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Member states of the North Atlantic Treaty Organization (NATO) located close to the border of Russia face a potential threat of Russian military intervention. Postulating Ukraine as a future NATO member as a case study, and projecting Russian, Ukrainian, and NATO capabilities forward to 2030, in order to defeat a Russian incursion, NATO must be capable of defeating a Russian force including about 400 modern tanks; gaining and maintaining local air supremacy within a few days; deploying aircraft and aviation logistic support to forward expeditionary bases fast enough to affect the outcome; and rapidly activating a field headquarters capable of organizing and directing an international coalition military campaign.

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# **FUTURE WAR PAPER**

## ***Keeping the Bear at Bay: Defending a NATO Member Against Russian Attack in 2030***

**SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF OPERATIONAL STUDIES**

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## I. INTRODUCTION

Since the dissolution of the Soviet Union in 1991, the United States and its allies in the North Atlantic Treaty Organization (NATO) have faced a Russian Federation (hereinafter referred to as “Russia”) with uncertain ambitions as a world power. The 1990s were a period of shrinking Russian defense spending and military decline, which was exposed strikingly in 1999 when the Russian army struggled to suppress an insurgency in Chechnya.<sup>1</sup> Since becoming President in 2000, Vladimir Putin has sought to reassert Russia’s role as a regional military power, and has demonstrated a willingness to use military force against Russia’s neighbors. He has intervened within the sovereign territory of two neighboring states, Georgia and Ukraine, both of which had applied for NATO membership. In both cases, NATO chose not to intervene. However, if Russia invaded an established NATO member state, Article 5 of the NATO convention would compel the organization to respond and defend the member against Russia.<sup>2</sup> As a hypothetical case study of such a defense, we will postulate the future accession to NATO by Ukraine, followed by a Russian military invasion in the year 2030 to seize all or part of the territory of Ukraine. The ability of NATO to defeat the Russian aggression will depend on certain capabilities of the alliance, projected forward to 2030. Specifically, to defeat Russian aggression in an East European country such as Ukraine, NATO must be able to defeat a force of about four hundred modern Russian tanks; must be able to generate and sustain local air supremacy within a few days of commencing combat, defeating both Russia’s air force and its anti-aircraft assets; must have access and detailed plans for deployment to bases close to the Russian border, bases which can support large-scale aviation combat operations on short notice; and must have a dedicated headquarters capable of organizing and directing an effective military response against a Russian invasion.

Framing the scenario, in 2008, Russia intervened in the Georgian province of South Ossetia, on the pretext of protecting the ethnic Russian population from alleged Georgian aggression. Similar circumstances accompanied the Russian seizure and annexation of the Crimea from Ukraine in 2014. The two actions in Georgia and Ukraine followed a similar pattern: provocation of the sovereign state by ethnic Russian paramilitary groups within its borders, response by the state to restore order and assert its sovereignty, then military intervention by Russia on the pretext of protecting the lives and interests of ethnic Russians. The end state is a permanent violation of the sovereignty of the state in which the intervention took place, either “independence” (as of South Ossetia from Georgia) or Russian annexation (as of the Crimea). In both cases, the Russian objective appears to have been to achieve a swift victory and obtain a territorial or political advantage, then presenting NATO with a *fait accompli* that weakens western resolve to intervene and risk conflict with Russia. Both actions were preceded by periods of months during which political tensions escalated, but once decisive military action began, Russian objectives were secured within 7-8 days.<sup>3</sup>

The challenge for NATO, then, is to prepare itself in such a way that its military capabilities can be brought to bear in defense of one of its eastern member states faster than the Russians can secure and consolidate their objectives. Once fighting has stopped and the invaded state has signed a ceasefire with the aggressor, there is reason to doubt that some of NATO’s members would have the political will to employ force against Russia, at the risk of a wider conflict. This is, indeed, a crucial aspect of Russia’s strategy. Russia is not capable of winning a full-scale war against NATO, and will be even less so in 2030. However, Putin has shown that he is capable of gaining political and territorial concessions at the expense of his neighbors, without provoking a western response, by striking quickly and seizing ground with operations

lasting about a week. This has proved faster than the time necessary to generate any effective western response, diplomatic or military, in Georgia or Ukraine.

