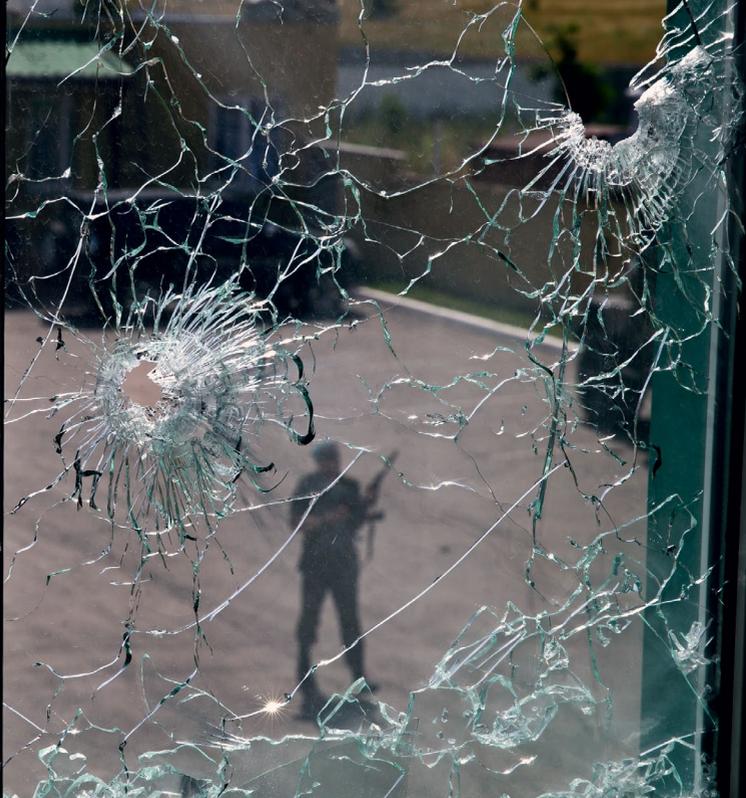


Report

January 2021



MAKING THE ROUNDS

Illicit Ammunition in Ukraine

Matt Schroeder and Olena Shumska



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Credits

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Cover photo

A pro-Russian militant stands outside a Ukrainian military unit seized by militants, Luhansk, 4 June 2014. Source: Vadim Ghirda/AP Photo

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List of abbreviations and acronyms

ATGM	Anti-tank guided missile
ATO	Anti-Terrorist Operation
DNR	Donetsk People’s Republic
DPSU	State Border Guard Service of Ukraine
JFO	Joint Forces Operation
IATG	International Ammunition Technical Guidelines
LNR	Luhansk People’s Republic
MANPADS	Man-portable air defence system(s)
NPU	National Police of Ukraine
PGO	Prosecutor General’s Office of Ukraine
SBU	Security Service of Ukraine
UAH	Ukrainian hryvnia
USD	United States dollar
USSR	Union of Soviet Socialist Republics

Executive summary

The outbreak of the conflict in eastern Ukraine in 2014 led to the widespread proliferation of small arms, light weapons, and their ammunition. This ammunition, which includes thousands of grenades, rockets, mortar rounds, and landmines, along with vast quantities of firearms cartridges, has spread to nearly every oblast (region) of Ukraine, including areas located far from the conflict zone. The ammunition poses an immediate threat to Ukrainian security and a potential threat to other European states.

To better understand this threat, the Small Arms Survey compiled and analysed a wide array of data on illicit ammunition seized in Ukraine and in neighbouring countries. The data provided new insights into the types and sources of illicit ammunition circulating in Ukraine, and the modes of transport and smuggling techniques used by Ukrainian arms traffickers, as well as their co-conspirators abroad. An analysis of the markings on more than 1,600 seized hand grenades, shoulder-fired rockets, anti-personnel landmines, and ammunition tins revealed that the vast majority of these items are decades-old Soviet-designed models produced in Soviet and Eastern European factories. Identifying the proximate sources of these items is difficult, but existing evidence suggests that most were acquired in the conflict zone in the east. The Ukrainian government has taken steps to reduce trafficking from the east and recover ammunition that has already been smuggled from this area, but these are daunting tasks given the sheer volume of illicit ammunition in circulation, and the numerous modes of transport and smuggling techniques used by traffickers in Ukraine.

While illicit ammunition has proliferated widely within Ukraine, the Survey found no evidence of large-scale international trafficking to Ukraine's neighbours or other countries in Europe. Ammunition seizures at international border crossings are relatively infrequent and small in scale, especially compared to seizures of cigarettes and other trafficked commodities. A preliminary assessment of illicit hand grenades in three Western European countries yielded similar findings; few, if any, grenades seized by authorities in these countries came from Ukraine. That said, the barriers to smuggling grenades, rockets, and other ammunition out of Ukraine are hardly insurmountable, and even a single successful trafficking scheme could radically alter the profile of illicit weapons in some countries. Preventing such schemes—and reducing civilian casualties caused by loose ammunition in Ukraine—will require a coordinated, sustained effort by Ukrainian authorities and the international community for many years to come.

Key findings

- Thousands of hand grenades, rockets, and landmines have proliferated throughout Ukraine, including to cities and towns located hundreds of kilometres from the conflict zone in the east.
- The vast majority of ammunition tins, grenades, shoulder-fired rockets, and anti-personnel mines analysed for this study were Soviet-designed models produced in Soviet and Eastern European factories prior to the dissolution of the Soviet Union in 1991.
- The homogeneity of seized ammunition reflects both the large quantity of ammunition available from local sources and the geographically circumscribed nature of the conflict.
- Recently produced ammunition comprised less than one per cent of the items studied.
- Through daily seizures of illicit ammunition, Ukrainian authorities have removed thousands of grenades, rockets, and other munitions from circulation. However, the sheer volume of loose weapons continues to dwarf enforcement efforts, with deadly consequences for Ukrainian citizens.
- Despite the large quantities of illicit ammunition circulating in Ukraine, trafficking to neighbouring countries and elsewhere in Europe appears to be minimal.



After the outbreak of hostilities in eastern Ukraine in 2014, European officials feared that the country would become a supply depot for terrorists and criminals in their countries.”

Introduction

After the outbreak of hostilities in eastern Ukraine¹ in 2014, European officials feared that the country would become a supply depot for terrorists and criminals in their countries. These fears were exacerbated by an attempt to smuggle 125 kilograms of explosives, detonators, rocket-propelled grenade (RPG) launchers, and other weapons to France for use in a series of terrorist attacks during the 2016 UEFA European Football Championship (AFP, 2018). Ukrainian authorities learned of the plot and arrested the would-be attacker, Grégoire Moutaux, before he could transport the weapons to France.² Nevertheless, the spectre of criminals armed with machine guns, rockets, and explosives acquired in Ukraine alarmed policy-makers throughout Europe.³ Four years after the interdiction of Moutaux's massive weapons shipment, the feared surge in armed violence fuelled by Ukrainian weapons has not materialized, raising numerous questions about the availability of illicit arms and ammunition in Ukraine; domestic and international trafficking patterns; and the risk of future proliferation to violent extremists, organized criminal groups, and other unauthorized end users in Europe and beyond.

This report considers some of these questions in relation to ammunition. The publication builds on a 2019 study on small arms trafficking and radicalization conducted by the Small Arms Survey for the Ukrainian Ministry for Temporarily Occupied Territories and Internally Displaced Persons (MTOT).⁴ The study shed new light on the types and sources of illicit small arms, light weapons, and ammunition in Ukraine; perceptions of security; the regulatory framework for controlling arms and ammunition; and the Ukrainian government's institutional capacity to prevent diversion and detect and seize illicit weapons.⁵

The report begins with an in-depth overview of illicit ammunition in Ukraine, including the makes, models, calibres, production dates, and sources of four categories of frequently seized items. It then analyses the mechanics of domestic and international trafficking. The report concludes by considering some of the implications of this analysis. ●

“This report draws upon data from a variety of governmental and non-governmental sources.”

Methodology

Terms and definitions

This assessment focuses on ammunition for small arms and light weapons. The term ‘small arms’ refers to firearms designed for use by a single individual,⁶ including:

- revolvers and self-loading pistols;
- rifles and carbines;
- shotguns;
- sub-machine guns; and
- light machine guns.

Small arms also include items that may be readily converted into firearms, namely alarm weapons, air or gas guns, ‘traumatic’ weapons, deactivated firearms, acoustic expansion weapons, and firearms that fire Flobert-calibre ammunition.⁷

The term ‘light weapons’ refers to weapons designed for use by a small crew of two or three people,⁸ including:

- heavy machine guns;
- hand-held, under-barrel, and mounted grenade launchers;
- portable anti-aircraft guns;
- portable anti-tank guns;
- recoilless rifles;
- portable launchers of anti-tank missiles and rocket systems;
- portable launchers of anti-aircraft missile systems; and
- mortar systems of calibres of 100 mm or less (UNGA, 2005, p. 7).

The International Ammunition Technical Guidelines (IATG) define ammunition as ‘a complete device, (e.g. missile, shell, mine, demolition store etc.) charged with explosives, propellants, pyrotechnics, initiating composition or nuclear, biological or chemical material for use in connection with offence, or defence, or training, or non-operational purposes, including those parts of weapons systems containing explosives’ (UNODA, 2015, mod. 01.40, para. 3.8).⁹ The definition includes items typically categorized as ammunition for small arms and light weapons, along with hand grenades and anti-personnel landmines. This report excludes other items that fit the IATG’s definition but that are not categorized as small arms and light weapons. The excluded items include mortar rounds of calibres greater than 100 mm; cartridge-based ammunition of calibres larger than 14.5 mm; and other missiles, rockets, and ammunition that are either designed exclusively for use with vehicle-mounted weapons systems or not easily transported or used by a single individual or small crew.¹⁰

The term ‘illicit’ refers to weapons or ammunition that are held, modified, produced, transferred, or used in violation of national or international law. The Survey uses the term ‘illicit’ rather than ‘illegal’ to account for cases of unclear or contested legality.¹¹ ‘Trafficking’ and ‘smuggling’ are used interchangeably to refer to the illicit transfer of weapons within or across national borders, usually involving a change in ownership.

Data collection and sources

This report draws upon data from a variety of governmental and non-governmental sources. Four main governmental sources informed the report:

- summaries of arms seizures published online by Ukrainian state agencies and their counterparts in neighbouring states;
- documents from US and Ukrainian court cases on the illicit production, possession, sale, and transport of small arms and light weapons;
- data on seized ammunition obtained by the Survey from law enforcement and border control agencies; and
- key informant interviews with border control and law enforcement officials and other experts on arms trafficking and counter-trafficking measures.¹²

The Survey supplemented and corroborated this data with information and images gathered from the social media accounts of armed groups in Ukraine and conventional media reports.

