

Why Russia's military is bogged down by logistics in Ukraine

By [Bonnie Berkowitz](#) and [Artur Galocha](#)

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Ambushed convoys and broken-down tanks. Generals killed close to the front. Long-expired rations. Frostbite.

Russia's military was built for quick, overwhelming firepower, experts say, but its weakness is logistics. And on the roads of Ukraine a month after the first invasion, that weakness is showing.

'The tyranny of distance'

Many analysts say the Russians assumed they would quickly capture the capital city of Kyiv and force President Volodymyr Zelensky out of power. Whatever the strategy, that outcome did not happen, and Russia has been bedeviled by an inability to keep supplies flowing to troops in a longer ground war.

After weeks of little success except in southeastern Ukraine, despite relentless shelling and thousands of military and civilian casualties, Moscow said during peace negotiations on Tuesday that it would "drastically reduce" military activity in the northern part of the country, near Kyiv and Chernihiv.

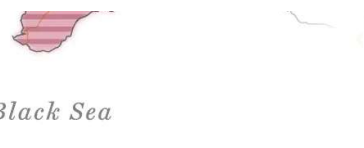
— Railroads in Ukraine



100 MILES



Black Sea



After a surprisingly fierce Ukrainian resistance, “we can suspect that [Russians] did not properly organize the logistics necessary for an effective Plan B, which was to have an actual, serious fight in what is the largest country in Europe outside of Russia,” said Michael Kofman, director of Russia studies at CNA, a Virginia-based think tank.

Ukraine’s sheer size is a problem.

Russia prefers to move troops and supplies on railroads, and it is doing that now in the southeast after seizing Kherson and Melitopol and securing a crossing over the Dnieper River.

But it doesn’t control rail hubs such as Chernihiv in the north, and because the ground has been wet and muddy, Russian vehicles have to stick to roads.

“Trucking takes a lot of time,” said Kofman, “and the tyranny of distance becomes really, really challenging because they’re trying to push a large force down some fairly narrow roads.”

And it’s not just one trip. Supply trucks and other support vehicles have to constantly shuttle back and forth.

What one Russian formation may look like

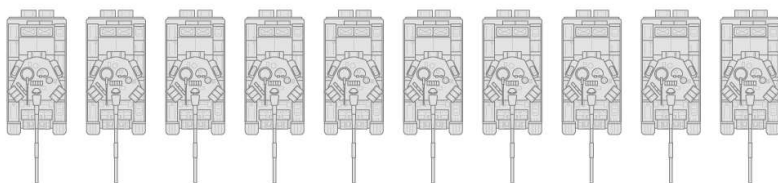
Weapons and fighters in any ground invasion would not last long without the support of mechanics, medics, engineers, truck drivers, cooks and other crew. That’s because the needs of soldiers fighting a modern war are enormous. On average, each Russian soldier goes through about 440 pounds of supplies a day, including food, fuel, ammunition, medical support, etc.

Russia has sent more than 150,000 troops into Ukraine, organized into various formations.

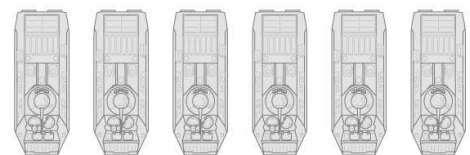
Here’s an example, a battalion tactical group, which would establish the front with 700 to 900 soldiers and an array of different types of vehicles.

It is one of many types of formations used by the Russian army, according to retired Lt. Col. Alex Vershinin, whose career with U.S. and NATO forces included building logistical models.