What the Russians have not yet attempted is an overt attack against a NATO member state. Such an act would, on its surface, greatly simplify and streamline the NATO response, because NATO's Article 5 would compel a military response. Diplomatic maneuvering need not dictate the timeline; military operations could commence immediately with a clear purpose: the defeat of Russian forces and restoration of the member state's sovereignty. The question, then, is what will NATO require in 2030 in order to be able to carry out that mandate, in the hypothetical case of Ukrainian NATO membership and a Russian invasion? To answer this, we will examine and project to 2030 the relative capabilities of Russian, Ukrainian, and NATO military forces, in order to postulate what critical requirements NATO must satisfy in order to maintain the capability of defeating a Russian invasion faster than the Russians can obtain a settlement from the invaded country.

## **II. RUSSIAN MILITARY DECLINE AND REFORM**

Following the Soviet breakup in 1991, the former Red Army began a period of decline and stagnation that spanned the rest of the 1990s. Spending was slashed without any systematic adjustment of force structure, doctrine, or strategic purpose for the Russian army. The result was a decaying force crippled by a top-heavy officer corps, antiquated equipment, poor command and control capabilities, and crumbling infrastructure. Attempts at reform were met with strong resistance from the Russian officer corps.<sup>4</sup> Such reform as did occur consisted largely of cuts in manpower and equipment, without any major reorganization to optimize the capabilities of the force that remained.

In the post-Soviet era, total manpower of the Russian armed forces has decreased from nearly 3 million in 1990 to roughly 1.1 million by 1999, where it has remained steady since. Strength of ground forces has decreased from about 1.5 million in 1990 to 321,000 in 2015. This represents a decrease from forty-six fielded tank divisions to five; from 142 motorized rifle regiments to nineteen, and from nineteen artillery divisions to five. Russia's key strengths compared to NATO are its numbers of tanks and artillery pieces. Total Russian tanks in service decreased from 63,000 in 1990 to 21,820 in 2015. However, this decrease came from the retirement of thousands of decrepit T-54/55, T-62, and T-64 tanks. Numbers of T-72 tanks in service essentially remained steady, while on-hand quantities of more modern tanks such as the T-80 and T-90 increased or held steady since 2000. Russian towed and self-propelled artillery have likewise declined to about one third and one half, respectively, of their 1990 levels, but as with tanks, the reduction has focused on retirement of older systems and retention of the most modern equipment.<sup>5</sup>

The reason for the retention of large quantities of archaic Cold War equipment from the 1950s and 1960s was the Russian model for mass mobilization to support a large war against NATO. The army, even at its Soviet-era manning level of 3 million men, included many units which were essentially shells waiting to be filled with conscripts in the event of a general war. Major equipment end items, such as tanks, armored fighting vehicles, and artillery pieces, were retained, sometimes long after reaching practical obsolescence, for emergency issue to such units in case of mass mobilization. Most of the decrease of on-hand equipment since 1990 has come at the expense of such war reserves. As such, the decline in numbers bears little reflection on the deployable capabilities of the Russian army. The army has retained the best and most modern of

its equipment, and the cuts that have occurred in equipment and manpower are relevant mostly with respect to a full-scale war against a major competitor such as NATO.

A side-effect of the mass mobilization model is a top-heavy army organization with a surplus of officers relative to enlisted men. Since 1990, the army officer corps has been reduced accordingly from 355,000 to 150,000.<sup>6</sup> Most of the excess officers came from non-operational “skeleton units” which were maintained solely to support a full-scale mobilization of conscripts. While the downsizing of the officer corps has reduced costs, it has come in the form of mass dismissals of professional officers, and a corresponding loss of experience and expertise. Meanwhile, the Russian army lacks a professional non-commissioned officer (NCO) corps, which in many NATO armies provides the professional experience and tactical expertise in the field connecting the officer corps to the junior enlisted ranks. In an army consisting primarily of officers and inexperienced enlisted conscripts, the loss of officer expertise due to large-scale dismissals has degraded the overall readiness of the Russian army.