The Security Service of Ukraine (SBU), National Police of Ukraine (NPU), and other Ukrainian state agencies routinely issue summaries of operations that result in the seizure of arms and ammunition. These summaries—thousands of which are published each year—are a rich source of data on the types, models, origins, and age of illicit ammunition circulating in Ukraine, and the proximate sources of illicit ammunition.

Not all of the summaries are analytically useful, however. Some lack detailed information about the seizures; others do not include images of the markings on seized items. These summaries provide little insight into illicit ammunition circulating in Ukraine or the mechanics of ammunition trafficking. Therefore, instead of compiling data on all seizures, the Survey focused on seizures of the types and models of ammunition with the most detailed data, namely tins of firearms cartridges, select models of hand grenades (RGD-5, RGN, and RGO), shoulder-fired rockets, and anti-personnel landmines. The data and imagery are stored in the Small Arms Survey’s Visual Database of Arms and Ammunition Seized in Ukraine, a searchable online research tool designed to maximize the analytic potential of photos of markings on seized arms and ammunition.¹³

The Survey also collected and analysed aggregate data on border seizures compiled by Ukraine's State Border Guard Service (DPSU) and their counterparts in neighbouring states, along with summaries of individual border seizures published by the same institutions. Unlike the SBU and NPU seizures analysed for this project, the dataset on border seizures includes data from every summary identified by the Survey, not just cases that include photos of the markings on seized items.

It should be noted that data on seizures may not be fully representative of the total population of illicit ammunition in Ukraine. Certain makes or models of illicit ammunition may be available in Ukraine that authorities have not seized—or not in quantities that are proportional to their prevalence in illicit inventories. It is also possible that certain seizures—or certain seized items—are not reported, or are reported inconsistently, by Ukrainian authorities. The large number of seizure summaries collected by the Survey, the geographic and contextual diversity of the seizures, and the similarity in the makes and models of ammunition seized by the Ukrainian government and pro-Russian militants increase the likelihood that the seized items are representative of illicit ammunition in Ukraine. However, the Survey cannot say for certain that this is the case.¹⁴ ●



Seizure rates for ammunition increased dramatically in 2014 and have remained consistently high.”

I. Models, origins, and production dates of illicit ammunition in Ukraine

This section provides a brief overview of the models, origins, age, and illicit end users and uses of select types of ammunition seized in Ukraine, namely tins of firearms ammunition,¹⁵ hand grenades, RPG series rockets, and anti-personnel landmines. Section II analyses the sources and trafficking patterns of these items.

Firearms ammunition

The illicit transfer and possession of firearms ammunition in Ukraine ranges from the accidental cross-border transport of a few rounds of ammunition for blank-firing guns to the stockpiling of thousands of 7.62 mm and 12.7 mm rifle cartridges. To gain a better understanding of this ammunition, the Survey analysed the markings on 274 ammunition tins seized by Ukrainian authorities in 106 separate incidents from 2014 to April 2020.

As the data reveals, ammunition tins have proliferated widely and have been acquired by a broad array of end users. The tins analysed by the Survey were seized in at least 14 of Ukraine's 24 oblasts.¹⁶ While the highest concentration of seized tins was in or near the Anti-Terrorist Operation (ATO)/Joint Forces Operation (JFO) area,¹⁷ others were seized far from the conflict zone, including in the western oblasts of Ivano-Frankivsk, Lviv, and Ternopil.

Images 1–2 Firearms cartridges and other ammunition seized from members of a criminal group accused of torture and murder, 2018





Source: Ukrainian MIA (2018a)

The end users of the ammunition tins vary significantly in terms of age, occupation, and intent. Some of the tins were found in the homes of ex-service members who acquired them in the JFO area and took them home as souvenirs or for self-protection.¹⁸ Others were found by civilians who either reported them to the police or hid them in their homes.

Authorities have also seized tins from individuals with more malign intentions. Several dozen of the tins analysed by the Survey were seized from pro-Russian militants, violent criminal organizations, and arms traffickers. In 2018, for example, police seized tins of 5.45 mm and 7.62 mm rifle ammunition from members of a criminal group that tortured and murdered an entrepreneur and his family in Donetsk (see Images 1 and 2; Ukrainian MIA, 2018a).

The most notable characteristic of the seized tins is their homogeneity. Factories located in just four countries¹⁹ produced all but two of the tins identified by country of manufacture,²⁰ and at least 70 per cent were produced during the Soviet era (that is, manufactured no later than 1991). Less than two per cent of the tins were produced after 2000 (see Table 1), and only one tin was produced after 2010.²¹ The only tins produced outside of the Soviet Union and Eastern Europe were two containers of Chinese-made 12.7 mm cartridges discovered in Donetsk oblast in 2018 (JFO, 2018). The tins were found in the yard of an abandoned house in the village of Pivnichne, near the city of Toretsk, with grenades and other ammunition of Soviet and Eastern European origin.²²

Table 1 Seized tins of firearms ammunition by country of production and manufacture date, 2014–20

Country of production	Production date								Total
	1950–59	1960–69	1970–79	1980–89	1990–99	2000–09	2010–19	Unclear	
China	–	–	–	–	2	–	–	–	2
Bulgaria	–	–	9	–	–	–	–	–	9
Soviet Kyrgyzstan (USSR)	–	16	–	7	10			7	40
Soviet Russia (USSR)	3	15	27	51	17			17	130
Soviet Ukraine (USSR)	3	1	9	20	–			8	41
Ukraine					25	4	1	–	30
Unidentified	–	1	3	1	2	–	–	15	22
Total	6	33	48	79	56	4	1	47	274

Source: Shumska and Schroeder, 2020

This data suggests that the majority of illicit ammunition tins circulating in Ukraine are remnants of the massive cold-war era stockpiles of weapons assembled by the Soviets in Eastern Europe. This is consistent with previous assessments of illicit firearms ammunition in Ukraine,²³ along with the Survey’s analysis of other types of ammunition, as explained below.

Light weapons ammunition

Illicit light weapons ammunition in Ukraine range from inert training grenades to missiles for anti-tank guided weapons.²⁴ Some types of light weapons ammunition are plentiful and ubiquitous. Thousands of hand grenades, projected grenades, rockets, and mortar rounds have proliferated throughout the country, including to cities and towns located hundreds of kilometres from the conflict zone. In fact, grenades and rockets are so prevalent that authorities have seized individual caches containing more of these items than are recovered annually in some countries. In May 2019, for

example, police officers found 200 F-1 grenades and more than 30,000 rounds of firearms ammunition in the garage of a private residence in the northern oblast of Chernihiv (NPU, 2019b).

Data compiled by the Office of the Prosecutor General of Ukraine (PGO) reveals that seizure rates for ammunition, including light weapons ammunition, increased dramatically in 2014 and have remained consistently high. The number of seized grenades jumped more than ten-fold between 2013 and 2014, and increased steadily until 2016. Since then, seizure rates have declined slightly but are still much higher than before the war. The quantity of seized cartridges has decreased only modestly in recent years, and seizures of landmines nearly doubled from 2018 to 2019 (see Table 2).

While data on aggregate seizures is useful for tracking nationwide trends, it reveals little about the seized items or the circumstances surrounding their seizure. Summaries of ammunition seizures and, importantly, images of the seized items often provide more detailed information. A careful review of several hundred seizure summaries and accompanying images of more than 1,600 items revealed valuable information about the make, model, origin, age, end users, and proliferation patterns of the seized items. As with firearms ammunition tins, the vast majority of grenades, shoulder-fired rockets, and anti-personnel mines analysed by the Survey were Soviet-designed models produced in Soviet and Eastern European factories during the cold war. Recently produced light weapons ammunition, and models produced in other geographic regions, are rare. This is also true of light weapons ammunition seized by pro-Russian militants, which are very similar to the items seized by the Ukrainian government in terms of make, model, and production date. This overlap appears to corroborate government accounts of seized ammunition and suggests that the items seized by Ukrainian authorities are representative of illicit weapons in Ukraine more generally.

Below is a brief overview of the three main categories of light weapons ammunition profiled in this study.

Table 2 Data on seizures of ammunition and explosives, 2013–19

Items seized	2013	2014	2015	2016	2017	2018	2019
Grenade launchers and multiple-launch rocket systems	0	38	112	20	62	59	64
Cartridges	67,854	128,580	202,142	174,954	278,238	271,141	204,899
Grenades	116	1,615	2,099	2,698	1,935	1,918	1,889
Mines	17	44	26	61	57	48	84

Source: Small Arms Survey compilation of data from PGO (n.d.)

Hand grenades

Illicit hand grenades are among the most numerous and widely proliferated munitions circulating in Ukraine.²⁵ Most are Soviet-designed F-1 and RGD-5 grenades first fielded in the 1940s and 1950s, respectively. Both models were produced in large quantities and exported widely. Other illicit grenades seized in Ukraine include RGNs and RGOs introduced in the 1980s, RKG-3 anti-tank grenades, older RGD-33 and RG-42 grenades, and various smoke and training models.²⁶

An analysis of seized RGD-5, RGN, and RGO grenades reveals that the vast majority were made in Soviet factories in the 1970s and 1980s. Of the 930 grenades for which data

Table 3 Select models of seized hand grenades by country of production and manufacture date, 2014–20

Model	Country of production	Production date							Unclear	Total
		1950–59	1960–69	1970–79	1980–91	1992–99	2000–09	2010–19		
RGD-5	Soviet Russia (USSR)	1	10	450	407				113	981
	Russia					1	–	–	–	1
	Unknown	9	–	–	11	–	–	–	4	24
	Unclear	6	1	23	17	–	–	–	n/a	47
RGO	Soviet Russia (USSR)	–	–	–	5				1	6
	Ukraine					2	–	–	–	2
	Unclear	–	–	–	2	–	–	–	n/a	2
RGN	Soviet Russia (USSR)	–	–	–	28				6	34
	Ukraine					6	–	–	1	7
	Unclear	–	–	–	3	2	–	–	n/a	5
Total		16	11	473	473	11	–	–	125	1109

Note: n/a = not applicable.

Source: Shumska and Schroeder (2020)

on the producer and date of production is available, at least 96 per cent were manufactured in Soviet Russia between 1970 and 1991 (see Table 3).

Hand grenades pose an immediate and widespread threat to civilians in Ukraine. RGD-5 grenades have proliferated to every oblast and have been acquired by a wide array of end users, resulting in hundreds of attacks and accidental explosions. During the first nine months of 2018, the NPU recorded 128 criminal offences committed with hand grenades (NPU, 2018a), including attacks in (or against) government buildings, night-clubs, private homes, parades, stores, and restaurants. Domestic abusers threaten and sometimes kill or injure their spouses with grenades, which also have the potential to turn mundane personal disputes between strangers into deadly encounters.²⁷ During the Covid-19 pandemic of 2020, a 38-year-old man threatened to detonate an RGD-5 grenade in a Kyiv supermarket after an employee asked him to put on a face mask (NPU, 2020d).