10
Tanks

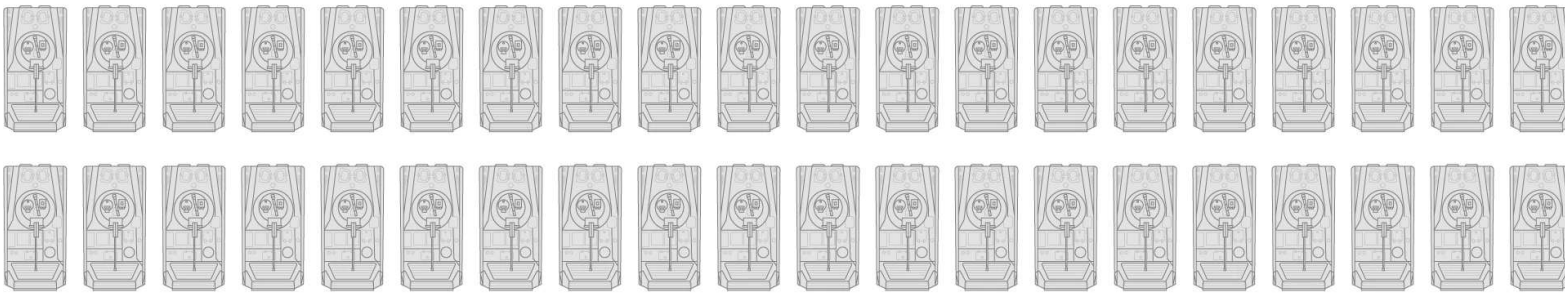


6
Armored personnel carriers (APCs)
With mortars mounted on top



40
Armored infantry fighting vehicles (IFVs)

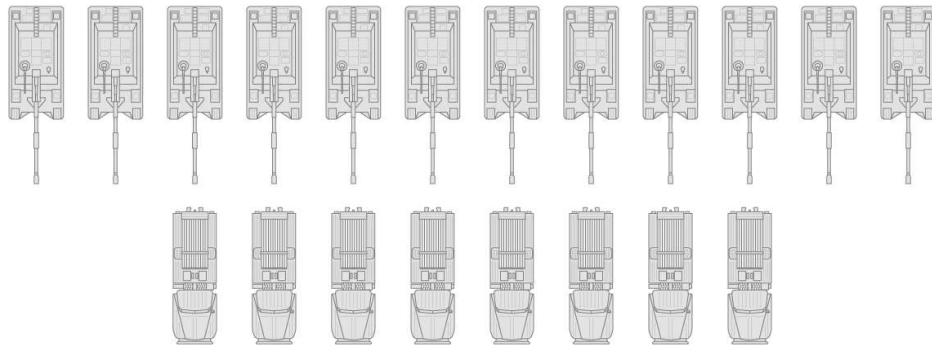
Carry troops into battle and usually have cannons mounted on them



12-20

Artillery vehicles

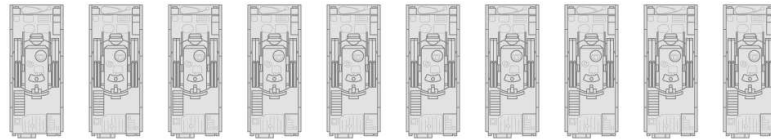
Include cannons and possibly
rocket launchers



10

Air defense vehicles

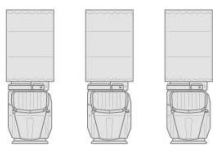
Fire cannons, missiles or a mix



3

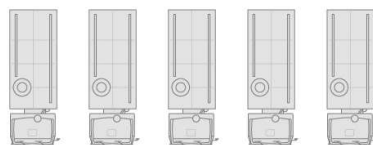
Trucks for food

Ten days' worth



5

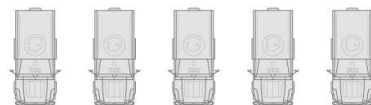
Water trucks



2-5

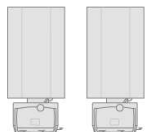
Medical trucks

For front-line treatment
(not equipped for surgeries)



