Research Report

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Assessing the Conventional Force Imbalance in Europe

Implications for Countering Russian Local Superiority

KEY FINDINGS

- In the years after the Cold War, U.S. forces became lighter while Russian forces experienced a severe overall decline. Russia has reversed the decline of its military forces since 2008, and continues to expand and refine its capability for high-intensity conventional warfare.
- Russia has retained a combined-arms force that emphasizes mobility and firepower and trains to conduct larger-scale operations, strengthening Russia's ability to engage in conflicts between mechanized forces close to its border.
- Improvements in Russia's military forces over the last decade have reduced the once-gaping qualitative and technological gaps between Russia and NATO. These improvements come while Russia is expanding its forces in the West, maintaining more high-readiness forces, and gaining valuable combat experience in Ukraine and Syria.
- The NATO members in the Baltic Sea region—Estonia, Latvia, Lithuania, and Poland—collectively field much smaller ground forces than those present in Russia's Western Military District.
- In the event of a ground attack on a NATO member in the Baltic region, Russia would have a substantial time-distance advantage in the initial days and weeks of its ground campaign because of its strong starting position and ability to reinforce with ground and air units from elsewhere in Russia.
- Current U.S. programs such as the European Deterrence Initiative (EDI), combined with NATO's Enhanced Forward Presence are positive steps to help NATO retain its overall military edge.

This report describes broad trends in military capacity of North Atlantic Treaty Organization (NATO) nations and Russia since the end of the Cold War and lays out in more detail the recent increase in the size and capabilities of Russia's armed forces.

Introduction

This report outlines how NATO and Russian force levels and capabilities have evolved in the post–Cold War era and what recent trends imply for the balance of capabilities in the NATO member states that border Russia in the Baltic Sea region. It is intended to inform debate over appropriate posture and force structure for NATO forces to respond to the recent growth in Russian military capability and capacity and to increased Russian assertiveness in the use of force.

Russia enjoys a favorable correlation of forces in a short-warning regional conflict on its borders, and this advantage

appears stable based on projected Russian plans for expanded forces in the West in the next few years. NATO enjoys considerable fundamental long-term advantages in terms of aggregate national power that would be relevant in a protracted conflict and should allow it to better deter Russia in the future, but NATO is not maximizing its inherent advantages. The Alliance's combined economic strength in 2016 (measured in U.S. dollars) was about 31 times that of Russia's. In 2015 (a historically strong year for Russian defense spending) NATO outspent Russia by approximately $895 billion to $52 billion on military forces (NATO, 2017b; U.S. Defense Intelligence Agency, 2017). The aggregate military personnel balance strongly favors NATO as well,

DEFENSE SPENDING — 2015

when all forces in their home countries are included in the count. These facts indicate that the Alliance clearly has the means to establish and sustain an effective conventional deterrent if it so chooses.

With the aim of reinforcing deterrence in mind, this report outlines some of the key considerations in addressing the following trends that produced the current imbalance of military power that is postured and ready to fight on short notice:

- In the years following the end of the Cold War, NATO's ground forces have substantially declined in size and shifted focus away from high-intensity conventional combat.
- By contrast, while Russia also saw a major decline through the 1990s and 2000s, more-recent efforts have led to effective changes in Russian warfighting capabilities and a gradual spread of more-modern systems to much of the Russian armed forces.
- Recent improvements to readiness and to the ability to move forces quickly within Russia, combined with the density of anti-access/area denial capabilities arrayed to defend the Russian heartland, provide Moscow with a much greater ability to project force against countries on its borders, including not only Ukraine and Georgia but also NATO members and allies in the Baltic region.

This report draws from a variety of publicly available sources, including previously published RAND research.[1]

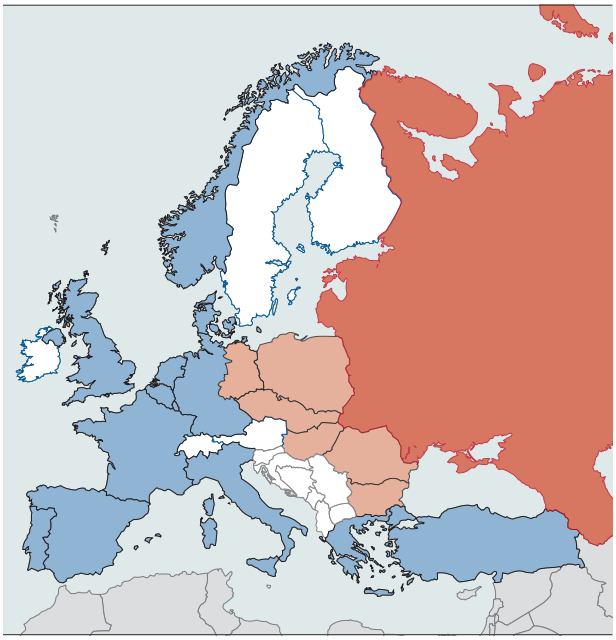
NATO and Soviet/Russian Forces from the Cold War to the Present

It is instructive to begin with a look at the evolution of personnel levels across NATO and Russian military forces over time, starting in the last year of the Cold War. The common basis for comparison with today's balance of power considers those personnel, tanks, and aircraft that are postured to fight on short notice.