A major shortcoming of the Russian army, exposed in the fighting in Chechnya in the 1990s and still evident in Georgia in 2008, is an obsolete command and control structure in which disunity of command and lack of situational awareness lead to confusion and inefficiency on the battlefield.<sup>7</sup> Russian forces are organized administratively into four geographical military districts, but as late as 2008, military district commanders did not have full command authority over all the forces deployed within their districts. Similar to the pre-Goldwater-Nichols state of affairs in the U.S. military, deployed units in the field answered to their own service chain of command even as they operated under the field command of a district commander. The result, exposed in the fighting both in Chechnya and Georgia, was indecision and lack of tempo in combat.

At the same time, the Russian army in Chechnya and Georgia suffered (and still suffers) from a lack of real-time situational awareness due to the almost universal shortage of modern tactical communications. Compared to the United States, where modern encrypted, frequency hopping tactical radios capable of both voice and data transmission are distributed throughout the force, down to the platoon and usually even the squad level, modern radios are scarce in the Russian army. Real-time intelligence, surveillance, and reconnaissance (ISR) platforms which transmit data to command posts to enable decision making are even more scarce. The result, revealed as recently as 2008 in Georgia, was a level of uncertainty and lack of information which, coupled with archaic Soviet-era command structures, produced undesirable effects in battle, ranging from indecision and lack of operational tempo to fratricide. The detriments of an obsolete command and control architecture would be exacerbated greatly in conflict with a modern, technologically advanced professional military force such as NATO is able to deploy.

In 2008, at the direction of President Putin, Russian defense minister Anatoly Serdyukov introduced a plan of reform intended to address the shortcomings of the Russian armed forces and tailor the force to Russia's current and anticipated future strategic requirements. Called the "New Look," the program, which as of today has only been partially implemented, envisions a combination of force cuts, modernization, and institutional reform in order to transform the Russian armed forces into a more efficient and capable modern force. The reform comes at the expense of the old Soviet mass mobilization model, and essentially sacrifices the capability to mobilize the Russian nation on short notice for a general war against the west. The "New Look" program envisions the elimination of the "skeleton units;" reducing the size of the standing officer corps; establishing a professional NCO corps; reorganizing the command and control structure to give military district commanders unambiguous command authority of all military

forces assigned to their districts (with the exception of strategic nuclear forces); and streamlining the professional military education establishment, reducing the number of schools and consolidating the curriculum for professional education.

All of these goals have faced determined resistance from the Russian army officer corps, and the “New Look” reforms have moved forward slowly. With respect to NATO and the defense of Ukraine against a Russian invasion, the most important aspect of “New Look” is the elimination of the skeleton units. If successfully carried out, the current Russian inventory of 21,820 main battle tanks will shrink to just 2,000 tanks by 2030,<sup>8</sup> all of which would be of relatively recent make. For example, the Russian Army added approximately 300 new tanks to its inventory in 2010.<sup>9</sup> The number of separate maneuver units in the Russian army will reduce from 1,890 to only 172, all of which will be fully manned with a professional (not conscripted) force. For NATO, this means that the Russians, to the extent to which the “New Look” reforms overcome internal resistance and are achieved, essentially sacrifice the ability to muster a huge conscript army rapidly for a full-scale war against the west. On the other hand, what forces the Russians will have in 2030 will be more lethal and better trained and equipped, with professional leadership in both the officer and the enlisted NCO ranks. Russia’s goal is to equip seventy percent of its army with new weapons and equipment by 2020.<sup>10</sup>

The challenges of modernizing the Russian army cannot all be overcome through downsizing. The Russian army today faces serious deficits in modern equipment that would place it at a disadvantage in battle against NATO. An example is in the technology of command, control, communications, computers, and information (C4I). “New Look” calls for reorganization of the army’s old divisions into 40 mobile brigades. Each of these brigades will require 3,000 secure radios, 4,000 computers, and other supporting C4I infrastructure at a cost of

