

Feeding the Fire

Illicit Small Arms Ammunition in Afghanistan, Iraq, and Somalia

Introduction

Consistent access to small arms ammunition is vital to armed conflict. As studies conducted over the past decade have pointed out, this is particularly true in conflicts involving non-state armed groups that rely on illicit small arms and light weapons as their primary tools of war. Indeed, researchers are giving the subject matter increasing attention (Greene, 2006, pp. 1–8). A detailed examination of seized or documented small arms ammunition may help to reveal the history and alliances of a conflict, while the tracing of illicit ammunition can identify manufacturers and supply routes.¹

This Issue Brief analyses small arms ammunition found in the holdings of non-state armed groups in three recent conflict zones: Afghanistan, Iraq, and Somalia. It provides an overview of the various documented calibres, the relevant supply chains, and, whenever possible, the corresponding ammunition manufacturers. The paper identifies numerous sources of illicit small arms ammunition in an effort to inform measures for reducing illicit proliferation to conflict zones and within them. Based on available data, it also evaluates the serviceability of ammunition observed in the holdings of armed groups in the three countries under review.² Its key findings include the following:

- The main calibre observed in Afghanistan, Iraq, and Somalia is the Soviet-designed 7.62 × 39 mm cartridge.³ Ammunition of this calibre is used with AK and AKM⁴ assault rifles, as well as other Kalashnikov-pattern rifles and variants produced in numerous countries.

- Most of the reviewed cartridges fall within a few standard calibres, primarily of Soviet design, along with some NATO standards. Other calibres are comparatively few in variety and quantity.
- Most of the small arms ammunition observed was manufactured in China, Iraq, the former Soviet Union, and Sudan.
- All of the observed calibres were designed and adopted before or during the cold war era. No modern calibres—ones designed and adopted during the past 30 years—were documented.
- Analysis of small arms ammunition is often limited as a result of poor documenting practices.

Methodology

The findings presented in this Issue Brief are derived from data compiled as part of the Small Arms Survey's study of illicit small arms, light weapons, and ammunition in conflict zones. An assessment of some of that data was published in the *Small Arms Survey 2012* (Schroeder and King, 2012). This paper applies a narrower focus, analysing only the data on small arms ammunition, which includes hundreds of thousands of rounds seized in Afghanistan, Iraq, and Somalia.

In addition, the paper draws heavily on open-source documents, as well as on consultations with ammunition experts, explosive ordnance disposal



An Afghan soldier displays ammunition found during a search operation in the Guzara district of Herat province, October 2009. © Fraidoon Pooyaa/AP Photo

experts, researchers, and former military personnel with relevant experience.

For the purposes of this study, the maximum calibre range for small arms ammunition was set to 14.5 mm; everything larger is to be considered ammunition for artillery and infantry support weapons. This range is consistent with the Warsaw Pact definition of small arms ammunition (MOD USSR, 1965).

Much of this paper relies on the identification of cartridges based on headstamps—the markings on case heads—in conjunction with other identifying characteristics. Headstamps usually identify the manufacturer, although they may also reveal the calibre, the year of production, and other details. Yet counterfeit headstamps,⁵ commercially available cases and other components, and the ability to reload or otherwise modify cartridges and cartridge cases all complicate the identification process. The firmest verification of the origin of ammunition in a conflict zone is provided by packaging material and associated documentation,⁶ which represent the best available evidence for identifying the cartridge manufacturer, entities that have placed the order, and possible middlemen. Although the identification of the analysed ammunition was verified whenever possible, any manufacturer or country identified in this study must thus be regarded under the provision that the information applies primarily to the case manufacturer, or to the customer who ordered the cases in question.⁷

Data

The data set on ammunition seized in Afghanistan used for this report consists of records provided by the US Army that summarize the contents of 331 caches seized in 2006, as well as records of more than 100,000 rounds of ammunition that British forces recovered from arms caches in Helmand Province from September 2007 to September 2008. In all, at least 200,000 rounds of small arms ammunition were recovered from the caches in these two data sets (Schroeder and King, 2012, pp. 330–31).

The data on ammunition seized in Iraq was compiled from records of more

than 1,100 arms caches recovered by Iraqi and Coalition authorities from January 2008 to September 2009. These records contain references to more than 500,000 rounds of illicit small arms ammunition (Schroeder and King, 2012, p. 317). Sources of the data include documents on 100 seized arms caches provided by the US Central Command, data on 74 arms caches obtained from the US military by Felter and Fishman (2008), and press releases and other documents housed in the US Defense Video & Imagery Distribution System.

Data on illicit small arms ammunition in Somalia was collected from reports submitted by the United Nations Somalia and Eritrea Monitoring Group from October 2005 to July 2011 (Schroeder and King, 2012, p. 315). These reports contain references to tens of thousands of rounds of small arms ammunition, at least some of which were transferred to Somalia after the adoption of the UN arms embargo in 1992.⁸ Almost all the information on observed headstamps in Somalia is drawn from the *Small Arms Survey 2014* (Florquin and Leff, 2014).

Limitations of the data

The country data sets used in this Issue Brief have inherent limitations. Each data set contains records of arms and ammunition collected by numerous individuals and institutions, whose reports were not necessarily produced in a rigorous or standardized manner. In many cases, insufficient data was provided. For example, instead of listing a complete designation, many records of small arms calibres simply state '7.62 mm', which could refer to calibres such as 7.62 × 25 mm, 7.62 × 39 mm, 7.62 × 54R mm, or even 7.62 × 51 mm NATO—all of which are common.

While the reports vary in their level of detail, none of them identify the manufacturer or date of manufacture. Some only refer vaguely to the recovery of 'small arms ammunition' without providing further details. Moreover, the reports contain few photographs, which are often necessary for identifying (or confirming) the specific manufacturer, model, and date of manufacture of seized ammunition. Quantities were not recorded in a standardized format; units of measurement include individual

rounds, weight, and packaging, which is often described using generic terms such as 'crates', 'boxes', 'magazines', and 'belts'. These limitations preclude accurate estimates of the quantities of specific calibres seized.

As a consequence of the inconsistencies and deficiencies of much of the data, this Issue Brief presents only verified calibres and general conclusions. In some cases, the analysis of supplemental materials, including images and video footage of captured small arms and ammunition, allowed for the provision of supporting information and more substantive findings (Military News Network, 2009). Some conclusions on calibres were made based on seized weapons for which the calibre was known.









Analysis of the data by country

Afghanistan








The illicit small arms ammunition encountered within the Afghanistan data set is a mixture of pre-1979 government stockpiles, supplies obtained from the Soviet Union or later US-led Coalition forces, new ammunition imported by the current government, and stockpiles trafficked into the country by various non-state groups. All of the ammunition listed in the Afghanistan data set originates from abroad.⁹ Since most of the data on the seized arms caches provides little information on the manufacturer, model, and manufacture date of the ammunition, it is not possible to identify which rounds date from which era. As described below, however, the observed cartridges are consistent with ammunition known to have been present in modern Afghanistan.

Ammunition listed in Table 1 presents the observed calibres as well as the corresponding manufacturers and countries of origin, if available. Manufacturers are listed only once per calibre as it was not possible to determine multiple years of production by any single manufacturer due to the lack of headstamps or other information. Images in the table are representative and were not contained within the original data.

