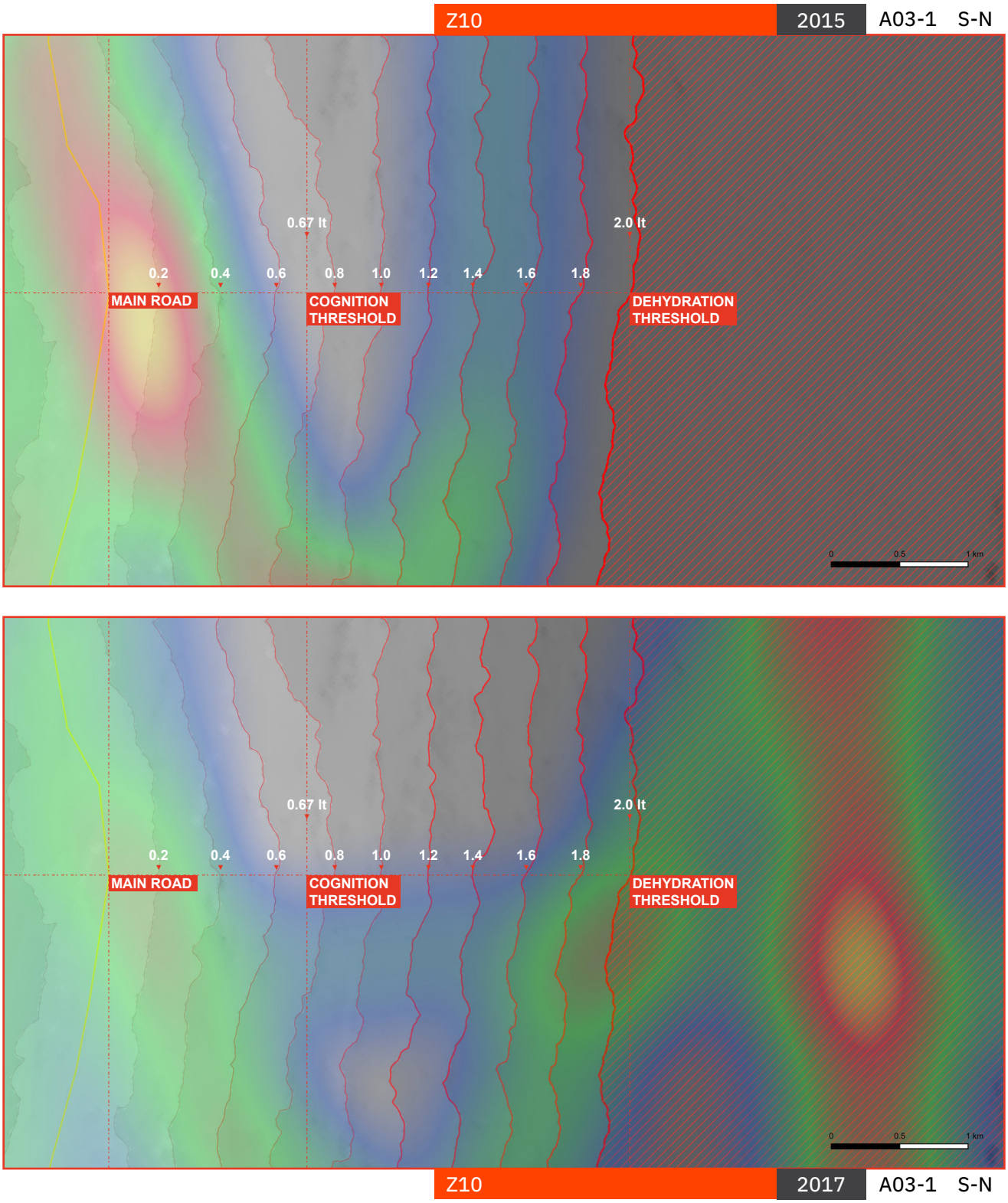
2017 A03

Track Density - 1000m Radius

LOW HIGH

0.2 Lt Sweat Lost 2 Lt Sweat Lost

A comparison of tracks observed in 2015 and 2017, at critical bypass points from which tracks depart from the main road to circumvent Séguédine, demonstrate there is a significant increase in tracks away from the main road, and beyond the dehydration threshold in 2017. Whilst the remote sensing of military infrastructure at Séguédine was conducted for 2011, we continue to observe the same military infrastructure in 2017 suggesting these elements were also present in 2015.

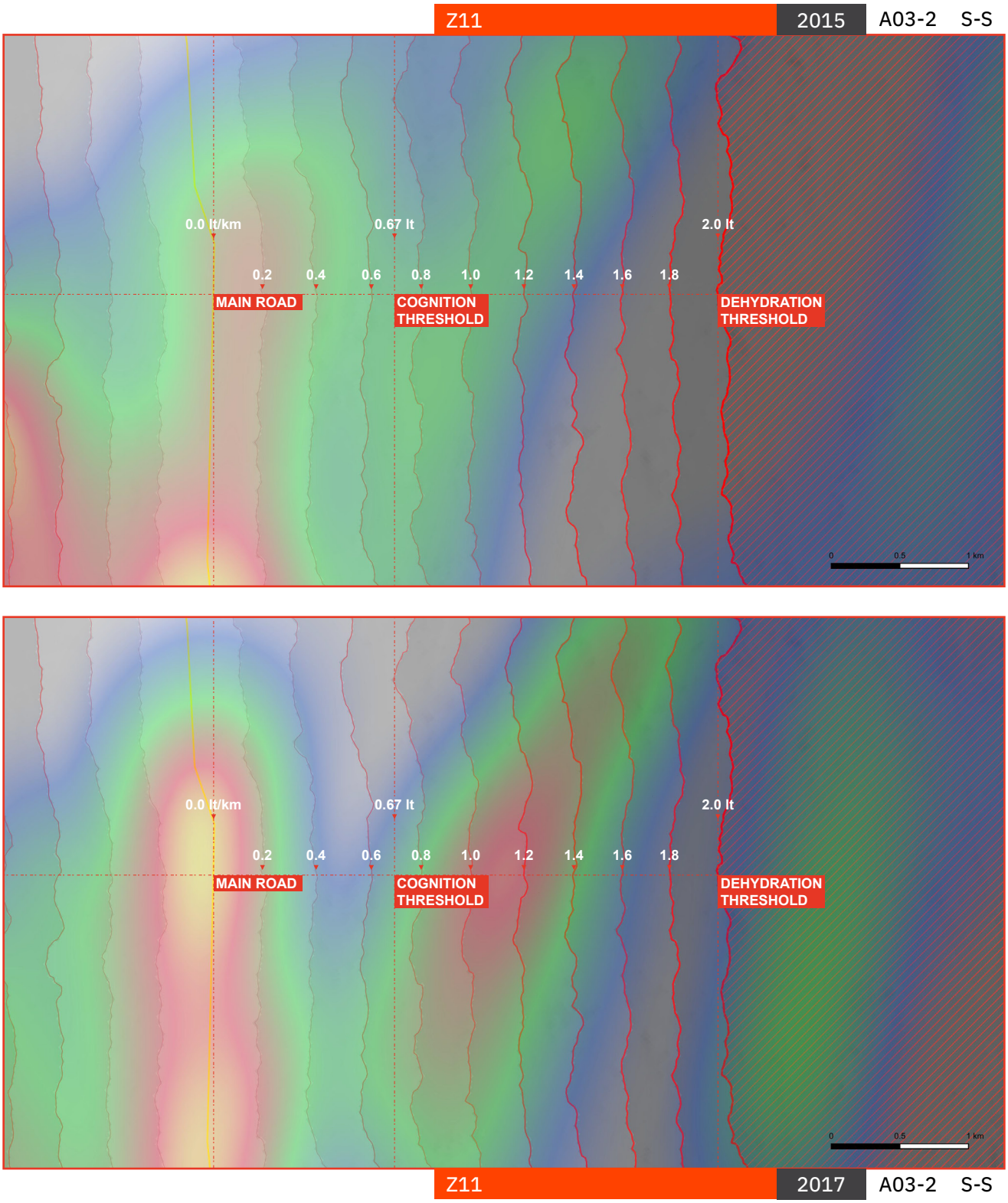


Track Density - 1000m Radius

LOW HIGH

0.2 Lt Sweat Lost 2 Lt Sweat Lost

A comparison of the 2015 and 2017 analysis shows that in 2017 there is a significant increase in the presence of tracks far away from the main road and beyond the dehydration threshold. This means that in 2017 a higher number of vehicles traveled in areas where they were exposed to increasingly dangerous conditions