Shoulder-fired rockets

In recent years, Ukrainian authorities have also seized shoulder-fired rockets on a regular basis. As with other illicit ammunition circulating in Ukraine, the vast majority are Soviet-designed systems manufactured in the Soviet Union and Eastern European countries prior to 1992 (see Table 4). The only exceptions are a comparatively small number of recent generation Russian-made rockets, most of which were seized in or near the ATO/JFO area. These items include RPO-A ('Shmel'), RShG-1, RShG-2, and MRO-A thermobaric rockets produced as recently as 2011.²⁸

Table 4 Seized RPG series shoulder-fired rockets²⁹ by model, country of production, and manufacture date, 2014–20

Model	Country of production	Production date			
		1970–79	1980–91	1992–99	Unclear
RPG-18	Soviet Russia (USSR)	17	10		2
RPG-22	Bulgaria	–	31	–	10
	Soviet Russia (USSR)	–	15		4
	Unclear	–	10	–	n/a
RPG-26	Soviet Russia (USSR) or Russia	–	59	1	4
RPG-26I	Soviet Russia (USSR)	–	2		2

Note: n/a = not applicable.

Source: Shumska and Schroeder (2020)

Images 3–4 Antipersonnel mines and other ammunition taken into custody by Ukrainian authorities, April 2020



Source: PGO (2020)

The large quantity of illicit rockets available in Ukraine has led to their acquisition by individuals and groups who rarely, if ever, have access to such weapons in many other countries. Examples include car thieves in Kyiv, drug dealers in Donetsk, and an arms trafficker in Lviv (Shumska and Schroeder, 2020).

Numerous volunteer battalions that aided the Ukrainian military in the early years of the conflict also acquired large quantities of shoulder-fired rockets, along with other types of ammunition. The transfer of nearly 100 tons of ammunition—including 200 anti-tank and anti-personnel mines, hundreds of RPG shoulder-fired rockets, more than 1,000 hand grenades, and at least half a million firearms cartridges—from the Ukrainian Volunteer Army to the Ukrainian Armed Forces in early 2020 highlighted the large quantity of arms and ammunition acquired by some of the battalions (PGO, 2020; see Images 3 and 4).³⁰

Anti-personnel landmines

Among the most sensitive illicit weapons in Ukraine are anti-personnel mines, some of which are banned under the 1997 Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction (the Ottawa Convention). MON series models—rectangular plastic mines that, when activated, direct an arch of hundreds of small steel objects toward the target—are one of the most frequently seized mines. The most commonly seized MON series mine in Ukraine is the MON-50. Ukrainian authorities have also seized numerous PMN pattern and OZM-72 mines. PMN pattern mines are small, round victim-activated models that have proliferated widely. The OZM-72 is a bounding fragmentation mine first fielded by the Soviets in 1972. Other models of anti-personnel mines documented in Ukraine include MON-200, POM-2, MS-3, and PFM-1 ‘butterfly’ mines.

Data compiled by the Survey includes images of the markings on 89 anti-personnel landmines seized from 2014 to 2020. As with other types of ammunition in Ukraine, the majority of anti-personnel mines studied are Soviet-produced models manufactured in the 1980s and early 1990s. There are some exceptions—including MON-50 mines produced in Russia in the 2000s—but they comprise only a small percentage of the mines. Notably, all of the PMN-2 mines were produced before the Ottawa Convention entered into effect in 1997.³¹

While most of the mines were found in caches linked to pro-Russian militants located in or near the conflict zone,³² they have also been acquired by individuals in other parts of Ukraine with no apparent links to the conflict. In 2017, for example, Ukrainian authorities recovered a MON-50 and three PMN series mines from a criminal group posing as an NGO in the western oblast of Volyn. The group was allegedly engaged in data theft for ‘personal and commercial purposes’ (SBU, 2017g). It is not clear

how the group members acquired the mines, or what they intended to do with them. Nevertheless, the fact that white-collar criminals located more than 1,000 kilometres from the conflict zone were able to acquire three different models of anti-personnel mines speaks to the widespread availability of these weapons in Ukraine. ●

“As in other countries, trafficking takes multiple forms in Ukraine, many of which defy common stereotypes about illicit arms trafficking and those who engage in it.”

II. The mechanics of trafficking

As in other countries, trafficking takes multiple forms in Ukraine, many of which defy common stereotypes about illicit arms trafficking and those who engage in it. The following section provides a brief overview of domestic arms trafficking, including the sources of illicit ammunition; the parties involved in illicit transfers of ammunition; and the modes of transport, concealment methods, and smuggling techniques employed by traffickers. The section also analyses cross-border trafficking into and from Ukraine.

Domestic trafficking

Sources of illicit ammunition trafficked within Ukraine

The sources of illicit ammunition in Ukraine include the Russian state, pro-Russian militants, national (government) inventories, clandestine workshops, the so-called ‘black diggers’,³³ former members of the volunteer battalions,³⁴ thefts from homes and vehicles (Schroeder et al., 2019, p. 41), and abandoned and discarded munitions.

Officials interviewed by the Survey in 2019 indicated that the ATO/JFO area is the largest (geographic) source of illicit small arms and light weapons in Ukraine (Schroeder et al., 2019, p. 41). Within the ATO/JFO, ammunition is obtained illicitly—directly or indirectly—from the Russian state and pro-Russian militants, other criminal organizations, the Ukrainian Armed Forces, and former members of the volunteer battalions.

The Russian Federation is reportedly both a direct and indirect source of ammunition for pro-Russian militants in eastern Ukraine, although it is difficult to measure its contribution to illicit stocks. Ukrainian government officials have repeatedly claimed that Moscow has provided large quantities of arms and ammunition to their proxies in Ukraine, often under the guise of ‘humanitarian aid’.³⁵ Similarly, Ukrainian forces have regularly reported finding Russian materiel after battles with pro-Russian militants. ‘Our units

Images 5–6 Russian MRO-A rockets found in Ukraine



Source: SBU (2017)



Source: SBU (2020a)

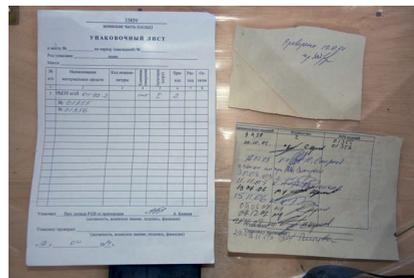
[find] trophies made by the Russian defence industry after almost every battle,' stated a spokesperson for the Ukrainian military in February 2015. 'This includes small arms and specific equipment, as well as tanks and combat vehicles' (Ukrainian MoD, 2015). Two years later, the Ministry of Defence accused Russia of shipping weapons, ammunition, and other materiel to separatist groups and 'units of its regular troops deployed in Donbas' (Ukrainian MFA, 2017).

The vast majority of illicit ammunition seized in Ukraine consists of Soviet-designed makes and models that were, and in some cases remain, in Russian inventories, but they were also widely distributed to other countries in the region, including Ukraine. Consequently, corroborating Ukrainian government claims, and determining exactly how much ammunition comes directly from Russia, presents a challenge. Without detailed inventory records, it is prohibitively difficult, if not impossible, to definitively identify the proximate source of most of this ammunition.

The Ukrainian government has presented evidence indicating that some of the most capable and sensitive munitions seized in Ukraine came directly from Russia,³⁶ including items traced to specific Russian military facilities. After a battle with Russian-backed militants in 2014, for example, Ukrainian authorities found inventory records inside an Iglá MANPADS crate showing that the missiles had been stored in a Russian Federation military facility in Yeysk just two months earlier (Jenzen-Jones and Smallwood, 2014; see Images 7 and 8).

Similarly, a crate of RPG-18s seized in 2014 included a packing slip from a military facility outside of Moscow. The model designation and lot number listed on the document is consistent with the contents of the crate, corroborating claims that the slip was, indeed, found with the rockets. The document is dated 18 November 2010, but handwritten notes appear to indicate that the crate was in Russian inventories until at least June 2011 (Embassy of Ukraine in the Republic of Azerbaijan, 2014).

Images 7–8 Russian Iglá MANPADS and crate recovered by Ukrainian authorities, 2014



Source: Ukrainian MFA (2014)

Ukrainian authorities claim to have seized dozens of other light weapons provided by the Russian state, including rocket launchers, anti-personnel landmines, and other items not known to be in Ukrainian inventories (see Images 5 and 6).³⁷ While many of these weapons are indeed of Russian origin, it is difficult to independently verify that they came directly from Russia because many of these models have been widely exported to other countries. Ruling out other possible sources, including neighbouring states, would require access to inventory records and other documentation that is generally not available to the public.

The Russian government also reportedly had a hand in the distribution of ammunition looted from Ukrainian military facilities in eastern Ukraine and in Crimea, both of which were major sources of illicit weapons early on in the conflict. Officials interviewed by the Survey estimate that at least 200,000 small arms and light weapons were looted or lost, mostly from facilities in the ATO/JFO area (Martyniuk, 2017, p. 4).³⁸ While the officials did not identify the amount of ammunition seized, the large number of stockpiled weapons suggests that a significant amount of ammunition was looted.³⁹

Russian forces seized an additional 100,000 weapons from Ukrainian military facilities in Crimea. The seized facilities also held an estimated 10,000 tons of ammunition, approximately two-thirds of which was in working order according to Ukrainian officials. The ammunition ranged from 5.45 mm cartridges to 155 mm artillery rounds (Martyniuk, 2017, p. 4; Stek, 2018; Ukrainian MIA, 2018b). Multiple seizures of arms and rounds of ammunition linked to the facilities suggest that large quantities of the weapons were transferred to eastern Ukraine. In May 2014, for example, Ukrainian authorities seized 73 boxes of arms and ammunition with institutional seals and documents from the looted facilities in Crimea (SBU, 2014a; Stek, 2018).⁴⁰ In 2016, the contents of a cache assembled by separatists associated with the Luhansk People's Republic (LNR) in Sievierodonetsk were traced to stocks captured from the Ukrainian Ministry of Internal Affairs in 2014. The cache contained 448 projected grenades, 100 hand grenades, 40 anti-tank mines, 12 RPG series rockets, and 50,000 firearms cartridges (SBU, 2016).

Ammunition looted from Ukrainian government facilities in 2014 continues to circulate, as evidenced by recent seizures of arms and ammunition originally stored in the facilities.⁴¹ In June 2020, Ukrainian authorities arrested members of an arms trafficking ring in Donetsk oblast who were selling firearms, ammunition, and explosives originally taken from Ukrainian government facilities in Crimea—six years after their seizure by Russian military forces (NPU, 2020e).

Since 2014, Ukrainian authorities have seized dozens of caches assembled by separatists linked to the Donetsk People's Republic (DNR) and the LNR, some of which were intended for use in attacks against the Ukrainian military or civilian targets.⁴² Ammunition obtained from pro-Russian militants was also found in the homes of militants⁴³ and their family members and acquaintances.⁴⁴ In 2016, Ukrainian police seized an RPG-18 and a tin of 5.45 mm ammunition from a 30-year-old resident of the village of Toshkivka

in Luhansk oblast, who had acquired the items from LNR members (NPU, 2016b; see Images 9 and 10).

