



STRATEGIC FORUM

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Key Points

- ◆ The North Atlantic Treaty Organization's military contribution to deter Russian aggression in the Baltic region should begin with an overall strategic concept that seamlessly transitions from deterrence through countering Russia's gray zone activities and onto conventional war, only if necessary.
- ◆ NATO should augment its ongoing program to enhance the denial-based deterrence for the region with threats of punishment that demonstrate to Russian leaders they cannot achieve their aims at acceptable costs.
- ◆ Rather than forward-position military forces in the Baltic states (Estonia, Latvia, and Lithuania), NATO should consider keeping forces further back to take advantage of strategic depth to limit vulnerability to Russian attack and increase operational flexibility.
- ◆ To support the overall denial-based deterrence concept, the Baltics must commit wholeheartedly to the concept of total defense including significant increases to their active and reserves forces.

Baltics Left of Bang: The Role of NATO with Partners in Denial-Based Deterrence

By Robert M. Klein, Stefan Lundqvist, Ed Sumangil, and Ulrica Pettersson

This paper is the first in a sequence of INSS Strategic Forums dedicated to multinational exploration of the strategic and defense challenges faced by Baltic states in close proximity to a resurgent Russia that the U.S. National Security Strategy describes as “using subversive measures to weaken the credibility of America’s commitment to Europe, undermine transatlantic unity, and weaken European institutions and governments.”¹ The American and European authors of this paper, along with many others, came together in late 2017 to begin exploration of the most significant Baltic states security challenges through focused strategic research and a series of multinational, interactive theater wargames sponsored by the U.S. National Defense University and Swedish Defence University. This first paper highlights early research and wargaming insights indicating the importance of denial-based deterrence for protection of the Baltic states from potential Russian aggression. It also provides recommendations for how the North Atlantic Treaty Organization (NATO), the United States, and the Baltic states can best improve their ground, maritime, and air forces to generate credible denial-based deterrence.

The worst-case military scenario for the Baltic states is the one described in a 2016 RAND wargame.² In this scenario, Russian conventional forces overwhelm Estonia, Latvia, and Lithuania within days while maintaining a robust antiaccess/area-denial (A2/AD) bubble in Kaliningrad. Inspired by success, Russia then invades Swedish Gotland and/or the Finnish Åland Islands in order to dominate the Baltic Sea. Several military analysts have argued that Russia might seek to achieve the strategic surprise necessary for such stunning success, under the guise of a military exercise, and present NATO with a fait accompli.³ Seizing the initiative through preemption and surprise is one way

Figure 1. Baltic Sea Region



a militarily inferior country could achieve victory over a militarily superior adversary. This principle especially holds when strategic aims are limited. In this scenario, a militarily inferior country could hope to achieve a situation where the costs to its adversary of reversing its initial

success would exceed any perceived benefits; therefore, the adversary would instead choose to live with the results of the initial offensive.

As outlined, the RAND scenario leaves NATO with a series of bad options. To deter Russia from such a

gambit, the Alliance could deploy ground forces forward in sufficient numbers to defend the Baltics. To this end, the U.S. Army has begun rotating brigade combat teams through the Baltics, and NATO has developed what it calls the Very High Readiness Joint Task Force, a rapid reinforcement capability in the Baltics in the event of a major crisis.⁴ However, under most likely scenarios, deploying additional conventional ground forces to the Baltics for forward defense is problematic, even if they could arrive in time and in sufficient numbers. First, it remains unclear whether these forces would have the intended deterrent effect. They might instead escalate tensions and stoke Russian aggression because Moscow seems likely to view additional NATO forces in the Baltics as a threat to Kaliningrad and perhaps St. Petersburg. Second, although additional conventional Alliance forces in the Baltics would undoubtedly drive up the costs of conventional attack by Russia, the entire region is one gigantic kill zone where Russia could immediately target NATO forces at the onset of hostilities, including vulnerable assembly areas, supplies, and fuel stocks. Russian attacks emanating through Kaliningrad, from Russia itself, over the sea, and likely from Belarus would almost certainly render additional prepositioned NATO forces vulnerable—at best delaying inevitable Russian victory or at worst dealing the Alliance an overwhelming defeat with very negative political repercussions for NATO.⁵

As noted by U.S.-based Russian analyst Michael Kofman, a Russian full-scale invasion of the Baltics to accomplish its objectives actually may be unnecessary.⁶ Geographically, the Baltic states resemble a gigantic salient, which Russia can simply isolate (along with any NATO forces deployed therein) by cutting the 65-km-wide Suwalki Gap and using its extensive A2/AD capability to keep the Alliance out and prevent reinforcement.⁷ The Russian exclave of Kaliningrad is a heavily militarized bastion. It bristles with A2/AD capabilities, such as the K-300 Bastion land-based mobile anti-ship missile batteries with not only P-800 Oniks missiles that have a range of 300 km but also S-400 surface-to-air missiles that have a range out to 400 km. Reportedly, Russia

will permanently deploy nuclear-capable SS-26 Iskander missiles to Kaliningrad during 2019, giving Moscow the ability to target parts of Poland and Germany from there in the event of hostilities.⁸ The Russian Baltic Fleet is in a state of growth and renewal. Its modern *Buyan*-class corvettes, deployed in Kaliningrad and Kronstadt since 2016, are equipped with the 3M-54 Kalibr group of cruise missiles.⁹ The nuclear-capable 2,500-km-range land-attack version provides the Russian forces with a strike capacity comparable with *Arleigh Burke*-class destroyers that significantly boost the standoff warfare capacity of the Baltic Fleet. In conjunction with Russian ground forces in the region, these growing anti-air and anti-sea missile capabilities present a significant obstacle to any NATO forces attempting to position themselves for a counterattack. The potential Russian missile coverage out of Kaliningrad is depicted in figure 2 (page 4).

denial-based deterrent strategies discourage enemy action by making it physically difficult for an adversary to coerce or attack

Deterrence Options

Political science literature distinguishes between two basic ways to deter an opponent.¹⁰ Deterrence through punishment threatens to impose severe costs on an enemy if an attack occurs. Punishment deters by the risk it places against high-value Russian assets, but it also expands the conflict. The Alliance may not choose to defend its interests directly at the point of attack, where Russia has chosen the time and ground of attack. Rather than accept battle where it is least prepared or under the most adverse terrain, NATO may strike at more vulnerable and valuable targets in order to threaten a more opportune place, either a vulnerability or a gap in Russia's defenses. Punishment is not necessarily connected to the direct defense of the contested space but could include wider penalties—such as nuclear escalation or expanding

Figure 2. Russian Ballistic and Anti-Air Missile System Ranges



Source: International Institute for Strategic Studies, *The Military Balance 2017* (London: Routledge, 2017), 185.

the geographic boundaries of the conflict—that would raise the costs for an aggressor. Deterrence through punishment is one option to influence the enemy’s cost-benefit analysis. On the other hand, denial-based deterrence seeks to deter an aggressor by making the chance of a successful attack improbable, cost-prohibitive, or untenable. Deterrence through punishment is inherently offensive, while denial-based deterrence is defensive in nature.¹¹

Deterring Russian aggression in the Baltics short of military hostilities, or “left of bang,” is a political problem in which U.S. and NATO militaries are but one component. Because of the presence of nuclear weapons on both sides, the overriding consideration regarding any confrontation between NATO and Russia over the Baltics would require managing both vertical and horizontal escalation. The Alliance must construct any

deterrent strategy around that premise so that any actions taken in the deterrence phase naturally mesh with a construct for management of escalation up to and including armed conflict, should that occur. A key concept of deliberate escalation is indicating to an enemy that the costs will outweigh the potential benefits gained through continued particular actions.