Table 1 Small arms ammunition documented in Afghanistan

Firearm type	Calibre (mm)	Image	Headstamp	Year	Country of origin	Manufacturer	Remarks
Pistol, revolver, and sub-machine gun	5.6 x 16R	n/a	n/a	n/a	n/a	Unidentified	Not examined
	7.62 x 25	n/a	n/a	n/a	n/a	Unidentified	Not examined
	7.62 x 39R	n/a	n/a	n/a	Afghanistan	Herat workshop	Regenstreif (1983, p. 93)
	7.65 x 17SR	n/a	n/a	n/a	Czech Republic (Czechoslovakia)	Sellier & Bellot, Vlašim	Recovered by Soviet forces between 1979 and 1989 (confidential source #1)
	9 x 18		38 73	1973	Russian Federation (USSR)	Yuryuzan Mechanical Factory, Yuryuzan	Confidential source #1
	9 x 19	n/a	n/a	n/a	n/a	Unidentified	Not examined
Rifle and machine gun	5.45 x 39	n/a	60 76	1976	Kyrgyzstan (USSR)	Bishkek Machine Building Factory, Bishkek	Confidential source #1
		n/a	3 79	1979	Russian Federation (USSR)	Ulyanovsk Cartridge Factory, Ulyanovsk	Confidential source #1
			17 79	1979	Russian Federation (USSR)	Barnaul Cartridge Plant, Barnaul	Confidential source #1
			539 75	1975	Russian Federation (USSR)	Tula Cartridge Works, Tula	Confidential source #1
		n/a	270 76	1976	Ukraine (USSR)	Lugansk Cartridge Works, Lugansk	Confidential source #1
	5.56 x 45	n/a	n/a	n/a	n/a	Unidentified	Not examined
	6.5 x 55	n/a	n/a	n/a	n/a	Unidentified	Not examined
	7.62 x 39	n/a	60 70	1970	Kyrgyzstan (USSR)	Bishkek Machine Building Factory, Bishkek	Confidential source #1
			711 82	1982	Russian Federation (USSR)	Klimovsk Specialized Cartridge Plant, Klimovsk	Confidential source #1
		n/a	3 70	1970	Russian Federation (USSR)	Ulyanovsk Cartridge Factory, Ulyanovsk	Confidential source #1
		n/a	17 69	1969	Russian Federation (USSR)	Barnaul Cartridge Plant, Barnaul	Confidential source #1
		n/a	539 69	1969	Russian Federation (USSR)	Tula Cartridge Works, Tula	Confidential source #1
			270 75	1975	Ukraine (USSR)	Lugansk Cartridge Works, Lugansk	Confidential source #1
			IK 85	1985	Bosnia and Herzegovina (Yugoslavia)	Igman, Konjic	Recovered by Soviet forces between 1985 and 1989 (confidential source #1); photo © confidential source #1
			031 704	1974 (suspected)	China	Unidentified	Factory code and production year additionally encrypted with suspiciously added '0'; recovered by Soviet forces between 1979 and 1989 (confidential source #1); photo © confidential source #1
			31 76	1976	China	Unidentified	Recovered by Soviet forces between 1979 and 1989 (confidential source #1); photo © confidential source #1

Firearm type	Calibre (mm)	Image	Headstamp	Year	Country of origin	Manufacturer	Remarks
Rifle and machine gun	7.62 x 39		61 64	1964	China	Unidentified	Recovered by Soviet forces between 1979 and 1989 (confidential source #1); photo © confidential source #1
		n/a	71 80	1980	China	Chongqing Changjiang Electrical Group, Yueqing City	Recovered by Soviet forces between 1980 and 1989 (confidential source #1)
			601 77	1977	China	Unidentified	Recovered by Soviet forces between 1979 and 1989 (confidential source #1); photo © confidential source #1
			811 11	Unidentified	China	Unidentified	Year obscured or encoded on purpose; recovered by Soviet forces between 1979 and 1989 (confidential source #1); photo © confidential source #1
			9121 79	1979	China	Unidentified	Recovered by Soviet forces between 1979 and 1989 (confidential source #1); photo © confidential source #1
			bxn 79	1979	Czech Republic (Czechoslovakia)	Sellier & Bellot, Vlašim	Recovered by Soviet forces between 1979 and 1989 (confidential source #1); photo © confidential source #1
			Arabic script	1980	Egypt	Factory #27, Shoubra Company for Engineering Industries, Cairo	Recovered by Soviet forces between 1980 and 1989 (confidential source #1); photo © confidential source #1
			Arabic script	1988	Iraq	Unidentified	Recovered by Soviet forces between 1988 and 1989 (confidential source #1); photo © confidential source #1
			Arabic script	1966	Syria	Établissements Industriels de Défense, Damascus	Recovered by Soviet forces between 1979 and 1989 (confidential source #1); photo © confidential source #1
	7.62 x 54R		17 79	1979	Russian Federation (USSR)	Barnaul Cartridge Plant, Barnaul	Confidential source #1
		n/a	188 73	1973	Russian Federation (USSR)	Novosibirsk Cartridge Plant, Novosibirsk	Confidential source #1
		n/a	60 77	1977	Kyrgyzstan (USSR)	Bishkek Machine Building Factory, Bishkek	Confidential source #1
		n/a	7.62 x 54R WOLF	n/a	Not specified as production is contracted to several countries	Wolf Performance Ammunition, Placentia, California, United States	Chivers (2010)

Firearm type	Calibre (mm)	Image	Headstamp	Year	Country of origin	Manufacturer	Remarks	
Rifle and machine gun	7.7 x 56R	n/a	n/a	1980	China	Unidentified	Not examined (confidential source #1)	
			ZV 56 VIII Z	1956	Czech Republic (Czechoslovakia)	Sellier & Bellot, Vlašim	Recovered by Soviet forces between 1979 and 1989 (confidential source #1); photo © confidential source #1	
		n/a	n/a	n/a	Pakistan	Unidentified	Not examined (confidential source #1)	
		n/a	n/a	n/a	United Kingdom	Unidentified	Not examined (confidential source #1)	
			Defaced headstamp	n/a	Unidentified	Unidentified	Recovered by Soviet forces between 1979 and 1989 (confidential source #1); photo © confidential source #1	
			No headstamp	n/a	Unidentified	Unidentified	Recovered by Soviet forces between 1979 and 1989 (confidential source #1); photo © confidential source #1	
	11.43 x 61R	n/a	n/a	n/a	United Kingdom	Unidentified	Not examined (confidential source #1)	
	12.7 x 108	n/a	n/a	3 * 70 *	1970	Russian Federation (USSR)	Ulyanovsk Cartridge Factory, Ulyanovsk	Confidential source #1
			n/a	188 * 80 *	1980	Russian Federation (USSR)	Novosibirsk Cartridge Plant, Novosibirsk	Confidential source #1
		n/a	n/a	n/a	n/a	China	Unidentified	Not examined; recovered by Soviet forces between 1979 and 1989 (confidential source #1)
			n/a	Arabic script	Year illegible	Iran	Defense Industries Organization, Tehran	Confidential source #5
			n/a	88	1988	United States	Olin Corporation, Winchester Division, East Alton, Illinois	Saboted Light Armour Penetrator (SLAP) round made for mujahideen during Afghan-Soviet war; no longer observed in Afghanistan (confidential source #4)
14.5 x 114	n/a	n/a	3 * 72 *	1972	Russian Federation (USSR)	Ulyanovsk Cartridge Factory, Ulyanovsk	Confidential source #1	
		n/a	17 * 81 *	1981	Russian Federation (USSR)	Barnaul Cartridge Plant, Barnaul	Confidential source #1	
14.7 x 51R	n/a	n/a	n/a	n/a	United Kingdom	Unidentified	Not examined; recovered by Soviet forces between 1979 and 1989 (confidential source #1)	
18.5 mm shotshell	n/a	n/a	n/a	n/a	n/a	Unidentified	Not examined	

Colonial-era ammunition is still being observed in armed group holdings. Single samples of 7.7 × 56R mm (.303 British),¹⁰ 11.43 × 61R mm (.577-450 Martini-Henry), and 14.7 × 51R mm (.577 Snider)¹¹ have been reported. The British brought this ammunition into Afghanistan before the country declared independence in 1919. According to one source, Soviet troops captured these rounds during their occupation.¹² Recent reports on seized weapons reveal that various Enfield rifles—which are chambered for the rounds in question—are still encountered today (Schroeder and King, 2012, p. 332). Although this ammunition is considered unserviceable due to its advanced age, it remains present in some holdings.