Members of the Ukrainian far right have also engaged in arms trafficking, including to clients far from the conflict area. In 2018, a member of the Right Sector operating near Pavlopil, Donetsk oblast, acquired a large quantity of arms and ammunition, and transported the weapons by train to his residence in the city of Khmelnytskyi. From July to September 2018, the perpetrator sold the following weapons to the same buyer: one converted pistol with cartridges for UAH 7,200 (USD 267); one FORT pistol with five cartridges and two RGD-5 hand grenades with fuses for UAH 32,940 (USD 1,209); one RGD-5 with a fuse for UAH 1,500 (USD 53); and one AKS-74 with 50 cartridges for USD 2,400 (Zalzhnychnyi District Court in the City of Lviv, 2019).

Images 9–10 RPG series rocket and ammunition tin acquired by a local resident from members of the LNR, 2016



Source: NPU (2016b)

Diversion from the Ukrainian armed forces and police is another source of illicit ammunition. Incidents of diversion range from the unauthorized retention of ‘battlefield souvenirs’⁴⁵ to trafficking by large, multi-regional networks led by current and former service members and police officers. Most of the illicit activity in the reports reviewed by the Survey took place in or near the ATO/JFO area or involved ammunition trafficked from that area. Ukrainian officials and military veterans interviewed for this report indicated that diversion was particularly common at the beginning of the war. ‘Before [the] end of 2014 there was no system of controlling illicit arms flows,’ noted an official from the Ministry of Defence. ‘After that protocols [were] established and continuously improved.’⁴⁶ Comments made by veterans interviewed by the Survey support this claim. A veteran in Lviv noted that a lot of soldiers smuggled trophy weapons out of the ATO/JFO area early on in the war; this situation changed after 2015. ‘Now’, he stated, ‘there are lots of checkpoints’ (CSI, 2019b, p.15).

The significant increase in the number of investigations into theft and loss of military property since the outbreak of hostilities in early 2014 is indicative of the Ukrainian government’s commitment to reducing diversion of arms and ammunition. Investigations tripled in 2014 and have remained consistently higher than in the pre-war era (see Table 5).

Despite these efforts, diversion from the military continues, as evidenced by recent seizures of ammunition stolen from military units in the JFO area or trafficked by soldiers serving in the east.⁴⁷ One of the most notable cases is the attempted sale of 40 RGD-5 grenades, 15 RPG-22 rockets, and 2,454 firearms cartridges. The items were diverted by two soldiers serving in the ATO/JFO area in 2019. The soldiers’ asking price for the ammunition was just 75,000 Ukrainian hryvnia (UAH) (around USD 2,900), according to Ukrainian authorities (PGO, 2019). Table 6 summarizes this incident and other recent cases.

Ammunition is also trafficked by service members and police officers located outside of the conflict zone, often with the assistance of civilian accomplices. In April 2020,

Table 5 Cases of theft and other unauthorized activity involving firearms, ammunition, explosives, and other military property*

2013	2014	2015	2016	2017	2018	2019
95	288	191	177	248	132	236

Note: * The cases referenced in this table concern violations of Article 410 of the Ukrainian Criminal Code on the ‘Theft, extortion, or racketeering of firearms, ammunition, and explosives, as well as means of transportation, military, and special equipment, as well as other military property; as well as possession of these items by fraud or abuse of office’ (Verkhovna Rada of Ukraine, 2001).

Source: Small Arms Survey compilation of data from PGO (n.d.)

Table 6 Representative sample of cases of trafficking by service members and diversion of ammunition from Ukrainian military facilities, 2016–20

Date	Location	Items	Case description
June 2016	Zhytomyr oblast	131 5.45 mm rounds; 13 cartridges; and 43 blanks	After supervising target practice at a local military base, a service member hid ammunition in their backpack. The theft was discovered when they failed to return all of the spent casings. The ammunition was found during a search of the service member's residence.
April 2018	Donetsk oblast	1 F-1 grenade and 1 RGD-5 grenade	A service member from a local military base claimed to have found two grenades in the village of Kaminske. The NPU caught them attempting to ship the weapons, via the Nova Poshta postal services, to their residence.
August 2018	Kyiv city	> 7,000 rounds of fire-arms ammunition; 27 RGD-5 and 15 F-1 grenades; 4 MON-50 mines; and 4 RPG-22 and RPG-26 rocket launchers	A former military service member and a police sergeant who served in the ATO/JFO area illegally acquired large quantities of arms and ammunition, which they stored in a garage cooperative and one of the service member's residence.
February 2019	Donetsk oblast	Unspecified quantity of small-calibre ammunition	Two service members deployed in the ATO/JFO area diverted weapons from a military facility by decommissioning and reselling them.
June–August 2019	Luhansk and Donetsk oblasts	15 RPG-22 grenade launchers; 40 RGD-5 grenades; and 2,454 rounds of 7.62 mm cartridges	Ukrainian authorities arrested two service members and an accomplice for attempting to sell large quantities of ammunition.
July 2020	Odesa oblast	18 RGD-5 grenades; 12 F-1 grenades; and 2 anti-tank mines	A service member with the Armed Forces of Ukraine stole weapons from a military base and hid them near a power facility. The offender sold two of the grenades to an identified end user.

Sources: Shumska and Schroeder (2020); SBU (2020b)

Ukrainian authorities in the eastern oblast of Dnipropetrovsk arrested members of an arms trafficking network led by a former police officer, whose previous responsibilities included issuing permits for civilian gun ownership. The network sold a wide array of arms, ammunition, and explosives, and reportedly gave significant discounts to clients who bought in bulk. Raids on the homes of the traffickers yielded two RGD-5 grenades, nearly 15,000 firearms cartridges, and ‘official documents for [the] registration of permits for the purchase of weapons’ (NPU, 2020c). Three months later, authorities arrested an SBU officer for illegally selling an AKS-74, five magazines, and more than 1,200 5.45 mm cartridges to a resident of Kharkiv. During a subsequent search of the officer’s residence, authorities found 3,500 rounds of ammunition, an AKS-74 sub-machine gun, and two grenades (DBR, 2020b).

Image 11 Grenades and grenade fuses found outside a village in Khmelnytskyi oblast, 2019



Image 12 Rocket launchers found in a dumpster in Zhytomyr, 2020



Source: NPU, 2019a

The loss, abandonment, and improper disposal of arms and ammunition are additional sources of illicit weapons in Ukraine. Most of the time, the items consist of a handful of firearms cartridges or a few grenades. In some cases, however, the stockpiles found by civilians are enormous. In February 2019, a resident of Khmelnytskyi oblast in western Ukraine informed police that he had found three bags containing ‘grenade-like items’ while searching for scrap metal in scrublands near his village. When the officers inspected the area, they found 185 RGD-5 grenades and at least 30 canisters of grenade fuses (see Image 11).⁴⁸

Some of the ammunition found by civilians is surrendered voluntarily to police; other items are sold or bartered, or hidden in basements, attics, or sheds. In May 2018, police officers in Donetsk oblast seized a tin of 7.62 mm rifle cartridges from a 48-year-old resident of Avdiivka who was trying to exchange it for alcohol. The individual told police that she had found the tin ‘on the street’ a month earlier, and had hidden it in her garden (NPU, 2018c; see Image 13). Seven months later, a resident of the same town informed police that he had hidden two grenades in a tree

Images 13–14 Ammunition seized from civilians in Donetsk and Dnipropetrovsk oblasts, 2017 and 2018



Source: NPU (2018c)



Source: NPU (2017)

hollow near his home. The resident explained that he had found the items and planned to ‘exchange them for food in the future’ (NPU, 2018d). Buried caches of ammunition from World War II are another source of discarded and abandoned ammunition. These items, which are often unearthed by the so-called ‘black diggers’, are popular collector’s items in Ukraine and other countries (see p. 30).

In some areas, loose ammunition is so commonplace that civilians become dangerously complacent about the threat posed by these items. This complacency was on full display during an encounter between police and a resident of Apostolove—a city in Dnipropetrovsk oblast. While walking through a park, the police officers noticed a group of residents violating a prohibition on drinking beer in public places. The officers asked the group whether they had any prohibited items. One of the residents replied affirmatively and handed the officers an RGD-5 grenade with a fuse. When they asked where he had acquired the weapon, the resident said he had found it in a nearby park, adding that he was planning to take it to the police station ‘after he finished his beer’ (NPU, 2017; see Image 14).

The widespread proliferation of ammunition in Ukraine—and the resulting desensitization of citizens to its dangers—helps to explain the large number of civilian deaths and injuries from unexploded ordnance. In 2017, explosive remnants of war killed or injured 231 civilians, including 38 children (ICBL, 2018).⁴⁹ Through daily seizures of illicit ammunition, Ukrainian authorities have removed tens of thousands of grenades, rockets, and other munitions from circulation, but the sheer volume of loose weapons continues to dwarf enforcement efforts, with deadly consequences for Ukrainian citizens.

Modes of transport and smuggling techniques

Ammunition traffickers in Ukraine use a wide array of modes of transport and smuggling techniques. This section provides a brief overview of these practices.

According to SBU officials, most of the weapons trafficked from the ATO/JFO area are smuggled in land vehicles (Schroeder et al., 2019, p. 42). Accounts of seized and interdicted shipments indicate that land vehicles are also the preferred mode of transport for traffickers outside of the ATO/JFO area. The most frequently employed vehicles are cars, buses, minibuses, and taxis, but illicit ammunition is also transported via metro and rail, and even by scooter.

In most of the cases reviewed by the Survey, the ammunition was not well concealed. Authorities found firearms cartridges and grenades behind or under car seats and in the trouser and jacket pockets, bags, backpacks and luggage of the vehicles' occupants. The seizures were often small, suggesting that the items were for personal use rather than intended for sale. Many of the drivers of the searched vehicles claimed they had found the ammunition and had forgotten that it was in their cars.

Images 15–16 RGD-5 grenades discovered by postal workers in used tin cans and a guitar, 2015



Source: NPU (2015c)



Source: DPSU (2015)

Grenades found on buses and public transport highlight the threat posed to public safety by illicitly transported ammunition. During an inspection at a checkpoint in January 2016, police officers noticed a suspicious-looking man on a bus from Pokrovsk to Dnipro. The officers searched the man's backpack and found 11 hand grenades with fuses. It is unclear whether the fuses were in the grenades when they were seized by police. Regardless, the covert transport of multiple grenades on a passenger bus is a poignant reminder of how large quantities of illicit ammunition circulating in Ukraine endanger its citizens in numerous ways (NPU, 2016a).