2

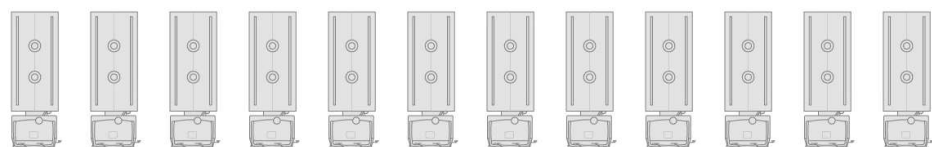
**Mobile kitchen
trucks**



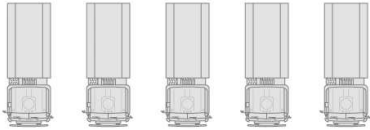
10-12

Fuel trucks

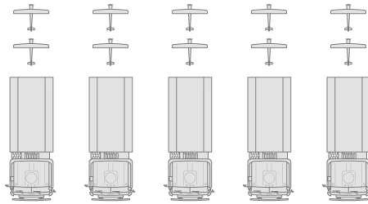
About two days' worth



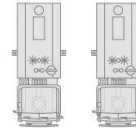
5
Trucks containing engineers and their supplies
Mine-clearing equipment, for example



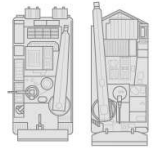
5
Vehicles with drones



2
Electronic signal jammers
To neutralize spy satellites and radars



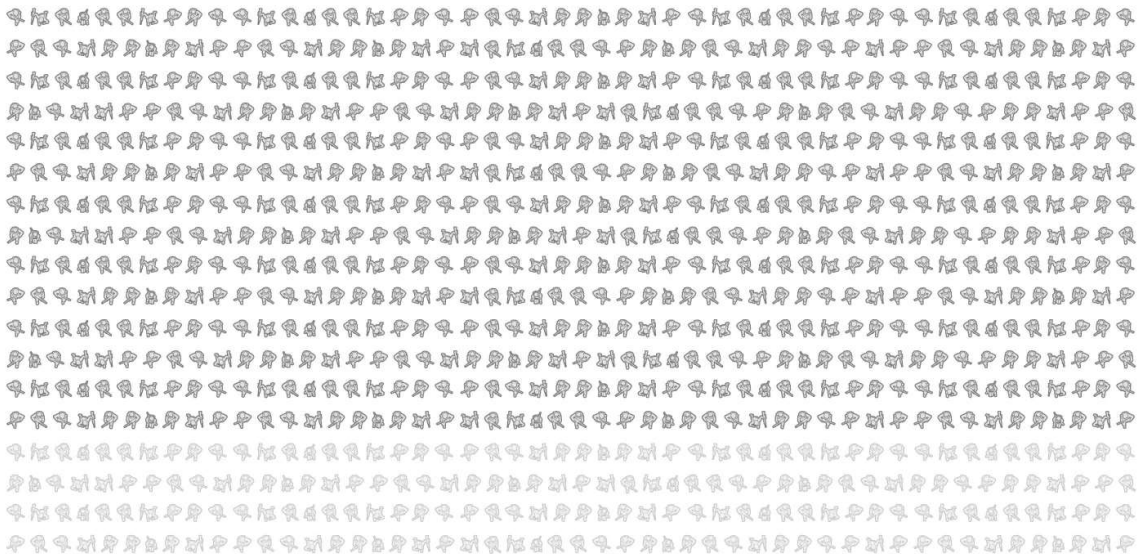
2
Recovery vehicles
One tow truck for lighter vehicles and one for towing tanks and cannons



700-900

Soldiers

And additional trucks to carry them apart from the gear



Vehicles, weapons and personnel may be swapped out as the group's mission changes.

The Russian army operates with fewer support soldiers than other militaries. About 150 of the 700 to 900 troops could be considered support, and because this formation would be an arm of a larger force in the area, they could also expect help from other logistics units.

But the ratio would still not come close to that of the U.S. Army, which deploys about 10 support soldiers for every combat soldier, retired Lt. Col. Alex Vershinin said.

Problems and possible problems

If Russia's invasion plan had called for slow, steady advances, Vershinin said, it would have tried to quickly control the airspace and then set up secure mini-bases every 30 to 40 miles as it captured territory. Each base would have a repair depot, medical station and stockpiles so that supplies were never far away.