Afghanistan has never manufactured ammunition on an industrial scale; however, some production did occur on a very small scale, and under modest technical conditions, in the early 20th century (Regenstreif, 1983, p. 92). In particular, 7.62 × 39R mm M1895 Nagant revolver cartridges were produced in the Herat region, almost by hand. This production occurred in the 1920s–30s,¹³ and any remaining cartridges are assumed to be unserviceable. None of these rounds were identified in the data sets.

Supplies of Soviet-designed ammunition entered Afghanistan next, in two distinct phases: before the Soviet invasion and then during the Soviet occupation. Between 1919 and 1979, the Afghan government acquired stockpiles of small arms ammunition that found their way to armed groups during the Soviet occupation (Nawroz and Grau, 1995).

The Soviet–Afghan war of 1979 to 1989 led to a large influx of Soviet ammunition, which spread throughout Afghanistan. During the war, Afghan rebels captured significant quantities of ammunition from Soviet troops and probably from the Afghan government (Nawroz and Grau, 1995). Sizeable stockpiles were also left behind when the Soviet forces withdrew from Afghanistan in 1989 (AI, 1995). The 40th Army alone left 15,000 tons of ammunition in Afghanistan (Grau, 2007, p. 15). Given the enormous amounts of small arms ammunition reportedly left behind by the Soviets, it is widely assumed that some of it remains in circulation today.

During the Soviet–Afghan war, the United States supplied large quantities of various types and calibres of ammunition to the mujahideen (Crile, 2003). Some of the ammunition delivered by the United States was designed and made specifically for the conflict in Afghanistan. In at least one case, producers of these rounds applied Western technology to typical Soviet-calibre cartridges to make them more effective. For example, special 12.7 × 108 mm armour-piercing cartridges¹⁴ were produced in the United States in 1988.¹⁵ Yet the majority of Western-supplied small arms ammunition was not produced in the United States, but instead under contract in several other countries. China appears to be the most prominent source¹⁶ (AI, 1995); however, cartridges produced in other countries were also captured by the Soviet forces,¹⁷ demonstrating how many countries were involved in the supply of ammunition to the mujahideen. Ammunition from these stockpiles has been in circulation in Afghanistan since the withdrawal of Soviet troops.

The presence of most of the NATO-calibre ammunition can be attributed to the period beginning with the US-led invasion in 2001. Coalition forces brought in immense amounts of their own small arms ammunition—mainly 5.56 × 45 mm and 7.62 × 51 mm. The same forces also began supplying M16 rifles and other weapons chambered for NATO standard calibres to the Afghan National Security Forces (USGAO, 2009, p. 1). NATO ammunition captured from Coalition forces is supposedly the smallest amount of illicit small arms ammunition held by non-state armed groups in Afghanistan as it can only be acquired or captured in very limited quantities. Such minor losses by occupying or peacekeeping forces are incurred in all hostile and combat environments. Of potentially greater concern are the losses of NATO-calibre ammunition from Afghan National Army stockpiles. A US government audit of weapons and ammunition supplied to the Afghan National Army reveals a lack of accountability and control measures to prevent losses and theft (USIG, 2008, p. 6).















In 1996, the United Nations Security Council placed Afghanistan under

a non-mandatory arms embargo (UNSC, 1996; 2000). After the 2001 invasion, the demand for small arms ammunition rose, with local non-state armed groups seeking larger quantities than during previous years. These groups began trafficking ammunition into Afghanistan from neighbouring countries as early as 2001. Given the types of weapons used by the insurgents, obtaining ammunition in Warsaw Pact calibres became the priority. The diversity in trafficking routes and methods precludes a definitive accounting of supply paths, although routes reportedly traversed or originated in Pakistan, Iran, and Tajikistan (IWPR, 2005; Parks, n.d., p. 4; Schroeder and King, 2012, p. 335). Small arms ammunition was documented as a result of many seizures at the Afghan border and in border regions.

In 2002, the UN embargo was modified to apply solely to the sale or supply of arms to the Taliban or Al-Qaeda, thereby permitting arms transfers to Afghanistan (UNSC, 2002).¹⁸ Since then, the new Afghan government has acquired stockpiles of small arms ammunition for its security services (Schmitt, 2008). The ammunition in question came from numerous sources, with some purchased on the international civilian market, as well as surplus ammunition donated by NATO members and surplus stockpiles acquired from the international market (Chivers, 2010). Some ammunition from these arsenals has been lost, stolen, or acquired illegally by non-state armed groups (Sarwary, 2012). Some Afghan soldiers and law enforcement officers have reportedly sold their issued duty weapons or defected with the arms and ammunition available to them at the time of their defection (Crilly and Babakarkhail, 2013). In some cases soldiers defected with large quantities of weapons, ammunition, and equipment (Chivers, 2010; Latif, 2011).

Table 1 contains samples of headstamps found in Afghanistan. While the coverage is not comprehensive, the identifiable countries of manufacture include: Bosnia and Herzegovina (Yugoslavia), China, the Czech Republic (Czechoslovakia), Egypt, Iran, Iraq, Kyrgyzstan (USSR), Pakistan, the Russian Federation (USSR), Syria, Ukraine (USSR), and the United Kingdom.

Table 2 Small arms ammunition documented in Iraq

Firearm type	Calibre (mm)	Image	Headstamp	Year	Country of origin	Manufacturer	Remarks	
Pistol, revolver, and sub-machine gun	5.6 x 16R	n/a	n/a	n/a	n/a	Unidentified	Not examined	
	7.62 x 25	n/a	n/a	n/a	n/a	Unidentified	Not examined (Minaya, 2007)	
	7.63 x 25	n/a	n/a	n/a	n/a	Unidentified	Not examined (Military News Network, 2009)	
	9 x 19		Arabic script	Illegible		Iraq	Unidentified	Photo © Lewis E. Curtis (Gig Concepts)
			9x19 07	2007		Iran	Defense Industries Organization, Tehran	Photo © Lewis E. Curtis (Gig Concepts)
	9 x 20R	n/a	n/a	n/a	n/a	Unidentified	Not examined	
	11.43 x 23	n/a	n/a	n/a	n/a	Unidentified	Not examined	
Rifle and machine gun	5.56 x 45	n/a	n/a	n/a	n/a	Unidentified	Not examined	
	7.62 x 39		Arabic script	1969		Iraq	Unidentified	
			Arabic script	1973		Unidentified	Unidentified	Assumed to be foreign production for Iraq
			Arabic script	1973		Unidentified	Unidentified	Assumed to be foreign production for Iraq
			Arabic script	1976		Unidentified	Unidentified	Assumed to be foreign production for Iraq
			Arabic script	1976		Unidentified	Unidentified	Assumed to be foreign production for Iraq
			Arabic script	1978		Unidentified	Unidentified	Assumed to be foreign production for Iraq
			Arabic script	1979		Unidentified, suspected to be Czech Republic (Czechoslovakia)	Unidentified	Assumed to be foreign production for Iraq
			Arabic script	1989		Iraq	Unidentified	
			Arabic script	1994		Iraq	Unidentified	
			Arabic script	1999		Iraq	Unidentified	
			No headstamp	n/a		Iraq	Unidentified	Clandestine production
			321 96	1996		Romania	S.C. Uzina Mecanica SADU, Bumbesti Jiu	