Track Density - 1000m Radius

LOW HIGH

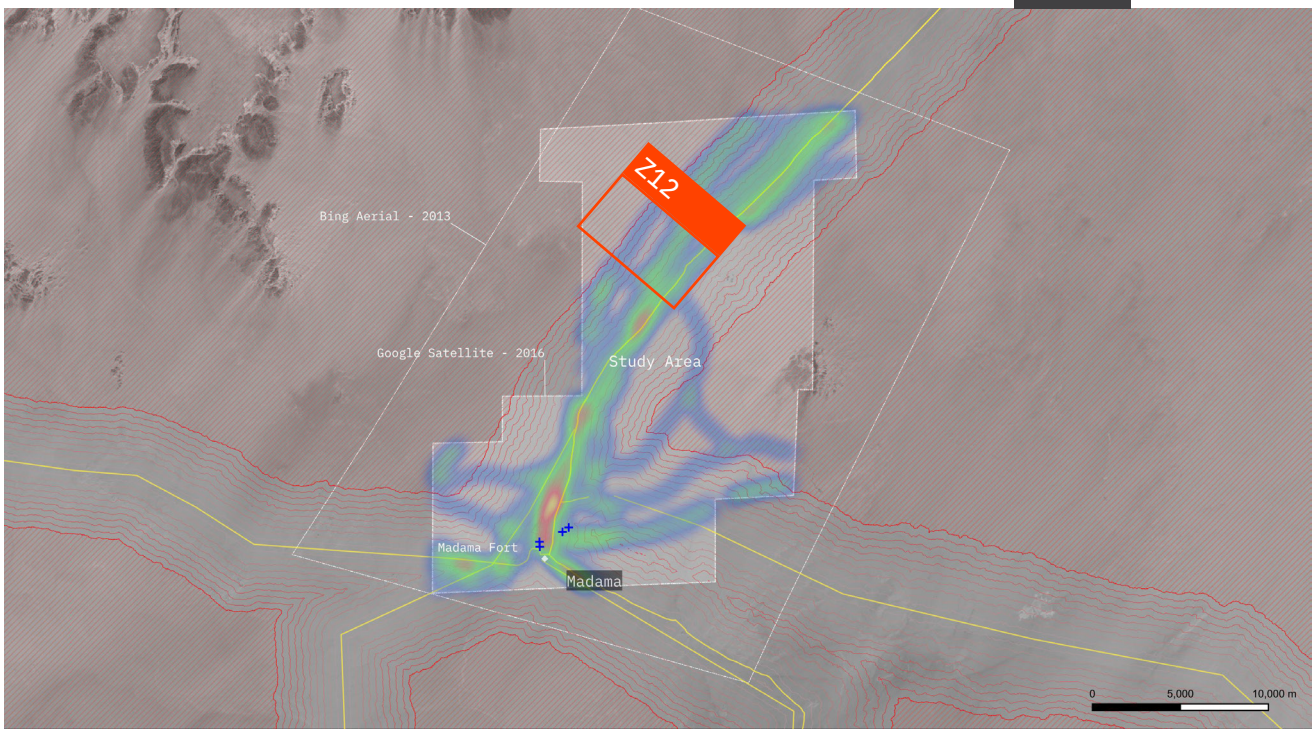
0.2 Lt Sweat Lost 2 Lt Sweat Lost

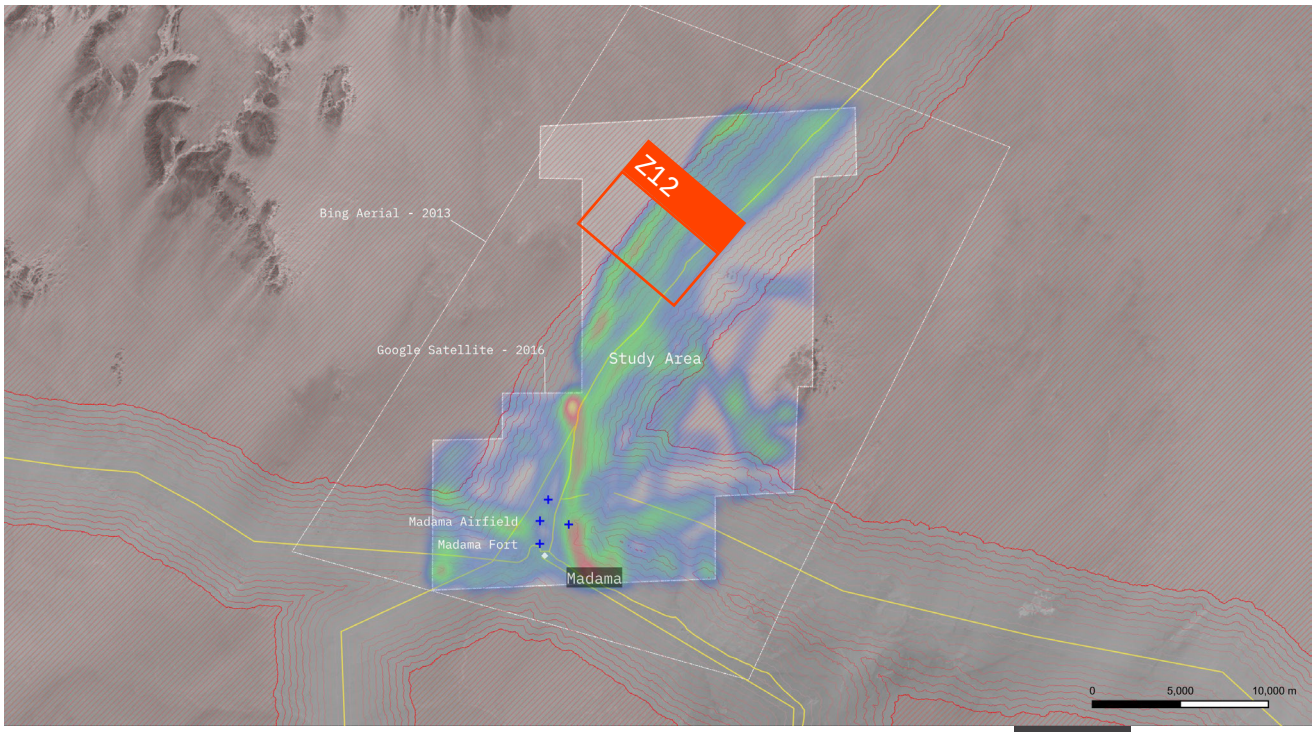
A comparison of the 2015 and 2017 analysis shows that in 2017 there is a significant increase in the presence of tracks far away from the main road and beyond the dehydration threshold. This means that in 2017 a higher number of vehicles traveled in areas where they were exposed to increasingly dangerous conditions

A04 MADAMA

2013

A04





2016

A04

Track Density - 1000m Radius

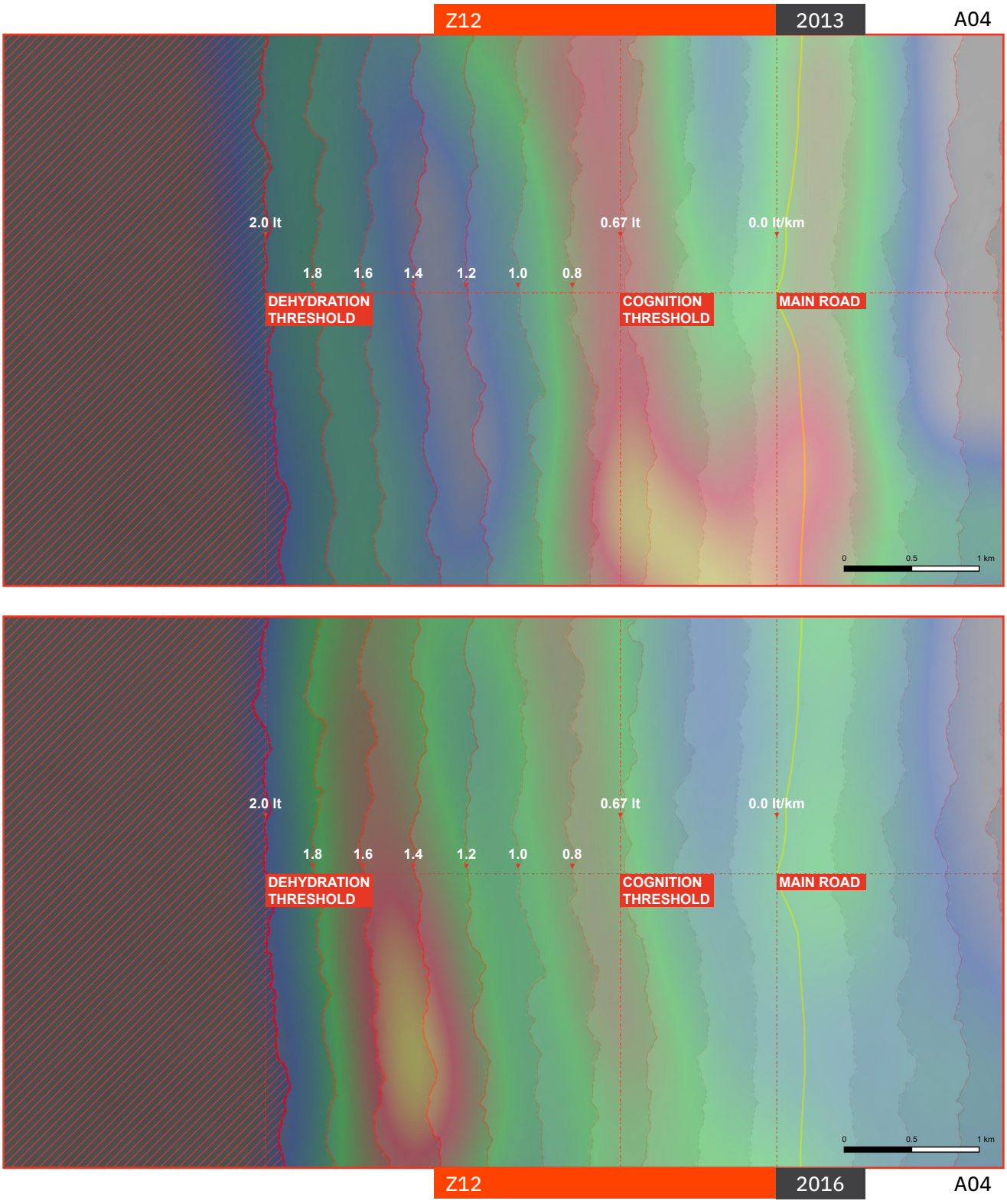
Military and Customs Activity

LOW HIGH

0.2 Lt Sweat Lost

2 Lt Sweat Lost

A comparison of tracks observed in 2013 and 2016, around critical bypass points from which tracks depart from the main road to circumvent the Madama military outpost, demonstrate there is a significant increase in tracks away from the main road and beyond the dehydration threshold in 2016.