Figure 1 shows the NATO force, numbering about 691,000 in total, that was arrayed to defend against about 1.1 million Soviet and Soviet-allied forces in European Russia. In this case, the **theaterwide ratio of Warsaw Pact attackers to NATO defenders would have been about 1.6-to-1**. This is a major advantage: While it is often said at the tactical level that roughly 3:1 odds are required to generate reasonable odds of success in a deliberate attack, an advantage like this—of more than 400,000 extra troops—is very powerful at the strategic level if leveraged effectively.

In addition to personnel, it is also instructive to consider the numbers of some of the key weapon systems focused at that time on NATO's defense of West Germany (as shown in Figure 2).

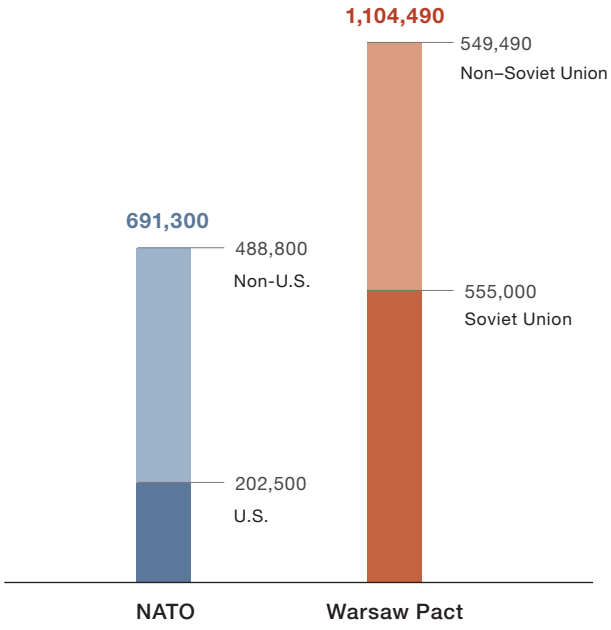
Figure 2 shows the relative numbers of main battle tanks and combat aircraft that could have been involved in the event of a Warsaw Pact invasion in the closing days of the Cold War. The strong Warsaw Pact advantage in tanks at the time reflected the heavily mechanized nature of Soviet forces, a trend that continues today in the Russian Ground Forces. The number of combat aircraft considered here includes all aircraft for either side in Europe; both sides could have been augmented with additional combat aircraft from the United States and Canada, or from deeper within the Soviet Union. Despite the Warsaw Pact advantage, NATO was postured with local conventional forces sufficient to defend a contiguous line, with reserves, and with rehearsed deployments for reinforcements able to prevent a rapid *fait accompli* that constituted the foundation of NATO's strategy of flexible response.



Cold War Geopolitical Boundaries (1989): NATO and the Warsaw Pact

FIGURE 1

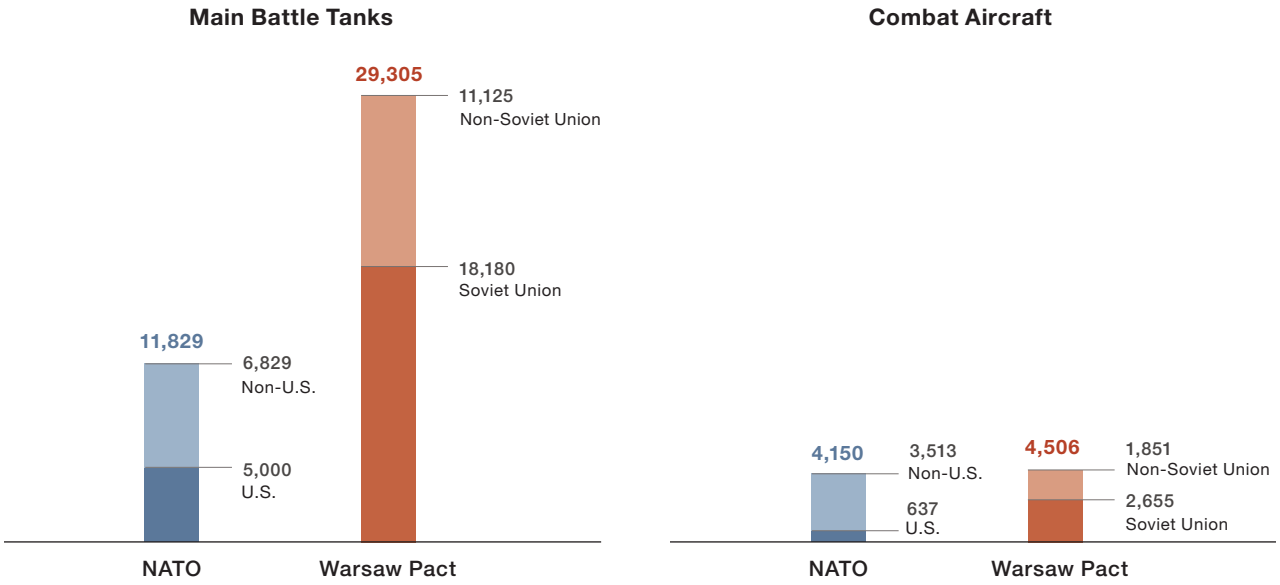
Cold War Ground Forces for NATO's Defense of West Germany, 1989



SOURCE: International Institute for Strategic Studies (IISS), 1989.