Firearm type	Calibre (mm)	Image	Headstamp	Year	Country of origin	Manufacturer	Remarks
Rifle and machine gun	7.62 x 39		322 02	2002	Romania	S.C. Uzina Mecanica SADU, Bumbesti Jiu	
			ППУ 1999	1999	Serbia (Yugoslavia)	Prvi Partizan, Uzice	
			7.62x39 2001	2001	Syria	Établissements Industriels de Défense, Damascus (suspected)	
			7.62x39 7 2002 7	2002	Syria	Établissements Industriels de Défense, Damascus (suspected)	
	7.62 x 51	No image available	n/a	n/a	n/a	Unidentified	Not examined
	7.62 x 54R		Arabic script	1980	Suspected to be Czech Republic (Czechoslovakia)	Sellier & Bellot, Vlašim (suspected)	Production for Iraq
	7.7 x 56R		Arabic script	1959	Iraq	Unidentified	Photo © Peter Petrusic (Forensic Service Wellen)
			Arabic script	1967	Iraq	Unidentified	
	12.7 x 99		Arabic script	1969	Syria	Établissements Industriels de Défense, Damascus	Loaded in cooperation by factory #823 and #837; production for Iraq; photo © Javier Torijano
	12.7 x 108		Arabic script	1974	Iraq (unconfirmed)	Unidentified	Assumed to be foreign production for Iraq
			Arabic script	1981	Iraq (unconfirmed)	Unidentified	Photo © confidential source #2
			Arabic script	1982	Iraq (unconfirmed)	Unidentified	Assumed to be foreign production for Iraq
			Arabic script	1986	Iraq (unconfirmed)	Unidentified	Photo © confidential source #2
			Arabic script	1987	Iraq (unconfirmed)	Unidentified	Photo © confidential source #2
	14.5 x 114		Arabic script	1982	Iraq	Unidentified	
			Arabic script	1987	Iraq	Unidentified	
			Arabic script	1999	Iraq	Unidentified	
	18.5 mm shotshell	n/a	n/a	n/a	n/a	Unidentified	Not examined

Iraq

Of the case study countries, Iraq is the only one that has historically produced its own small arms ammunition and other ordnance on an industrial scale. This production ceased following the 2003 invasion, until which point government stockpiles contained domestically produced and officially imported small arms ammunition. Since 2003, ammunition has been brought into the country by Coalition troops, imported for the Iraqi security forces, or illicitly trafficked.

Table 2 lists ammunition calibres made and used in Iraq as well as available information on the manufacturers and countries of origin. Manufacturers are listed only once per calibre. Dates of manufacture are not evaluated separately due to the lack of detailed information.

Not unlike in Afghanistan, colonial-era ammunition remnants remain in circulation in Iraq today. Although British-manufactured ammunition was not identified in the arms caches studied, firearms chambered for these calibres—Enfield rifles—were recovered from these caches (Schroeder and King, 2012, p. 320). Given their age, colonial-era rounds are not likely to be serviceable.

During combat operations of the Iraq–Iran war of 1980–88, Iraqi forces recovered or captured Iranian stockpiles of ammunition. This ammunition was either captured from or abandoned by Iranian forces (Global Security, n.d.). Captured ammunition is often a welcome addition to the armouries of less-developed countries, particularly during periods of high ammunition expenditure and limited ongoing supply. Capturing supplies of ammunition is particularly advantageous when both parties to a conflict are using the same calibres, as was the case with Iran and Iraq, which both used 7.62 × 39 mm ammunition in their Kalashnikov-pattern weapons (Ezell, 1988, pp. 208–11). Such stockpiles probably remained in Iraqi depots until 2003 and may have found their way to non-state armed groups thereafter. These arsenals cannot be distinguished from ammunition made prior to 1988, which could have been trafficked into Iraq at a later point. Iranian 9 × 19 mm

ammunition was recovered from arms caches;¹⁹ however, the year of manufacture (2007) indicates that the ammunition arrived several years after the 2003 invasion (see Table 2). The data sets, which are not comprehensive, do not allow for the identification of Iranian ammunition manufactured prior to 1988.

Iraq has produced its own small arms ammunition since 1932, with the earliest known sample dating from 1934 (Elks, 1979, p. 7); it has also imported ammunition, some of which was manufactured to Iraqi specifications (see Table 2). The domestic production was at least partially carried out on Western-delivered²⁰ machinery, while a variety of small arms ammunition was produced outside of the country for Iraq, bearing Iraqi markings. Some cartridges exhibit partially incorrect Iraqi headstamps, pointing to production in non-Arabic-speaking countries.²¹ After the fall of the Hussein regime, the lack of security at government storage facilities allowed non-state armed groups to access ammunition stockpiles (Roane and Pound, 2004).

With the 2003 war, new supplies of ammunition entered Iraq. While Coalition forces brought enormous quantities for their own use during the conflict,²² additional ammunition—predominantly in Warsaw Pact calibres—was supplied to the fledgling security apparatus of the Iraqi state. Some of this ammunition was lost, captured by armed groups during combat, or stolen by defecting Iraqi soldiers (AP, 2006; CNN, 2007).

Iraq was under an arms embargo from 1990 to 2004 (UNSC, 1990; 2004). With the increased demand for small arms ammunition due to the 2003 invasion and the subsequent dismantling of manufacturing capacity, local armed actors had to turn to new supply sources. Since 2003, a notable quantity of small arms ammunition has been trafficked into Iraq from neighbouring countries by non-state groups. The supply routes have not been extensively documented, although research has confirmed the entry of supplies from Iran,²³ Syria, and, to a lesser extent, the United States and Europe (Parks, n.d., p. 5; Schroeder and King, 2012, p. 328).

As of 2004, when the UN embargo was officially lifted, the new Iraqi government was able to import small arms ammunition for its security forces (UNSC, 2004). Part of the ammunition in question was purchased on the international civilian market (Chivers, 2010); additional ammunition was donated by NATO member states and secured from European and other surplus stockpiles (Czech Republic, 2006). Some ammunition from these stockpiles has been lost, was stolen, or is otherwise unaccounted for; some has been observed in the possession of non-state armed groups (Kelly, 2012, p. 328). There have been numerous documented instances of Iraqi law enforcement and military personnel selling their issued duty weapons and ammunition, or defecting with supplies of the same. In some cases this has resulted in the loss of considerable quantities of weapons, ammunition, and other materiel, including vehicles, personal protection gear, night vision devices, and radios (Rasheed and Colvin, 2007; Graham-Harrison, 2012).

Table 2, which lists illicit small arms ammunition documented in Iraq, reveals headstamp information that identifies Iran, Iraq, Romania, Serbia (Yugoslavia), and Syria as countries of origin.

Somalia

The absence of domestic ammunition production capacity in Somalia has led various armed actors to import ammunition. The small arms ammunition encountered in the holdings of non-state armed groups operating in the country today was acquired from three main sources.

First, armed groups looted government stockpiles after the Barre regime collapsed in 1991 (Forberg and Terlinden, 1999, pp. 15, 20). The Somali government had officially acquired these arsenals between 1960 and 1991, initially from the Soviet Union and then, beginning around 1978, from the United States. If ammunition looted from these stockpiles remains in circulation in the country, it may still be serviceable, depending on the quality of the ammunition and its storage conditions.