Track Density - 1000m Radius

LOW HIGH

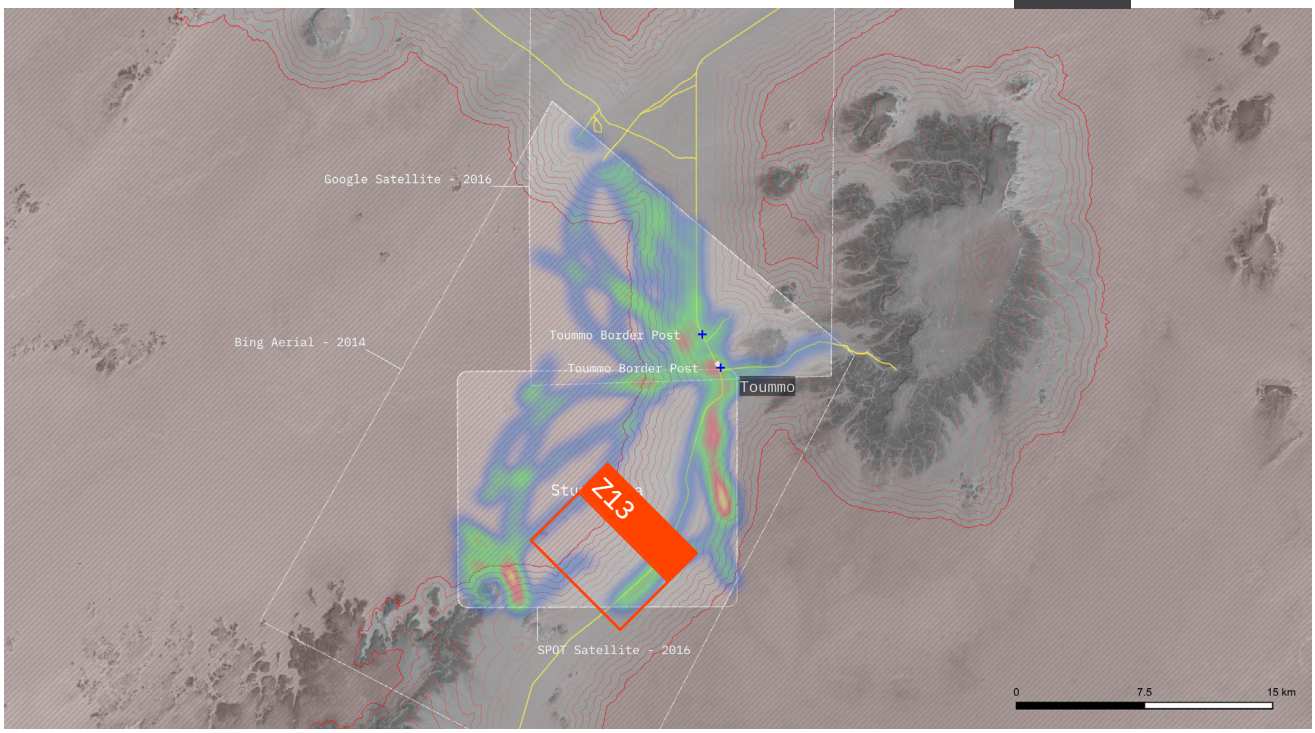
0.2 Lt Sweat Lost 2 Lt Sweat Lost

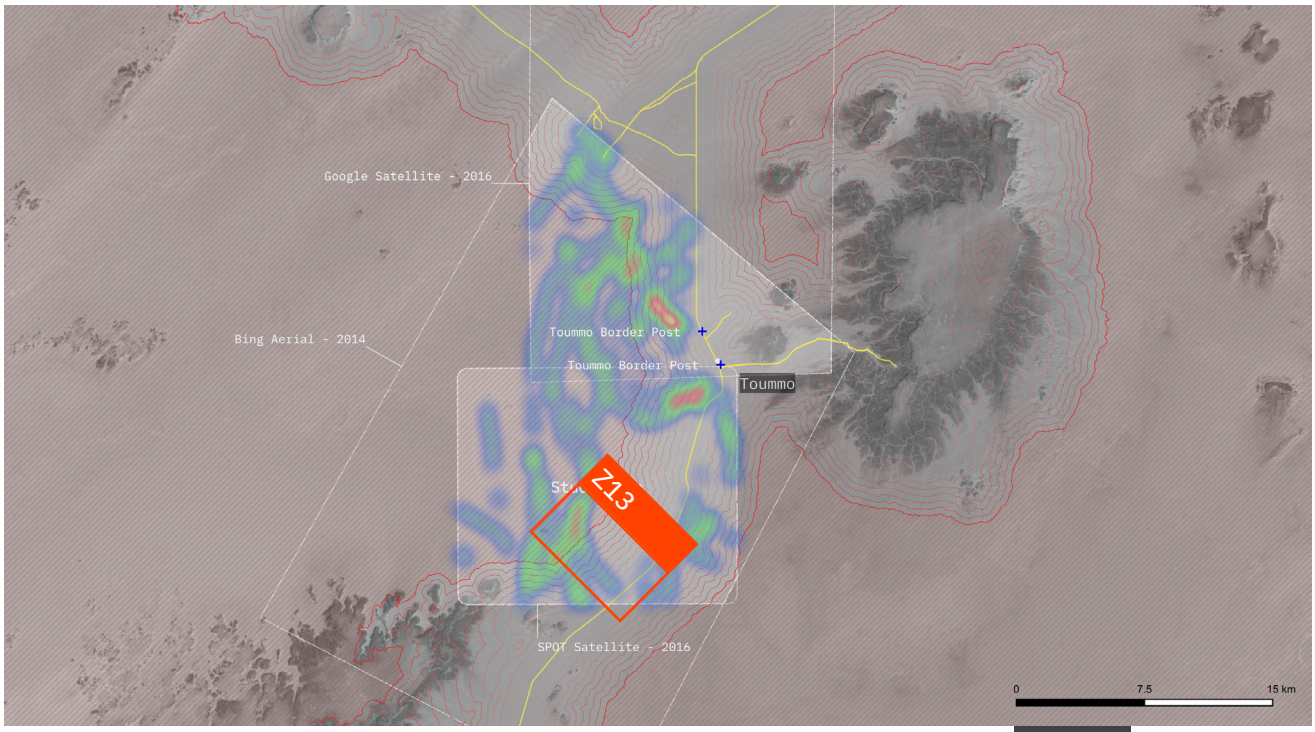
A comparison of the 2013 and 2016 analysis shows that in 2016 there is a significant increase in the presence of tracks far away from the main road and beyond the dehydration threshold. This means that in 2016 a higher number of vehicles traveled in areas where they were exposed to increasingly dangerous conditions.

A05 TOUMMO

2014

A05





2016

A05

Track Density - 1000m Radius

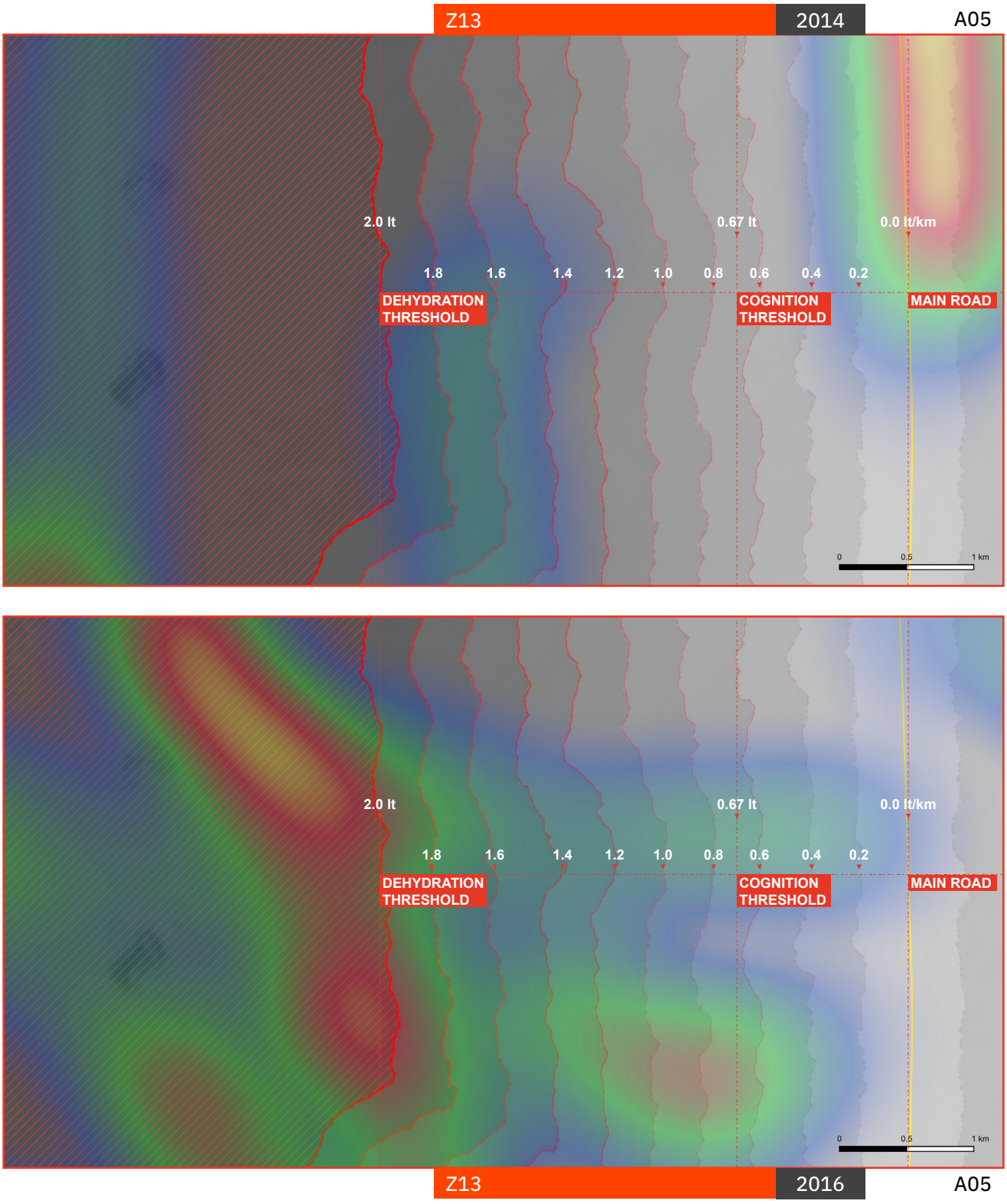
Military and Customs Activity +

LOW HIGH

0.2 Lt Sweat Lost

2 Lt Sweat Lost

A comparison of tracks observed in 2014 and 2016, around critical bypass points from which tracks depart from the main road to circumvent the checkpoint at Toummo, demonstrate there is an significant increase in tracks away from the main road, and beyond the dehydration threshold, in 2016.



Track Density - 1000m Radius

LOW HIGH

0.2 Lt Sweat Lost 2 Lt Sweat Lost

A comparison of the 2014 and 2016 analysis shows that in 2016 there is a significant increase in the presence of tracks far away from the main road and beyond the dehydration threshold. This means that in 2016, a higher number of vehicles traveled in areas where they were exposed to increasingly dangerous conditions

ANALYZING THE IMPACT OF BORDER CONTROL: VIEWSHED AND CORRELATION ANALYSIS

The analysis above has clearly demonstrated the trends of increased security and military activity geared towards border control, the shifting tracks used by illegalized migrants, and the increased danger of dehydration and death this exposes them to. However the Niger government and its European counter parts also acknowledge the dangers migrants are subjected to, but attribute these to "scrupulous smugglers".[82] In this section, through several combined methods of geostatistical analysis, in particular a viewshed analysis, we seek to assess the extent to which the increased danger faced by migrants crossing the desert should be attributed to the effects of border control instead.

82 Le Monde avec AFP, Niger : trente-quatre migrants retrouvés morts dans le désert, 16 June 2016 : ↗
Frontex (2016), Africa-Frontex Intelligence Community Joint Report: ↗

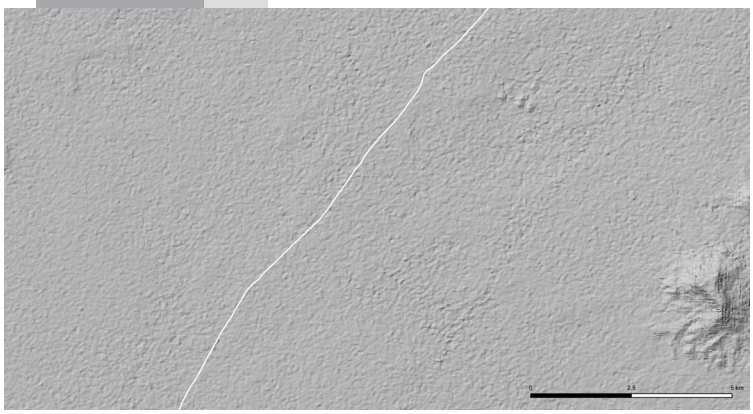
VIEWSHED ANALYSIS

In seeking to understand the relation between border infrastructures deployed in the wake of the 2015 law and migrants' splintering trajectories, we applied a viewshed analysis – an analysis of patterns of (in)visibility in space. This method is relevant since interviews from various sources including drivers or ex-drivers indicate that one significant factor that dictates the routes taken by drivers is attempting to avoid apprehension by the defense and security forces by using alternative tracks which are less visible from the main road on which security agents focus their activities.

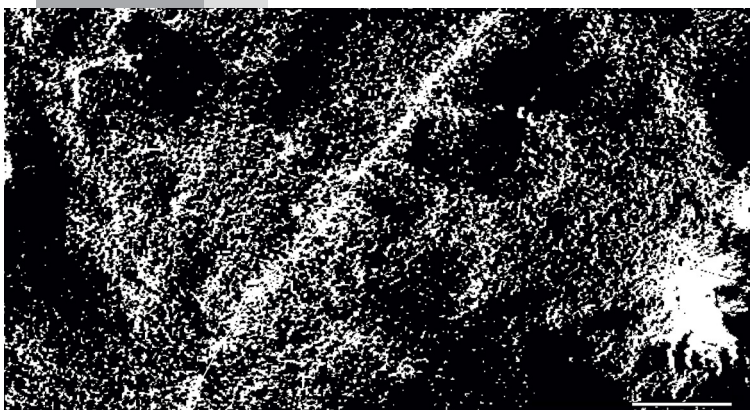
With this in mind, we have sought to understand through a viewshed analysis how visibility, and therefore detectability, through patrolled or securitized areas affected the patterns of alternative tracks after 2016.

A viewshed analysis consists of an algorithm which delineates the line of sight from specified locations and produces a count of how many of those locations can 'see' parts of the landscape. It produces a grid-based raster map where each cell is assigned a value which represents how many of the specified locations allow a person or device (such as a surveillance camera) to detect someone or something in the space of the cell. The greater the value, the more visible a place is from the specified location.

F8 V1



F8 V2



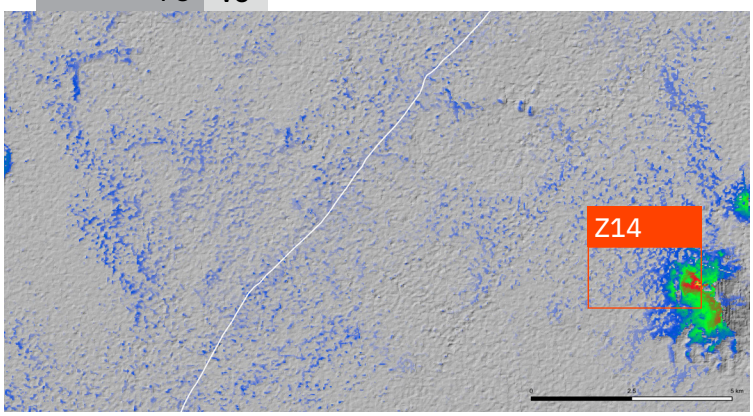
Digital Elevation Model

The viewshed analysis is derived from Digital Elevation models extracted from SRTM 30m data sets and provided by NASA, in combination with the curvature of the earth's surface. Together, they allow the calculation of what is visible from a point in space, in relation to the terrain.