Ammunition is also trafficked via the various private and semi-public postal services operating in Ukraine. Most of the cases reviewed by the Survey involved the mailing of small quantities of ammunition from Donetsk or Luhansk oblasts to other regions of Ukraine. The items are often 'souvenirs' collected by soldiers or visitors to the ATO/JFO area and mailed to their home addresses. Many of the mailed items are placed directly in bags or boxes; others are concealed in household items.

In 2015, employees of a private postal service found three RGD-5 grenades and a bayonet in a guitar (NPU, 2015c; see Image 15). That same year, a service dog inspecting the contents of a postal truck detected a package containing an F-1 grenade, two RGD-5 grenades, and 50 rounds of 7.62 mm ammunition. The items were hidden in used tin cans (DPSU, 2015; see Image 16).

In May 2017, Ukrainian authorities dismantled a multi-regional trafficking organization that shipped arms and ammunition from the ATO/JFO area via unidentified postal services companies. Authorities seized two RPG-26 rockets, 12 hand grenades, and almost 1,000 rounds of different calibres from the traffickers, along with 18 converted firearms, three rifles, blocks of trinitrotoluene (TNT), and two silencers (SBU, 2017e). More recently, investigators discovered a police officer using postal services to illegally ship 650 rounds of firearms ammunition to clients he found on the internet. The officer told postal service employees that the shipments contained ‘auto parts’ (DBR, 2020a).⁵⁰

Ukrainian authorities also occasionally detect and seize ammunition from passengers on commercial airliners, a surprisingly common mode of transport for arms traffickers worldwide. US authorities have arrested several international traffickers who relied primarily or exclusively on airline flights to deliver arms to their clients. Most of this trafficking involves firearms parts, but authorities have also found ammunition in the luggage and carry-on items of traffickers.⁵¹ In Ukraine, the use of airlines by traffickers appears to be minimal. Among the cases studied by the Survey, only a handful of seizures took place at airports: an RPG-26 rocket launcher seized from a passenger bound for Turkey (see description below), and an RGD-5 grenade found in hand luggage at Kyiv airport (Zhuliany) (NPU, 2015d).

Cross-border trafficking

Illicit ammunition trafficked into and out of Ukraine

As noted above, the prevailing assumption in some media outlets and government press rooms is that arms traffickers are smuggling large stocks of illicit arms and ammunition in Ukraine to criminals in other countries. This assumption is reinforced by high-profile reports of thwarted trafficking schemes, such as Moutaux’s ill-fated smuggling attempt,⁵² and alleged upticks in cross-border trafficking to neighbouring states.⁵³

To assess these claims, the Survey reviewed publicly available data on illicit cross-border arms transfers, requested additional data from border authorities, and interviewed officials from governments and intergovernmental organizations throughout Europe. The data contains little evidence of large-scale arms trafficking to (or through) neighbouring states, or to other European countries.

Table 7 Quantity of ammunition seized at the Ukrainian state border, 2016–19

Category	Location	2016	2017	2018	2019
Grenades	Inbound	6	6	3	1
	Outbound	27	22	20	25
	Total	33	28	23	26
Grenade fuses	Inbound	2	1	3	–
	Outbound	11	4	17	14
	Total	13	5	20	14
Cartridges for gas weapons	Inbound	404	33	29	356
	Outbound	132	42	315	137
	Total	536	75	344	493
Cartridges for firearms	Inbound	1741	1789	650	1745
	Outbound	1769	1815	4469	545
	Total	3510	3604	5119	2290
Cartridges for hunting weapons	Inbound	1024	1034	661	2267
	Outbound	494	677	1169	330
	Total	1518	1711	1830	2597
Primers	Inbound	1146	2999	–	–
	Outbound	174	885	500	–
	Total	1320	3884	500	–
Signal and light devices	Inbound	332	368	85	68
	Outbound	14	55	24	376
	Total	346	423	109	444
Other ammunition	Inbound	44	700	2096	1
	Outbound	1036	108	236	150
	Total	1080	808	2332	151

Source: Data provided by the DPSU on 22 July 2020 in response to a request under the Law of Ukraine ‘On Access to Public Information’ submitted by the Survey on 16 July 2020.

Data on border seizures obtained from the DPSU indicates that authorities seized between 5,400 and 7,300 rounds of ammunition per year from 2016 to 2019. These figures include firearms ammunition, cartridges for unidentified ‘hunting weapons’, ammunition for gas weapons, and grenades. If signalling devices and items categorized as ‘other’ ammunition are included, the total for 2019 increases to 6,001 rounds. These figures are surprisingly small, especially since they include both inbound and outbound shipments (see Table 7).⁵⁴ The small number of seized grenades is particularly notable. Border guards confiscated a total of 94 grenades from outbound traffic from 2016 to 2019—an average of just 23.5 grenades per year.

The DPSU’s annual report disaggregates seizures by location and includes ammunition seized along the demarcation line between the conflict zone and the rest of Ukraine. The report reveals that the quantity of ammunition seized at the demarcation line is far greater than the quantity interdicted at international borders—further evidence that internal illicit flows are significantly larger than external flows (see Table 8).

It is worth reiterating that seizures reflect only unsuccessful trafficking attempts and therefore represent an unknown (and unknowable) percentage of all illicit shipments. Furthermore, data from national border control agencies frequently does not include all seizures by the state in question, let alone all cross-border seizures, which are usually conducted by agencies in both the source and destination states.

Table 8 Ammunition seized by the DPSU, 2016–19

	2016	2017	2018	2019
Belarus	277	254	3,200	288
Hungary	1,781	4,600	1,200	2,100
Moldova	2,074	1,300	737	456
Poland	655	598	678	225
Romania	74	330	206	62
Russia	2,021	1,500	562	808
Slovakia	100	40	79	49
Air	106	73	87	38
Sea	1,276	1,900	1,600	1,700
JFO demarcation line	51,967	8,300	14,100	3,300
Administrative border with Crimea	157	462	157	15

Source: DPSU (2017; 2018a; 2019a; 2020a)

To get a better sense of the actual scale of international ammunition trafficking to and from Ukraine, along with the nature of this trafficking, the Survey analysed data and information from several additional sources. These sources include aggregate data on border seizures compiled by neighbouring states; summaries of individual seizures published by the DPSU, other Ukrainian government agencies, and their counterparts in neighbouring states; and interviews with regional experts. The results of this analysis are presented below.

The number of ammunition seizures reported by authorities in neighbouring states is comparable to the number of Ukrainian seizures, suggesting that the low quantities reported by the DPSU are not the result of data gaps or weak border controls. In 2019, the Romanian Border Police seized just 3,561 cartridges (Romanian Border Police, 2020). This figure reflects seizures nationwide, and the percentage of ammunition seized at

Table 9 Arms and ammunition seized at international borders by Hungarian authorities, from 2015 to July 2020

Number of cases	Inbound, outbound, or transit	Items (as described by Hungarian officials)
4	Inbound	A single round found in passengers' bags or, in one case, among the loose change lying about in the car. One of the rounds looks like a 7.62 × 39 [mm] round. The rest were handgun rounds.
3	Inbound	Gas/signal pistols and their 'ammunition' (no military significance)
3	Inbound	Air guns (no military relevance)
1	Inbound	13,123 pieces of used ammunition casings (probably for shotguns)
1	Transit	165 pieces of firearms ammunition, all rimfire calibres (non-military), [in transit] from Austria to Ukraine
1	Inbound	2 pieces of 9M111 Fagot missile launcher components
1	Inbound	4 pieces of shotgun shells (12 gauge)
1	Inbound	Smokeless powder (Czech brand)
1	Inbound	29 pieces of 22LR rounds (non-military), rimfire round for hunting small game
1	Inbound	One 'BB gun' (6 mm Flobert). Found in the car of an Italian man travelling with his wife and kids from Ukraine.

Source: Author correspondence with an official from the Hungarian arms trade licensing authority (the Government Office of the Capital City Budapest)

the Ukrainian–Romanian border is unclear. Nevertheless, even if most of the ammunition was seized at the border with Ukraine, the quantities would still be small and roughly consistent with the data from Ukraine. Seizures by border police in Hungary, Moldova, and Poland were comparable in scale.⁵⁵

Additional data obtained from Hungarian, Moldovan, and Polish authorities shows the types of arms and ammunition interdicted in neighbouring states. In Hungary, most of the seized ammunition was either expended, pneumatic, or blank (see Table 9). The most notable seizure was of 165 rimfire cartridges, which is surprising given the large quantity of centrefire cartridges of various calibres circulating in Ukraine.

Data on seizures from Moldovan authorities reveals similar trafficking patterns on the southern border. In 2019, the Moldovan Customs Service documented six cases of attempted cross-border arms trafficking from Ukraine to Moldova, four of which included ammunition:

- one 9 mm P.A.K. ‘Ekol Volga’ pistol (EVL-12120727 Grizzly) and five cartridges;
- one EKOL FIRAT COMPACT 9 mm P.A.K. pistol, two cartridges, one flashlight with [an] electric shock device;
- cartridges for pneumatic weapons (1099 pieces); and
- one pneumatic weapon with [. . .] projectiles.

Notably, all of the seized rounds were for pneumatic weapons that were found in personal automobiles.⁵⁶

The Survey also reviewed written summaries of individual seizures of ammunition published by Ukrainian and foreign border control agencies. The summaries reveal not only the size and composition of the seizures, but also the modes of transport, concealment methods, and smuggling techniques used by traffickers. These summaries support the hypothesis that the amount of cross-border trafficking of ammunition into and out of Ukraine is much smaller than commonly assumed.