Second, ammunition has been trafficked into the country by various

Table 3 Small arms ammunition documented in Somalia

Firearm type	Calibre (mm)	Image	Headstamp	Year	Country of origin	Manufacturer	Remarks
Pistol and sub-machine gun	7.62 x 25	n/a	12 51 0 *	1951	Czech Republic (Czechoslovakia)	Sellier & Bellot, Vlašim	
		n/a	21 32 15 53	1953	Poland	Mesko, Skarżysko-Kamienna	
			710 * 47 *	1947	Russian Federation (USSR)	Podolsk Cartridge Factory, Podolsk	
		n/a	T 46	1946	Russian Federation (USSR)	Tula Cartridge Works, Tula	
		n/a	11 * 55 *	1955	Serbia (Yugoslavia)	Prvi Partizan, Uzice	
		n/a	270 * 50 *	1950	Ukraine (USSR)	Lugansk Cartridge Works, Lugansk	
	9 x 18		LVE 10 9mm Makarov	2010	Russian Federation	Novosibirsk Cartridge Plant, Novosibirsk	
	9 x 19	n/a	n/a	n/a	n/a	Unidentified	Not examined
	9 x 20R	n/a	n/a	n/a	n/a	Unidentified	Not examined (Ezell, 1988, pp. 324-26)
Rifle and machine gun	5.56 x 45	n/a	n/a	n/a	n/a	Unidentified	Not examined
	7.92 x 33	n/a	n/a	n/a	n/a	Unidentified	Not examined (Forberg and Terlinden, 1999, p. 37)
	7.62 x 39	n/a	11 3 84	1984	Albania	K.M. Poliçan, Poliçan	
		n/a	S 06	2006	Algeria	Entreprise des Réalisations Industrielles de Seriana, Seriana	
			10 65	1965	Bulgaria	Arsenal JSCO., Kazanlak	
		n/a	61 08	2008	China	Unidentified	
			81 69	1969	China	Henan Arsenal	
		n/a	811 08	2008	China	Unidentified	
		n/a	Arabic script	1979	Egypt	Factory #27, Shoubra Company for Engineering Industries, Cairo	
		n/a	No headstamp	n/a	Ethiopia	Homicho Ammunition Engineering Complex, Bahir Dar and Gonder	
			04 73	1973	Germany (German Democratic Republic)	VEB Mechanische Werkstätten Königswartha, Königswartha	Photo © Hans Migielski
			23 83	1983	Hungary	Mátravidéki Féművek, today RUAG Hungarian Ammotec	
	n/a	60 76	1976	Kyrgyzstan (USSR)	Bishkek Machine Building Factory, Bishkek		

Firearm type	Calibre (mm)	Image	Headstamp	Year	Country of origin	Manufacturer	Remarks
Rifle and machine gun	7.62 x 39		539 80	1980	Russian Federation (USSR)	Tula Cartridge Works, Tula	
			711 73	1973	Russian Federation (USSR)	Klimovsk Specialized Cartridge Plant, Klimovsk	
			ППХ 1999	1999	Serbia (Yugoslavia)	Prvi Partizan, Uzice	
		n/a	110 39	2010	Sudan	Military Industry Corporation, Khartoum	
		n/a	LI 04	2004	Uganda	Luwero Industries, Kampala	
		n/a	270 76	1976	Ukraine (USSR)	Lugansk Cartridge Works, Lugansk	
		n/a	05 107	2005	Unidentified	Unidentified	
	7.62 x 51		10 62	1962	Bulgaria	Arsenal JSCo., Kazanlak	
		n/a	No headstamp	n/a	Ethiopia	Homicho Ammunition Engineering Complex, Bahir Dar and Gonder	
	7.62 x 54R	n/a	61 08	2008	China	Unidentified	
		n/a	71 99	1999	China	Chongqing Changjiang Electrical Group Co., Yueqing City	
			945 05	2005	China	Unidentified	
		n/a	AM 02	2002	Ethiopia (suspected)	Homicho Ammunition Engineering Complex, Bahir Dar and Gonder (suspected)	
		n/a	No headstamp	n/a	Ethiopia	Homicho Ammunition Engineering Complex, Bahir Dar and Gonder	
		n/a	17 92	1992	Russian Federation	Barnaul Cartridge Plant, Barnaul	
	7.7 x 56R	n/a	n/a	n/a	n/a	Unidentified	Not examined
	7.92 x 33	n/a	n/a	n/a	n/a	Unidentified	Not examined (Forberg and Terlinden, 1999, p. 37)
	7.92 x 57	n/a	n/a	n/a	n/a	Unidentified	Not examined (Terlinden, 1999, p. 37)
	12.7 x 99	n/a	n/a	n/a	n/a	Unidentified	Not examined (Forberg and Terlinden, 1999, p. 37)
	12.7 x 108	n/a	n/a	n/a	n/a	Unidentified	Not examined
	14.5 x 114	n/a	n/a	n/a	n/a	Unidentified	Not examined

groups—such as Ethiopian troops²⁴ and personnel of the African Union Mission in Somalia (Young Pelton, 2011).

Third, armed groups have illegally acquired ammunition from the Transitional Federal Government (Schroeder and King, 2012, p. 347). Since the data set contains reports collected through 2011, more recent allegations of ammunition leakage from the Federal Government of Somalia—which replaced the Transitional Federal Government in 2012—are not addressed (Charbonneau, 2014).

Since at least 1991, non-state armed groups have trafficked small arms ammunition into Somalia from neighbouring countries. While data limitations prevent the mapping of all supply routes, there are credible reports of trafficking from (or through) Eritrea, Ethiopia, and Yemen. UN monitoring groups have found that arms transfers that were diverted to Somalia originated in countries such as Iran, Italy, Libya, Saudi Arabia, Sudan, Syria, and the United Arab Emirates (Schroeder and King, 2012, p. 344).

NATO-calibre ammunition encountered in Somalia was provided as military aid by the United States and several other Western countries before 1991, imported for use by peacekeepers during the UN intervention in 1992–95, and, to a small extent, trafficked (Forberg and Terlinden, 1999, p. 15; Ezell, 1988, pp. 324–26; Florquin and Leff, 2014, pp. 205–07). The most recently produced ammunition encountered in Somalia was made in Algeria (2006), China (2008), the Russian Federation (2010), Sudan (2010), and Uganda (2004).

Table 3 lists the calibres and, if available, the countries of origin and manufacturers of small arms ammunition in Somalia. Manufacturers are listed only once per calibre.

Based on the headstamps featured in Table 3, the illicit small arms ammunition documented in Somalia originated in Albania, Algeria, Bulgaria, China, the Czech Republic (Czechoslovakia), Egypt, Ethiopia, Germany (German Democratic Republic), Hungary, Kyrgyzstan (USSR), Poland, the Russian Federation (USSR), Serbia (Yugoslavia), Sudan, Uganda, and Ukraine (USSR).

Analysis of observed illicit small arms ammunition in the countries studied

The variety of calibres of small arms ammunition identified in the three countries examined is very limited and reflects the standard calibres of the major powers of the cold war. Ammunition in Warsaw Pact calibres is the predominant standard, with NATO-calibre cartridges coming in a distant second. The calibre profile of a country mainly depends on its political and strategic orientation, financial means, and domestic infrastructure. Countries that were under the influence of Western powers often employed NATO calibres; most other countries were either aligned with the Warsaw Pact or were independent and thus sought their own supplies on the world market. States in the latter two groups tended towards Warsaw Pact calibres in most instances. As is the case for states, price and availability are probably the critical selection criteria for non-state armed groups seeking to purchase ammunition.

Following the collapse of the Soviet Union, the flooding of international markets with surplus cold war stockpiles significantly advanced the proliferation of Warsaw Pact-calibre arms. Such arms are available at comparatively low prices from countries such as China and the former Soviet Union. Since the calibres of ammunition purchased are tied to the availability of weapons chambered for them, the wide proliferation of Warsaw Pact-calibre weapons has led to a high demand for corresponding ammunition. All other calibres discussed in this Issue Brief are marginal in quantity. Pistol and sub-machine gun calibres are in comparatively low demand, as such weapons represent mainly self-defence or back-up weapons and are not frequently used in high-intensity conflict zones such as those reviewed here.

Table 4 provides an overview of all calibres observed in illicit use in Afghanistan, Iraq, and Somalia. The data identifies a total of 22 calibres, of which nine are pistol calibres and 13 are rifle and machine gun calibres.