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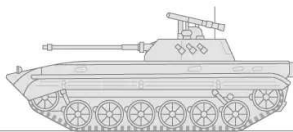


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Do

But Russia instead tried to dominate in long, fast, first pushes, which stretched its supply line much further. For instance, Russia's early push from Crimea to Kherson was about 120 miles, and the push from Belarus to Kyiv was 86. The maximum workable distance from a railhead is considered to be 90 to 120 miles.

Vershinin said he suspects that the infamous 40-mile convoy was not "stalled" outside Kyiv, but was intentionally stopped and that pieces were repositioned to act as a logistics base that would be out of range of Ukrainian artillery in case Russia tries to capture the city later.

The choice to go light on logistics may work in a quick military action but doesn't leave much room for error in a longer one. Here are some problems the Russians appear to be having:



Inadequate protection of supply convoys

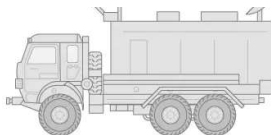
Trucks moving along supply lines need protection, especially if travel options have been narrowed to a few predictable roads.

But early on, Kofman said, Russian troops didn't execute the basics of convoy escort, which involves armored vehicles and soldiers traveling with and defending vulnerable logistics vehicles. Supply vehicles were sometimes left on their own, even after the Ukrainian military advised citizens on social media to attack unarmored fuel trucks.

The British defense ministry [tweeted](#) March 17 that Ukrainian counterattacks have forced Russia to "divert large numbers of troops to defend their own supply lines."

"It turns out advancing and extending your supply lines makes your support elements and your logistics vulnerable to ambush," Kofman said, "and Ukrainians pretty quickly figured out that the Achilles' heel on the Russian effort was the logistics."





Scattered command, poor communication

Russia's command structure has been "confused, at best," said Andrew Galer, head of Land Platforms and Weapons at open-source defense intelligence agency Janes. It is not one structure but four, coming from four different regions of Russia. "A single, unified chain of command makes life a lot simpler," he said, "and they've not got that."

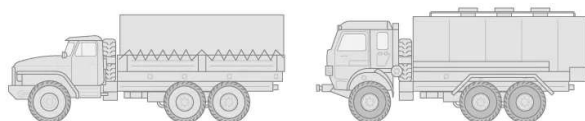
Galer said stark evidence of the faulty chain of command is that at least 15 senior Russian commanders, including seven generals, have been killed, according to the Ukraine Defense Ministry. Typically, such high-ranking officers would not be anywhere near the front lines, but they've had to go further forward than normal to impose order and direct operations at the lower levels.

Many Russian troops in the south appear to be professional soldiers who had been deployed in Crimea. But elsewhere, especially in the north, Russian forces appear to have many draftees who may be less motivated and less well-trained.

In addition, it appears that orders for the invasion were kept secret from the rank-and-file.

"They did not tell the troops they were actually being sent to invade Ukraine until very, very late in the game," Kofman said. "Troops who believe that they are in an exercise are going to take a very different approach to thinking about logistics than they are if they actually believe they're being sent into a large war."

Communication was further disrupted when, in the process of bombing cities such as Kharkiv, Russian forces destroyed cell towers needed by their own secure network. They were forced to use unsecured lines that were easily intercepted. One Russian general was reportedly killed in an airstrike after the Ukrainians located him by his cellphone signal, the New York Times reported.



Shortages of food, water and fuel

Social media contains many reports of Russian soldiers lacking food and even fuel for tanks, but it is hard to tell whether those are isolated cases or widespread problems.

British intelligence tweeted March 17 that logistical problems were "preventing Russia from effectively resupplying their forward troops with even basic essentials such as food and fuel." A senior U.S. defense official said some Russian soldiers have suffered frostbite because they lacked cold-weather gear.

The New York Times reported that some soldiers carried meals that expired in 2002, and it intercepted radio communications between troops outside Kyiv who said they needed food, water and fuel. CNN cited two “sources familiar with the matter” who said Russia had asked China for rations. And plenty of videos of soldiers looting have circulated, which Kofman said is not uncommon for Russian troops in wartime.