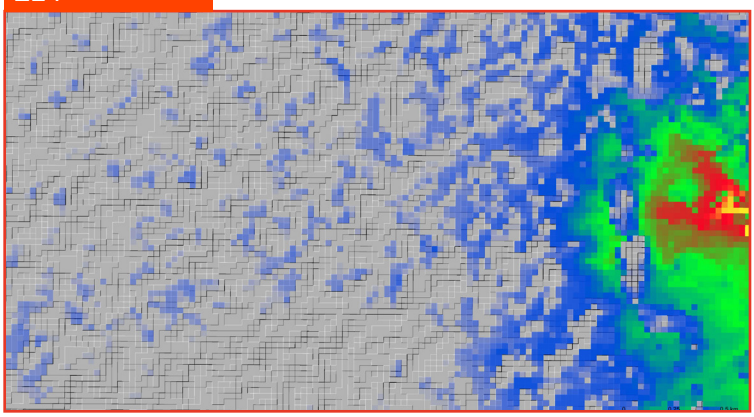
Binary Viewshed

The resulting viewshed calculated from points along the main road is translated into a binary condition of visible (white) and not visible (black), providing a clear image of areas not visible from anywhere along the road.

F8 V3



Z14



Visibility Gradient

Applying a gradient to the viewshed shows how visible any given location is from a series of points along the road, with grey representing not visible from the points along the road and red representing highly visible from the points along the road.

Zoom

A closer look at the gradient of visibility shows the pixel resolution of the viewshed, dependent on the overall resolution of the topography model, in this case Nasa's SRTM model.

Degree of Visbility: Number of points on road from which point it is visible

Visibility

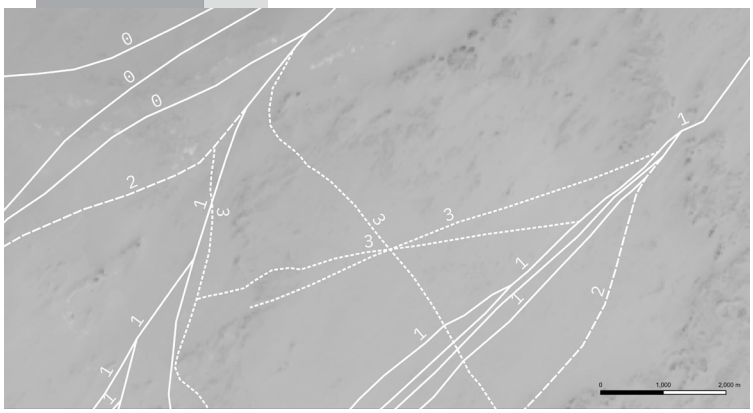
Applying this method to our sites, we generate a map of areas that are visible or invisible from the main road. We then compare these spatial patterns of (in)visibility with the changes in tracks observed through remote sensing described above. We first determined the intersection of tracks with the viewshed pixels for the two distinct periods of interest (pre- and post-law). This intersection allows for an assessment of the degree of visibility associated with each track and the way it evolved over time.

Results indicate that in 2016, the tracks used for crossing the Sahara were less visible from the main road than prior to the implementation of the law. The analysis reveals a strong and significant decrease in mean visibility over time in Madama and Séguédine. Toummo instead shows a diverging pattern, as the traveled tracks show higher visibility values in 2016 than in 2014. This result is not surprising given the lower level of military and security deployment in Toummo observed above.

To gain insight into the spatial clustering of low-visibility tracks and its temporal variation, we employed Local Moran's I, a statistical method that measures the degree of spatial autocorrelation within specific local areas. Local clusters of Moran's I suggest that certain locations possess a stronger correlation between track passage intensity and (in)visibility than others. Identifying clusters enables a more thorough understanding of the underlying spatial process between track density and visibility at a local level. We classified clusters according to 4 categories:
''high-high'' → areas of high track usage correlated with high surrounding visibility;
''high-low'' → cells of high track usage correlated with low surrounding visibility;
''low-high'' → cells of low track usage correlated with high surrounding visibility;
''low-low'' → cells of low track usage correlated with low surrounding visibility.

The presence of "high-low" clusters suggests that areas with high track values and low visibility viewshed tend to cluster together, meaning that people use tracks according to (in)visibility from the main road. By observing the evolution of the number of high-low clusters over time, it is possible to assess the evolution of the significance of (in)visibility in track selection strategies.

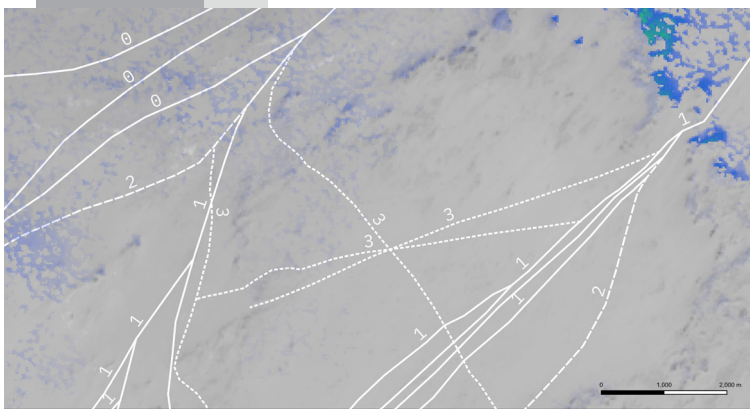
F9 V1



Track Inputs

Tracks identified and categorized during remote sensing analysis input to determine their relationship with visibility.

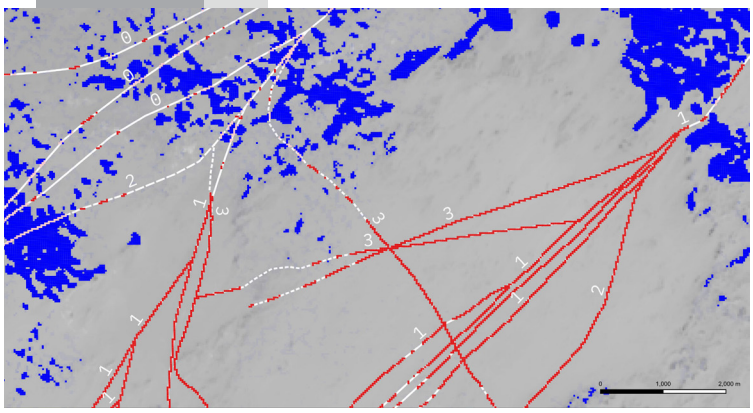
F9 V2



Tracks and Visibility

Tracks located in relation to the viewshed in order to calculate Local Moran's I using queen contiguity of order 1 for spatial weighting. Space was discretized into a grid of 30m*30m dimension.

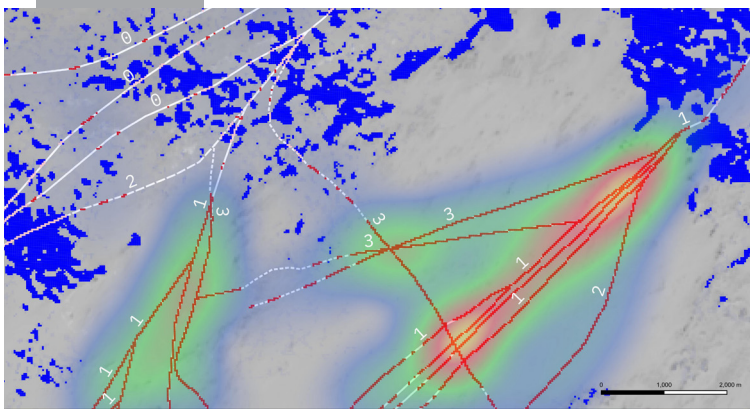
F9 V3



Moran's I clustering

Moran's I clustering determines cells in the following classification; Light-Red: High values of track density correlated with surrounding high visibility score. Light Blue: Low values of track density correlated with surrounding low visibility score. Dark Blue: Low values of track density correlated with surrounding high visibility score. Dark Red: High values of track density correlated with surrounding low visibility score. Transparent: not significant clustering

F10



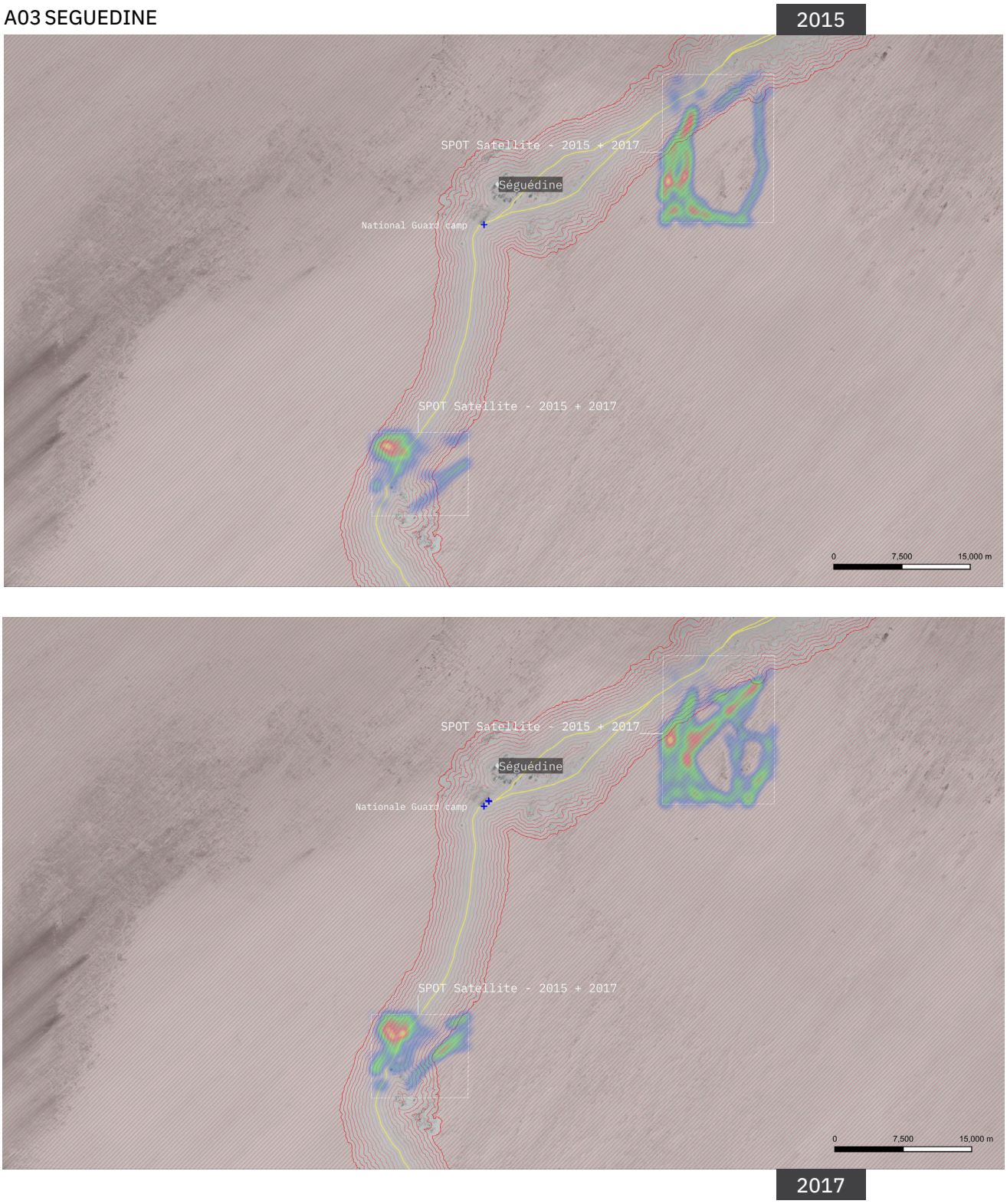
Heatmap

High values of track density correlated with surrounding low visibility are extracted and points converted into a heatmap in order to show significant density of track buildup around areas of low visibility.