The greatest variation in calibres was observed among the nine documented

pistol cartridges. The 7.62 × 25 mm and 9 × 19 mm ammunition was documented in all three countries. While 9 × 18 mm was not encountered in Iraq, it was recorded among armed groups in Afghanistan and Somalia. Table 4 lists a range of additional calibres observed in the three countries.

Rifles and light machine guns²⁵ are the backbone of operations conducted by non-state armed groups and require the highest possible standardization in both weapons and calibres used. Interchangeability of both is a crucial factor in combat. In countries where supplies of weapons and ammunition are irregular or limited, there may be very few standard calibres and weapons. The rifle and machine gun calibres studied show that certain calibres are common to non-state armed groups in the three countries assessed. The calibres identified reflect practices of standardization in the countries of origin—NATO and former Warsaw Pact states—where small-calibre ammunition is largely standardized as a matter of course.

The following rifle calibres were observed in Afghanistan, Iraq, and Somalia:

- **5.56 × 45 mm:** Since few available firearms are chambered for this calibre, armed groups use both the arms and the corresponding ammunition on a small scale. In Afghanistan and Iraq, illicit ammunition of this calibre was probably lost by, or stolen or otherwise captured from Coalition troops by non-state armed groups. The origin in Somalia is less clear, as cold war holdings and UN troops stationed in the country from 1991 each brought the calibre into the country (Ezell, 1988, p. 325). Post-1991 trafficking cannot be ruled out.
- **7.62 × 39 mm:** This calibre is documented in all three countries in large quantities. It is the standard calibre for which many Kalashnikov-pattern weapons are chambered, and these are easily the predominant weapon used in each country. While Iraq produced this calibre before 2003,²⁶ Afghanistan and Somalia did not and have depended on imports or trafficking for supplies.

Table 4 Overview of all documented calibres in the three countries assessed

Firearm type	Calibre (mm)	Alternative calibre designation	Country of origin (year invented/adopted)	Observed in			Remarks
				Afghanistan	Iraq	Somalia	
Pistol, revolver, and sub-machine gun	5.6 x 16R	.22 long rifle	United States (1887)	✓	✓		A rimfire cartridge, used with hunting, sporting, and training weapons
	7.62 x 25	7.62 mm Tokarev	USSR (1930)	✓	✓	✓	Used with TT pistols and PPSH-41 and PPS-43 sub-machine guns; Russian calibre
	7.62 x 39R	7.62 mm Nagant	USSR (1895)	✓			Used with M1895 Nagant revolvers
	7.63 x 25	7.63 mm Mauser, .30 Mauser	Germany (1896)		✓		Cartridge for German C-96 pistol series
	7.65 x 17SR	7.65 mm Browning, .32 ACP	United States (1897)	✓			Cartridge for a vast variety of small pistols
	9 x 18	9 mm Makarov, 9 mm PM	USSR (1951)	✓		✓	Cartridge for Makarov pistol and sub-machine guns
	9 x 19	9 mm Luger, 9 mm NATO	Germany (1904)	✓	✓	✓	Most widespread pistol cartridge for a huge variety of pistols and sub-machine guns
	9 x 20R	.380/200 Enfield Mk I/II	United States/ United Kingdom (1922)		✓		Cartridge for .380 Enfield revolvers
	11.43 x 23	.45 ACP	United States (1911)		✓		Cartridge for Colt M1911 government pistol and sub-machine guns
Rifle and machine gun	5.45 x 39	.215	USSR (1974)	✓			Cartridge for AK-74 variants and RPK-74 machine gun
	5.56 x 45	5.56 mm NATO, .223 Remington	United States (1967)	✓	✓	✓	Cartridge for M16, M4, G36, SA 80, FAMAS F1, etc.; NATO cartridge for a huge variety of weapons
	6.5 x 55	6.5 mm Swedish Mauser	Germany (1896)	✓			Swedish rifle and machine gun cartridge
	7.62 x 39	7.62 mm Model 1943	USSR (1943)	✓	✓	✓	Cartridge for AK, AKM, RPK, RPD, etc.; cartridge for Kalashnikov-pattern weapons
	7.62 x 51	7.62 mm NATO, .308 Winchester	United States (1954)		✓	✓	Cartridge for M14, M60, M240, FN FAL, MG3, G3, etc.; NATO cartridge for a huge variety of weapons
	7.62 x 54R	7.62 mm Mosin-Nagant	USSR (1891)	✓	✓	✓	Cartridge for various rifles and PK-series and other machine guns
	7.7 x 56R	.303 British	United Kingdom (1889)	✓	✓	✓	Cartridge for Enfield rifles and Vickers machine guns
	11.43 x 61R	.577-450 Martini-Henry	United Kingdom (1871)	✓			Cartridge for Lee-Metford, Lee-Enfield, and Martini-Enfield rifles
	12.7 x 99	.50 Browning machine gun	United States (1921)		✓	✓	NATO cartridge for M2 Browning machine gun and sniper rifles
	12.7 x 108	12.7 mm DShK	USSR (1930)	✓	✓	✓	Cartridge for DShK and NSV machine guns
	14.5 x 114	14.5 mm KPV	USSR (1941)	✓	✓	✓	Cartridge for KPV-series of machine guns and during WWII PTRD and PTRS anti-tank rifles
	14.7 x 51R	.577 Snider	United Kingdom (1867)	✓			Cartridge for Snider-Enfield rifles (converted muzzle loaders)
	18.5 mm shotshell	12-gauge	United Kingdom (date unknown)	✓	✓		Cartridge for shotguns

- **7.62 × 54R mm:** This cartridge is the second most prominent standard calibre found during the research. This versatile round is used in machine guns, rifles, and sniper rifles. Cartridges with Iraqi headstamps have been documented and may be attributed to foreign²⁷ and domestic production before 2003 (see Table 2).
- **7.7 × 56R mm (.303 British):** This calibre was inherited from British colonial troops along with rifles of the Enfield design in each of the countries under review. These weapons were very popular after colonial troops withdrew; they are still widely used, albeit in much smaller numbers than Kalashnikov-pattern weapons.

Non-state armed groups in each of the countries assessed have also made use of heavy machine guns²⁸ chambered for 12.7 × 108 mm and 14.5 × 114 mm cartridges. These weapons have an effective range of up to approximately 2,000 m and are normally mounted on vehicles, tripods, or towed mounts. Both calibres are effective against lightly armoured vehicles and reinforced positions while the 14.5 × 114 mm has superior ballistics and is unmatched by comparable calibres fielded by Western militaries to date (Watson, 1984, p. 68). Of the countries studied, only Iraq is known to have produced these calibres.

During the course of this study, the author did not encounter any modern calibres—those designed and adopted during the past 30 years. The 5.45 × 39 mm cartridge, designed for AK-74-series rifles, has been in circulation for four decades but is uncommon in conflict zones when compared to the 7.62 × 39 mm cartridge, which was designed for the AK series. Newer calibres, such as the Russian 9 × 39 mm for the A-91 and VSS rifles and the Belgian 5.7 × 28 mm for the P90 sub-machine gun were not observed at all. Typically, the high cost of newer calibres and the logistical burden of converting to weapons chambered for them is a significant barrier to non-state armed groups. Surplus stockpiles from the cold war are available at much lower prices and are typically the first choice for economic and logis-

tical reasons. In many cases, national armies have yet to adopt these modern calibres as they are also conscious of the costs and administrative burden involved in replacing existing small arms and ammunition stockpiles.

It is important to note that the manufacturers identified in this study were not necessarily responsible for supplying the observed ammunition to non-state armed groups in the three countries. Illicit diversion of ammunition can take place at any point in the supply chain, and ammunition supplies may also be captured or lost. Many ammunition manufacturers and governments of manufacturing countries never gain knowledge of where their ammunition is finally used, nor can they typically influence what is happening with the ammunition once it has left the country of manufacture (Jenzen-Jones, 2013).