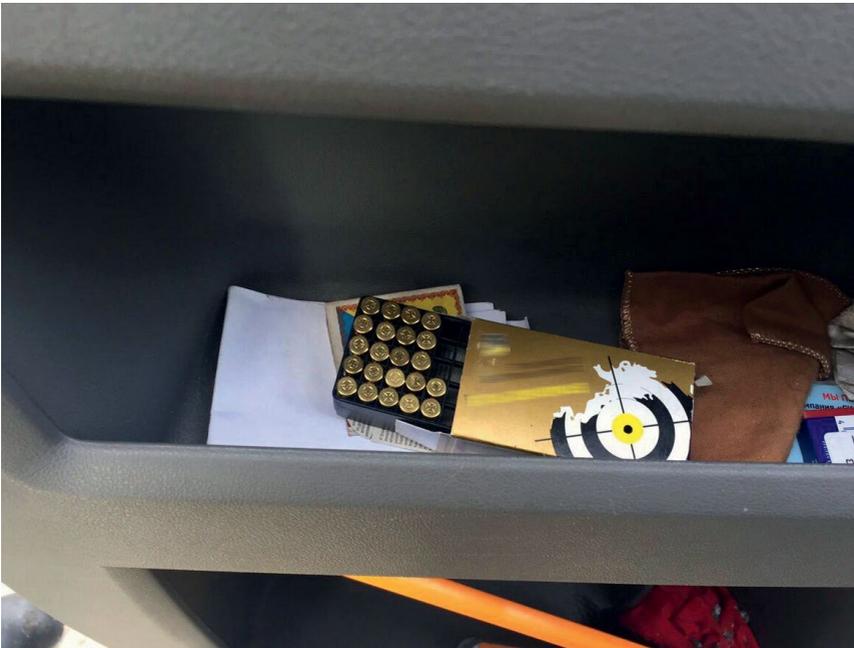
Modes of transport and smuggling techniques

The summaries reveal that Ukrainian authorities have found illicit shipments of ammunition in every major mode of transport, including land transport (such as cars, buses, trains,⁵⁷ and trucks); air transport (commercial airliners); maritime transport (cargo ships); and post (postal and fast parcel services). Small quantities of cartridges for firearms and pneumatic weapons accounted for the majority of items seized. In most of these cases, the seized items were unconcealed—or poorly concealed—under seats or in door pockets, arm rests, trunks, glove boxes, and ashtrays, suggesting that their transfer into or out of Ukraine was an oversight by the driver rather than a deliberate attempt to

Images 17–18 Small quantities of ammunition discovered in vehicles at international border crossings, 2016 and 2019



Source: State Border Committee of the Republic of Belarus (2019)



Source: DPSU (2016a)

evade export controls (State Border Committee of the Republic of Belarus, 2019; DPSU, 2016a; see Images 17 and 18). The only cases that did not fit this pattern were shipments of 60 7.62 mm cartridges hidden in the ‘design features of the rear bumper’ of an inbound car from Moldova; 20 rounds of pistol ammunition found behind the engine of a Belarusian-registered Renault; and 16,000 rounds of Flobert-calibre ammunition found in an Opel from Poland. The method of concealment used in the first two cases, and the quantity of ammunition found in the third case, suggests that the drivers knowingly attempted to smuggle these items (Shumska and Schroeder, 2020).

Authorities also seized a small number of hand grenades and RPG series launch tubes in vehicles entering and leaving Ukraine. Most of these items were either less-lethal (smoke and flashbang grenades), inert, or expended. Ironically, the only lethal ammunition identified by the Survey were three F-1 hand grenades that were smuggled *into* Ukraine in 2014. According to Ukrainian court documents, a trafficker based in Italy gave a washing powder carton containing the grenades, along with USD 1,000 in cash, to the driver of a minibus travelling from Italy to Ukraine. After successfully completing customs control procedures at a border crossing in Hungary, the driver entered Ukraine and phoned the intended recipient. A couple of hours later, the driver delivered the grenades to another individual—supposedly an intermediary—who was stopped by the police shortly after the exchange. It is not clear why the grenades were smuggled into Ukraine given the large quantities of F-1s available locally (Uzhhorod City District Court in Zakarpattia Oblast, 2015).

Ukrainian authorities also found illicit shipments of ammunition on maritime vessels, mostly inside automobiles. More than 1,500 rounds of ammunition were found in cars shipped from the United States to ports in Odesa oblast in 2019. These seizures account for nearly 90 per cent of the 1,700 rounds of ammunition seized at seaports that year. According to the DPSU, Ukrainians bought the cars at auctions in the United States (DPSU, 2020b). This is noteworthy because concealing arms and ammunition in shipped cars obtained at auctions is a well-known tactic of US-based traffickers.⁵⁸ To keep costs down, the cars are often pre-owned and in poor condition. Marginal costs are reduced further by smuggling large quantities of arms and ammunition in each car (Schroeder, 2016, p. 11).

However, few, if any, of the shipments of ammunition to Ukraine fit the profile of a typical US trafficking operation. The quantities of smuggled ammunition were often very small, and the items were often poorly concealed. Most of the seizures summarized in DPSU press releases consisted of less than 100 rounds, and the seized ammunition was usually found loose or partially packaged on the floor, in the trunk, or in the side pocket of the automobile. In contrast, items smuggled in cars as part of US trafficking schemes are usually well-hidden in the vehicle’s door frames, subsystems, or seats (Schroeder, 2016, p. 10). Furthermore, several of the cars inspected at Ukrainian seaports were recent models or luxury brands—not the types of cars typically used for

trafficking purposes (see Images 19 and 20). In the summary of a seizure in May 2020, the DPSU explicitly acknowledged the likelihood that the 75 rounds of confiscated ammunition were accidentally transferred with the automobile. ‘Most likely’, notes the DPSU, ‘the previous owner just forgot about them, as well as a bunch of other junk in the car’ (DPSU, 2020c).

A former US export control official interviewed by the Survey agreed that the smallest shipments were probably accidents. ‘If the quantities [of seized ammunition] are small, the rounds were probably forgotten in the car by the former owner’, observed the official, ‘especially if the car is in working order.’⁵⁹ The official noted that, when the quantity of seized ammunition is larger than a couple of dozen rounds, the intent of the parties involved becomes less clear. While traffickers are unlikely to ship a car intercontinentally for the sole purpose of trafficking a few hundred rounds of ammunition, the cartridges may have been part of a ‘double deal’ with the car. ‘Most people don’t think of themselves only as arms traffickers or only used car dealers,’ the official noted. ‘They do not limit themselves to a single commodity.’⁶⁰ Some sellers will take advantage of the chance to make extra money by including a few boxes of ammunition with an exported automobile. Whether the sellers in the cases studied by the Survey intended to illicitly export ammunition to Ukraine is unclear. What is clear is that the quantity of illicit ammunition seized at maritime ports in Ukraine is small.

Images 19–20 Ammunition found in the glove compartment of a BMW shipped in a maritime vessel from Turkey, 2018



Source: DPSU (2018c)

Authorities have also seized ammunition from passengers on international airline flights, although such incidents appear to be infrequent and to involve only small quantities of ammunition. As noted in Table 8, only 38 rounds of ammunition were seized at airports in 2019—by far the lowest total for any mode of transport. Customs agents also seized an RPG-26 launch tube from a Turkish citizen as he was about to board a flight to Turkey, but the operational status of the tube was unclear. It was reportedly found unconcealed in the personal belongings of the passenger, who was also carrying what appeared to be an old military radio (SFS, 2017). While it is possible that the tube contained a rocket at the time of seizure, the more likely explanation is that it was expended.

Existing evidence suggests that most weapons illicitly imported into Ukraine are delivered via postal services and freight forwarding companies. In 2019, a representative of the SBU told the Survey that illicitly imported weapons come primarily from the United States and the EU, and are typically shipped via post. Most of the trafficked items are firearms components; interdiction of fully assembled weapons are rare, and even shipments of components are relatively infrequent. ‘We see dozens of shipments [each year], not thousands,’ noted the representative.⁶¹ While the official did not discuss international trafficking of ammunition specifically, existing evidence suggests that foreign traffickers do not typically use postal services and freight forwarders to smuggle ammunition into Ukraine.

The Survey did, however, identify one significant case of ammunition trafficking via post. A Minneapolis-based trafficker mailed thousands of projectiles and complete rounds of ammunition to Ukraine during a ten-week period from February to May 2011. The trafficker first caught the attention of US investigators when customs officers in Chicago discovered 2,600 rounds in two packages, addressed to a recipient in Ukraine. The contents of the packages were falsely described as ‘plastic stock’ and ‘hunting metal tools’.⁶² More packages followed. The investigators notified the trafficker of the first seizure and explained the need for an export licence to send ammunition to Ukraine. The trafficker informed them that the seized items were marksmanship competition-grade cartridges intended for a Ukrainian friend who was unable to purchase such ammunition himself. He also promised not to send similar items to Ukraine in the future. Despite this promise, authorities intercepted another package of ammunition from the trafficker a month later (US District Court of Minnesota, n.d.; US DoJ, 2013a).

Some of the trafficking networks that supplied Ukraine recruited US-based co-conspirators to assist with procurement. In the United States, it is possible to order firearms parts, accessories, and ammunition online without a background check as long as the delivery address is domestic (foreign orders require an export licence). Consequently, trafficking networks often pay individuals with US addresses to order controlled items, repackage them, and ship them either to foreign addressees or to a US-based freight forwarder for onward distribution to Ukraine and other locations. The members of one such network

acquired at least 83 high-end night vision rifle scopes and thermal imaging devices from online retailers and exported—or attempted to export—them to Ukraine. Some of the items, which US authorities described as ‘the most highly powerful and technologically sophisticated night vision rifle scopes and thermal imaging equipment available’, cost as much as USD 9,000 per item (US DoJ, 2017; n.d., p. 8).

As noted above, most of the cases of trafficking via post and freight forwarders identified by the Survey involved firearms parts and accessories rather than ammunition. A former US export control officer offered one possible explanation for this tendency: whereas US firearms parts and accessories are sometimes considered to be higher quality than locally available makes and models, most types of Ukrainian and foreign ammunition are viewed as roughly comparable. Traffickers therefore tend to avoid the risk and cost of attempting to illicitly import ammunition. While there are some exceptions—such as the competition-grade ammunition referenced above—generally speaking, ‘ammunition is cheaper in other places, and is just as good, just as functional as [US-sourced] ammunition’.⁶³

Ukrainian postal authorities have also seized outbound shipments of ammunition. Publicly available data on the frequency and size of these shipments is scant, but anecdotal information suggests that they are relatively infrequent and consist primarily of collector’s items. During an interview with the Survey, representatives of postal service Ukrposhta referenced three shipments, all of which were of World War II era munitions: an artillery shell identified by the sender as a ‘vase’, a landmine falsely listed in shipping documentation as an oil filter for a car, and a ‘mortar mine’ found in a package on an outbound Air France flight.⁶⁴ ●

“Items that are seldom found outside of government inventories in other European countries are seized on a daily basis in Ukraine.”

III. Implications

As explained above, vast quantities of illicit ammunition have proliferated widely in Ukraine. Items that are seldom found outside of government inventories in other European countries are seized on a daily basis in Ukraine. The vast majority of ammunition reviewed for this study was decades-old Soviet materiel that was produced in large quantities and widely exported, including to Ukraine. The makes and models of many of these items are in Ukrainian government inventories, including government facilities seized by the Russian Federation and pro-Russian militants in 2014. The recent seizure of grenades and RPG series rockets with lot numbers corresponding to items directly linked to facilities in the ATO/JFO area and Crimea strongly suggests that the looted ammunition is still circulating in Ukraine, including amongst pro-Russia militants and other criminal elements.

This data underscores the lingering threat from massive, ageing stockpiles of Soviet-era munitions in former Warsaw Pact countries. The millions of tons of arms and ammunition exported by the Soviets to Warsaw Pact countries and their allies in other regions still pose an acute threat to the importing states. Thousands of these items were looted from Ukrainian military facilities in Donetsk, Luhansk, and Crimea in 2014, and they continue to fuel crime and violence throughout the country.