\$270 million per brigade. Few Russian field units currently possess such technology, putting Russian forces at a severe disadvantage in the real-time coordination of maneuver and fire support against a capable enemy such as NATO. Current plans call for the re-equipping of 3-4 brigades per year, which would achieve full coverage of the 40-brigade army by 2030.<sup>11</sup> Issues which could prevent Russia from achieving this goal include the limited ability of Russian industry to supply the army's needs for technologically advanced C4I equipment, forcing Russia to purchase equipment abroad; and the heavy reliance of the Russian economy on oil exports, in an era of falling oil prices and the emerging technology of hydraulic fracturing ("fracking"), which threatens Russia's oil export market.

Nevertheless, "New Look" reforms are beginning, equipment is being modernized either through new procurement (as with C4I gear) or through elimination of obsolete reserve stock (as with tanks). Russia no longer has the capacity to maintain enormous standing armies along every segment of its international frontier. To assess the size of force that might be available for an expedition in Ukraine in 2030, we will consider the mobile brigade organization envisioned under "New Look" and make the assumption that operations against Ukraine would be conducted with forces assigned to the Southern Military District (the district adjacent to Ukraine). While recognizing the intent of the mobile brigade construct is partly to make Russian forces lighter, yet more agile, allowing them to be moved and concentrated according to tactical need, if we consider a scenario where operations in Ukraine are likely to provoke direct conflict with NATO, Russia will be compelled to maintain forces in other geographic districts to guard against a NATO response outside Ukraine itself, or against opportunistic adversaries in Asia (for instance, another Chechnyan uprising coinciding with decisive Russian commitment against NATO). Ground combat arms forces assigned to Southern Military District include eleven

motorized rifle brigades, two reconnaissance brigades, one light commando brigade, two Spetsnaz brigades, one air defense brigade and one air defense regiment, one artillery brigade, and one rocket-propelled artillery brigade.<sup>12</sup> Of these, three motorized rifle brigades and the air defense regiment are dedicated to static base defense. Assuming, optimistically, that the entire remaining force within the Southern Military District is available for deployment to Ukraine in 2030, the force would consist of fifteen combat arms brigades, with combat support and combat service support attachments as required. Each motorized rifle brigade has approximately forty tanks, giving the expeditionary force a total of 400-500 modern main battle tanks (i.e., T-80, T-84, and T-90 tanks).

### **III. UKRAINIAN CAPABILITIES**

The first counter to a Russian invasion will be the army of Ukraine. The Ukrainian army in the period 1990-2014 has not undergone any significant reform, but rather has retained old Soviet concepts and structures, while decaying due to age and obsolescence.<sup>13</sup> For instance, of the total of 1,095 Ukrainian main battle tanks on hand in 2014, 1,085 are aged T-64/T64BM. Ten T-84 tanks represent Ukraine's entire inventory of modern tanks. Unlike Russia, Ukraine does not have a visionary plan for military reform comparable to "New Look." It is likely, between 2015 and 2030, that current Ukrainian inventories of major combat systems will continue to decrease through attrition, both due to age and combat losses from internal security operations against Russian separatists (for instance, in 2014 Ukrainian losses have been estimated at 220 tanks and 480 armored vehicles, with no replacements planned). The future is no brighter for Ukraine's inventory of anti-tank weapon systems. Its fleet of attack helicopters has shrunk by about fifty percent since independence from the Soviet Union, down to 139 aging Mi-24 Hind helicopters. Ukraine also possesses approximately 500 T-12 anti-tank guns. Eighty-

five percent of its fleet of 507 fixed wing combat aircraft is grounded and unserviceable, and of the serviceable aircraft, only about 50 can be manned at any time due to lack of trained crews.<sup>14</sup>