It is necessary to reiterate that the analysis is limited due to incomplete reporting. Thorough recording of seized stockpiles of small arms ammunition and small arms by experts is essential for successful tracing work. In the past decades seized stockpiles in almost any conflict zone were poorly recorded and thus excluded potentially valuable information.

When markings, headstamps, packing material, and possible shipping documents are recorded in detail and complemented with proper photographic documentation, ammunition experts and researchers are much more likely to be able to reach conclusions on the weapons used, manufacturers, and, in some cases, geopolitical ties. In addition, such data greatly enhances an expert's capacity to trace the diversion path of the ammunition, pin down the source country, and, in some cases, identify the individuals involved. If they are able to refer to detailed field research, ammunition specialists are also better placed to determine possible attempts to produce or distribute ammunition bearing clandestine or fake markings (mainly headstamps), which may have been applied in an attempt to mislead researchers and investigating authorities. In such cases, original samples are crucial to accurate identification, as even good photographic documentation may not display key characteristics.

Conclusion

Most of the observed calibres in Afghanistan, Iraq, and Somalia are cold war-era designs whose first use dates back at least 60 years. No 'modern' calibres—that is, those developed during the past 30 years—were observed during the course of this research. This absence suggests that large quantities of the small arms and corresponding ammunition were sourced from surplus stockpiles, and, in the case of Iraq, pre-war domestic production. Cartridges identified in the data sets as newly manufactured are rare, though recent research does suggest that the supply of recently produced ammunition to conflict zones may be increasing (Conflict Armament Research, 2012; Leff and Florquin, 2014).

Unsurprisingly, Warsaw Pact standard calibres are the most commonly observed for assault rifles and machine guns. This dominance is less pronounced with handguns, however, as these firearms often serve a secondary role in conflicts. Interestingly, the range of calibres available in a conflict zone is often a partial reflection of a broader modern history of the country. In each country under review, ammunition left over from colonial periods, cold war alliances, and 20th-century conflicts were found in the holdings of local armed groups.

This study highlights the need for more detailed and complete data on small arms ammunition seized from armed groups and other illicit users. Summaries of seized arms caches and other reports on illicit weapons in the countries studied often provide some information on weapons but contain few details on small arms ammunition. Better publicly available data on illicit small arms ammunition would aid in the tracing of illicit ammunition and would improve the public understanding of its proliferation, manufacturers, supply lines, and traffickers. ■

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Endnotes

- 1 See, for example, Florquin and Leff (2014); Pézard and Anders (2006); Schroeder and King (2012).
- 2 Due to the relatively long shelf life of small arms ammunition, surplus holdings can pose enduring security challenges. Twenty years is a typical minimum shelf life, although ammunition that was already 50 or more years old reportedly proved serviceable in recent conflicts.
- 3 The official Soviet designation of this cartridge is '7.62 mm Model of 1943'.
- 4 According to official Soviet documents and technical manuals, the correct designation for the weapon widely referred to as the 'AK-47' is simply 'AK' (MOD USSR, 1952). The designation 'AK-47' is a generalization related to the year of adoption and is observed in civilian publications and designations in the Western world only.
- 5 Counterfeit headstamps are seldom encountered, but several documented examples do exist. None were identified in this study.
- 6 Such documentation may include packing slips, waybills, cargo manifests, and invoices, and similar.
- 7 Unloaded cases bearing a manufacturer's headstamp code may be distributed to other producers for final loading, and may thus not represent a cartridge produced in the case's country of origin.
- 8 The UN Somalia and Eritrea Monitoring Group published eight reports during the period under review in this Issue Brief. Most of the data for this study was taken from the first six reports; see Schroeder and King (2012, p. 315). It should be noted that the reports provide very little detailed information on the manufacturer, model, and calibre of the seized ammunition.
- 9 Afghanistan has not produced any notable amount of ammunition domestically. Limited examples of Afghan production date back almost 90 years.
- 10 According to confidential Russian source #1, further .303 ammunition of British, and later Pakistani and Czech (Czechoslovak), origin was acquired after British colonial stockpiles had been depleted.
- 11 According to confidential Russian sources, the 11.43 × 61R mm and 14.7 × 51R mm were of British production.
- 12 According to confidential interviews with former Russian Federation military members, 7.7 × 56 mm R, 11.43 × 61R mm and 14.7 × 51R mm were captured between 1979 and 1989.
- 13 Philippe Regenstreif arrived at this date range based on the headstamp style. A specimen exists in the internationally recognized Woodin Laboratories reference collection in Tuscon, Arizona.
- 14 These cartridges are known as Saboted Light Armour Penetrator, or SLAP, rounds due to their high effectiveness against armour (see Table 1). These cartridges were not confirmed to be present in Afghanistan.
- 15 Confidential source #4.

- 16 See Table 1, which lists several Chinese-manufactured cartridges that were captured by Soviet forces between 1979 and 1989.
- 17 The other countries were Bosnia and Herzegovina (Yugoslavia), the Czech Republic (Czechoslovakia), Egypt, Iraq, and Syria.
- 18 For more information on the UN embargo in Afghanistan, see SIPRI (n.d.).
- 19 Author correspondence with Lewis Curtis, director and owner of GIG Concepts Inc., October 2013.
- 20 According to correspondence with Philippe Regenstreif in January 2014, the French company Manufacture de Machines du Haut-Rhin (Manurhin) of Mulhouse delivered machinery for production of 12.7 × 108 mm and 14.5 × 114 mm cartridges. The origin of other machinery was not verifiable.
- 21 Author correspondence with Hans Migielski, ammunition researcher, October 2013.
- 22 Coalition forces brought in mainly the NATO calibres 5.56 × 45 mm and 7.62 × 51 mm.
- 23 The supplies from Iran were 9 × 19 mm cartridges made in 2007.
- 24 These weapons may have been captured during the Ogaden War in 1977–78; see Polynational War Memorial (n.d.).
- 25 These weapons include assault rifles and sniper rifles. Light machine guns are chambered for regular rifle calibres, typically in the range of 5.45–7.62 mm.
- 26 The earliest known specimen dates from 1966.
- 27 Author correspondence with Hans Migielski, ammunition researcher, October 2013.
- 28 While anti-materiel rifles chambered for 12.7 × 99 mm and 12.7 × 108 mm do exist, no information on such weapons was included in the data for the three countries examined.

References

- AI (Amnesty International). 1995. 'Die Waffenlieferer trifft Mitschuld.' AI-Journal. December. <<http://www.amnesty.de/umleitung/1995/deu05/002>>
- AP (Associated Press). 2006. 'Audit Finds Many Missing U.S. Weapons in Iraq.' NBC News. 29 October. <http://www.nbcnews.com/id/15474042/ns/world_news-mideast_n-africa/t/audit-finds-many-missing-us-weapons-iraq/>
- Charbonneau, Louis. 2014. 'UN Warns of 'Systematic' Somali Arms Diversion.' Reuters. 13 February. <<http://ayyaantuu.com/horn-of-africa-news/un-warns-of-systematic-somali-arms-diversion/>>
- Chivers, C.J. 2010. 'Arming Both Sides: The Perils of Ammunition Leakage in the Afghan War.' *The New York Times*. 22 February. <http://atwar.blogs.nytimes.com/2010/02/22/arming-both-sides-the-perils-of-ammunition-leakage-in-the-afghan-war/?_r=0>
- CNN. 2007. 'Pentagon Lost almost 200,000 Weapons in Iraq.' 7 August. <<http://edition.cnn.com/2007/WORLD/meast/08/06/iraq.weapons/>>