In the case of the Baltics, however, punishment-based deterrence may lack credibility if Russia perceives that NATO lacks the capability or resolve to carry out such a retaliatory threat—conventional or nuclear. Another weakness of punishment-based deterrence is the asymmetry of stakes between parties. With the proximity of the Baltics to its borders, Russia may be willing to bear greater costs and, therefore, feel itself less vulnerable to threats of punishment if it perceives Russian stakes are high and NATO’s stakes are low.¹² Finally, as former As-

sistant Secretary of State Wess Mitchell observes, should Russia gain the Baltic states through a fait accompli, “punishment quickly morphs into compellence—not just dissuading an enemy but dislodging him and forcing a withdrawal from his limited, stealthy conquest.”¹³ In order to deter an adversary, the Alliance needs to both possess a capability and have the willingness to use it. Consequently, at its logical extremes, punishment could entail the threat of a NATO counterattack, possibly using ground forces staged in Poland via a push through the Suwalki Gap, which would be time consuming to prepare, militarily costly, and carry significant operational and escalatory risks given the likelihood of extending the conflict to Belarus, Kaliningrad, or even Russia proper. Such a scenario, a ground war in the Baltics between NATO and Moscow, would play to Russian strengths and represents a poor proposition for successful defense of the Baltic states.¹⁴ Additionally, Russia’s tactical nuclear doctrine of “escalate-to-deescalate” further erodes deterrence by punishment, assuming the United States and its Allies would be reluctant to use nuclear weapons in kind, both out of an uncertainty about escalation management and a modern-day aversion to high casualties.¹⁵

A more flexible approach to defend the Baltics would be to *augment* denial-based deterrent strategies with threats of punishment. Denial-based deterrent strategies discourage enemy action by making it physically difficult for an adversary to coerce or attack.¹⁶ To execute deter by denial, the defender must demonstrate that enemy leaders cannot achieve their aims at acceptable costs. Although no concept of defense in the Baltics can eliminate the risks of escalation with absolute certainty, denial-based deterrence offers a way to mitigate them. Area denial is often thought of as an operational concept used by U.S. adversaries to prevent freedom of action in a geographical zone under the enemy’s direct control. However, area denial can work both ways. To best protect its Baltic partners, NATO should use strategic depth to its advantage by establishing its own A2/AD bubble over the region. A denial-based deterrence strategy in the Baltic region would encompass a wide

range of capabilities: deploying integrated air and missile defenses, establishing sea denial, and investment in popular mobilization leveraging creative and cost-effective approaches to attrit the elements of any Russian military advance.

Carl von Clausewitz recognized that the aim of defeating the enemy “can, in practice, be replaced by two other grounds for making peace: the first is the improbability of victory; the second is its unacceptable costs.”¹⁷ He also reasoned that “the defense is the stronger form of waging war. . . . [I]f attack were the stronger form, there would be no case for using the defense.”¹⁸ In Clausewitz’s mind, the purpose of defense was preservation of combat power. The defender also had the advantage of position. Area denial for

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the Baltics would have NATO blunt the strategic effectiveness of Russian attacks. Demonstrating the capability to impose costs and make the victory seem improbable could shift Russia’s cost-benefit analysis enough to deter attack. If not, the escalating costs of continued Russian military action in a prestructured and in-depth NATO Baltics A2/AD complex could increase the improbability of achieving Moscow’s main political aims and open the political space for negotiation.¹⁹

NATO enjoys several natural geographic advantages that enable a denial-based deterrent strategy based on an AD operational concept. In particular, the geography of the Baltic Sea favors a defensive operational concept because of its relatively small size and shallow depth, with only a few navigable passageways and numerous chokepoints. Approximately half of Russia’s maritime cargo

transits through the Baltic Sea, thereby providing NATO and its partners economic leverage in a potential crisis.²⁰ By extension, NATO should plan to deny Russia access to the North Atlantic via the GIUK (Greenland–Iceland–United Kingdom) Gap and further afield to the Barents Sea between Svalbard and Norway’s northern coastline.

As mentioned, Russian forces stationed in the Kaliningrad exclave pose a particular predicament to NATO and its partners. Nevertheless, despite its menacing appearance, Kaliningrad may actually be a Russian vulnerability rather than a strength. Viewed as an encircled area, with the sea to the west and NATO surrounding the territory on the other three sides, Kaliningrad sits in a precariously vulnerable position, particularly given the array of A2/AD capabilities and strike capabilities that the Alliance and its partners could deploy against it. Therefore, a part of their deterrence strategy, NATO and its partners should demonstrate to the Russians their willingness and capability to neutralize and ultimately isolate Kaliningrad militarily in the event of a hot war scenario. Finally, the Alliance should be prepared to deny the airspace over the Baltics to Russian aircraft. One 2017 RAND study concluded, “From just two launch points, one in northeastern Poland and the other on one of the islands off the coast of Estonia, NATO forces could cover nearly the whole of the Baltic states, much of western Belarus, and all of Kaliningrad with suppression of enemy air defenses or counterbattery fires.”²¹ Given the above, even if Russia were to launch an invasion of Estonia, Latvia, or Lithuania, NATO’s goal would be to impose high costs and, should that fail, render any subsequent Russian occupation untenable.

The ability of NATO to maintain a Baltics defense coalition hinges on perceptions of Russia’s aggressive behavior, and Russia is more likely to be deterred if it perceives that NATO solidarity and the preponderance of international opinion and support siding with the Alliance. Area denial as an operational concept compares favorably to the alternatives if preservation of the NATO structure forms the basis for resolve. Foremost, it is a defensive concept that seeks to preserve the status quo,

thereby allowing NATO to dominate the strategic narrative by playing to international perceptions of legitimacy based on the right to self-defense and freedom of the global commons. Because area denial is defensive in nature, it is more palatable to NATO and its partners than offensive-minded concepts, particularly when compared to provocative and expansive actions that could horizontally expand military operations deep into Russian territory or to other geographic regions.

The same technologies that enable Russia’s A2/AD capability are proliferating to Russia’s NATO and NATO-aligned neighbors, making area denial extremely attractive from a practical standpoint. Several states in the region—including Sweden and Poland—already possess high-end A2/AD capabilities and are either affiliated with NATO or members of the Alliance. These capabilities include long-range precision-strike systems, such as GPS-guided cruise and ballistic missiles; littoral anti-ship capabilities (high-quality nonnuclear submarines, fast missile-armed surface craft, and smart coastal and shallow-water mines); both long- and short-range air defenses; long-range precision-guided artillery and rocket systems; and cyber and electronic warfare capabilities.²² Militarily, the combination of NATO AD capabilities should provide its own deterrent effect, just as NATO forces did in Western Europe during the Cold War. Unfortunately, NATO and partner nations currently are “almost completely dependent on airpower” to counter Russia’s extensive array of A2/AD capabilities, according to General Philip Breedlove, former NATO Supreme Allied Commander, Europe, in a 2016 speech.²³ Notably, the use of fighters such as the F-35 would be problematic in a Baltics scenario given its short range and the F-35’s dependence on air refueling.²⁴

The NATO goal should be to knit partners together in a networked system of advanced command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR), targeting, precision-guided munitions, airborne early warning capabilities, integrated air defenses, maritime domain awareness, under-sea surveillance, and standoff capabilities such as cruise

and ballistic missiles. This networked system-of-systems approach has come to define the contemporary revolution in military affairs. Policy analysts James Thomas and Evan Montgomery have dubbed these “mini A2/AD complexes.”²⁵ The current willingness of key Allies and partners—particularly those in the Baltic region—to modernize their militaries makes it a favorable time for NATO to implement such a defensive concept. Therefore, providing partners with additional enabling capabilities to round out their defensive formations may prove critical. To enhance area denial, NATO needs additional mobile and survivable long-range precision-strike capabilities such as the Army Tactical Missile System (ATACMS) and Highly Mobile Artillery Rocket System. The Army is currently developing DeepStrike, a next-generation missile for these systems that doubles the firepower and can engage targets at distances up to 499 km, including the ability to hit moving targets on land and at sea.²⁶ To counter Russian tactical missiles, cruise missiles, drones, and advanced aircraft, additional NATO and partner countries should procure the Patriot and other surface-to-air missile defense systems.

Hedgehog Defense for Small States

Although NATO should not abandon rotational and “trip wire” forces, it should resist establishing a large forward presence of ground forces in the Baltics reminiscent of West Germany’s Fulda Gap of the 1980s. Several deterrent alternatives exist for small states confronting larger states, the most obvious of which is for a state to gain a qualitative advantage while decreasing its quantitative disadvantage. One modern example of this phenomenon is the Israeli defense model.²⁷ Although Israel retains a decisive qualitative advantage over its opponents, one should note Israel’s military is also quite large (176,000 active and 465,000 reserve forces) relative to the size of its population (8.3 million), and it is one of a few countries with near universal military conscription. Israel spends 6.2 percent of its gross domestic product (GDP) on the military with significant additional aid from the

United States. By comparison, the Baltic states spend approximately 2 percent of their collective GDPs on their militaries and have a combined population of roughly 6 million troops with 30,000 active and 26,500 reserve forces.²⁸ To reach strength levels equivalent to those of Israel, the Baltic states would have a force of nearly 127,000 active and 336,000 in reserve. Increasing the size of the Baltic states’ military forces to these levels alone would have a deterrent effect—which the Baltics could accomplish with commensurate increases in GDP for defense coupled with substantial military assistance from NATO countries. The Finnish system of military conscription may provide another potential model for small countries facing larger prospective adversaries. What then is the

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best concept of employment for the Baltic states’ militaries given the geographical challenges of being on the far fringes of NATO?