FIGURE 2

Selected Weapon Platforms for NATO's Defense of West Germany, 1989

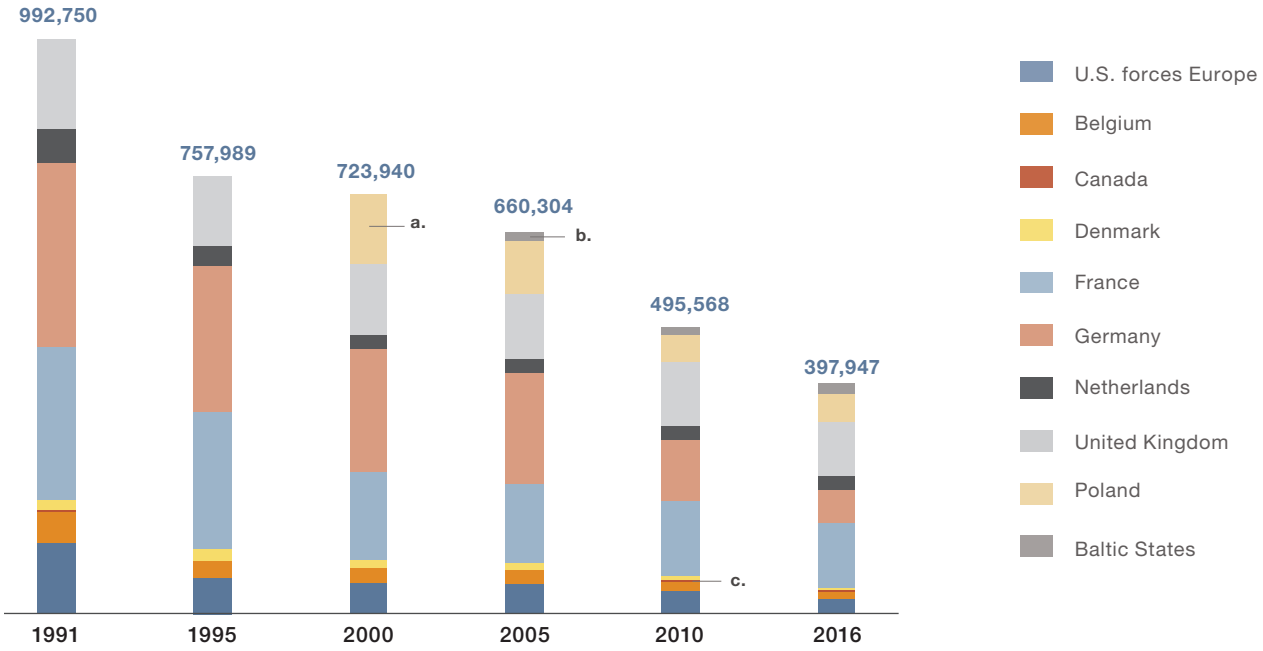


SOURCE: IISS, 1989.

NOTE: The darker shades represent U.S. and Soviet Union contributions to the NATO and Warsaw Pact totals. For NATO forces, the data for main battle tanks include all U.S. tanks in Europe, including both active units and prepositioned equipment, all West German tanks, and all other NATO tanks stationed in West Germany (Belgium, Canada, France, the Netherlands, and the United Kingdom); for Warsaw Pact forces, the data include all Soviet tanks assigned to the Western Strategic Direction (groups of Soviet forces in allied countries as well as the Baltic, Belorussian, and Carpathian Military Districts) and all tanks from Czechoslovakia, East Germany, and Poland. The data for combat aircraft include only air forces and exclude naval aviation and armed helicopters. The NATO figure includes all U.S. Air Force aircraft stationed in Europe (in dark blue), and all combat aircraft belonging to all European NATO allies plus Canadian aircraft stationed in West Germany. The Warsaw Pact figure includes all Soviet combat aircraft assigned to the Western Strategic Direction as well as all aircraft from the militaries of all Warsaw Pact states.

FIGURE 3

Select NATO Ground Military Personnel Present in Central/Northern Europe, 1991–2016



SOURCE: IISS, 1992–2017.

NOTE: This figure includes the land forces of NATO countries that previously had committed forces to the defense of West Germany, as well as those that have been added since the end of the Cold War (notably Poland [**a.**] and the Baltic states [**b.**]). The figure for U.S. and Canadian forces includes only those that are stationed in Europe [**c.**] and combines the total forces from the Baltic states (Estonia, Latvia, and Lithuania) to be more visible at the chart scale.

Over the course of the next three decades, NATO declined steadily in military personnel strength even as it added new members. By comparison, Russia plummeted in personnel strength over the same period, with the dissolution of the Warsaw Pact and the end of the Soviet Union.