- Conflict Armament Research. 2012. *The Distribution of Iranian Ammunition in Africa: Evidence from a Nine-country Investigation*. December. <http://www.conflictarm.com/images/Iranian_Ammunition.pdf>
- Crile, George. 2003. *Charlie Wilson's War: The Extraordinary Story of the Largest Covert Operation in History*. New York: Grove Press.
- Crilly, Rob and Zubair Babakarkhail. 2013. 'Afghan Special Forces Commando Defects to Insurgents Taking Weapons with Him.' *Telegraph* (UK). 21 October. <<http://www.telegraph.co.uk/news/worldnews/asia/afghanistan/10393038/Afghan-special-forces-commando-defects-to-insurgents-taking-weapons-with-him.html>>
- Czech Republic. 2006. *2005–2006 Report on Allied Contributions to the Common Defense*. 15 February.
- Elks, Ken. 1979. *Ammunition with Arabic Markings*. Canterbury, Kent: Collector Cartridges Kingston.
- Ezell, Edward Clinton. 1988. *Small Arms Today: Latest Reports On The World's Weapons and Ammunition*, 2nd edn. London: Arms and Armour Press.
- Felter, Joseph and Brian Fishman. 2008. *Iranian Strategy in Iraq: Politics and 'Other Means.'* West Point: Combating Terrorism Center. 13 October.
- Florquin, Nicolas and Jonah Leff. 2014. 'Across Conflict Zones: Ammunition Profiling.' In *Small Arms Survey. Small Arms Survey 2014: Women and Guns*. Cambridge: Cambridge University Press, pp. 178–211.
- Forberg, Ekkehard and Ulf Terlinden. 1999. 'Small Arms in Somaliland: Their Role and Diffusion.' BITS Report 99.1. Berlin: Berlin Information-Center for Transatlantic Security. March. <<http://www.bits.de/public/pdf/tr99-1.PDF>>
- Global Security. n.d. 'Iran–Iraq War (1980–1988).' Accessed 4 May 2014. <<http://www.globalsecurity.org/military/world/war/iran-iraq.htm>>
- Graham-Harrison, Emma. 2012. 'Afghan Police Commander Missing after Mass Defection Attempt.' *Guardian*. 24 July. <<http://www.theguardian.com/world/2012/jul/24/afghan-police-defection-attempt>>
- Grau, Lester. 2007. 'Breaking Contact without Leaving Chaos: The Soviet Withdrawal from Afghanistan.' *Journal of Slavic Military Studies*, Vol. 20, No. 2. April–June.
- Greene, Owen. 2006. 'Ammunition for Small Arms and Light Weapons: Understanding the Issues and Addressing the Challenges.' In Pézard and Anders, pp. 1–13.
- IWPR (Institute for War and Peace Reporting). 2005. 'Taliban Buying Up Smuggled Guns.' 2 May. <<http://iwpr.net/report-news/taliban-buying-smuggled-guns>>
- Jenzen-Jones, N.R. 2013. *The Headstamp Trail: An Assessment of Small-calibre Ammunition Found in Libya*. Working Paper No. 16. Geneva: Small Arms Survey.
- Kelly, Chelsea. 2012. 'Trafficking in Small Arms and Light Weapons in Iraq.' In Schroeder and King, p. 328.

- Latif, Aamir. 2011. 'Flood of US Weapons in Afghanistan and Pakistan Fueling Militant Groups, Experts Say.' *Global Post*. 22 June. <<http://www.globalpost.com/dispatch/news/regions/asia-pacific/pakistan/110621/pakistan-us-arms-weapons-taliban>>
- Military News Network. 2009. 'Unusual Weapons Found in Iraq.' Posted on YouTube by PopularMilitary.com, 10 March. <<http://www.youtube.com/watch?v=ndHgEBAP3so>>
- Minaya, Zeke. 2007. 'Soldiers Find Vintage Weapons among Caches in Iraq.' *Stars and Stripes*. 25 May. <<http://www.stripes.com/news/soldiers-find-vintage-weapons-among-caches-in-iraq-1.64501>>
- MOD USSR (Ministry of Defence of the Union of Soviet Socialist Republics). 1952. '7.62-mm Avtomat Kalashnikova (AK), Rukovodstvo Sluzhby.' Military publication.
- . 1965. 'Catalog of Small Arms Ammunition.' Military publication.
- Nawroz, Mohammad Yahya and Lester Grau. 1995. 'The Soviet War in Afghanistan: History and Harbinger of Future War?' *Military Review*, Vol. 75, No. 5. September/October. <<http://fms.leavenworth.army.mil/documents/waraf.htm>>
- Parks, Eric. n.d. 'Iranian Weapons Smuggling Activities in Afghanistan.' Washington, DC: Joint Improvised Explosive Device Defeat Organization.
- Pézard, Stéphanie and Holger Anders, eds. 2006. *Targeting Ammunition: A Primer*. Geneva: Small Arms Survey.
- Polynational War Memorial. n.d. 'Ethiopia vs Somalia.' Updated 15 August 2013. <<http://www.war-memorial.net/Ethiopia-vs-Somalia-3.160>>
- Rasheed, Ahmed and Ross Colvin. 2007. 'Iraqi Police Selling Weapons on Black Market.' Reuters. 5 February. <<http://www.reuters.com/article/2007/02/05/us-iraq-weapons-idUSCOL34438320070205>>
- Regenstreif, Philippe. 1983. *Munitions Soviétiques et des pays de l'Est—Soviet and Eastern Powers Ammunition*. Paris: Crépin-Leblond.
- Roane, Kit and Edward Pound. 2004. 'A Mess of Missing Ordnance.' *U.S. News & World Report*, Vol. 137, No. 16. 11 August.
- Sarwary, Bilal. 2012. 'Why Taliban Are so Strong in Afghanistan.' BBC Asia. 2 February. <<http://www.bbc.co.uk/news/world-asia-16851949>>
- Schmitt, Eric. 2008. 'Army Awarded Contract, Unaware of Dealer's Past.' *The New York Times*. 25 June. <<http://www.nytimes.com/2008/06/25/washington/25arms.html?pagewanted=print>>
- Schroeder, Matt and Benjamin King. 2012. 'Surveying the Battlefield, Illicit Arms In Afghanistan, Iraq and Somalia.' In *Small Arms Survey. Small Arms Survey 2012: Moving Targets*. Cambridge: Cambridge University Press, pp. 313–55.
- SIPRI (Stockholm International Peace Research Institute) n.d. 'UN Arms Embargo on Afghanistan (Taliban).' <http://www.sipri.org/databases/embargoes/un_arms_embargoes/afghanistan>
- UNSC (United Nations Security Council). 1990. The Situation in Iraq. S/RES/660 of 6 August 1990.
- . 1996. The Situation in Afghanistan. S/RES/1076 of 22 October 1996.
- . 2000. Resolution 1333 (2000). S/RES/1333 of 19 December 2000.
- . 2002. Resolution 1390 (2002). S/RES/1390 of 28 January 2002.
- . 2004. The Situation between Iraq and Kuwait. S/RES/1546 of 8 June 2004.
- USGAO (United States Government Accountability Office). 2009. *Afghanistan Security: Lack of Systematic Tracking Raises Significant Accountability Concerns about Weapons Provided to Afghan National Security Forces*. Report to Congressional Committees No. GAO-09-267. January.
- USIG (United States Inspector General). 2008. 'Assessment of Arms, Ammunition, and Explosives Control and Accountability; Security Assistance; and Sustainment for the Afghan National Security Forces.' Report No. SPO-2009-001. Arlington, VA: USIG, Department of Defense. 24 October.
- Watson, Albert. 1984. *Small-Caliber Ammunition Identification Guide—Volume 1: Small-Arms Cartridges up to 15 mm*. DST-1160G-514-81-Vol 1. Washington, DC: Defense Intelligence Agency.
- Young Pelton, Robert. 2011. 'Does the US, UN and AMISOM Supply Al-Shabaab?' Somalia Report. 30 July. <http://www.somaliareport.com/index.php/post/1253/Does_the_US_UN_and_AMISOM_Supply_Al-Shabaab>

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