To make up for its lack of strategic depth, Israel, for example, typically undertakes offensive preventative and preemptive strikes. As shown, the Baltics, too, lack strategic depth. Because NATO is a defensive alliance and because Russia has extensive military capabilities, however, the Baltics, unlike Israel, must follow a primarily defensive strategy. First, NATO, particularly the Baltic states, should look beyond force-on-force conventional combat to devise more creative and cost-effective approaches to enemy attrition. In view of the existential threat, each of the three Baltic states must adopt the

whole-of-society or Total Defense concept of popular mobilization, the most important aspect of which is instilling among their populace an extreme sense of will to fight and then communicate that resolve to potential adversaries through information operations campaigns.

Accordingly, the Baltics should leverage the strengths offered by the defense—terrain and prepared positioning, local knowledge, preplanning, and so forth—to their advantage. Second, the Baltic states should not only take advantage of the knowledge of the terrain and the battlespace where they will fight, but they must also use modern hybrid warfare techniques to confront the invader. A good model for the Baltic states to follow on this account is the one provided by Hezbollah during the Second Lebanon War with Israel in 2006. Following Israel's withdrawal from southern Lebanon in 2000, Hezbollah

NATO and partner forces must be equipped with robust A2/AD capabilities and postured in such a manner to limit Russian access and freedom of maneuver in the BSR

developed and perfected an effective hybrid concept that combined capabilities associated with conventional militaries—such as indirect fires—with either unconventional guerilla warfare tactics emphasizing decentralization or fighters operating individually or in small groups to carry out ambushes and hit-and-run attacks.²⁹

To implement the concept, the militaries of the Baltic states, particularly the reserve forces, would need to reorient how they prepare for war. At mobilization, reservists, instead of appearing at assembly areas where they would make easy targets for Russian long-range precision fires, would be locally based, fighting near their homes. Reservists would have standing orders when alerted to report to their local units. There would be no fixed unit size, but reservists could act independently or in small teams of up to 15 or 20 members, depending

on the assigned mission and geographical area. Because reservists would operate in areas near where they lived, they would rely primarily on stockpiled weapons and supplies, without the need for extensive logistical support or lines of communication. Individuals and teams would have assigned kill zones and missions ranging from tank-killer teams armed with anti-tank guided missiles to the emplacement of anti-tank and anti-personnel mines. Other fighters could use remote electric trigger devices to activate prepositioned rocket pods with preset firing angles.³⁰ NATO and host-nation special operations forces (SOF) could augment these fighters as required to provide additional skills and enabling capabilities.³¹ Such decentralized execution of operations would alleviate concerns about the vulnerability of command and control and confound Russian efforts to come to grips with an elusive foe.³²

Another strength that each of the Baltic states could play to is its knowledge of the local terrain and how trafficability changes by season. While generally flat lowland, the terrain of the three Baltic states provides decisive advantages to the defender. These advantages include forested areas, crisscrossed by numerous rivers and streams. The terrain is also dotted by lakes and marshlands that limit the number of avenues of approach from which defenders could channelize, divert, and otherwise impede any Russian attack. Restricting armored maneuver and channelizing wheeled vehicle traffic would make these forces vulnerable to attack and interdiction. Using tactics of delay and sabotage—for example, rigging avenues of approach with dozens of booby traps and mines—would force Russian units to comb through every house and barn and examine every fold of ground or scrap of garbage along the highway for possible explosive devices and other nasty surprises.³³ Because Russian combat support and combat service support are limited in their natures and scope beyond its near abroad, it makes it a particularly attractive target of interdiction.

For the frontline Baltic states one of the most effective weapons on the battlefield is concrete.³⁴ South Korea has developed an extensive engineering obstacle system

that heavily fortifies the limited avenues of invasion into its territory. Like Hezbollah in Lebanon, the Baltics should prepare an extensive network of bunkers, tunnels, fighting positions, and mutually supporting strongpoints to blunt and ultimately thwart Russia's offensive capabilities.³⁵ In 2006, after enduring sustained aerial bombardment, Hezbollah fighters, using a networked defense in depth, prevented the much larger Israeli Defense Forces with armored vehicles from penetrating more than 20 to 25 kms in 72 hours.³⁶ Such a defense in-depth buoyed by local fighters with intimate knowledge of the terrain would frustrate and delay the Russian advance, while increasing Russia's risks and costs.

Currently, the U.S. Army is replacing the existing Dual-Purpose Improved Conventional Munitions artillery shell and rocket inventory with the Guided Multiple Launch Rocket System–Alternative Warhead (GMLRS-AW). The latter meets or exceeds unexploded ordnance requirements as outlined in international treaties, while the former does not. Preplanned salvos using GMLRS-AW or similar munitions would be particularly effective on enemy formations given the continuing vulnerability (despite recent improvements) of Russian armor and soft-skin vehicles to top-attack munitions. The munition can also have a shaping effect, limiting the enemy's ability to maneuver or occupy terrain. Additionally, GMLRS-AW and similar munitions have a demonstrated impact on the enemy's will to fight, particularly after units witness the complete and utter destruction of adjacent formations.³⁷ The Baltic militaries could preposition rocket pods in standard shipping containers and well-camouflaged and concealed positions throughout the region. Other technology that could support such a defensive hybrid concept includes cheap drones, which will soon be widely available, and loitering munitions of which Switchblade is but one example.³⁸ Within the Baltic Sea region (BSR), Poland has produced and fielded for its armed forces a loitering munition system called Warmate.³⁹

In short, the best course of defense for the Baltic states is to adopt the strategy of the hedgehog—the hedgehog does not defend against the predator by try-

ing to emulate the predator's strengths (speed, claws, and teeth) but puts on such a defensive display that the predator decides to leave it alone. The predator also realizes that should it be successful in breaking through the hedgehog's defenses, the hedgehog would prove even more difficult for the predator to swallow and digest. Switzerland is a classic example of the hedgehog or "bitter pill" strategy.⁴⁰ An astute European aphorism over the years has been, "Switzerland doesn't have an army; Switzerland is an army."⁴¹ The Finns have fostered a similar reputation by standing up to the Soviet Union during the Winter War and Continuation War.⁴² Nevertheless, the defensive display of the hedgehog is far more important than actual defense. Frontline hedgehog states must demonstrate their defensive capabilities as part of an active information campaign and as a policy tool.⁴³

The hedgehog strategy should underpin NATO's denial-based deterrence strategy in the BSR. It dispels any notions Russia may have of getting away with an easy victory by increasing the immediate costs of grabbing territory. As additional components of the strategy, NATO must have plans and organizations for defending the Baltic states and Poland, reinforcing Alliance forces in the Arctic and GIUK Gap, and establishing A2/AD bubbles over the region. More important, based on those plans, NATO must convey to the Russians its level of preparedness and intent, including the potential costs to Russia should it decide to threaten NATO or its partners.⁴⁴ If properly implemented, NATO's denial-based deterrence strategy should change Moscow's decision calculus regarding a quick territorial land grab of the Baltics. Instead, NATO deters Russia by making the Baltics more difficult for Russia to invade and occupy and by prospect of inflicting unacceptable costs on Russia both at the immediate onset of hostilities and over time through attrition.

Strengthening Denial-Based Deterrence

To strengthen the military aspect of denial-based deterrence, NATO and partner forces must be equipped with robust A2/AD capabilities and postured in such a

manner to limit Russian access and freedom of maneuver in the BSR and North Atlantic. Rather than position forces forward, NATO should consider keeping forces further back, taking advantage of strategic depth both to limit its vulnerability to Russian attack and increase operational flexibility. To make this posture credible, NATO should continue to invest in road and rail capacity and other transportation and logistics infrastructure in the BSR. NATO should enhance its cooperation with Sweden and Finland to include integrated planning to ensure plans are fully synchronized and readily executable. Furthermore, the Allies must prepare to fight in a contested battlespace to include the looming prospect, not seen since the end of the Cold War, of a nuclear confrontation.