Ukraine's experience is not unique. Similar mass proliferation events in Albania, Bosnia and Herzegovina, and countries in other regions have contributed to violence and instability in the affected countries and undermined regional and international security.⁶⁵ Averting future catastrophes requires a renewed, multilateral commitment not only to right-sizing stockpiles and preventing excessive accumulation of ammunition, but also to establishing robust controls on the transport, storage, and disposal of ammunition throughout its lifecycle. These challenging endeavours are likely to become even more difficult as the global economic downturn caused by the Covid-19 pandemic empties government coffers and shrinks foreign aid budgets.

The illicit proliferation of ammunition in Ukraine also highlights the extreme difficulty of recovering arms and ammunition lost during mass proliferation events, and armed conflict more generally. Ukrainian authorities have seized thousands of arms caches and have implemented extensive control measures aimed at reducing arms trafficking from the ATO/JFO area. Yet, despite these efforts, large quantities of hand grenades, RPG series rockets, firearms cartridges, and other ammunition remain scattered throughout Ukraine, as evidenced by recent, sometimes large, seizures of these items in every oblast. Even if the Ukrainian government were able to prevent all future diversion of ammunition from government and private stocks, identifying and eliminating all existing caches of illicit munitions would take years of sustained effort.

The data and information reviewed by the Survey also shed light on key tactical and operational issues, such as the importance of canine inspections to Ukraine's counter-trafficking efforts. Most of the thwarted cross-border shipments of ammunition reviewed by the Survey were detected by canine units. While recent data on ammunition detected

by these units is not available, statistics published by Ukrainian authorities in previous years hint at their importance. In May 2016, the DPSU reported that, ‘Since the beginning of the year, canine inspectors with the help of service dogs have detained 112 offenders, found 91 weapons and almost 2.5 thousand ammunition’ (DPSU, 2016c).

As part of a multi-year, multinational initiative led by the Organization for Security and Co-operation in Europe (OSCE), Ukrainian authorities are strengthening and expanding their border controls, including their canine assistance programme.

A central goal of this initiative is to reduce the illicit trade of weapons and ammunition within and across Ukraine’s borders through increased training, procurement of additional equipment, and improved interagency cooperation and coordination (OSCE, 2020; SFS in Khmelnytskyi Oblast, 2018). These efforts will help to ensure that border control and law enforcement personnel have access to essential resources. Whether these resources are sufficient to reduce the illicit flow of ammunition within Ukraine and prevent its transport to criminals in other countries remains to be seen.

Perhaps the most intriguing—and confounding—issue highlighted by the data is the apparent disconnect between the large quantity of illicit ammunition circulating in Ukraine and the frequency and size of interdicted cross-border shipments. These shipments are miniscule, particularly compared with seizures in other countries with active armed conflicts, or criminal violence that is similar in scale to armed conflict. To put Ukraine’s cross-border seizures into perspective, a single inbound seizure of illicit ammunition by Mexican authorities in June 2020 was five times larger than the total number of rounds reportedly seized along the entire Ukrainian border in all of 2019.⁶⁶

There are several possible explanations for the small number of interdicted ammunition transfers. A law enforcement official from Hungary gave two reasons for the near-absence of cross-border arms trafficking between his country and Ukraine: geography and strong border controls. ‘The border is a Schengen border (and [a] short one), not the easiest to use for such affairs,’ explained the official. ‘Also, there are many reported cases of fuel and cigarettes smuggling from Ukraine, so [there are] lots of police and customs patrols.’⁶⁷

While this explanation may make sense in the case of Hungary, it does not explain why there is so little trafficking across Ukraine’s other international borders, or why there are so few reported seizures of Ukrainian arms and ammunition elsewhere in

“Efforts to secure Ukraine’s borders and dismantle trafficking networks undoubtedly deter and disrupt some—perhaps most—cross-border arms trafficking.”

Europe. Efforts to secure Ukraine's borders and dismantle trafficking networks undoubtedly deter and disrupt some—perhaps most—cross-border arms trafficking, but even the most robust controls cannot completely seal a border as long and as busy as Ukraine's. In 2019 alone, more than 17 million vehicles crossed into or out of the country. Given the ease with which ammunition can be concealed within automobiles, along with the impracticality of thoroughly inspecting every vehicle that enters and leaves Ukraine, the ability of Ukrainian authorities to detect and interdict smuggled ammunition is inherently limited.

Another possible explanation is that the number of interdicted ammunition shipments is low not because traffickers are deterred from illegally exporting ammunition, but because border controls are weak—that is, most of their attempts are successful and thus are unrecorded by law enforcement agencies. This explanation seems unlikely given the large quantities of other contraband detected and seized by border guards. In 2019 alone, the DPSU seized more than 70,000 litres of alcohol and 17 million packs of cigarettes (DPSU, 2020a). Seizures of cigarettes by their Romanian counterparts were roughly comparable in scale, totalling 4.6 million packs that year. This figure includes a single illicit shipment of 414,500 packs interdicted at the Halmeu Border Crossing Point with Ukraine on 2 February 2019 (Romanian Border Police, 2020). The Survey was unable to find any records of ammunition seizures that were even remotely comparable in size on either side of the Ukrainian border.

There is also little evidence of trafficking of Ukrainian ammunition to other parts of Europe. As an indicator of the availability of Ukrainian-sourced light weapons in Western Europe, the Survey collected information on grenades seized in three countries in the region. The data reveals that few, if any, of the seized grenades are models typically found in Ukraine. The grenades most frequently seized by authorities in the Netherlands, for example, are Yugoslav M52 and M75 grenades smuggled from the Balkans, not the Soviet models found in Ukraine (Europol, 2018, p. 3). The same is true for Sweden, which has experienced an alarming uptick in grenade attacks in recent years. An official from the Swedish National Police told the Survey that 'the vast majority of grenades [in Sweden] are Yugoslav models sourced from the Balkans'. When asked whether Swedish authorities have encountered any of the models circulating in Ukraine, the official replied: 'We have [s]eized F1s, but only very few. They are only 2 percent of all seized grenades since 2015. We haven't documented any RGD-5s, RGNs or RGOs.'⁶⁸ F-1 pattern grenades have proliferated widely, so the F-1s seized in Sweden could have come from a number of different countries. However, even if they all came from Ukraine, F-1s would still only account for a tiny fraction of the grenades seized in Sweden. A law enforcement official from a third Western European country indicated that the illicit grenades most frequently documented by his agency are Yugoslavian M75s, M91s, and M52s, along with the occasional American MK2.⁶⁹ None of these models are commonly found in Ukraine.

A more likely explanation is that traffickers incur less risk and make more money from smuggling other types of contraband. Whereas trafficking in weapons and ammunition in Ukraine is a criminal offence punishable by three to seven years in prison,⁷⁰ individuals caught smuggling alcohol, cigarettes, and other frequently seized commodities only receive fines.⁷¹ In some cases, the fines are hefty (twice the cost of the goods and confiscation of the smuggling vehicle),⁷² but the financial rewards are often greater than the risk. For example, in 2017, the cost of a packet of cigarettes was less than USD 2 in Ukraine but roughly USD 4.5 in Poland, USD 8 in Germany, and more than USD 14 in the United Kingdom (Numbeo, n.d.).

Whatever the reasons for the low number of ammunition seizures, a change in market dynamics could result in a sudden influx of Ukrainian weapons into regional and international black markets, with potentially dire consequences for the affected region. Even if trafficking attempts do not increase significantly, loose ammunition still poses a significant threat to Ukraine's neighbours, and to Europe as a whole. A single successful trafficking scheme could radically alter the profile of illicit weapons in some countries. From 2013 to 2017, UK authorities seized just 40 grenades⁷³—less than the number of grenades found in the typical mid-sized cache in Ukraine. It is not hard to conceive of a scenario in which a crate of grenades is successfully smuggled into one of the EU member states bordering Ukraine and, from there, to the United Kingdom, France, or elsewhere in Europe. This possibility is particularly worrisome in places such as Sweden, where illicit use of grenades is already a part of the modus operandi of criminal groups. The introduction of RPG series launchers, anti-personnel mines, or other munitions that have widely proliferated in Ukraine but that are rarely encountered in other European states could also have significant short- and long-term effects on armed violence in these countries. Preventing these scenarios will require a coordinated, sustained effort by law enforcement agencies, international institutions, and donor states for many years to come. ●

Endnotes

- 1 The geographical area affected by conflict in eastern Ukraine is sometimes referred to as the Anti-Terrorist Operation (ATO) zone or Joint Forces Operation (JFO) area. The ATO zone is ‘the territory of anti-terrorist operation in the territory of Ukraine, encompassing settlements identified by the list approved by the Cabinet of Ministers of Ukraine, where the anti-terrorist operation was launched in accordance with the Decree of the President of Ukraine “On the decision of the National Security and Defense Council of Ukraine as of April 13, 2014 ‘On Urgent Measures to Overcome the Terrorist Threat and Preserve the Territorial Integrity of Ukraine”’ as of April 14, 2014, No. 405/2014’ (Verkhovna Rada of Ukraine, 2014). The Ukrainian government announced the completion of the ATO in April 2018 and replaced it with the JFO.
- 2 Statements made by Ukrainian authorities indicate that they closely tracked the activities of Moutaux during the early stages of the plot. A Security Service of Ukraine (SBU) spokesperson told the *Guardian* that ‘we documented every one of [Moutaux’s] acts and movements’ during the six-month operation that culminated in his arrest in May 2016. See Willsher (2016).
- 3 In 2017 Europol warned that ‘the availability of explosives in current and former conflict areas such as the Western Balkans and Ukraine [. . .] present a significant threat’ (Europol, 2017, p. 15). See also Council of the EU (2018) and Europol (2015, p. 7; 2016, p. 8).
- 4 In March 2020, owing to organizational changes, the Ministry for Temporarily Occupied Territories and Internally Displaced Persons was renamed the Ministry for Reintegration of Temporarily Occupied Territories (Cabinet of Ministers of Ukraine, 2020).
- 5 See Schroeder, Florquin, Hideg, and Shumska (2019) (hereafter ‘Schroeder et al. (2019)’).
- 6 See UNGA (2005, para. 4).
- 7 Flobert guns were initially developed for indoor shooting, but some models can be converted to fire more lethal ammunition. For more information on converted firearms, see Florquin and King (2018).
- 8 See UNGA (2005, para. 4).
- 9 This definition is consistent with that of the Ukrainian government, which includes ‘cartridges; grenades; mines; artillery ammunition and ammunition for grenade-launchers; self-made explosive devices; fuses; industrial detonators; detonator (Bickford) cords; charges for explosive materials for industrial purposes; [and] explosive substances’ (PGO, 2016, annexes 5 and 10).
- 10 See Berman and Leff (2008, pp. 8–11).