Track Point

Track Points Density

A03 SEGUEDINE



Track Density - 1000m Radius

LOW — HIGH

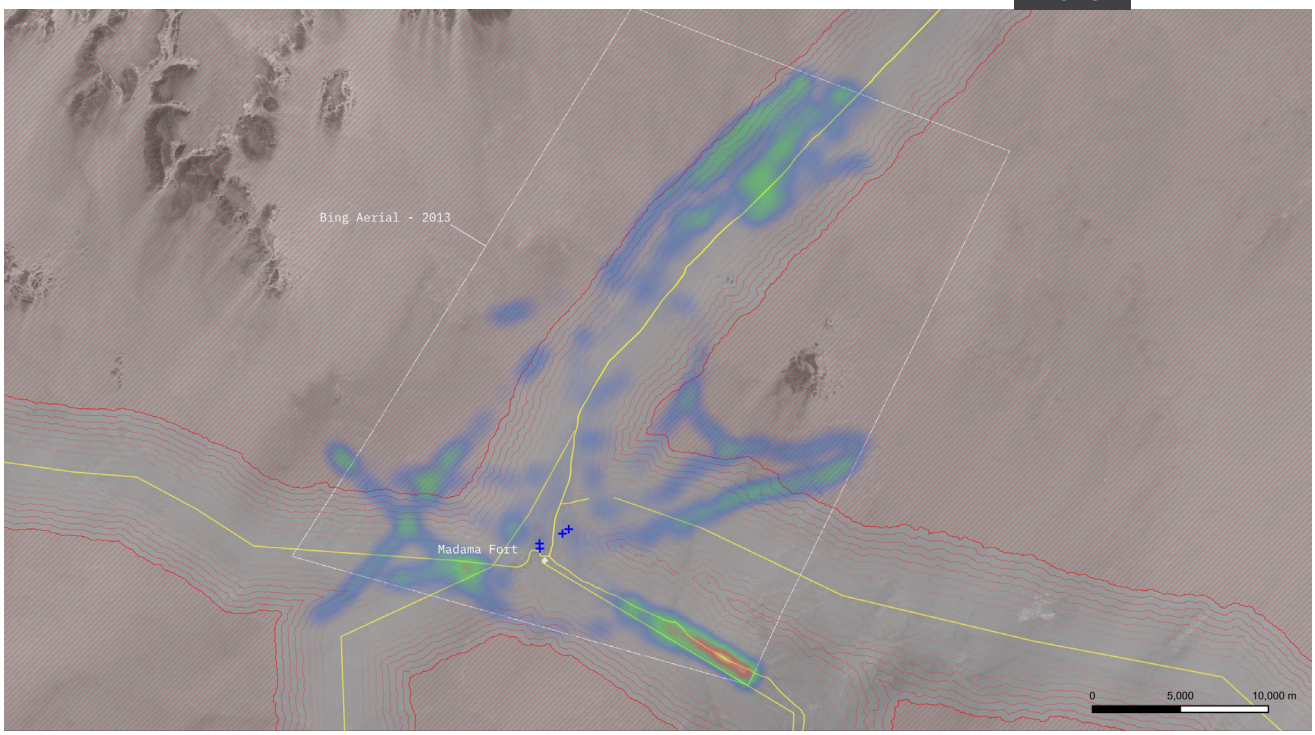
0.2 Lt Sweat Lost — 2 Lt Sweat Lost

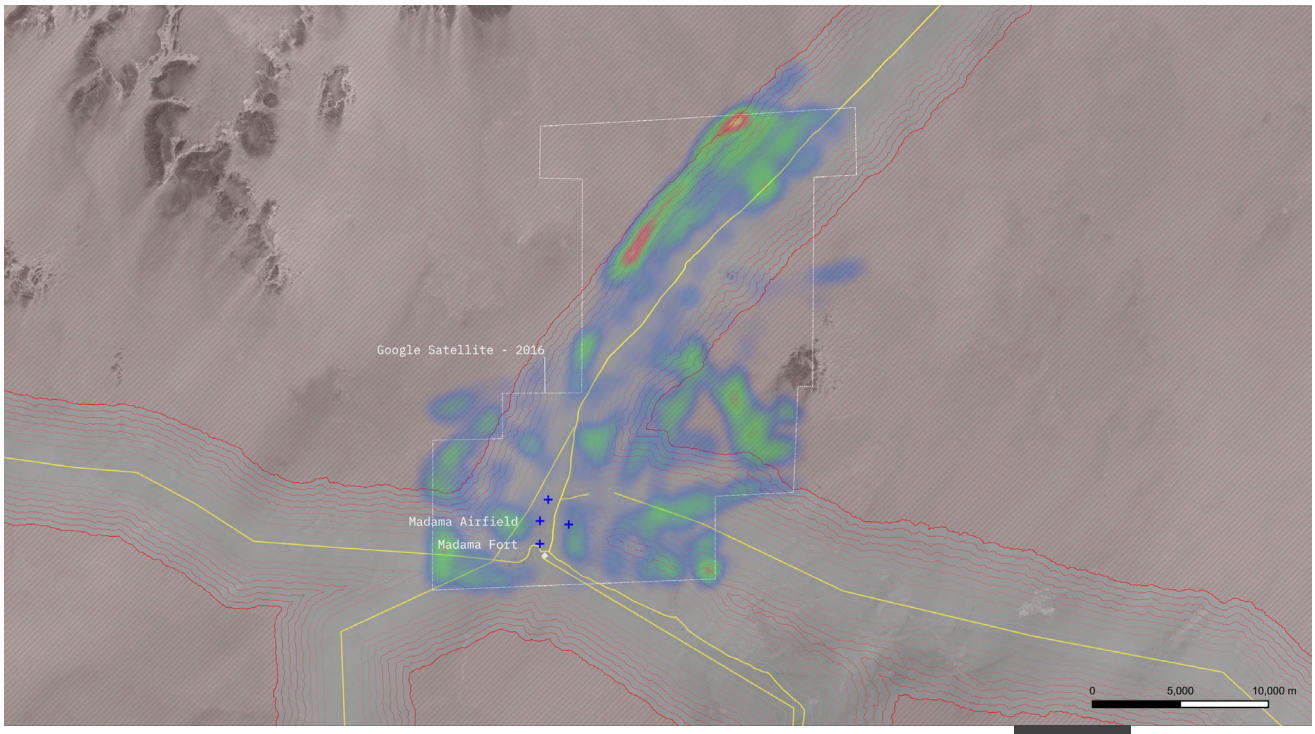
Military and Customs Activity +

A comparison of significant clusters – tracks correlated with surrounding areas of low visibility - observed in 2015 and 2017, around the Séguédine, demonstrate there is a significant increase of tracks in areas of low visibility.

A04 MADAMA

2013





2016

Track Density - 1000m Radius

LOW HIGH

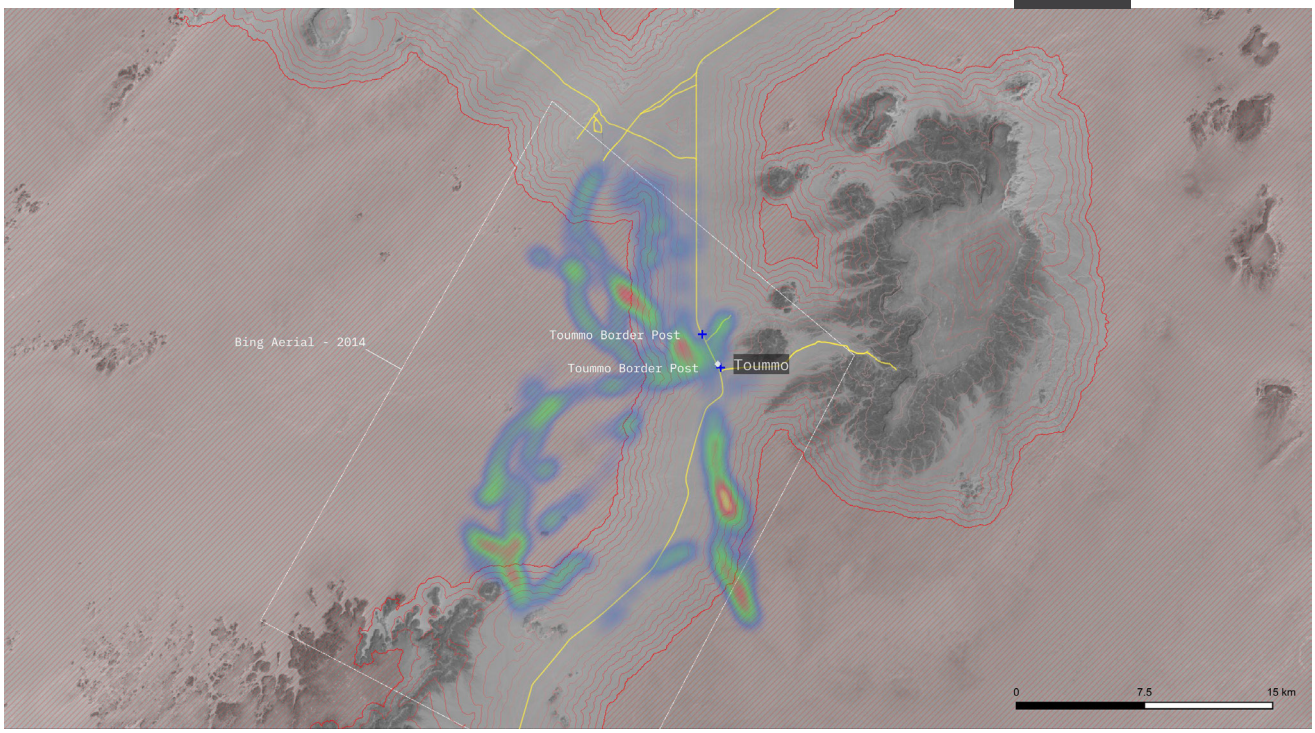
0.2 Lt Sweat Lost — 2 Lt Sweat Lost

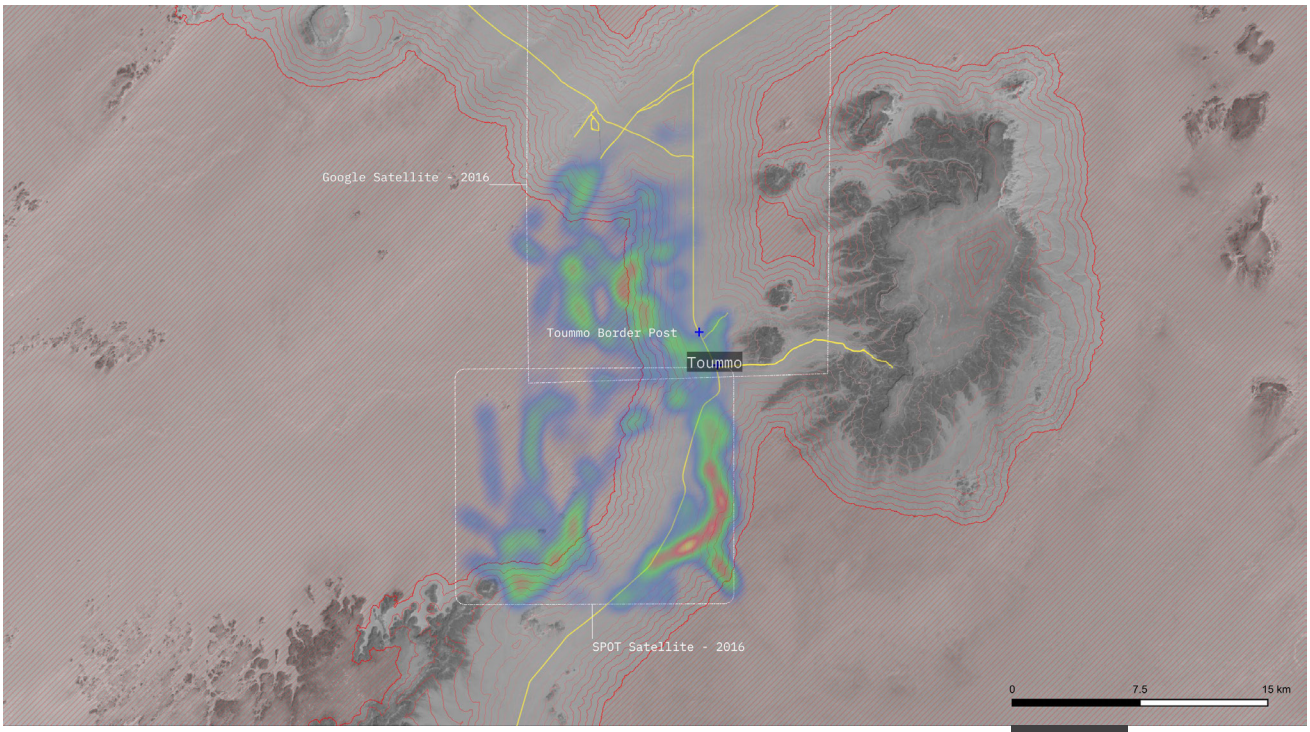
Military and Customs Activity +

A comparison of significant clusters – tracks correlated with surrounding areas of low visibility - observed in 2013 and 2016, around the Madama military outpost, demonstrate there is a significant increase of tracks in areas of low visibility.