The Alliance should invest in a hedgehog defense of the Baltic states, the most significant step of which is enhancing Total Defense through public education for resistance and then following through with the necessary commitment of resources in line with the concept. Estonia, Poland, Latvia, and Lithuania have already met or exceeded NATO's 2 percent GDP benchmark for defense spending by individual countries.⁴⁵ The Alliance should provide the additional military assistance required to bolster the Baltic states in their hedgehog defense to make abundantly clear to Moscow the high costs of any intervention. Emerging technologies increasingly benefit the defender, and NATO should make additional investments in existing technologies that can revolutionize the potency of frontline states' hedgehog defenses, such as small warheads, 3D manufacturing, drones, task-specific artificial intelligence, robust cyber capabilities, and inexpensive space capabilities.⁴⁶

NATO should continue exercises, like Trident Juncture held in the autumn of 2018, that demonstrate its resolve, responsiveness, and operational reach.⁴⁷ These exercises should make it abundantly clear to Moscow that any Russian attack on the Baltics would be a costly affair and that Russian occupation of the Baltics would be untenable given NATO's A2/AD capabilities undergirded by a tenacious hedgehog defense provided by the Baltic

states themselves. Additionally, exercises should focus on allied interoperability and command and control to ensure a rapid transition to a preplanned and prepared A2/AD network of systems.

Despite some positive signs such as rotational deployments and exercises to the BSR, it remains to be seen whether NATO and partner nations have the political will to implement the measures necessary for an effective denial-based deterrent strategy. Arguably, A2/AD capabilities and hedgehog defenses would be costly to build and maintain, and there is little appetite outside the Baltics themselves to pay the bill. These criticisms are valid. Nevertheless, the necessary political will to defend the Baltic states is suspect no matter what deterrence strategy NATO decides to pursue. As a recent paper concluded, "protecting political will and strengthening it for the future foundation of NATO should become a critical alliance function."⁴⁸ However, denial-based deterrence can provide a common vision of a potentially available solution, one that is defensive and therefore more palatable for NATO and partner states to accept. Already, the Baltic states, along with Sweden and Finland, have articulated Total Defense as their primary means to counter or repel attacks. The Alliance needs to build on this trend.

Ground Recommendations. Ground-based air and maritime defense should serve as the centerpiece of a denial-based deterrence strategy. NATO and its partners might consider deploying ATACMS-class missiles to the region. Improvements could extend the range of these missiles to the Intermediate-Range Nuclear Forces Treaty-compliant range of 499 km.⁴⁹ From select locations in Poland and on islands off the Baltics, NATO suppression of enemy air defenses and counterbattery fires could range to/as far as all Kaliningrad, parts of western Belarus, and Russian territory neighboring the Baltic states. Typically fired from a truck-mounted launcher, ATACMS have the capability to "shoot and scoot," making it a difficult target for enemy counterbattery fire. In particular, Poland should invest in a land-based deep-strike capability because of its proximity to Kaliningrad as well as its geographical depth.

Poland's recent request to buy the American-made High Mobility Rocket System is a step in the right direction. Furthermore, the Army is already converting ATACMS into a guided missile capable of hitting moving warships. Similarly, NATO and its partners should employ anti-ship missile batteries, command and control nodes, and distributed ground-based sensors on mobile platforms to make them more difficult for the enemy to target. Alternatively, these systems could be put in hardened bunkers and tunnel complexes to make them more survivable in the event of enemy attack. High-altitude airborne sensors, such as Global Hawk, could provide additional ISR capability. In the future, hypervelocity missiles, rocket-assisted artillery rounds, and drone swarms could provide NATO and its partners more options.

Although the Alliance should position conventional units forward as "tripwire forces" to make the Baltics a high-end fight and therefore an incalculable risk for Russia, it would be unwise to forward-base ground forces or even preposition equipment for follow-on forces in there. A better option would be to leverage NATO's strategic depth by keeping ground forces and prepositioned equipment further back, likely in Poland, to better protect those forces against a Russian onslaught and present any Russian invasion forces in the Baltics with a perilous dilemma to their southern flank.⁵⁰

Air Recommendations. NATO can no longer rely on airpower or air presence alone in the BSR to support deterrence by denial or punishment.⁵¹ Alliance experts concede that any Russian attack on the Baltic states will likely commence with air strikes against airfields, command and control nodes, and air defense sites of NATO and neighboring non-NATO countries.⁵² Follow-on attacks from air- and ground-based assets aim to limit Alliance ability to deploy forces forward to counter the Russian offensive. Russian success in such any offensive hinges on surprise and the speed at which its air force can strike targets to slow NATO's response.⁵³ This situation subverts NATO's ability to utilize airpower to deter aggression in the BSR and limits the response options available to the Alliance during a crisis.

To remedy these shortfalls, NATO should deploy a robust ISR network that integrates NATO and non-NATO assets to provide early indications and warning of impending Russian attacks and the critical component to an effective air defense system. Additionally, NATO and its partners should supplement air presence with a robust integrated air defense network to ward off Russian attacks. By focusing foremost on air defense, NATO can raise the cost of potential Russian attacks, preserving NATO forces, while providing time to transition from a defensive to an offensive air campaign.

The Alliance must first improve the technical capabilities of the Baltic states and those of the surrounding non-NATO countries if it is to deploy a robust integrated ISR network. To that end, the United States could deploy its unmanned aerial systems (UAS) or ground-based radars to the region. Utilizing UAS, however, will come at

Russia is covertly and overtly using seapower in support of a hybrid strategy aimed at preparing the operational environment

the expense of other U.S. operations around the globe.⁵⁴ Rather than relying on the U.S. military to provide both manpower and assets, the Baltic states could lease UAS or other intelligence capabilities from U.S. or European commercial entities.⁵⁵ NATO and its regional partners should also invest in low-cost and commercially available micro and cube satellites to create a resilient space-based ISR capability.⁵⁶ Furthermore, the Alliance and partner nations must ensure system compatibility and interoperability to create a viable network capable of providing early indications of an impending Russian attack.⁵⁷

An even greater challenge is creating the structures and processes for intelligence-sharing, an undertaking complicated by nations reluctant to participate or share data with their neighbors. RAND analyst Andrew Radin suggests bilateral intelligence-sharing agreements among the United States, Baltic states, and NATO countries to

overcome the Alliance's limited progress in this arena.⁵⁸ However, sharing and cooperating needs to extend beyond the intelligence realm and must include the integration of regional air defense assets such as radars and missile systems and incorporate both ground- and air-based systems. The five-member Nordic Defense Cooperation provides a forum outside of NATO for such cooperation.⁵⁹

General Breedlove further advocates for a layered regional air defense construct that links the national capabilities of both NATO and non-NATO allies. Specifically, Breedlove recommends including the Baltic maritime domain for air defense to “[deepen] the air defense network in the region during a crisis.”⁶⁰ Leased capabilities such as air defense radars in Estonia, Latvia, and Lithuania can further refine the regional air picture when shared

NATO and its partners should protect ports, critical infrastructure, and subsea energy and communications by leveraging improved low-cost, unmanned options for undersea detection and attack to deter and neutralize undersea intrusions

with NATO and other surrounding countries.⁶¹ Such initiatives must overcome the same challenges that NATO encountered with intelligence-sharing.⁶² They will also require a concerted diplomatic and political effort from NATO to ensure participation by regional countries affected by the Russian threat. The initiative to integrate all of these capabilities should fall under a new and broader Baltic Air Defense mission, which would replace the current Baltic Air Policing mission.

NATO established the Baltic Air Policing mission in 2004 to “enforce the sovereign airspace of the three Baltic countries.”⁶³ The mission has served as an important check on Russian aggression and recklessness in the air against both NATO and non-NATO members. Since

the 2014 Russian incursion into the Crimean Peninsula, the mission has gained additional support.⁶⁴ Although NATO has increased the number of aircraft to respond to increased tensions in the BSR, “existing processes” and the Russian threat prevent the Alliance from rapidly increasing the number of air assets in “the event of a military crisis in the Baltic.”⁶⁵ The transition from the Baltic Air Policing mission to the Baltic Air Defense mission will enable NATO to defend the “prepositioned equipment, rotational troops, and key infrastructure and transport nodes” as well as improve the Alliance’s ability to respond more rapidly to military crises in the Baltics.⁶⁶ To enhance operational flexibility, NATO and its partners should also establish easy access agreements to permit the movement of military assets across borders in the event of a crisis without prior diplomatic approval.⁶⁷

The Russian A2/AD threat in the BSR negates many of airpower’s advantages, and for the first time since the Cold War, NATO and its partners may not be able to achieve air dominance. To offset this new reality, NATO and its partners must develop their own A2/AD network in the region starting with a credible air defense network that integrates high-end assets, low-cost systems, and traditional airpower to provide a check on future Russian aggression in the BSR. Protecting vulnerable military bases and assets in the region will allow NATO and its partners to consolidate forces and eventually transition from a defensive to an offensive campaign, one with the potential to escalate using the full range of NATO’s military capabilities, including the potential use of nuclear weapons if needed, against Russian forces.