- 11 See Schroeder (2014, p. 246).
- 12 Because of travel restrictions resulting from the Covid-19 pandemic, all of the interviews conducted in 2020 were carried out online or by phone.
- 13 The German Federal Foreign Office supported the development of the database.
- 14 In recent years, the Ukrainian government has increasingly redacted (pixelated or blurred) the markings on ammunition in photos of seized caches. The resulting decrease in transparency has reduced the quantity and quality of publicly available data on seized weapons.
- 15 Firearms ammunition tins were selected as the unit of analysis because their markings convey detailed information about their contents, including the producer, country of origin, manufacture date, and lot number. Publicly available information on loose ammunition and ammunition in other packaging, including the most frequently used civilian calibres, is significantly less detailed as the markings are often not visible in photographs of seized items.
- 16 Some of the tins studied were seized in the city of Kyiv, which is a separate municipal entity. Data on seizures in the Autonomous Republic of Crimea is generally not available.
- 17 Tins seized in Donetsk and Luhansk oblasts accounted for approximately half of all of the tins studied.
- 18 See CSI (2019a, p. 17).
- 19 In this instance, Ukraine and Soviet Ukraine are counted as one country.
- 20 Of the 274 tins for which markings were available, the Survey was able to identify 252 by country of manufacture. The markings on the remaining 22 tins were not fully visible or legible.
- 21 The tin contained 9 mm cartridges produced in 2013. It was seized from Kyiv-based members of an international group of arms traffickers who illicitly produced firearms from parts imported from the EU and the United States. The other tins seized from the group were more typical—that is, Soviet ammunition produced in the 1980s (SBU, 2018).
- 22 While the markings on the RPG series rocket and grenades are not visible, they are consistent in appearance with models that have proliferated widely in Ukraine.
- 23 See, for example, Chivers (2014); Ferguson and Jenzen-Jones (2014).
- 24 Seizure summaries analysed as part of the Survey's 2019 study provide a sense of the relative frequency in which these items are encountered in illicit holdings. The data, which included seizures from January 2018 to March 2019, revealed that hand grenades and projected grenades were seized in the largest quantities, followed by mortar rounds, RPG series rockets, and recoilless rifle and RPG-7 pattern rounds. Far fewer landmines and anti-tank guided missiles (ATGMs) were seized, and there are no references to seizures of MANPADS. MANPADS and ATGMs were seized more frequently early in the conflict. While authorities continue to seize anti-tank missiles, the last reference to MANPADS in seizure summaries was in 2017 (Schroeder et al., 2019, pp. 36–37; SBU, 2017b). More recent imagery of illicit MANPADS is occasionally posted on social media, but it is often difficult to assess the authenticity of the imagery or to verify claims about the MANPADS in the images. Video footage showing members of the so-called 'Luhansk People's Republic (LNR) People's Militia Air Defence Forces' training with Russian Igla MANPADS was posted on the group's YouTube account in September 2019. While it is quite possible that militants still have access to Igla MANPADS, the Survey was unable to confirm the date and location of the video (LNR People's Militia Air Defence Forces, 2019).
- 25 An analysis of 164 operations conducted by the SBU from January 2018 to March 2019 revealed that hand grenades comprised 36 per cent of the seized light weapons and their ammunition—

- second only to projected grenades—and were seized in the most oblasts (Schroeder et al., 2019, p. 37).
- 26 Examples include, but are not limited to, RDG-55 MB and RDG-55 ChB smoke grenades (NPU, 2019c), and URG-N training grenades (NPU, 2015a). In 2018, Ukrainian officials confirmed that the vast majority of seized hand grenades are F-1 and RGD-5s and that the rest are primarily RGN and RGO grenades. They also confirmed that Soviet-produced grenades account for the majority of illicit hand grenades in Ukraine. Interview with an SBU representative, Kyiv city, 11 December 2018.
 - 27 See, for example, NPU (2019d) and NPU (2019e).
 - 28 The seizure summaries studied by the Survey also included a reference to an RShG-1 reportedly manufactured in 2013. The Survey was unable to confirm this claim as the photos of the weapon do not show the markings. See NPU (2014).
 - 29 Note that the Ukrainian government categorizes RPG series shoulder-fired rockets as ‘grenade launchers’.
 - 30 On 29 April 2020, the PGO reported the seizure of a large arsenal of weapons in eastern Ukraine from the territory of a former city club and children’s camp (PGO, 2020). The report provided no information regarding the source or owners of the arsenal, thus sparking a controversy. Dmytro Yarosh, who heads the Ukrainian Volunteer Army, the military wing of the DIYa (which is also led by Yarosh), claimed that the seized weapons and ammunition belonged to the Ukrainian Volunteer Army and were stored at its former base in Dnipropetrovsk oblast. Yarosh accused the Ukrainian government of an attempt to libel volunteer battalions, underscoring that the Ukrainian Volunteer Army officially transferred those weapons to the Ukrainian Armed Forces in February–March 2020 (Yarosh, 2020). Several civil society representatives sided with Yarosh (see, for example, Butusov, 2020). On 30 April 2020, the Ukrainian government published a restrained and somewhat opaque response on the JFO Facebook page. It mentioned that ‘efforts to establish the origins of weapons and equipment were ongoing’ and called upon all parties to refrain from spreading rumours and distorting facts (Joint Forces Operation, 2020).
 - 31 The Ukrainian military eliminated this model of mine from its arsenals in 2012 (SBU, 2017c).
 - 32 See, for example, SBU (2017f).
 - 33 The term ‘black diggers’ is a reference to individuals who locate, unearth, and restore weapons from legacy caches, mostly from World War II.
 - 34 For a recent example of illicit acquisition and sales of ammunition by former members of the volunteer battalions, see SBU (2018).
 - 35 See, for example, Censor.net (2014a).
 - 36 See Censor.net (2015); Grove (2014); Jenzen-Jones and Smallwood (2014); SBU (2017b); Schroeder et al. (2019, p. 51); Ukrainian MFA (2014).
 - 37 See, for example, SBU (2017c; 2017d). Ukrainian authorities reportedly found Russian military paraphernalia in some of these caches, further strengthening their claims that the weapons were provided by the Russian state. Examples include packaging for Russian military meal rations (SBU, 2017h), Russian paratrooper gear (SBU, 2017a), and Russian customs service tags (Censor.net, 2014b).
 - 38 As of 2016, Ukrainian authorities had only recovered 4,000 of the looted weapons. See Martyniuk (2017, p. 4).
 - 39 According to Ukrainian authorities, ammunition production equipment was also looted after pro-Russian militants seized Luhansk Cartridge Plant in 2014. The equipment was reportedly shipped to Russia or stolen. See Ukrainian MoD (2018).

- 40 The crates contained 88 AK-74 rifles, 5 RPK-74 machine guns, 3 PKM machine guns, 24 RPG-22 rockets, 918 RGD grenades, and 20,880 rounds of ammunition. See SBU (2014a); Stek (2018).
- 41 In 2018, the head of the NPU listed several dozen weapons seized in the ATO/JFO area that Ukrainian authorities had traced to the looted military facilities in Crimea. The traced weapons included 51 sub-machine guns, 15 pistols, 2 grenade launchers, and 1 carbine (Ukrainian MIA, 2018b). See also NPU (2020b).
- 42 See, for example, SBU (2014b).
- 43 See, for example, SBU (2015).
- 44 See, for example, NPU (2015b).
- 45 See, for example, NPU (2018b).
- 46 Interview with an official from the Ukrainian Ministry of Defence, 15 May 2019.
- 47 To its credit, the Ukrainian government publishes summaries of these seizures and the investigations that precede them, information that is rarely made public in many countries.
- 48 The NPU's summary of the incident noted 28 canisters, but 30 are visible in photos of the seized items.
- 49 See also OSCE SMM (2019, pp. 11–12)
- 50 See also DBR (2019).
- 51 See, for example, US DoJ (2018a).
- 52 See, for example, Karmanau (2016).
- 53 In September 2019, Belarusian President Alexander Lukashenko announced the closure of Belarus' border with Ukraine owing to a 'stream of weapons' flowing from Ukraine (BELTA, 2019). The DPSU denied Lukashenko's claims. In a press release dated September 2019, they noted that seizures of weapons along the border with Belarus had actually decreased by 40 per cent compared with the previous year. They also noted that only one of the seized weapons was a firearm. The rest were 'hunting, gas, pneumatic, cold and electric shock weapons' (DPSU, 2019b).
- 54 Ukrainian authorities also occasionally seize shipments of ammunition transiting through Ukraine to their destination country, although the number of such seizures appears to be small. See, for example, DPSU (2016d; 2018b).
- 55 In 2019, the Moldovan Border Police seized 3,108 cartridges. Polish border guards seized 4,229 rounds of 'live ammunition' and 190 rounds of ammunition for pneumatic weapons that year. See Moldovan Border Police (n.d.) and Polish Border Guard (2020).
- 56 Author correspondence with Moldovan authorities, 22 August 2020.
- 57 In 2016, authorities found three cardboard boxes containing 60 rounds of ammunition on a freight train heading from Druzhkivka in Donetsk oblast to Poland (DPSU, 2016b).
- 58 See Schroeder (2016).
- 59 Interview with a former US government official, 15 July 2020.
- 60 Interview with a former US government official, 15 July 2020.
- 61 Interview with a representative of the SBU, Kyiv, 16 May 2019.
- 62 Falsifying shipping documentation is a time-tested smuggling technique that is widely used by traffickers worldwide. Other US-based traffickers convicted of smuggling firearms parts, accessories, or ammunition to Ukraine falsely described their contraband as 'spare parts', 'musical equipment[s]', 'clothing', and 'tools' on shipping documents. They often understate the value of the exported items based on the assumption that less valuable shipments receive less scrutiny from postal workers, shipping agent employees, and customs agencies. A trafficker in Chicago took the extra step of concealing ammunition bound for Lviv inside a metal shoe rack (Sykhivskiy District Court in the City of Lviv, 2018).

- 63 Interview with a former US government official, 15 July 2020.
- 64 Interview with representatives of Ukrposhta, 13 December 2018.
- 65 See, for example, Carapic and Gassmann (2018).
- 66 According to Mexican authorities, the interdicted shipment contained 32,740 cartridges (Mexican National Guard 2020).
- 67 Email correspondence with a Hungarian official, 22 June 2020.
- 68 Email correspondences with an official from the Swedish Police, 16–18 September 2020.
- 69 Email correspondence with a Western European government official, 17 September 2020.
- 70 See Article 201 of the Criminal Code of Ukraine (Verkhovna Rada of Ukraine, 2001).
- 71 See Articles 483 and 511 of The Customs Code of Ukraine (Verkhovna Rada of Ukraine, 2012).
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The Small Arms Survey is a global centre of excellence whose mandate is to generate impartial, evidence-based, and policy-relevant knowledge on all aspects of small arms and armed violence. It is the principal international source of expertise, information, and analysis on small arms and armed violence issues, and acts as a resource for governments, policy-makers, researchers, and civil society. It is located in Geneva, Switzerland, and is a project of the Graduate Institute of International and Development Studies.

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