A05 TOUMMO

2014





2016

Track Density - 1000m Radius

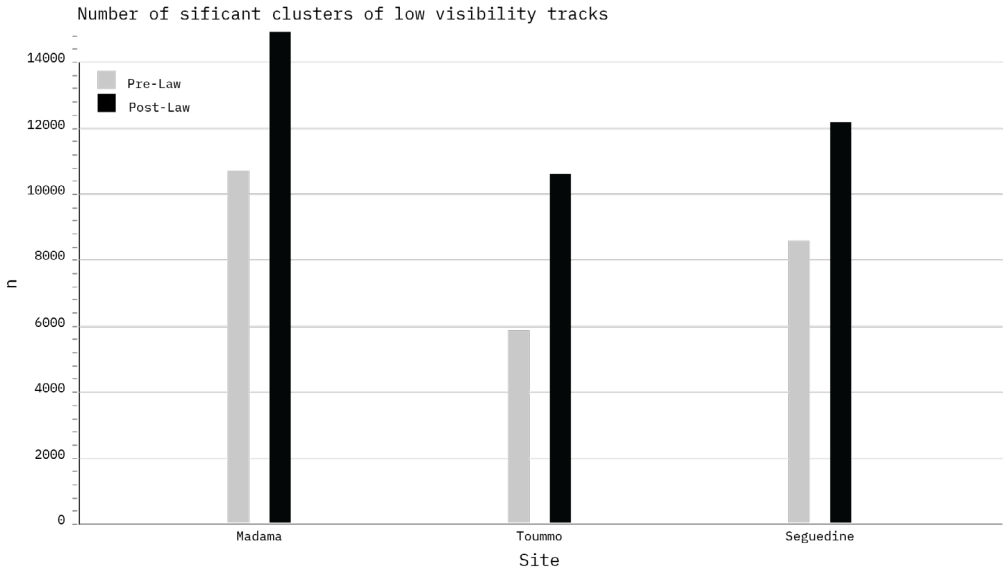
Military and Customs Activity

LOW HIGH

0.2 Lt Sweat Lost

2 Lt Sweat Lost

A comparison of significant clusters – tracks correlated with surrounding areas of low visibility - observed in 2014 and 2016, around the Toummo military checkpoint, demonstrate there is a significant increase of tracks in areas of low visibility.



Graph showing the number of significant clusters of tracks correlated with surrounding areas of low visibility demonstrates a consistent increase in track density across areas of low visibility in all three areas of investigation; Séguédine, Madama and Toummo.

Results indicate that after the law was passed, the number of high-low clusters increased significantly, even for Toummo, which did not show a decrease in track visibility. Also, the number of high-high clusters either remained constant or decreased, emphasizing again the use of strategies aiming at avoiding high visibility areas. These findings suggest that the implementation of the new law in Niger has led to a splintering of tracks used by migrants, with many choosing paths that are less visible from the main road, and further away from border activity. The increasing use of low visibility tracks, has important implications for the safety and security of migrants, which we assess in the next section.

INVISIBILITY AND DANGER CORRELATION

We analyzed the correlation between the increased risk of dehydration and death encountered by migrants using alternative tracks and the results of the viewshed analysis. We compare the least cost path analysis described above to the viewshed of each site and assess the degree of correlation.

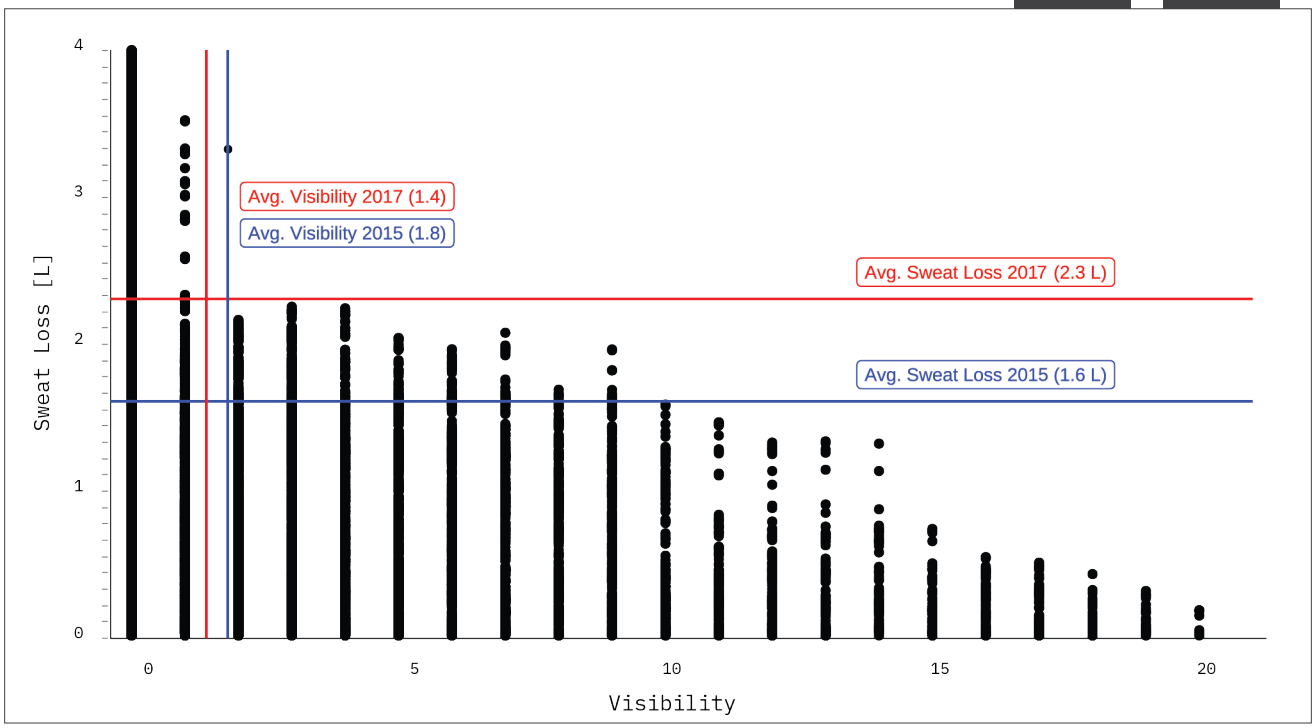
We observe a significant negative correlation between viewshed and sweat, indicating that the less visible tracks are to detection, the more passengers using these tracks are at risk of dying. We further observe that there is a significant shift both towards less visible tracks and more sweat loss after the implementation of the law. Finally, the relationship between sweat and visibility shows that even a minute effort to stay out of sight will greatly increase water loss.

We thus observe a correlative trend between the level of invisibility and the level of potential danger posed by post-2015 tracks. The less visible the new bypass routes are from the main route, the higher the risk is of passengers suffering fatal dehydration should they attempt to walk back to the main route. Even a shift into slightly less visible terrain greatly increases the chances of dehydration and death.

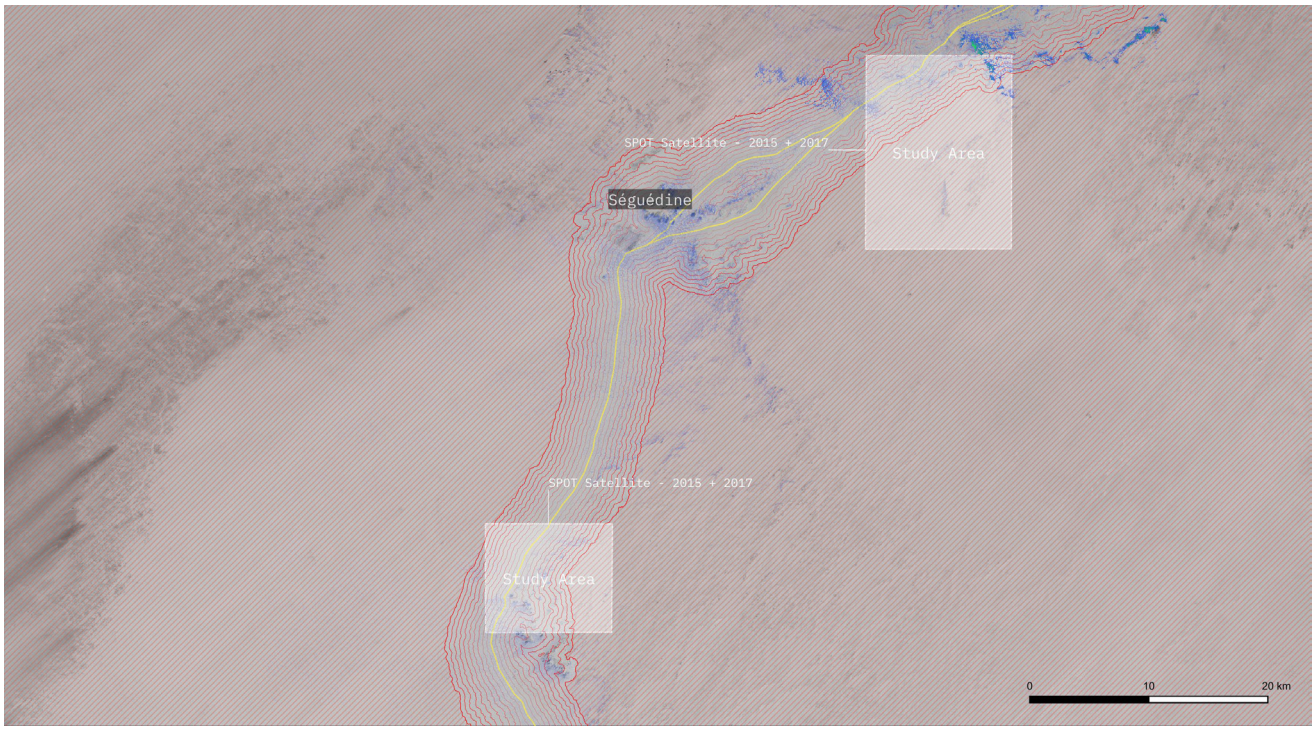
The significant shift both towards less visible tracks and more sweat loss after the implementation of the law we observe suggests a causal relationship.

A03 SÉGUÉDINE

2015 2017



In this graph each point represents a location on the tracks. The distribution of points in the Visibility-Sweat loss space shows a significant correlative trend: the less visible the point on tracks is, the more sweat loss is associated with that point. Indeed, low visibility is associated with more danger.