Maritime Recommendations. The BSR is a major thoroughfare for commercial shipping, energy transportation, and undersea infrastructure. Major ports, energy hubs and critical infrastructure, underwater energy and communication cables, fisheries, bridges, and maritime chokepoints represent potential economic vulnerabilities to NATO and its partners that Russia could exploit in gray zone or conventional conflicts.⁶⁸

Already, Russia is covertly and overtly using seapower in support of a hybrid strategy aimed at preparing the operational environment. For example, in September

of 2018, over 400 Finnish police and military commandos conducted raids on 17 properties at key locations in western Finland with possible links to the Russian military.⁶⁹ Although the exact nature of this Russian activity remains unknown, the raided locations were suspiciously close to Finnish military installations and important shipping lanes. Overt Russian violations of the territorial waters and airspace of other BSR countries are frequent and well documented.⁷⁰ Additional components of a Russian hybrid strategy could include submarines tapping into or disrupting subsea energy and communications cables or inserting SOF on islands of geostrategic importance (that is, Gotland, the Åland Islands, or Bornholm) for reconnaissance and sabotage missions in ports or further inland, preparing for overt military acts of intimidation or territorial seizure. Russia could use surface ships or other means to launch cyber attacks on port or ship infrastructure networks “that could result in lost cargo, port disruptions, and physical and environmental damage,” adversely affecting “industrial production flows and economic security” in the targeted state—or the entire region—if prolonged.⁷¹ As demonstrated in recent years, Russia could continue using its seapower to interfere with lawful maritime exploitation and research activities of its neighbors.⁷² One recent study on Baltic maritime security concluded, the “combination of covert activity, maritime sabotage, and economic warfare fits that pattern, as does the use of undersea warfare capabilities.”⁷³

If armed conflict were to commence today, the BSR would be a congested battlespace with few navigable sea lines and limited freedom to maneuver, distinguished by carefully positioned advanced air defense systems, theater offensive strike weapons, and countermaritime forces creating robust A2/AD challenges. The Belarusian-Russian Zapad 2017 military exercise, in which a sizeable force defended the imaginary state of “Veyshnorria” on Belarusian territory and the Kaliningrad Oblast from a simulated attack, illustrated Russia’s possible use of seapower in a worst-case scenario. Russia dispatched corvettes, minesweepers, submarines, anti-submarine warfare helicopters, and attack aircraft of its Baltic Fleet

to exercise warding off incoming cruise missiles, destroying enemy submarines, denying enemy movement of surface action groups, and preventing amphibious landings.⁷⁴ In an act of horizontal escalation, Russia simultaneously exercised a major force of its Northern Fleet in the Arctic Ocean and parts of its Black Sea Fleet and Caspian Flotilla.⁷⁵ To control the Baltic Sea approaches, refurbished diesel-electric attack submarines and modern corvettes equipped with nuclear-capable anti-ship and land-attack cruise missiles have strengthened the naval arm of its long-neglected Baltic Fleet since 2007.⁷⁶

To counter Russian provocations, ongoing regional cooperation projects must be continued and expanded. Today, Poland and the former Soviet republics of Estonia, Latvia, Lithuania are NATO members. Finland and Sweden, for their part, are European Union members

in a gray zone conflict, SOF, operating in close coordination with police and intelligence agencies, are crucial to detecting changes in the operational environment

bound by the solidarity clause enshrined as Article 222 in the *Treaty on the Functioning of the European Union*. Both nations are among NATO’s Enhanced Opportunities Partners with host-nation support agreements, who also closely cooperate with the United States on security. Since 2012 and 2014, respectively, they contribute to the NATO Response Forces Pool. In 2017, their readiness units consisted of a *Hämenmaa*-class minelayer and two *Visby*-class corvettes while they joined the British-led Joint Expeditionary Force—a NATO initiative launched at the 2014 Wales Summit.⁷⁷ Finland and Sweden have expanded their defense cooperation based on the Nordic Defense Cooperation framework. If activated, their navies operate integrated in the Swedish-Finnish Naval Task Group, which will reach full operational capability in 2023.⁷⁸ The group is equipped with military tactical data links, which

provide a NATO-interoperable over-the-horizon targeting capability. National legislative amendments have permitted the use of force on each other's territories.⁷⁹

While a viable deterrence through punishment strategy requires ability and resolve to respond to an attack by devastating (possibly nuclear) counterattacks at some undetermined point, a denial-based deterrence strategy requires credible conventional *in situ* capabilities. Russia's coastlines along the Baltic Sea are short, and the size of its territorial sea and exclusive economic zone is limited, while the locations of its naval bases (Ronstadt and Baltijsk) render them vulnerable to naval blockade. Unfortunately, after two decades of underfunded armed forces overcommitting to expeditionary crisis management operations, such capabilities are scarce in Europe. Thus, there is a need for innovation to manage the problem. The approach adopted by Finland and Sweden is instructive. Both nations have focused on achieving a high/low capability mix to deal with high-end and gray zone threats on the Baltic Sea. Under its Squadron 2020 program, Finland is making a \$1.5 billion investment to modernize its navy to include upgrades for existing ships and surface-to-surface missiles, torpedoes, ship guns, and sea mines.⁸⁰ Similarly, the Royal Swedish Navy is currently upgrading its *Gävle*- and *Visby*-class corvettes and *Gotland*-class submarines. Additionally, the Swedish navy plans to build two next-generation A26 submarines.⁸¹ NATO and its partners should protect ports, critical infrastructure, and subsea energy and communications by leveraging improved low-cost, unmanned options for undersea detection and attack to deter and neutralize undersea intrusions.⁸²

To deny Russia the initiative in shaping the security landscape of the Baltic Sea, Allies and partners should build comprehensive maritime security by integrating their maritime law enforcement and naval capabilities. This requires shared maritime domain awareness.⁸³ Since 2006, the Sea Surveillance Co-operation Finland-Sweden interface enables Finland and Sweden to exchange classified target information, up to and including secret, in the Baltic Sea. The unclassified Sea Surveillance Co-operation Baltic States and the European Union's Maritime Surveil-

lance Networking further promote Baltic Sea security.⁸⁴ Finland and Sweden have lead roles in both. However, regional maritime information-sharing could be improved. By implementing a multilevel information architecture, armed forces of NATO members and partners could share classified information of the entire conflict spectrum, while providing user-defined, unclassified, operational pictures suitable for their law enforcement agencies.⁸⁵

To counter Russian pursuit of hybrid warfare aimed at destabilizing its neighbors in the BSR by measures short of clear-cut military action, active patrols by maritime law enforcement *and* naval vessels are instrumental to remain left of bang. Information-gathering and dissemination during patrols would improve shared maritime domain awareness. In contrast to China's *modus operandi* in the South China Sea, Russia has solely used military assets to harass its neighbors' maritime exploration activities.⁸⁶ Notwithstanding, both violate international law as laid down in the 1982 United Nations Convention on the Law of the Sea. To avoid escalation, maritime law enforcement agencies should continue to enforce maritime law, but their crews may require naval support if challenged by the Baltic Fleet. Finland and Sweden have noted the need for improved interagency coordination in their Total Defense concepts. The need for such coordination is apparent also on a regional scale.

To hold Russia accountable for unlawful or hostile actions under the threshold that would trigger invocation of a NATO Article 5 response, coordinated strategic communication on a regional basis would leverage efforts made by individual states. Diplomatic signaling and show of force by patrols by U.S. Navy and standing NATO maritime forces are instrumental to deter Russian military aggression at sea, since capability and resolve to respond to Russian escalation in the BSR are prerequisites for a deterrence-by-denial strategy. NATO must coordinate such measures with Finland and Sweden, which both possess territories and capabilities critical to staging an allied intervention in the region.

SOF Recommendations. In addition to conventional ground, air, and maritime forces, SOF can be a strong de-

terrent factor. After decades of military actions in places like the Middle East, SOF from the small states around the Baltic Sea and their partners and allies must now adapt to the current context and conflicts in their own region. The Russian annexation of Crimea is one example that puts focus on new major security implications for all the states in the BSR.

The use of SOF is skewed toward *direct action operations*, defined as short-duration strikes and other small-scale offensive actions.⁸⁷ SOF skills in unconventional warfare (UW) capabilities have eroded due to years of protracted counterterrorism, which would become prominent in case of an occupation from a superior opponent. Resistance activity is directly relevant for the former Soviet satellite states such as Estonia, Latvia, and Lithuania, as well as Finland, Sweden, Denmark, and Poland. National defense is not a new phenomenon among these states in terms of war planning. However, traditional resistance and defensive military actions that might be categorized as UW have been conducted by the home guards of various states, whereas SOF have been considered as a strategic tool predominantly for external use.