Still, the relevant question is how much relative combat power can be quickly deployed in a short-warning conflict. Figure 3 provides a closer look at the specific NATO member countries postured to provide forces in the event of a crisis on Russia's borders with NATO near Kaliningrad and the Baltic states.

The Russian Conventional Threat to NATO in the Baltics

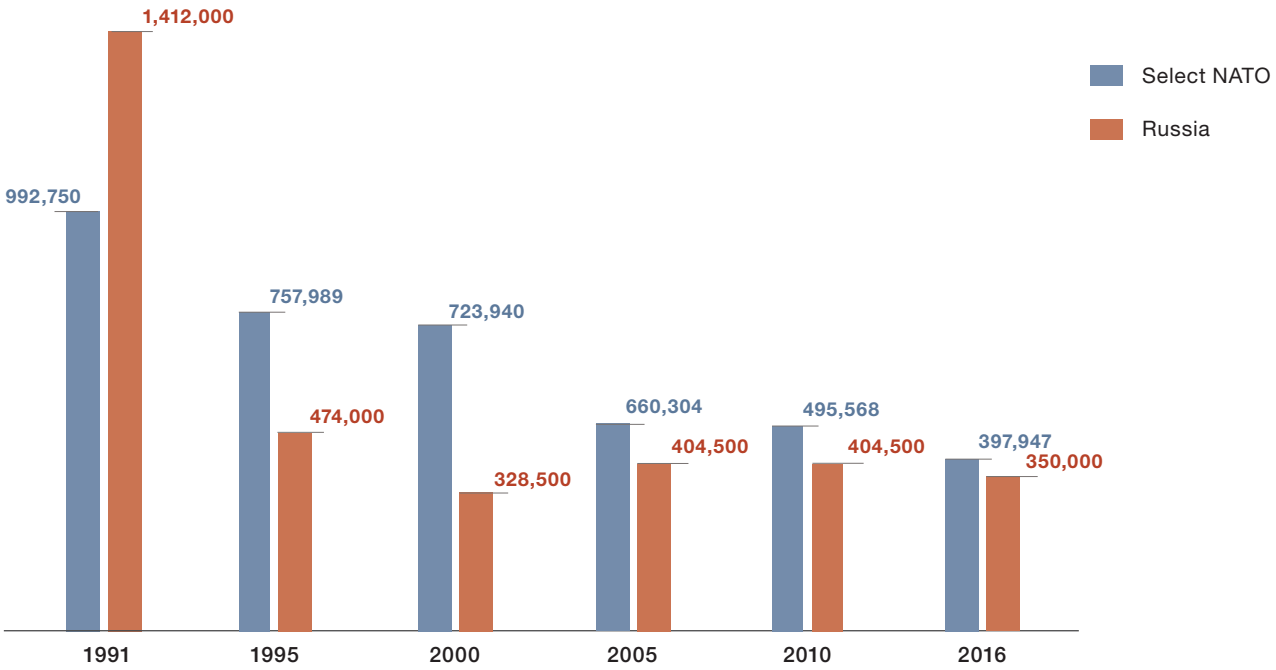
Although there has been a steady decline in NATO personnel strength, Figure 4 shows that the decrease in size of Russian forces since the end of the Cold War has been even more severe. How can Russia be a threat to NATO on the ground in light of the disparity in defense funding and ground military personnel? The answer to this question has four related parts:

- First, while NATO militaries have retooled to focus on stability operations and lighter forces that can be more easily deployed out of area to such places as Afghanistan, Russia has retained a combined-arms force that emphasizes mobility and firepower and trains to conduct larger-scale combined-arms operations. This gives Russian forces an important advantage in conflicts between mechanized forces close to their border.

- Second, there has been a notable increase in the quality of Russian forces over the last decade. This can be observed in the growing number of volunteer soldiers (as opposed to draftees), the fielding of modernized weapons, the improvements to readiness, and the experience gained from large-scale exercises and combat operations in Ukraine and Syria. In particular, the Russians have advantages over current NATO forces in integrated air

FIGURE 4

Select NATO Ground Personnel Compared with Total Russian Ground Personnel, 1991–2016



SOURCE: IISS, 1992–2017.

NOTE: These data include all NATO data from Figure 3; Russia numbers include total ground forces and airborne troops personnel (with conscripts), as well as ground units belonging to the Naval Infantry or under Russian Navy command.

defense, long-range artillery, anti-armor munitions, and electronic warfare.

- Third, the highest density of Russia's most-capable ground and air forces is in its Western Military District (MD). The MD borders NATO allies Estonia, Latvia, and Lithuania, which have very small conventional forces.

- Finally, Russia's demonstrated ability to mass ready forces from elsewhere within its borders, leveraging its internal rail and road networks, means that it is likely to enjoy a significant time-distance advantage in generating combat forces during the opening weeks—or even months—of a crisis.

The next section considers each of these parts in further detail.

Conventional Warfighting Capability

Since 2001, the ground military services of most NATO countries have adapted to operations in the Middle East by training and equipping forces optimized for stability operations. These have tended to be more infantry-heavy formations, while heavy combined-arms formations, artillery, and air defenses generally have received somewhat less emphasis. Examples include:

- The U.S. Army reduced the number of heavy brigades and armored cavalry regiments in its active force from 19 in 2000 to 9 by 2015. It inactivated its last two permanently stationed heavy brigade combat teams in Germany in 2012–2013. The number of U.S. tanks in Germany dropped from about 5,000 in 1990 to 0 by 2014 (Vandiver, 2013).