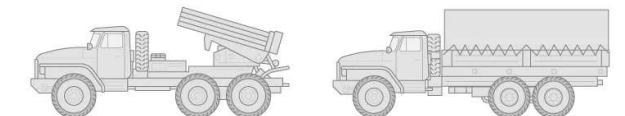


Questionable medical care

A vital aspect of military planning is how best to treat and transport wounded soldiers, ideally within the first hour after a trauma, said Cynthia Cook, a military logistics expert who directs the Defense-Industrial Initiatives Group at the Center for Strategic and International Studies. She said there have been reports of inadequate medical support for Russian troops.

“You know,” Cook said, “one of the many, many horrifying things about this whole war is the idea that Russia would not be prepared to adequately support their soldiers in terms of their medical needs.”

On March 23, a NATO official estimated that between 7,000 and 15,000 Russian troops have been killed since the invasion began in late February, and many more have been wounded — so many that the Pentagon said Russia is pulling in reinforcements who are deployed elsewhere. The British defense ministry said Russia is hiring soldiers from pro-Kremlin mercenary group Wagner.

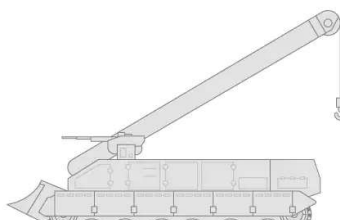


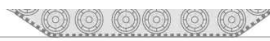
Low supplies of guided missiles

“Capturing cities is an extremely bloody, time-consuming event,” said Vershinin. Urban terrain favors defenders who know the territory, and it provides endless places to hide and opportunities for ambush. It also forces an attacker to use an enormous amount of ammunition.

Most likely, few people outside the Kremlin know how many missiles, rockets and artillery shells Russia started with or how many it has used to bombard Ukrainian cities; all countries keep their military stockpiles secret. But Forbes reported that a Pentagon official said Russia appears to be running low on precision munitions such as guided missiles, and Reuters reported that those missiles have a failure rate of up to 60 percent.

Russia exports plenty of weapons systems to the Middle East and Asia, Galer said, so analysts will be watching for delivery delays that would indicate Russian defense manufacturers can’t meet demand.





Excessive vehicle breakdowns

Since the invasion began Feb. 24, Russia has lost more than 2,000 vehicles, including more than 300 tanks, according to [open-source reports](#). The Ukrainians destroyed and captured some; others were abandoned.

Some of the tanks were generations old and not well-equipped, including the T-72, a Soviet-era tank that first entered production more than 50 years ago.

Military operations are tough on vehicles, Vershinin said. “Combat vehicles go off-road, they go on dirt roads, gravel roads, that constantly shake everything and they literally shake things apart, like the little, tiny pieces, the screws come loose. Tiny pins fall out. So it’s very common for armored vehicles, even wheel trucks, to break under an intense operating environment. That actually will explain why we’ve seen so many pictures of abandoned Russian vehicles. They simply broke along the way.”

But the Russian rate of breakdown appears to be high, especially considering Russia invested a lot in modernizing its military.

“Are they maintained on a regular basis? And is there adequate supply?” asked Cook. “We can infer by what’s happening that that’s probably not the case.”

Galer said maintenance shortcomings are being compounded by the fact that troops had been doing exercises for two months before crossing into Ukraine — “literally just rolled straight off the exercise and into the conflict, so there was no time for them to do essential equipment maintenance before they started the advance.”

For all the vehicles in our example formation, just two are “recovery vehicles” — tow trucks that are usually driven by mechanics. Only one is heavy-duty enough to tow a tank. Factor in the round-trip distance, and it becomes a tactical decision whether to tow a vehicle for repair or abandon it.

After a muddled start, Russia may yet adapt to the situation it finds itself in on the ground, and find a way to keep its soldiers fed, fueled, and moving forward.

But the way the invasion has played out so far will be a much-studied cautionary tale, Cook said, “a source of lessons learned for military planners and logistics planners in years and maybe decades to come, as analysts try to unpack what went wrong.”

National security reporter Alex Horton contributed to this report.

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