NATO should consider reorienting SOF toward the UW mission for defense of the BSR. In a gray zone conflict, SOF, operating in close coordination with police and intelligence agencies, are crucial to detecting changes in the operational environment; identifying and countering enemy infiltration, subversion, and sabotage; and conducting information operations to galvanize national resistance and counter adversary's efforts to undermine the population's will to resist.⁸⁸

SOF from small states in the BSR face a new set of challenges including strategic political considerations, lack of territorial depth, advances in technology, and increasing urbanization. However, the most significant hurdle will be the reorienting of small nations' SOF from direct action to UW with the ability to operate from peace to gray zone to full-spectrum conflict. The challenge is even greater given each nation's legal applicability to use SOF within its own and or other's territory differs among the states. Civil (police and homeland security)-military

coordination and cooperation are strictly regulated by each nation's law and any Total Defense concept must adjust to that. One solution is to find ways to cross the civil-military divide by changing laws or establishing "a new multidisciplinary unit acting as a grand strategy enabler for a small nation, guiding and coordinating its counter-hybrid warfare efforts."⁸⁹

Summary

Although a Russian invasion of the Baltic states is unlikely, the possibility of responding to such an event has become NATO's leading planning challenge. The intent of this paper is to expand the debate about proposed Baltic states defense strategies across the spectrum of competition from peace to war and challenge certain assumptions resident in our current planning.

Any strategy for a potential conflict with Russia in the BSR must consider the possibility of both horizontal and vertical escalation, including Russia's threatened use of its vast arsenal of nuclear weapons. In a conflict against a near-peer competitor armed with nuclear weapons, restraint becomes a virtue. By focusing on defensive measures that support denial-based deterrence, NATO can reduce the escalatory pressure on decisionmakers and slow down a crisis while inflicting high costs on any Russian military Baltic incursion. Additionally, denial-based deterrence reduces the vulnerability of NATO and partner forces and provides for greater operational flexibility and positioning for future offensive operations should they become necessary.

For NATO to deter Russian ambitions in the Baltics, denial-based deterrence holds more promise than deterrence through punishment alone. As discussed, the employment of a reactive attack as punishment in a BSR scenario would present a significant political and military challenge for NATO's decisionmakers. Instead, denial-based deterrence should be the principal element of NATO's approach with punishment reserved and available for decisionmakers as a next step, should the situation warrant. As a strategy it could be more conducive to deterring Moscow, but it will also be escalatory in a crisis.

A denial-based deterrence approach offers a way to limit future conflict between NATO and Russia by applying restraint to both means and ends (while not confusing means with ends). The war aim of reestablishing the status quo is realistically achievable, keeps the stakes relatively low, and mitigates uncontrollable escalation or the fallacy of thinking that the more completely the enemy is stripped of power at the end of hostilities, the more securely peace will be established. Finally, denial-based deterrence makes the Baltic states harder to take and more difficult to keep, signaling to Russia that it will pay a heavy price for aggression, ranging from immediate costs to an unwinnable war of attrition.

Notes

¹ *National Security Strategy of the United States of America* (Washington, DC: The White House, December 2017), 47.

² David A. Shlapak and Michael Johnson, *Reinforcing Deterrence on NATO's Eastern Flank: Wargaming the Defense of the Baltics* (Santa Monica, CA: RAND, 2016), available at <www.rand.org/pubs/research_reports/RR1253.html>.

³ Dave Johnson, "ZAPAD 2017 and Euro-Atlantic Security," *NATO Review*, December 14, 2017, available at <www.nato.int/docu/review/2017/Also-in-2017/zapad-2017-and-euro-atlantic-security-military-exercise-strategic-russia/EN/index.htm>.

⁴ "NATO Response Force/Very High Readiness Joint Task Force," NATO Supreme Headquarters Allied Powers Europe Web site, January 2016, available at <<https://shape.nato.int/nato-response-force-very-high-readiness-joint-task-force>>.

⁵ See Michael Kofman, "Fixing NATO Deterrence in the East or: How I Learned to Stop Worrying and Love NATO's Crushing Defeat by Russia," *War on the Rocks*, May 12, 2016, available at <<https://warontherocks.com/2016/05/fixing-nato-deterrence-in-the-east-or-how-i-learned-to-stop-worrying-and-love-natos-crushing-defeat-by-russia/>>.

⁶ *Ibid.*

⁷ Wesley Clark et al., *Closing NATO's Baltic Gap* (Tallinn, Estonia: International Centre for Defence and Security, May 2016), 12, available at <https://icds.ee/wp-content/uploads/2015/ICDS_Report-Closing_NATO_s_Baltic_Gap.pdf>.

⁸ Loic Burton, "Bubble Trouble: Russia's A2/AD Capabilities," Foreign Policy Association blog, October 25, 2016, available at <<https://foreignpolicyblogs.com/2016/10/25/bubble-trouble-russia-a2-ad/>>. See also Tobias Oder, "The Dimensions of Russian Sea Denial in the Baltic Sea," Center for International Maritime Security, January 4, 2018, available at <<http://cimsec.org/dimensions-russian-sea-denial-baltic-sea/35157>>.

⁹ Johan Norberg and Fredrik Westerlund, "Russia's Armed Forces in 2016," in *Russian Military Capability in a Ten-Year Perspective—2016*, ed. Gudrun Persson, Report FOI-R—4326—SE (Stockholm: Swedish Defence Research Agency, 2016), 45.

¹⁰ For purposes of this paper, *deterrence* is the threat intended to keep an adversary from starting something. *Compellence* is the threat

to an adversary to do something. *Area denial* and *counterattack* (both are military actions—one defensive, the other offensive) are forms of compellence. Compellence and deterrence are both forms of coercion. See Thomas Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 1966, 2008 edition), x, 70–72.

¹¹ See Glenn Snyder, *Deterrence and Defense: Toward a Theory of National Security* (Princeton: Princeton University Press, 1961), 14–16.

¹² Forest Morgan et al., *Dangerous Thresholds: Managing Escalation in the 21st Century* (Santa Monica, CA: RAND, 2008), xiii.

¹³ A. Wess Mitchell, "The Case for Deterrence by Denial," *The American Interest*, August 12, 2015, available at <www.the-american-interest.com/2015/08/12/the-case-for-deterrence-by-denial/>.

¹⁴ Kofman, "Fixing NATO Deterrence in the East." Kofman notes, "having a land war with Russia on its border is a poor proposition. This is a well-trodden path in military history with more losers than winners."

¹⁵ Matthew Kroenig, *A Strategy for Deterring Russian Nuclear De-Escalation Strikes* (Washington, DC: Atlantic Council, April 2018), 8–11, available at <www.atlanticcouncil.org/images/Nuclear_Strategy_WEB.pdf>.

¹⁶ Mitchell, "The Case for Deterrence by Denial."

¹⁷ Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton: Princeton University Press, 1976), 91.

¹⁸ *Ibid.*, 358–359.

¹⁹ Bradford Lee, "Strategic Interaction: Theory and History for Practitioners," in *Competitive Strategies for the 21st Century*, ed. Thomas Mahnken (Stanford, CA: Stanford University Press, 2012), 32.

²⁰ Magnus Nordenman, *Maritime Defense for the Baltic States*, Atlantic Council Issue Brief (Washington, DC: Atlantic Council, February 2018), available at <www.atlanticcouncil.org/images/Baltic_States_Maritime_Defence_WEB.pdf>.

²¹ Timothy M. Bonds et al., *What Role Can Land-Based, Multi-Domain Anti-Access/Area Denial Forces Play in Deterring and Defeating Aggression?* (Santa Monica, CA: RAND, 2017), 93–94.

²² Adapted from list of antiaccess/area-denial threats listed in John Gordon IV and John Matsumura, *The Army's Role in Overcoming Anti-Access and Area Denial Challenges* (Santa Monica, CA: RAND, 2013), 11–19.

²³ Philip M. Breedlove, Remarks to the Warsaw NATO Summit and Beyond: The Value of U.S. Alliances in the 21st Century, "Credible Deterrence in Europe and Its Future Challenges," CSIS, Washington DC, June 29, 2016, https://csis-prod.s3.amazonaws.com/s3fs-public/event/160629_breedlove_transcript.pdf.

²⁴ Jerry Hendrix, *Filling the Seams in U.S. Long-Range Penetrating Strike* (Washington, DC: Center for a New American Security, August 2018), 1–3, available at <<https://s3.amazonaws.com/files.cnas.org/documents/CNASReport-Penetrating-Strike-4.pdf?mtime=20180906151753>>.

²⁵ James Thomas and Evan Montgomery, "Developing a Strategy for a Long-Term Sino-American Competition," in Mahnken, *Competitive Strategies for the 21st Century*, 266–267.