Visibility

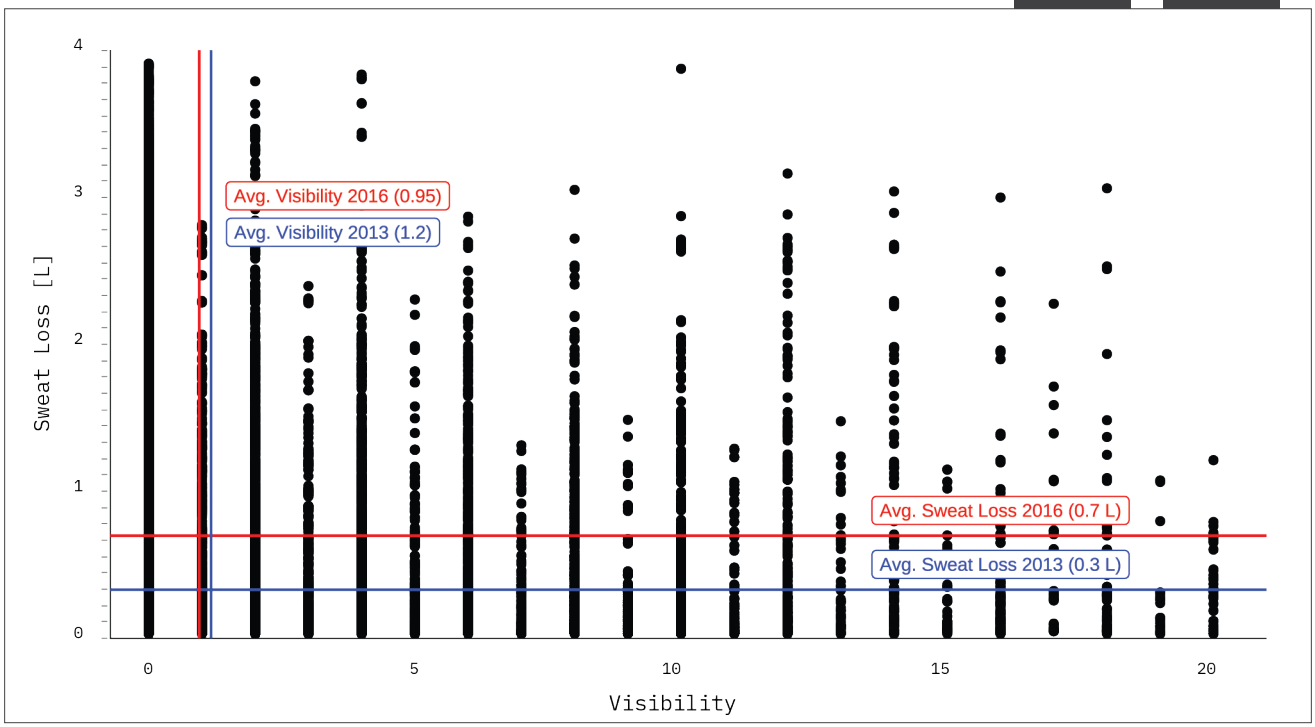
0 191

0.2 Lt Sweat Lost 2 Lt Sweat Lost

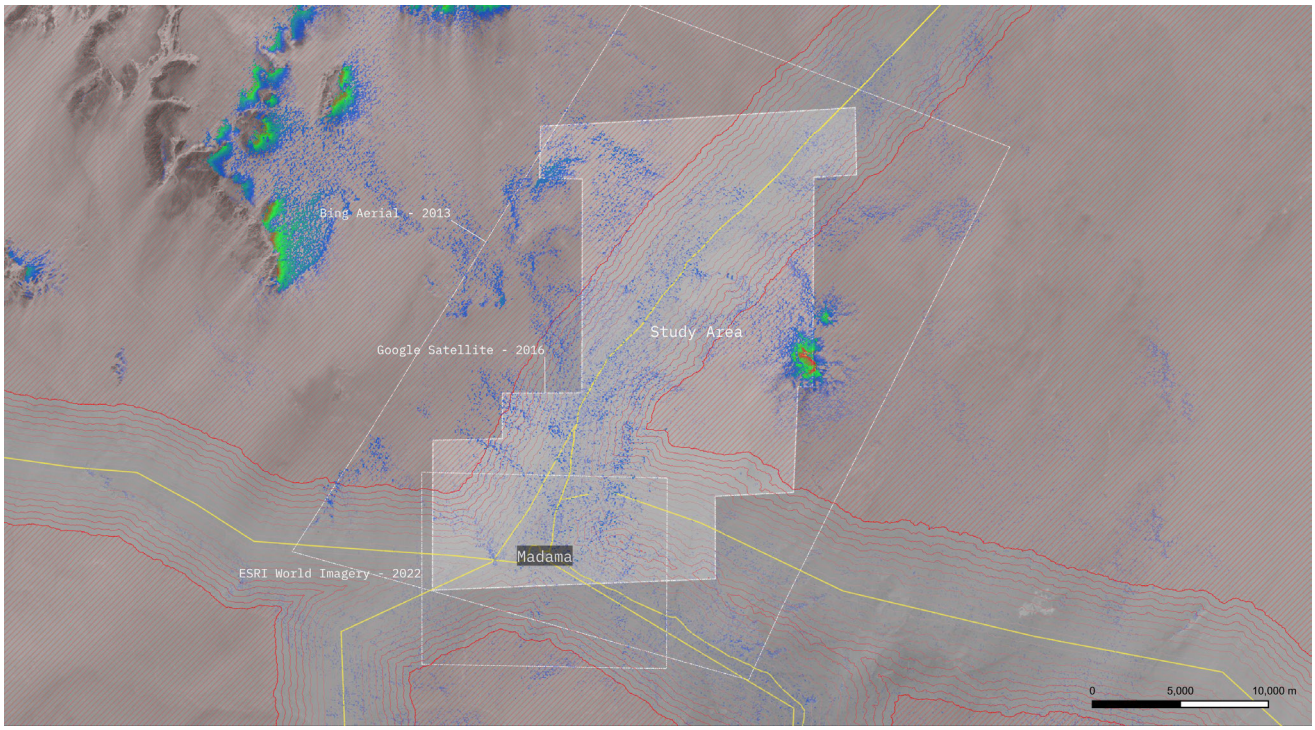
An analysis of tracks in relation to the cost distance modeling and the viewshed analysis (as shown on the map above) show that at Séguédine, as tracks move increasingly into less visible areas in 2017, so too do they move into more dangerous areas, from which returning to the road by foot is increasingly difficult. A trend visible across all areas of investigation.

A04 MADAMA

2013 2016



In this graph each point represents a location on the tracks. The distribution of points in the Visibility-Sweat loss space shows a significant correlative trend: the less visible the point on a tracks is, the more sweat loss is associated with that point. Indeed, low visibility is associated with more danger.



Visibility

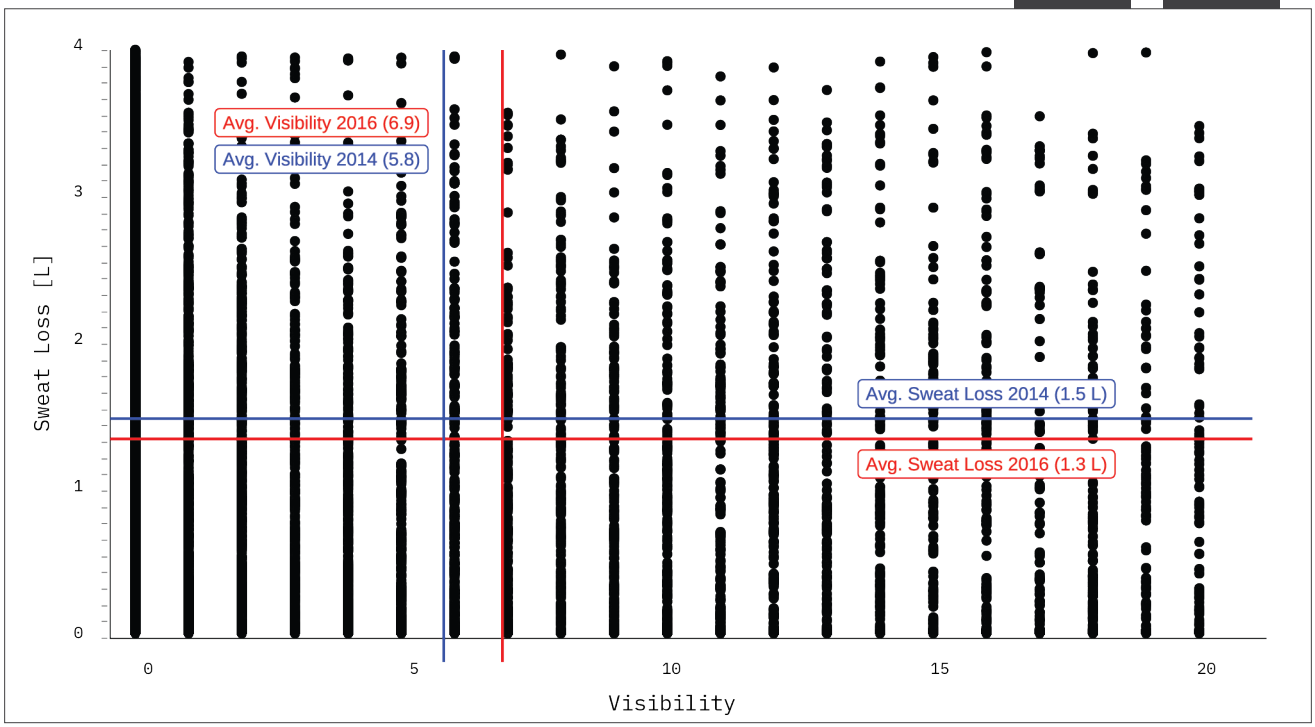
0 191

0.2 Lt Sweat Lost 2 Lt Sweat Lost

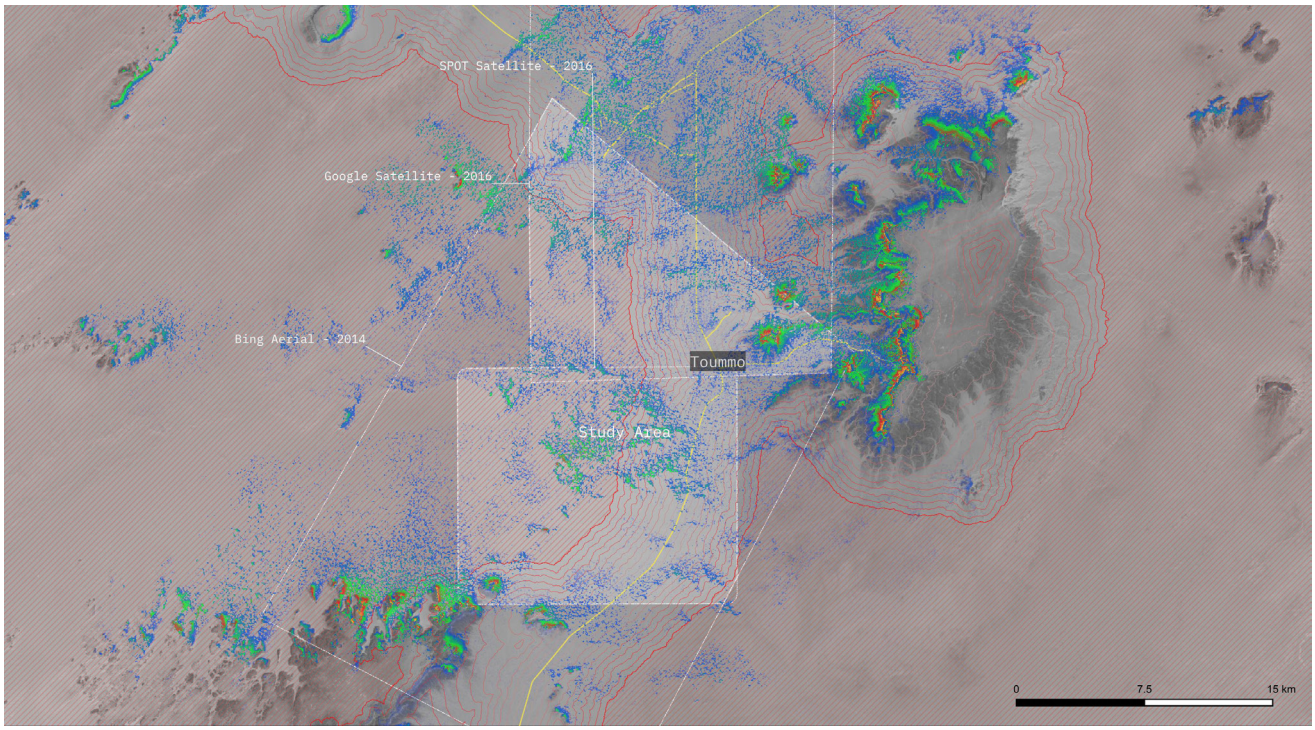
An analysis of tracks in relation to the cost distance modeling and the viewshed analysis (as shown on the map above) show that at Madama, as tracks move increasingly into less visible areas in 2016, so too do they move into more dangerous areas, from which returning to the road by foot is increasingly difficult. A trend visible across all areas of investigation.