- Germany's active tank fleet, which once numbered in the thousands, had been reduced to 244 by 2017. Of these, fewer than 100 were cited in recent reporting as being operationally ready for duty (Cranny-Evans, 2017, p. 145).

- The Baltic states of Estonia, Latvia, and Lithuania operate some light armored vehicles but lack main battle tanks altogether.

Zapad 2017 — Russian-Belarusian joint military strategic exercise.

- Poland's tank fleet has dropped from about 1,700 at the time of its accession into NATO in 1999 to just under 1,000 by 2016, of which about three-quarters are obsolete T-72M variants (IISS, 2017, p. 145).

It is important to note that these examples are well-known; as of early 2017, the United States had begun to rotate a single armored brigade combat team to Europe, and the Poles were steadily upgrading their tank fleet with modernized Leopard 2 main battle tanks. The **activation of the NATO enhanced forward presence (eFP) battlegroups has (in total) brought about a single heavy brigade's worth of forces**—albeit relatively light on tanks and artillery, as will be outlined further—to the three Baltic states and Poland. These are positive steps for the Alliance.

In Russia, there have been notable increases in force structure in the Western and Southern MDs in recent years, much of them emphasizing heavy forces. In 2013, two brigades in the Moscow area were expanded to small divisions (roughly doubling their previous size). Since then, two new Army headquarters have been activated, two mechanized brigades were relocated from central Russia to the Western MD, and a new tank brigade was activated. The Russian Ground Forces are in the midst of further expansion, collecting and converting brigades into several larger six-regiment divisions. The Airborne Troops are receiving new equipment, have expanded in size by nearly a third, and are being equipped with heavier armor for ground combat missions.

Success of Russian Reform Efforts

In the years immediately following the 2008 war with Georgia, Russia embarked on a series of military reforms that eventually had a considerable impact on the quality of its forces. The transition to a brigade-centric army—which is now in the process of evolving further into a mix of brigades and divisions—brought with it notable improvements in readiness. The number of volunteer soldiers serving under contract in the Russian Armed Forces appears to have reached about 350,000–380,000; as the high-readiness elements of the Russian military are reliant on contract soldiers, this has substantially expanded the number of units ready for operations on short notice (Golts, 2017). Russian military units have also seen a relatively high pace of exercises—both programmed and unannounced "snap" exercises—as well as active combat operations in Crimea and East Ukraine since 2014, and Syria since 2015.[2] Finally, Russian military modernization efforts have resulted in the fielding of some very capable air defenses, and long-range strike weapons, such as the SS-26 STONE (9K720 Iskander-M) tactical ballistic missile, as well as large numbers of more modestly improved weapon platforms, such as upgraded T-72B3 tanks.

Correlation of Forces in the Baltic States

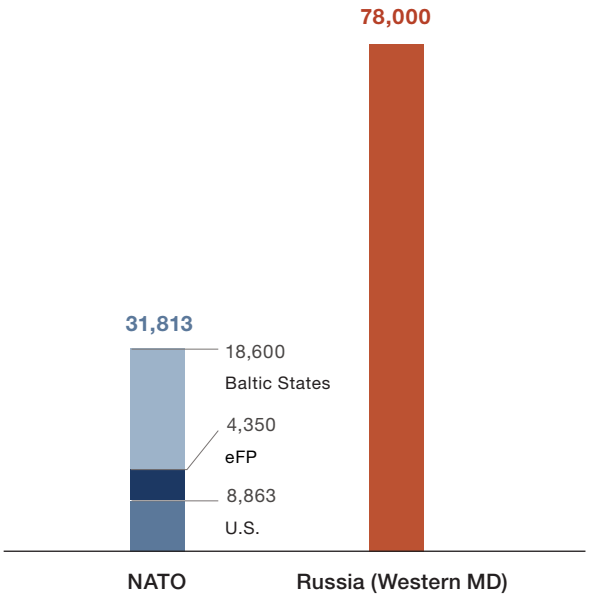
The following figures show the comparison of key major weapon systems that would be available to Russia and NATO over the opening weeks and months of a conflict in the Baltic states. Figure 5 shows that Russia has a large numerical advantage over NATO in local ground combat capacity.