²⁶ Dave Majumdar, "DeepStrike: America's Answer to Russia's Iskander Ballistic Missile," *The National Interest*, June 14, 2017, available at <<http://nationalinterest.org/blog/the-buzz/deepstrike-americas-answer-russias-iskander-ballistic-21162>>. See also Kyle Mizokami, "The Army Is Getting a New Long-Range Tactical Missile," *Popular Mechanics*, June 16, 2017, available at <www.popularmechanics.com/military/weapons/a26960/army-new-long-range-tactical-missile-deepstrike/>.

²⁷ Historical examples include Prussia during Seven Years' War (1756–1763), which had a higher ratio of conscripts per population serving in the military than any other European country at that time. Additionally, the Prussian army was generally better trained and led.

²⁸ "Europe," chapter four in *The Military Balance 2018* (London: International Institute for Strategic Studies, February 2018), 65–164; and "Middle East and North Africa," chapter seven in *The Military Balance 118* (London: International Institute for Strategic Studies, February 2018), 315–374.

²⁹ See David Johnson, *Hard Fighting: Israel in Lebanon and Gaza* (Santa Monica, CA: RAND, 2011), 44–54.

³⁰ *Ibid.*, 51.

³¹ For special operations forces (SOF) contribution to Total Defense concept for the Baltics, see James Wither, "Modern Guerrillas and the Defense of the Baltic States," *Small Wars Journal*, January 13, 2018, available at <<http://smallwarsjournal.com/jrnl/art/modern-guerrillas-and-defense-baltic-states>>.

³² Jan Osburg, *Unconventional Options for the Defense of the Baltic States: The Swiss Approach* (Santa Monica, CA: RAND, 2016), 7, available at <www.rand.org/pubs/perspectives/PE179.html>.

³³ Tactics would be similar to those used by the Finns in the Russo-Finnish War (1939–1940). See Iskander Rehman, "Lessons from the Winter War: Frozen Grit and Finland's Fabian Defense," *War on the Rocks*, July 20, 2016, available at <<https://warontherocks.com/2016/07/lessons-from-the-winter-war-frozen-grit-and-finlands-fabian-defense/>>.

³⁴ On uses for concrete on the modern battlefield, see John Spencer, "The Most Effective Weapon on the Modern Battlefield is Concrete," Modern War Institute at West Point, November 14, 2016, available at <<https://mwi.usma.edu/effective-weapon-modern-battlefield-concrete/>>.

³⁵ For details on Hezbollah's prepared positions, see Johnson, *Hard Fighting*, 45–46.

³⁶ Matt M. Matthews, *We Were Caught Unprepared: The 2006 Hezbollah-Israeli War*, The Long War Series Occasional Paper 26 (Fort Leavenworth, KS: Combat Studies Institute Press, 2008), 20.

³⁷ Mike Jacobson, "Cluster Munitions No More: What This Means for the U.S. Military," *eArmor*, October–December 2014, available at <www.benning.army.mil/armor/earmor/content/issues/2014/OCT_DEC/Jacobson.html>.

³⁸ Currently in use by the U.S. military, AeroVironment's Switchblade is a backpackable (5.5 lbs.) miniature flying missile for use against beyond-line-of-sight targets with a per unit cost around \$80,000. See Patrick Tucker, "In Urgent Request, U.S. Special Ops Adds 350 Kamikaze Drones to Fight ISIS," *Defense One*, May 18 2017, available at <www.defenseone.com/technology/2017/05/Special-Ops-Gets-350-More-Kamikaze-Suicide-Drones-to-Fight-ISIS/137987/>. See also David Hambling, "The U.S. Is Upgrading Its Tiniest Killer Drones," *Popular Mechanics*, October 12, 2016, available at <www.popularmechanics.com/military/research/a23346/us-upgrading-tiniest-killer-drones/>.

³⁹ See WB Group Web site, available at <www.wbgroup.pl/en/produkt/warmate-loitering-munitions/>.

⁴⁰ Mitchell, "The Case for Deterrence by Denial."

⁴¹ For Swiss tactical methods, see Major H. von Dach, *Total Resistance: Swiss Army Guide to Guerrilla Warfare and Underground Operations* (Boulder, CO: Paladin Press, 1965). More important than the tactical methods discussed is the moral dimension, to quote from the prologue, "We believe it is better to resist until the last. We believe that every Swiss woman or man must resist. We believe that the enemy cannot be allowed to feel at ease for even one minute in conquered ter-

ritory. We believe that we have to inflict damage upon him, fight him wherever and whenever we have the opportunity!"

⁴² Adolf Hitler was so impressed by Finland's obstinate defense from Soviet invasion that he visited Carl Gustaf Emil Mannerheim on his 75th birthday on June 4, 1942, to present him with Germany's highest military order for foreigners. During the signing of the peace treaty between the Soviet Union and Finland at the end of the Continuation War in 1944, Joseph Stalin personally raised a toast to "the brave Finnish Army." See Siegfried Kogelfranz, "Genosse, wir wollten euch erledigen": Die Davongekommenen von Jalta (III): Finnland," *Der Spiegel*, January 28, 1985, 130, 138, available at <www.spiegel.de/spiegel/print/d-13513025.html>.

⁴³ Observation by Luis Simon, "Demystifying the A2/AD Buzz," *War on the Rocks*, January 4, 2017, available at <<https://warontherocks.com/2017/01/demystifying-the-a2ad-buzz/>>.

⁴⁴ Also in the prologue to H. van Dach, "Perhaps one might say that is wrong and unwise to discuss these things publicly, to write about them and to inform a potential enemy of what we intend to do should he attack us. . . . On the contrary, we believe that, because of our openly demonstrated will to resist to the last, the enemy will have one more factor to consider when evaluating the 'pros' and 'cons' of a planned 'Operation Switzerland.'" See Dach, *Total Resistance*.

⁴⁵ "Defence Expenditure of NATO Countries (2011–2018)," NATO press release, March 2019, available at <www.nato.int/nato_static_files2014/assets/pdf/pdf_2019_03/190314-pr2018-34-eng.pdf>.

⁴⁶ T.X. Hammes, *Technologies Converge and Power Diffuses: The Evolution of Small, Smart, and Cheap Weapons*, Policy Analysis No. 786 (Washington, DC: CATO Institute, January 27, 2016), available at <www.cato.org/publications/policy-analysis/technologies-converge-power-diffuses-evolution-small-smart-cheap>.

⁴⁷ The exercise Trident Juncture took place in and off the coast of Norway and involved over 50,000 personnel, 50 aircraft, 65 ships, and 10,000 vehicles from NATO and partner nations. See Geoff Ziezulewicz and David B. Larter, "The Navy Sends a Carrier Back to Russia's Arctic Haunts," *Navy Times*, October 19, 2018, available at <www.navytimes.com/news/your-navy/2018/10/19/the-navy-sends-a-carrier-back-to-russias-arctic-haunts/?utm_source=Sailthru&utm_medium=>>.

⁴⁸ Zachary Morris, *The North Atlantic Treaty Organization: Dubious Political Will to Defend Baltic Allies*, The Land Warfare Papers No. 120 (Arlington, VA: Institute for Land Warfare, Association of the United States Army, 2018), v, available at <www.ausa.org/sites/default/files/publications/LWP-120-The-North-Atlantic-Treaty-Organization-Dubious-Political-Will-To-Defend-Baltic-Allies.pdf>.

⁴⁹ In February 2019, the United States provided formal notice of intent to withdraw from the Intermediate-Range Nuclear Forces Treaty in 6 months. See Michael R. Pompeo, press statement, February 2, 2019, available at <www.state.gov/u-s-intent-to-withdraw-from-the-inf-treaty-february-2-2019/>.

⁵⁰ For NATO forward presence in Poland, see Philip Breedlove and Alexander Vershbow, *Permanent Deterrence: Enhancements to the U.S. Military Presence in North Central Europe* (Washington, DC: Atlantic Council, December 2018), available at <www.atlanticcouncil.org/publications/issue-briefs/permanent-deterrence-enhancements-to-the-us-military-presence-in-north-central-europe>.

⁵¹ Shlapak and Johnson, *Reinforcing Deterrence on NATO's Eastern Flank*.

⁵² Breedlove and Vershbow, *Permanent Deterrence*, 2.

⁵³ Matthew Bodner, "Russia's Military Is a Paper Tiger in the Baltic," Institute of Modern Russia, August 26, 2015, available at <<https://imrussia.org/en/analysis/57-world/2389-russias-military-is-a-paper-tiger-in-the-baltic?tmpl=component&print=1&layout=default&page=>>>.