The decline of Ukraine's armed forces has been due to a combination of limited defense spending, general economic decline in the 1990s, and corruption and mismanagement of the military supply system. Illustrating the poor state of the Ukrainian army in 2014, some recruits being called to mobilize in response to the Russian incursion in the Crimea were forced to purchase individual military gear at their own personal expense, in some cases being issued nothing by the army but an AK-47 rifle. A conscript being mobilized for combat in the Ukrainian army faces a choice of buying about \$2,000 worth of basic military equipment necessary for survival in the field, or spending a similar amount to bribe officials to remove him from the conscript list.<sup>15</sup>

In terms of manpower, the Ukrainian ground forces in 2014 number about 210,000 men, of which 70,000 are active and the rest reserves. Defending its homeland, Ukraine would have the benefit of all its forces to resist a Russian invasion. Ukrainian land forces are organized into three corps with eight mechanized rifle brigades, one mountain infantry brigade, two armored brigades, four air-mobile brigades, one airborne brigade, three tube artillery and three rocket artillery brigades, and two army aviation regiments. As we have seen, the armored brigades and army aviation regiments suffer a serious lack of modern, serviceable equipment and are not likely to be combat effective in 2030. Discounting the fleet of T-64 tanks (which were swept aside by the Russians in 2014, with lopsided Ukrainian losses), no significant Ukrainian tank formations are likely to see the field in 2030. Barring serious military reform and a major modernization effort, the aviation regiments will probably be ineffective, meaning that Ukraine in 2030 will likely be capable of fielding a total of twenty combat arms brigades. These brigades

will be of uncertain quality, manned largely by conscripts with obsolete and non-uniform personal equipment and weapons. There will be essentially no modern tanks or helicopters. Facing the Russian expeditionary force described previously, the Ukrainians would confront fifteen Russian combat arms brigades. The Russian units would be at full strength and relatively well equipped with modern equipment, including secure radios and about 400 modern tanks.

#### **IV. NATO CONTRIBUTIONS**

Based on the figures above, Ukraine would have a numerical advantage against the Russian army in terms of combat arms brigades, and a manpower advantage that could grow eventually, as Ukraine called up its reserve pool of 134,000 men. However, the Ukrainian lack of armor and anti-armor capability, the poor state of training and readiness of the Ukrainian army, and near complete lack of a serviceable Ukrainian air force would give the Russian army a decisive advantage. Accepting the projected comparison of Russian and Ukrainian forces in 2030, key questions to consider are what would NATO need to provide in order to neutralize the Russian advantage, and how quickly would NATO's contribution be required?

Against Ukraine, the Russians in 2030 will control the air and employ a well-equipped, mobile ground force, including about 400 tanks. To prevent Ukrainian resistance from being overrun, NATO would have to bring to bear forces capable of (1) gaining air supremacy over Ukraine, and (2) neutralizing the tanks and armored vehicles of Russia's eight motorized brigades. By neutralizing Russian armor and air power, and exposing the entire Russian force to NATO air strikes, NATO could enable Ukrainian forces ground forces to expel the remaining Russian forces.

Based on current procurement plans, Russia is projected to possess approximately 600 fourth and fifth generation fighter aircraft in 2030, including about 200 Su T-50 (comparable to

the U.S. F-22), together with roughly 200 ground attack aircraft.<sup>16</sup> In contrast, the U.S. has procured 187 F-22 fighters and plans to procure 2,457 F-35 aircraft through the year 2037 with hundreds of additional F-35s procured by other NATO allies.<sup>17</sup> The balance of modern aviation combat power will remain in favor of NATO over Russia in 2030. The key issue facing NATO in a Ukrainian contingency would be the concentration of air power, which ideally must occur rapidly enough to prevent the Russians from consolidating in Ukraine and assuming a defensive posture. If the Russians are allowed to defeat Ukrainian forces and consolidate their gains, the risk perceived by some NATO member states of entering a direct conflict against Russia (to include, as hinted in 2014 by President Putin, the threat of Russian first use of tactical nuclear weapons) could fracture the fracture the unity of NATO and hinder its response.<sup>18</sup>