Russia's general advantage in numbers is compounded by the fact that, compared with the Cold War balance described earlier in this report, NATO forces are not nearly sufficient to defend a contiguous line and delay a large-scale conventional advance by a mechanized adversary, such as Russia—particularly as Russian forces would have sufficient mobility to concentrate forces in time and space to substantially outnumber isolated defenders.[3]

Figure 6 depicts a simplified version of the current reality: When considering ground forces—using main battle tank numbers as a proxy for combined-arms heavy units—Russia has a pronounced local advantage in a contingency taking place in the Baltic states in terms of forces intended for high-end combat operations, but when comparing air power—which can be shifted relatively quickly across large distances—the combined air forces of NATO have a large numerical advantage. Even acknowledging that the United States (which has more combat aircraft than the rest of NATO combined) has global commitments and could not bring its entire force to bear against a single adversary without increasing risks to allies elsewhere in the world, the numbers are strongly in favor of NATO. While NATO has an advantage in experienced pilots and precision munitions, these are in short supply. Moreover, **Russia has an advantage in advanced integrated air defenses that renders NATO's numerical advantage usable at high risk to all its fourth-generation aircraft.** While the comparisons are illustrative of Russia's relative strength on the ground and NATO's strength in the air, it is worth examining the relative strengths of both sides in greater detail.

FIGURE 5

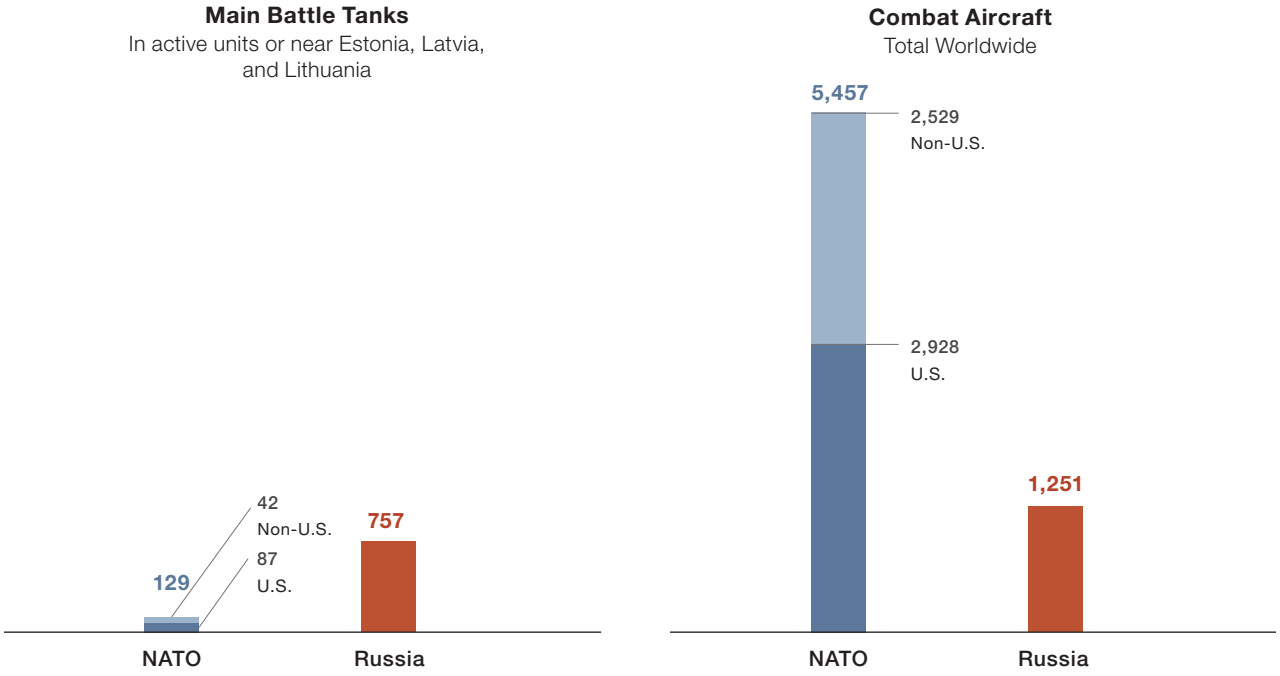
Personnel in Combat Units: Baltic States and Western Russia, 2017



SOURCE: IISS, 2017; NATO, 2017a; Grau and Bartles, 2016.

FIGURE 6

Select Weapon Platforms for Short-Notice Baltic Scenario, 2017



SOURCE: IISS, 2017.

NOTE: The total derived for main battle tanks is based on an estimate of one company of armor for each eFP battlegroup and one armored brigade combat team from the United States moving into the area from Poland; for Russia, this table includes only tanks assigned to active units in the Western MD and excludes those assigned to the Baltic Fleet forces in Kaliningrad. (IISS gives a total of 2,700 main battle tanks for the whole of the Russian Ground Forces). Data for combat aircraft include all combat-capable aircraft of fourth generation or newer for all sides.

Table 1 shows considerably more detail in the ground combat comparison and how badly outnumbered and outgunned a NATO force defending the Baltic states would be in the initial days and weeks of a conventional fight. This table portrays a rough estimate of the local correlation of forces on the ground, comparing the active units in the Western MD with those forces available in defense of the Baltic states. It assumes that the Polish Land Forces will be committed to defending Poland as a staging area for a large NATO counterattack force to build, and both U.S. brigades (one armored and one Stryker) will be free to move in and support the three eFP battlegroups in this period. Russian forces here include only those of the Western MD and exclude those ground forces assigned to the Russian Baltic Fleet in Kaliningrad. Importantly, the dramatic numerical advantage in ground-based fires available to the Russian force shows a path to how the Russians could attempt to offset a disadvantage in air-delivered fires.