A05 TOUMMO

2014 2016



In this graph each point represents a location on the tracks. The distribution of points in the Visibility-Sweat loss space shows a significant correlative trend: the less visible the point on tracks is, the more sweat loss is associated with that point. Indeed, low visibility is associated with more danger.



Visibility

0 191

0.2 Lt Sweat Lost 2 Lt Sweat Lost

An analysis of tracks in relation to the cost distance modeling and the viewshed analysis (as shown on the map above) show that at Toummo, as tracks move increasingly into more visible areas in 2016, they also move into less dangerous areas. As mentionned previously, it can be explained by Toummo's specificities.

Additional anecdotal evidence seems to confirm the deadly effects of increased securitisation that our geospatial analysis reveals. In Séguédine several incidents have reportedly occurred just after the tightening of controls in the area: on Sunday, May 21, 2017, the lifeless bodies of 44 migrants (including babies), mostly Ghanians and Nigerians, were discovered near Séguédine; on Sunday, June 25, 2017, 24 migrants (including women and children) were found thirsty and disoriented walking in the middle of the desert near Séguédine, and later claimed that all 75 initial passengers of their group had been abandoned by their transporters because they feared repression by the defense and security forces (at least forty of them were found dead in the area); and on Wednesday, July 5, 2017, 67 migrants all from West Africa who were rescued by the defense and security forces to the locality of Séguédine in the middle of the desert after being abandoned by their smugglers (one of them died).[83]

Reports of deaths in the areas surrounding Madama and Toummo are less frequent, possibly because they have far less civilian activity than Séguédine, and the IOM did not have a presence there until 2019. In April 2020 the IOM reported that a group of 250 migrants had been found alive outside of Madama (the exact location is not known), after being left behind by their drivers.[84] And in May 2020, Alarme Phone Sahara reported on a case in the desert outside of Madama where a vehicle became stuck in deep sand and its passengers attempted to walk to Madama in search of water. In their search for water, they encountered a second vehicle and approximately twenty victims who had presumably already died of thirst.[85]

83 Jeune Afrique avec AFP, Niger: "67 migrants abandonnés par leurs passeurs secourus dans le désert du Ténéré", 7 July 2017: ↗

84 Africanews, "25 migrants, abandoned in the Niger desert by smuggler, rescued", 05 April 2022: ↗

85 Alarme Phone Sahara, Alert to the authorities of Niger : People in distress in the desert on the Libya-Niger Axis! , 31 May 2020: ↗

F11

Alarme Phone Sahara teams burying a migrant found dead in the Nigerien desert, Source: Alarme Phone Sahara, 2021.

CONCLUSION

The "*mission accomplished*" narrative spread by the government of Niger and its international partners has foregrounded the alleged success of Niger's Law 2015-36 on Illegal Trafficking of Migrants and its implementation in curbing the number of migrants transiting through Niger and protecting them against smugglers.[86] Against this narrative, journalists, activists, and researchers have argued for many years that the implementation of the law has exacerbated the life-threatening risks faced by migrants as they cross the Sahara. However, because of the law's harsh penalties and increased border control, cross-Saharan movements within Niger have been forced underground and into more remote areas of the desert, where incidents can easily go unnoticed. As a result, reliable data on migration patterns and deaths have become even more difficult to gather, and the true scale of migrant deaths across the desert is unknown.

86 La Tribune Afrique, Migration illégale: le Niger assure le job, selon l'OIM, 17 October 2017: ↗ ; European Union, Les opérations de l'Equipe Conjointe d'Investigation contre les trafiquants de migrants se poursuivent malgré le Covid-19, 16 June 2020: ↗

Figure 1

In this context, Border Forensics' investigation has mobilized new and unique spatial analysis and remote sensing methodologies to contribute to a better empirical analysis of the lethal effects of Law 2015-36 and the heightened border control it led to. We applied our methodology to a multi-sited case study along a section of the Agadez-Sabha route: the civilian town of Séguédine, the military outpost of Madama, and the Toummo checkpoint at the Niger-Libyan border. Our analysis of each site has revealed a clear pattern that links increased border control and shifts in migrants' trajectories, leading to the latter moving towards less visible areas, deeper into the desert, where chances of survival are greatly diminished in the recurring events of vehicle failures, abandonment, or running out of water. We made the increased danger encountered by migrants visible and measurable in terms of one of the greatest risks faced in these cross-Saharan journeys: a life-threatening state of dehydration in less traveled and less visible areas. The significant correlativetrend we observed between the level of invisibility of alternative tracks used by migrants to avoid border control and the level of potential danger encountered along these post-2015 tracks, associated with empirical evidences, suggests a causal relationship between border control and deaths in the desert. While in the scope of this study we applied our methodology only to a limited area, this has allowed us to develop a novel methodology which has already allowed to generate new empirical data, provides new insights on the increased danger that heightened border control has led to for migrants.

87 Frontex, Africa-Frontex Intelligence Community joint report 2016, Publications Office, 2016, ↗ Frontex, Africa-Frontex Intelligence Community joint report 2017, Publications Office 2017 ↗; Frontex, Africa-Frontex Intelligence Community joint report 2018, Publications Office 2018, ↗

While in the scope of this study we applied our methodology only to a limited area, this has allowed us to develop a novel methodology which has allowed us to generate new empirical data and provide new insights on the increased danger that heightened border control has led to for migrants.

While our report provides a unique empirical demonstration of the mechanisms through which border controls have led to increased danger for migrants, knowledge of this effect has been available to policymakers from the outset.[87] The correlation between increased border control and the risk of death faced by migrants has been demonstrated by academics and experts in various fields in a number of border areas across the world since several years.[88] In the case of Niger, researchers, civil society organizations and local authorities have raised concerns early on about the potential consequences of implementing such policies.[89] Despite the available knowledge, the government of Niger and its international partners chose to implement a lethal policy and have continued to do so even as the reports of migrant deaths increases. Prior to the implementation of the 2015 Law, there were only a few documented cases of migrant deaths. However, following its enactment, the International Organization for Migration (IOM) has reported 1,092 deaths, a staggering number considering that it likely accounts only for a small fraction of the actual number of migrant deaths in the region.

88 or a review see Charles Heller, 2015. "Liquid Trajectories - Documenting Illegalised Migration and the Violence of Borders." Phd Thesis. Available at: ↗

89 Julien Brachet, "Au Sahara, voyager devient un crime", The Conversation, 1 June 2018 ↗

Beyond the tragic loss of life, Law 2015-36 has had other harmful effects on both the local population and the broader regional community. Most notably, it has impacted the livelihoods of the local population by jeopardizing their economic stability and well-being.[90] Furthermore, it is important to note that the majority of people moving within Niger are citizens of the Economic Community of West African States who have been granted freedom of movement and the right to reside and settle in Niger.[91] By restricting the movement of a range of people moving across northern Niger, the law denies them their right to free movement. As a result, these policies not only endanger the lives of migrants, but also undermine the social, economic, and political fabric of affected communities in Niger and beyond.

90 Molenaar, Fransje et al. 2017. A Line in the Sand: Roadmap for Sustainable Migration Management in Agadez, CRU Report, October; Tubiana, Jérôme, Clotilde Warin, and Gaffar Mohammud Saeneen (2018), Multilateral Damage. The Impact of EU Migration Policies on Central Saharan Routes, CRU Report, De Hague: Clingendael Institute.

91 Economic Community of West African States (ECOWAS), Protocol Relating to Free Movement of Persons, Residence and Establishment, 29 May 1979, A/P 1/5/79, ↗

As we have demonstrated, Law 2015-36 and its implementation are the result of a convergence of interests in restricting mobility, both on the part of Niger and the European Union. As such, Niger holds a fundamental responsibility for the effects of the law. However, our analysis also reveals that Niger would not have been able to implement its policy to such an extent and with such dramatic effects without the multiform support of European states, institutions and agencies. Thus, we can see that European actors not only deny the vast majority of African citizens their freedom of movement *within* Europe, but also contribute to undermining their freedom far *beyond* the territory of the EU, deep within the African continent.

In light of the empirical evidence and the lethal effects of Niger's Law No. 2015-36 and its implementation, we call for the following urgent actions designed to promote and defend the dignity and rights of migrants and to foster mobility justice.

All actors operating in Niger in relation to migration should join efforts to improve data collection on the human cost of border control, and make it publicly available. Far greater efforts should be deployed to determine the identity of migrants who have died attempting to cross the desert, and to inform their families. As long as migrants face dangerous conditions of crossing, proactive rescue activities should be implemented, and these should not result in the criminalization, arrest, or deportation of migrants.

All actors - whether from Niger, Europe, UN agencies and others - involved in the drafting and implementation of the law should be held to account for the increased deaths and suffering of migrants they have caused.

The government of Niger should end the criminalization of the many actors who transport and interact with migrants. Niger should further ensure that the rights of Economic Community of West African States citizens to freedom of movement, residence, and establishment are respected and upheld in accordance with the sub-regional agreements to which Niger is a party.

The European Union, its agencies and member states should immediately acknowledge their key role in supporting and perpetuating harmful migration policies in Niger and beyond and bring an end to all policies and programs contributing to the externalization of borders.

Both Niger and the EU must fundamentally reorient their migration policies to create a legal framework allowing for international mobility – including that of African citizens – to unfold in a safe and legal way rather than pursuing the illusion of stopping migration at enormous human cost.

RESEARCH TEAM

BORDER FORENSICS

Research Directors: Charles Heller and Lorenzo Pezzani
Research: Rhoumour Ahmet Tchilouta, Tara Plath
Project Coordination: Tara Plath, Giovanna Reder
Geostatistical Analysis: Sam Chambers, Stanislas Michel
Remote Sensing: Rossana Padeletti
Cartography and Visuals: Jack Isles, Giovanna Reder
Press: Jelka Kretzschmar
Translations: Isabelle Saint-Saëns, Charlotte Zekriti, Mathilde Campergue, Rhoumour Ahmet Tchilouta
Copy-editing: Angela Smith

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In July 2021, Border Forensics and the Human Rights Project at Bard College organized an online workshop that brought together researchers, activists, human rights advocates, artists, and architects working in the U.S.-Mexico and Saharan borderlands. The aim of the workshop was to create a space for collective thinking and to foster the emergence of new methods and practices to better document, prevent, and seek accountability for border violence. The discussions and ideas that emerged from this workshop have been instrumental in shaping our investigation, and we extend our gratitude to all the participants. Special thanks to Peter Rosenblum and Danielle Riou.

In December 2022, we led a workshop with APS to develop new methods for documenting specific cases of border deaths. This workshop was crucial in providing us with a deeper understanding of the circumstances surrounding migrant deaths and

the challenges of documenting them. We sincerely thank all the participants for their invaluable insights.

We would like to express our gratitude to Julia Black and Yodit Fitigu of IOM, who generously shared information with us about the process of collecting data on migrant deaths and flow monitoring in Niger. Their insights helped us understand how to use the IOM data and recognize its limitations.

This report is based on Rhoumour Ahmet Tchilouta's Ph.D. dissertation research, which began long before the preparation of this report. Rhoumour would like to express his deep gratitude to the many people he interviewed during the fieldwork for his doctoral research. In particular, he thanks the migrant transporters, who for obvious reasons will remain anonymous, for their generosity and kindness in sharing their time and knowledge. Finally, he thanks Taher Laouel, APS whistleblower, and Ibrahim Manzo Diallo for their invaluable help in conducting this investigation.

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