The critical requirement to enable concentration of NATO air power, rapidly enough to decisively influence the outcome of a Russian invasion of Ukraine, is a forward basing plan that allows NATO aircraft from multiple countries rapidly to occupy forward bases within striking range of the area of operations. The U.S. Government Accountability Office (GAO) conducted a study of a similar contingency, Operation Allied Force, the NATO air mission to Kosovo in 1999, and published a report with recommendations for basing plans to support future conflicts.<sup>19</sup> This report found that, in the case of Kosovo, neither NATO nor EUCOM assumed the lead role for coordinating movement of aviation assets from the many participating services and countries into the theater of operations. There was no plan for echeloning aircraft into theater on a logistically supportable timeline. There was no coordinated assignment of airfields and facilities to squadrons as they arrived; no unified plan for distribution of ordnance and fuel; and no detailed assessment of the availability of airfields and aviation support facilities in the theater of operations. There existed no supplemental agreements with host nations to allow for aircraft

basing and logistic support. Host nation support requirements were completely undefined at the start of the mission, and had to be determined in ad hoc fashion by U.S. Air Force site survey teams sent to deployed to 27 different locations, over a span of six weeks in April-May 1999.

During Operation Allied Force, the U.S. alone managed to surge its supply of aircraft in the European theater from 207 to over 700 aircraft, but this took 78 days to achieve. How much time would be available for NATO to organize its response to a Russian invasion of Ukraine? The answer depends on variables that include the effectiveness of the Ukrainian ground defense, impact of the season and weather, and most crucially, the nature and location of Russian ground objectives. A small slice of Ukrainian territory near the Russian border could be seized in a day. We will assume for purposes of this study that the Russians have greater strategic objectives and intend to seize the Ukrainian capital of Kiev. The distance by road from the Russian border to Kiev is about 380 kilometers. Assuming no NATO intervention and medium resistance from Ukrainian forces, Russian armored and motorized forces might achieve an opposed rate of advance of 16-20 kilometers per day.<sup>20</sup> At 20 kilometers per day, the Russians would seize Kiev after 19 days. This could be considered the upper limit of time available for NATO aircraft to contribute decisively to the defeat of Russian armored forces.<sup>21</sup>

While the GAO focused on the concentration of fixed wing combat power, in a battle to destroy Russian armored vehicles, rotary wing aircraft could be NATO's decisive weapon. Helicopters have the advantage of greater flexibility in their basing requirements than fixed wing aircraft, but NATO still requires a plan to identify available rotary wing aircraft and support infrastructure, deliver them to the theater of operations, then base and sustain them within striking distance of the front. For a Ukrainian contingency, this means basing NATO helicopters inside Ukraine. Without a prior plan to coordinate such a deployment, delays will occur as the

battle unfolds, and NATO aircraft will sit idle while staff members coordinate ad hoc basing arrangements, as was done in Kosovo.

Another element of contingency planning that was missing in Kosovo was the designation of a headquarters to assume responsibility for the overall direction of the campaign. As the GAO pointed out, operations in Kosovo suffered from the lack of a dedicated, purpose-oriented headquarters coordinating not just between NATO nations, but also between separate U.S. services. The need for a standing headquarters designated for such a purpose has been identified, and as of 2014, NATO has begun to consider options for re-tasking an existing headquarters “to serve as an Article 5 focused rapid response.”<sup>22</sup> A dedicated headquarters, organized, trained and equipped to plan and conduct campaigns on NATO’s eastern frontier would be a great force multiplier, saving critical weeks of time needed to bring NATO’s combat power to bear.

## **V. IMPROVING THE ODDS: UPGRADING UKRAINIAN CAPABILITIES**

The foregoing discussion has assumed essentially no change in the current trajectory of the Ukrainian armed forces, and no deliberate Ukrainian plan to defeat a Russian invasion. There are things the Ukrainians could do to improve their own capacity for self-defense. Once the Russians invade, and prior to decisive NATO involvement, the Ukrainians will suffer a shortfall of tactical mobility, due to their own lack of tactical lift as well as to the threat from Russian aircraft. However, nothing prevents Ukraine from pre-staging the essential supplies and equipment to establish a defense in depth along all of the major mobility corridors in the nation, from the Russian border all the way to the Black Sea and Ukraine’s western borders. This would allow the relatively poorly equipped and immobile Ukrainian army to fight a defensive battle

from effective fortified positions, rather than attempting to maneuver against the superior Russian forces.