An important counter to Russian strength on the ground would be the early employment of NATO-member air forces to disrupt and destroy Russian maneuver and artillery systems. However, Russia's national air defenses can cover sizable portions of NATO territory from Russian (or Russian-allied) territory. Russian aircraft and air defenses would greatly complicate efforts to focus NATO airpower on Russian maneuver forces in the initial phase of a conflict. Table 2 shows the correlation of forces focusing on NATO's efforts to gain control of the air.

Russian investment in its air defense network dramatically complicates the task of non–stealthy aircraft in gaining situational awareness and conducting air-to-air or air-to-ground combat. The relatively limited number of stealthy "fifth-generation" combat aircraft—of which most would be arriving from the continental United States during the first days of the conflict—would be spread very thinly

TABLE 1

Initial Correlation of Ground Forces in the Vicinity of the Baltic States, 2017

	NATO FORCES IN BALTIC STATES	RUSSIAN FEDERATION WESTERN MD
Major formations Brigade (bde) equivalents[a]	2 armored/mechanized (NATO eFP and U.S. armored bde) 6 infantry/motorized (Baltic states and U.S. Stryker bde)	~8 motor rifle ~4 tank 6 airborne/air assault 3 artillery 1 rocket artillery

WEAPON SYSTEMS (estimated)	NATO	RUSSIA	RATIO
Main battle tanks	129	757	1 : 5.9
Infantry fighting vehicles	280	1,276	1 : 4.6
Self-propelled howitzers	32	342	1 : 10.7
Rocket artillery	0	270	0 : 270

SOURCE: RAND analysis of data from IISS, 2017; "German Tanks and Armored Vehicles Arrive in Lithuania," 2017; Gonzalez, 2017; Gorenberg 2017; Jones, 2017; Palowski, 2016.

[a] For the purposes of this table, Russian motor rifle, tank, and airborne/air assault regiments are considered equivalent to brigades.

TABLE 2

NATO Capability to Gain Control of the Air over Baltic States, 2017

AIRCRAFT	NATO	RUSSIA
Fourth-generation	5,094 2,928 U.S., 2,529 non-U.S.	1,251
Fifth-generation	363 159 F-22A (U.S. only) 20 B-2 (U.S. only) ~175 F-35A/B/C (many not yet combat-ready) 9 F-35 (NATO allies)	—

AIR MISSILE DEFENSE	NATO	RUSSIA
Advanced long-range SAMs	—	17 regiments SA-20/21 and SA-23: Approximately 272 launchers
Advanced medium-range SAMs	—	3 brigades SA-11/17: Approximately 72 launchers
Advanced short-range air defense	—	24+ battalions: Approximately 288 launchers

SOURCE: RAND analysis of data from IISS, 2017.

NOTE: SAMs=surface-to-air missiles.

right as the need for them to degrade Russian air defenses and defend ground forces against Russian combat aircraft was at its peak. Figure 7 shows the estimated peacetime and the potential Baltic-focused locations and covered footprint of Russia's long-range surface-to-air missile (SAM) regiments, belonging to the Russian Aerospace Forces and the Baltic Fleet.