⁵⁴ Mark Pomerlau, "Air Force RPA 'Get Well' Plan on Track," C4ISRNET.com, June 6, 2017, available at <www.c4isrnet.com/unmanned/uas/2017/06/06/air-force-rpa-get-well-plan-on-track/>.

⁵⁵ Erik Marmeï and Gabriel White, *European Deterrence Initiative: Bolstering the Defence of the Baltic States* (Tallinn, Estonia: International Centre for Defence and Security, December 2017), 2–3, available at <https://icds.ee/wp-content/uploads/2018/05/ICDS_Policy_Paper_European_Deterrence_Initiative_Eerik_Marmeï-Gabriel_White_December_2017.pdf>.

⁵⁶ T.X. Hammes, "Technological Change and the Fourth Industrial Revolution," in *Technological Change and the Fourth Industrial Revolution*, ed. George P. Shultz, Jim Hoagland, and James Timbie (Stanford, CA: Hoover Institution, March 28, 2018), 60, available at <www.hoover.org/sites/default/files/research/docs/beyonddisruption_chapter_2.pdf>.

⁵⁷ Philip Breedlove, *Toward Effective Air Defense in Northern Europe*, Issue Brief (Washington, DC: Atlantic Council, February 2018), 4, available at <www.atlanticcouncil.org/images/publications/Toward_Effective_Air_Defense_in_Northern_Europe.pdf>.

⁵⁸ Andrew Radin, *Hybrid Warfare in the Baltics: Threats and Potential Responses* (Santa Monica, CA: RAND, 2017), 33.

⁵⁹ Robbin Laird, "Nordics Unite for Cross Border Air Combat Training; Thanks Russia!" *Breaking Defense*, July 2, 2018, available at <<https://breakingdefense.com/2018/07/nordics-unite-for-cross-border-air-combat-training-thanks-russia/>>.

⁶⁰ Breedlove, *Toward Effective Air Defense in Northern Europe*, 4.

⁶¹ *Ibid.*; Marmeï and White, *Bolstering the Defence of the Baltic States*, 3.

⁶² Marmeï and White, *Bolstering the Defence of the Baltic States*, 3.

⁶³ Luke Coffey and Dan Kochis, *Time for the Baltic Air Policing Mission to Become the Baltic Air Defence Mission*, Issue Brief (Washington, DC: The Heritage Foundation, October 2, 2017), 1.

⁶⁴ *Ibid.*, 1–2; Breedlove, *Toward Effective Air Defense in Northern Europe*, 4.

⁶⁵ Marmeï and White, *Bolstering the Defence of the Baltic States*, 4.

⁶⁶ Coffey and Kochis, *Time for the Baltic Air Policing Mission to Become the Baltic Air Defence Mission*, 2.

⁶⁷ Laird, "Nordics Unite for Cross Border Air Combat Training."

⁶⁸ Frank G. Hoffman, *Assessing Baltic Sea Regional Maritime Security*, The Philadelphia Papers (Philadelphia: Foreign Policy Research Institute, June 2017), 8–9, available at <www.fpri.org/wp-content/uploads/2017/06/Assessing-Baltic-Maritime-Security.pdf>. The desire of certain powers to stay under the threshold of triggering a military response has led to what is called a *gray zone operation*, which "is best understood as activity that is coercive and aggressive in nature, but that is deliberately designed to remain below the threshold of conventional military conflict and open interstate war." See Hal Brands, "Paradoxes of the Gray Zone," Foreign Policy Research Institute, February 5, 2016, available at <www.fpri.org/article/2016/02/paradoxes-gray-zone/>. See also Antulio J. Echevarria II, *Operating in the Gray Zone: An Alternative Paradigm for U.S. Military Strategy* (Carlisle Barracks, PA: U.S. Army War College Press, April 2016); Michael J. Mazarr, *Mastering the Gray Zone: Understanding a Changing Era of Conflict* (Carlisle Barracks, PA: U.S. Army War College Press, December 2015).

⁶⁹ Andrew Higgins, "On a Tiny Finnish Island, a Helipad, 9 Piers—and the Russian Military?" *New York Times*, October 31, 2018, available at <www.nytimes.com/2018/10/31/world/europe/sakkiluoto-finland-russian-military.html>.

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⁷³ Hoffman, *Assessing Baltic Sea Regional Maritime Security*, 13.

⁷⁴ Michael Kofman, "What Actually Happened During Zapad 2017," ERR.EE, December 23, 2017, available at <<https://news.err.ee/650543/michael-kofman-what-actually-happened-during-zapad-2017>>.

⁷⁵ "Russia's Latest Game: Challenging NATO at Sea," *Bloomberg View*, October 5, 2017, available at <www.bloomberg.com/view/articles/2017-10-05/russia-s-latest-game-challenging-nato-at-sea>.

⁷⁶ Tomas MalmLöf and Roger Roffey, "The Russian Defence Industry and Procurement," in *Russian Military Capability in a Ten-Year Perspective—2016*, ed. Gudrun Person (Stockholm: Swedish Defence Research Agency, 2016), 165–170.

⁷⁷ Finnish Armed Forces, "The Air Force Is Getting Prepared for the 2018 NRF Rotation," press release, March 15, 2017, available at <http://ilmavoimat.fi/en/article/-/asset_publisher/ilmavoimat-valmistautuu-vuoden-2018-valmiusvuoroon>; Mikael Holmström, "Så ska Sverige bidra till Natos snabbinsatsstyrka" [This Is How Sweden Will Contribute to NATO's Rapid Reaction Force], SvD, October 31, 2013, available at <www.svd.se/sa-ska-sverige-bidra-till-natos-snabbinsatsstyrka>; Government Offices of Sweden, "Regeringen beslutar att Sverige ska anslutas till brittiskledd insatsstyrka" [The Government Decides That Sweden Will Join British-Led Intervention Force], June 22, 2017, available at <www.regeringen.se/pressmeddelanden/2017/06/regeringen-beslutar-att-sverige-ska-anslutas-till-brittiskledd-insatsstyrka>.

⁷⁸ That is, the capability to conduct "protection of shipping operations."

⁷⁹ Government Offices of Sweden, "Försvarssamarbetet Sverige Finland" [Swedish-Finnish Defence Cooperation], available at <www.regeringen.se/regeringens-politik/forsvarssamarbetet-sverige-finland/>; Stefan Lundqvist and J.J. Widen, "Swedish-Finnish Naval Cooperation in the Baltic Sea: Motives, Prospects, and Challenges," *Defence Studies* 16, no. 4 (2016), 363.

⁸⁰ Gerard O'Dwyer, "Finland Moves to Boost its Naval Power in the Baltic Sea Hotspot," *Defense News*, October 19, 2018, available at <www.defensenews.com/global/europe/2018/10/19/finland-moves-to-boost-its-naval-power-in-the-baltic-sea-hotspot/?utm_source=Sailthru&utm_>.

⁸¹ "Sweden Navy Chief Aims to Grow Sea Power," *Defense News*, April 10, 2018, available at <www.defensenews.com/digital-show-dailies/navy-league/2018/04/10/sweden-navy-chief-aims-to-grow-sea-power/>.

⁸² Hoffman, *Assessing Baltic Sea Regional Maritime Security*, 23.

⁸³ Lundqvist, “Maritime Security and Sea Power,” 22.

⁸⁴ Of relevance to the Joint Expeditionary Force, the United Kingdom is a member of the Sea Surveillance Co-Operation Baltic Sea. The European Union’s Maritime Surveillance project aims “to create a network using existing naval and maritime information exchange systems. Overall goals are to avoid duplication of effort and the use of available technologies, data and information, to enhance cooperation in a simple, efficient and low-cost solution for military and civil cooperation, and to support safety and security.”

⁸⁵ Stefan Lundqvist, “Continuity and Change in Post-Cold War Maritime Security: A Study of the Strategies Pursued by the U.S., Sweden and Finland 1991–2016” (Ph.D. diss., Åbo Akademi University, 2017), 146.

⁸⁶ Ibid., 153. Lundqvist, “Maritime Security and Sea Power,” 20–21.

⁸⁷ Joint Publication 3-05, *Special Operations* (Washington, DC: The Joint Staff, April 18, 2011), II-5–II-6

⁸⁸ Wither, “Modern Guerrillas and the Defense of the Baltic States.”

⁸⁹ Espen Berg-Knutsen, “From Tactical Champions to Grand Strategy Enablers: The Future of Small Nation SOF in Counter-Hybrid Warfare,” *Combating Terrorism Exchange* 6, no. 4 (November 2016), 61. Civil-military teams and interagency coordination and collaboration in gray zone environments will be the subject of future papers in this series.

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