Ukraine would benefit from military reform along lines similar to Russia's "New Look," tailored to Ukrainian circumstances but likewise intended to cast off Soviet-era models of organization, mobilization, and equipment that are no longer relevant to Ukraine's security requirements. Ukraine could begin, if nothing else, by seriously tackling the issue of corruption and graft in its military procurement system with the goal of at least being able to provide its infantrymen with a basic kit of field gear before they go to the field.

Just as the GAO envisioned a more proactive set of plans for future deployment of NATO aviation, Ukraine, as a potential host nation for such operations, could lean forward with such planning in peacetime. Identification of airfields and discreet preparation for them to support NATO aviation operations could be done at minimal cost and without attracting wide attention. Short of actually signing international basing agreements, the identification of runways, allocation of hangar space, creation of fuel and ordnance storage capacity, and identification of potential rotary wing expeditionary airfield sites could be done in peacetime, streamlining the NATO response in a contingency.

Finally, the Ukrainians might consider their options should the Russians secure their strategic objectives before NATO can hinder them. Must that mean that the war is over? Not necessarily, if the Ukrainians have a means of continuing to fight after organized military resistance has collapsed. Specifically, a deliberately planned Ukrainian people's war could keep Russian forces engaged, and provide intelligence and ground-level assistance to NATO forces as they plan and conduct what would now have become a forcible entry mission. In the event of a Ukrainian collapse prior to NATO's arrival, the large Ukrainian army reserves would likely not

yet have mobilized, leaving 134,000 men available to serve as insurgents, provided a plan exists to support them and coordinate their actions.

## **VI. CONCLUSION**

The Russian armed forces, although plagued by institutional resistance to change, are in the process of reform and transformation to become smaller, more modern, and more effective. Although to achieve these goals, Russia sacrifices the ability to mobilize vast armies of ill-trained, lightly equipped conscripts for a general war, what it gains in return is a more capable and deployable force. Ukraine, in contrast, has largely retained its antiquated Soviet-era equipment, organization, and doctrine, with no serious military reform undertaken or contemplated. Consequently, Ukraine in 2030 would be at a serious disadvantage defending itself against a Russian invasion. Depending on the specific Russian objectives, fighting could end with a Russian victory in a matter of perhaps three weeks. If NATO were to respond and seek to prevent the Russians from consolidating on their objectives, the key to success would be the ability rapidly to surge hundreds of combat aircraft from far-flung home bases into forward bases within striking range of the battlefield. NATO in 2030 will have the aircraft to defeat Russia in a limited conventional war, gaining local air supremacy and defeating Russian armor. The critical capability for NATO that is lacking today is the command and control architecture and advance aircraft basing plan to enable the concentration of NATO's superior resources quickly enough to influence the outcome of the conflict.

## Notes

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<sup>1</sup> Thomas Braun, “The Russian Military in 2020: Russia’s Way Back to Power Projection? Implications for NATO,” *Connections: The Quarterly Journal*, 19, no. 2 (2012): 68.

<sup>2</sup> Article 5 of the NATO charter declares an armed attack against one NATO member to be an attack against all, and obligates member nations to contribute to the defense of the member that is attacked. The text of Article 5 can be read at <http://www.nato.int/terrorism/five.htm>.

<sup>3</sup> Russian airstrikes in South Ossetia began on 7 August 2008, and a ceasefire agreement was signed by Georgian President Mikheil Saakashvili on 15 August, after eight days of fighting. Russian troops entered Ukraine on approximately 27 August 2014, and Ukrainian President Petro Poroshenko signed a ceasefire agreement on 3 September, seven days later.

<sup>4</sup> Braun, 67.