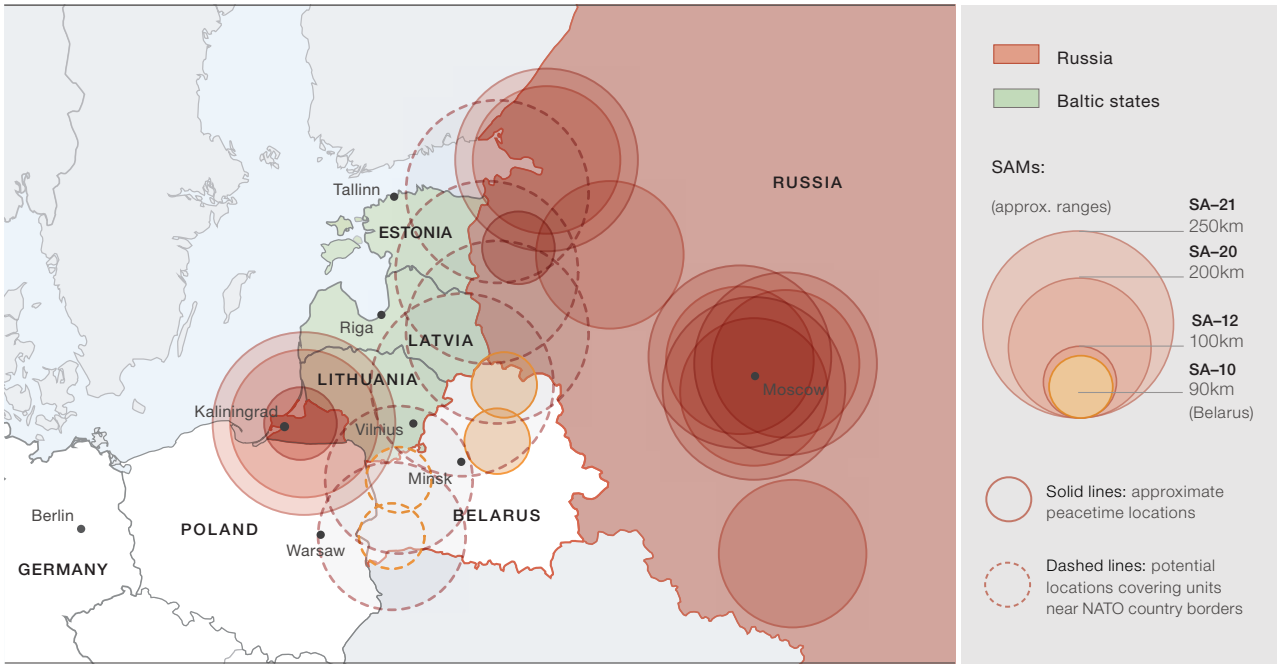
Flowing in Reinforcements

Looking out past the initial weeks, the comparison on the ground would actually get worse for NATO before getting better. It appears that Russia would start with not only a numerical advantage in key ground combat systems, but also with forces that can be generated and moved to the West more quickly than many NATO reinforcements can arrive. There are, indeed, some NATO forces that can respond:

- The NATO Very High Readiness Joint Task Force is intended to be able to move the majority of its subordinate units within seven days of notice (NATO, 2016).
- Recent RAND research has suggested that France, Germany, and the United Kingdom could each deploy approximately one single heavy brigade each within a month or two of the onset of hostilities (Shurkin, 2017).

However, Russia can also reinforce with additional units from its other military districts. Russia has nine more army headquarters across its military districts and more than 60 maneuver brigades or regiments in its order of battle. The Swedish Defense Research Agency (FOI) has estimated that

FIGURE 7
Russian National Air Defenses in Peacetime and Alternate Baltic-Focused Locations



SOURCE: RAND analysis of IISS data.

NOTE: Orange circles depict Belarusian air defenses, which are integrated into the Russian network.

a large-scale joint campaign could grow to include approximately 150,000 personnel across maneuver, artillery, air, and naval forces in weeks, while the United States would require months to deploy a comparable offensive force across the Atlantic (Persson, 2016, p. 92). The large-scale employment of Russian long-range fires would also seriously hamper NATO units' movement to the area. Looking forward, Russia continues to expand its ground forces in the West. By 2020, Russia's Western MD's three armies will have grown to a total of three motor rifle divisions, three airborne divisions, a tank division, and four combined-arms brigades, as well as numerous other combat and supporting brigades. In total, this will give Russia a starting force of about 26 maneuver brigades or regiments in the Western MD; if achieved, this is about 44 percent more than the current level, even before considering the potential for reinforcement by additional troops from nine other armies in Russia's three other military districts.

Conclusion

Given NATO's current posture and capability, including the European eFP battalions and rotational U.S. armored brigade combat team, Russia still enjoys a substantial time-distance advantage in the initial days and weeks of a conventional ground campaign against the Baltic States. Nothing about this analysis should suggest that Russian conventional aggression against NATO is likely to take place; however, prudence suggests that steps should be taken to mitigate potential areas of vulnerability in the interest of ensuring a stable security relationship between all NATO members and Russia. NATO has sufficient resources, personnel, and equipment to enhance conventional deterrence focused on Russia; a more robust posture designed to considerably raise the cost of military adventurism against one or more NATO member states is worthy of consideration. ■

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Endnotes

[1] All historical data are from International Institute for Strategic Studies, *The Military Balance*, various years. Where feasible, this data has been checked against other historical sources, including official U.S. government assessments, such as *Soviet Military Power* (U.S. Defense Intelligence Agency, 1989).The authors would also like to thank IISS Research Fellow Henry Boyd for his helpful comments on the Russian order of battle data in The Military Balance.

[2] Recent reporting on Russian large-scale exercises suggests an emphasis on scale and joint integration, frequently involving the conduct of two scenarios simultaneously (see Norberg, 2015; and Brzezinski and Varangi, 2016).

[3] The change in scale is dramatic from 1989 to the present. Where more than 29,000 tanks were counted in Figure 2 (1989), probably fewer than a thousand total tanks would be involved in the initial period of a Baltic conflict as depicted in Figure 6 (2017). This change in force density has important effects on how one should think about how combat operations might occur in this scenario.

PHOTO CREDIT—PAGE 6

Ministry of Defense of the Russian Federation, September 14–20, 2017. http://мультимедиа.минобороны.рф/multimedia/photo/gallery.htm?id=45135@cmsPhotoGallery

About This Report

This report draws on publicly available materials, previous RAND national security research, and RAND wargaming and analytic expertise to evaluate how NATO and Russian force levels and capabilities have evolved in the post–Cold War era and what recent trends imply for the balance of capabilities in the NATO member states that border Russia in the Baltic Sea region. It is intended to inform debate over appropriate NATO force preparation to respond to the recent growth in Russian military capability and capacity and increased assertiveness in the use of force.

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The report will be of interest to U.S. Department of Defense and NATO defense planners and policymakers—particularly those who are responsible for setting and implementing national security strategy objectives and for providing the resources required to meet them. It will also be of interest to leaders of the U.S. Army, NATO strategists, military officers, and research analysts.

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