<sup>5</sup> Globalsecurity.org, “Russian Army Equipment,” <http://www.globalsecurity.org/military/world/russia/army-equipment.htm>.

<sup>6</sup> Braun, 70.

<sup>7</sup> *Ibid.*, 69-73.

<sup>8</sup> *Ibid.*, 71.

<sup>9</sup> Interfax: Russia and CIS Military Newswire. “Almost 300 modern tanks to be supplied to Russian Army in 2010,” February 25, 2010.

<sup>10</sup> Interfax: Russia and CIS Military Newswire. “Modern weapons, equipment to account for 70% of Russian army’s equipment by 2010 - Serdyukov,” March 17, 2009.

<sup>11</sup> Nabi Abdullaev, “Russian Army Prepares to Upgrade C4I Gear,” *Defense News*, January 25, 2010.

<sup>12</sup> Globalsecurity.org, “Russian Army Order of Battle,” <http://www.globalsecurity.org/military/world/russia/army-orbat.htm#vosouthern>.

<sup>13</sup> Globalsecurity.org, “Ground Forces – Ukraine,” <http://www.globalsecurity.org/military/world/ukraine/groundforces-equipment.htm>.

<sup>14</sup> Globalsecurity.org, “Air Force – Ukraine,” <http://www.globalsecurity.org/military/world/ukraine/vps.htm>.

<sup>15</sup> Aleksandr Lapko, “Ukraine’s Own Worst Enemy: In War Time, Corruption Can Be Deadly,” *New York Times*, October 7, 2014, [http://www.nytimes.com/2014/10/08/opinion/in-war-time-corruption-in-ukraine-can-be-deadly.html?\\_r=2](http://www.nytimes.com/2014/10/08/opinion/in-war-time-corruption-in-ukraine-can-be-deadly.html?_r=2).

<sup>16</sup> Globalsecurity.org, “Aviatsiya Voenno (AV Air Force),” <http://www.globalsecurity.org/military/world/russia/av-main.htm>.

<sup>17</sup> U.S. Government Accountability Office, *F-13 Joint Strike Fighter: Program Has Improved in Some Areas, but Affordability Challenges and Other Risks Remain*, GAO-13-500T, April 17, 2013.

<sup>18</sup> Jeffrey Tayler, “Putin’s Nuclear Option,” *Foreign Policy*, September 4, 2014, <http://foreignpolicy.com/2014/09/04/putins-nuclear-option>.

<sup>19</sup> U.S. Government Accountability Office, *Kosovo Air Operations: Combat Aircraft Basing Plans Are Needed In Advance of Future Conflicts*, GAO-01-461, May 29, 2001.

<sup>20</sup> U.S. Marine Corps, *MAGTF Planner’s Reference Manual*, MSTP Pamphlet 5-03, III-6, November 2012.

<sup>21</sup> A potential stopgap source of U.S. air power would be carrier-based aviation. A U.S. carrier strike group on station in the Mediterranean Sea would offer approximately 80-100 aircraft. However, for the case of Ukraine, the combat radius of a typical strike aircraft such as the F/A-18 (roughly 300 nm) would require carrier operations from the Black Sea. The Black Sea, in turn, is inaccessible to U.S. aircraft carriers because transit of the Bosphorus by aircraft carriers is prohibited under the terms of the Montreaux Convention (see <http://www.mfa.gov.tr/implementation-of-the-montreux-convention.en.mfa> for a description of the Montreaux Convention restrictions). Aerial refueling from tanker aircraft could extend the range of strike aircraft and allow flight operations from the eastern Mediterranean Sea, but to attain optimal sortie rates and allow the employment of the most effective anti-armor assets (attack

helicopters, and land-based strike aircraft such as the A-10), aircraft carriers are not an adequate substitute for land-based aviation in a scenario pitting NATO versus Russia.

<sup>22</sup> Oriana Pawlyk, "NATO considers another base location closer to eastern Europe", *Air Force Times*, July 25, 2014, <http://flightlines.airforcetimes.com/2014/07/25/nato-considers-another-base-location-closer-to-eastern-europe>

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