

The 2022 War in Ukraine

Week 2

Spring 2022, Tuesdays 1:30 – 3:00 pm

Study Group Facilitators

Roy Campbell and Norm Miller

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Weekly Theme Reminder

1. Timeline of conflict. Major events. Newspaper, journal, speeches, attacks, events.
2. Origins. Reasons for conflict. Past conflicts. Motivations for conflict. Alliances. Goals.
3. Leaders of the Nations in conflict. Military and Political figures.
4. Resources. Military strengths. Economies.
5. Military Tactics and Strategy. Use of Information and Cyber warfare
6. November through July significant events
7. Cost of conflict. Likely outcomes.

Contributory investigations Reminder

1. The reporters: who are the ones providing the best articles on the different aspects of the conflict? Any volunteers?
2. Food, Fertilizer, Refugees: Who is being impacted by the conflict?
3. Who benefits from the war. Individuals, organizations, countries?
4. Leaders watch. Who is on the up and down. Who are the influential leaders?
5. Evolving strategic goals. How have the strategies of Russia, Ukraine, Nato changed?
6. Evolving tactics. What tactics are being employed this week?
7. Politicians: Republican, Democratic, Russian, Ukrainian. Which politician best formalizes the issues?
8. War Crimes? Who, what and when?
9. Battle watch. Who is winning what and where?
10. Peace Talks. Agreement versus disagreements?

Agenda Week 2 (20 minutes per section)

1. Overview of week (E.g. see New York Times, Bloomberg News, BBC, Wikipedia,) Discussion of the whole.
2. Updates from contributory investigations (Slide 5.) 2 minute update on your investigation.
3. Summary of Weekly Theme. Led by Roy and Norm.
Origins. Reasons for conflict. Past conflicts. Motivations for conflict. Alliances. Goals.
4. Discussion of the whole.

Other topics/Better organization?

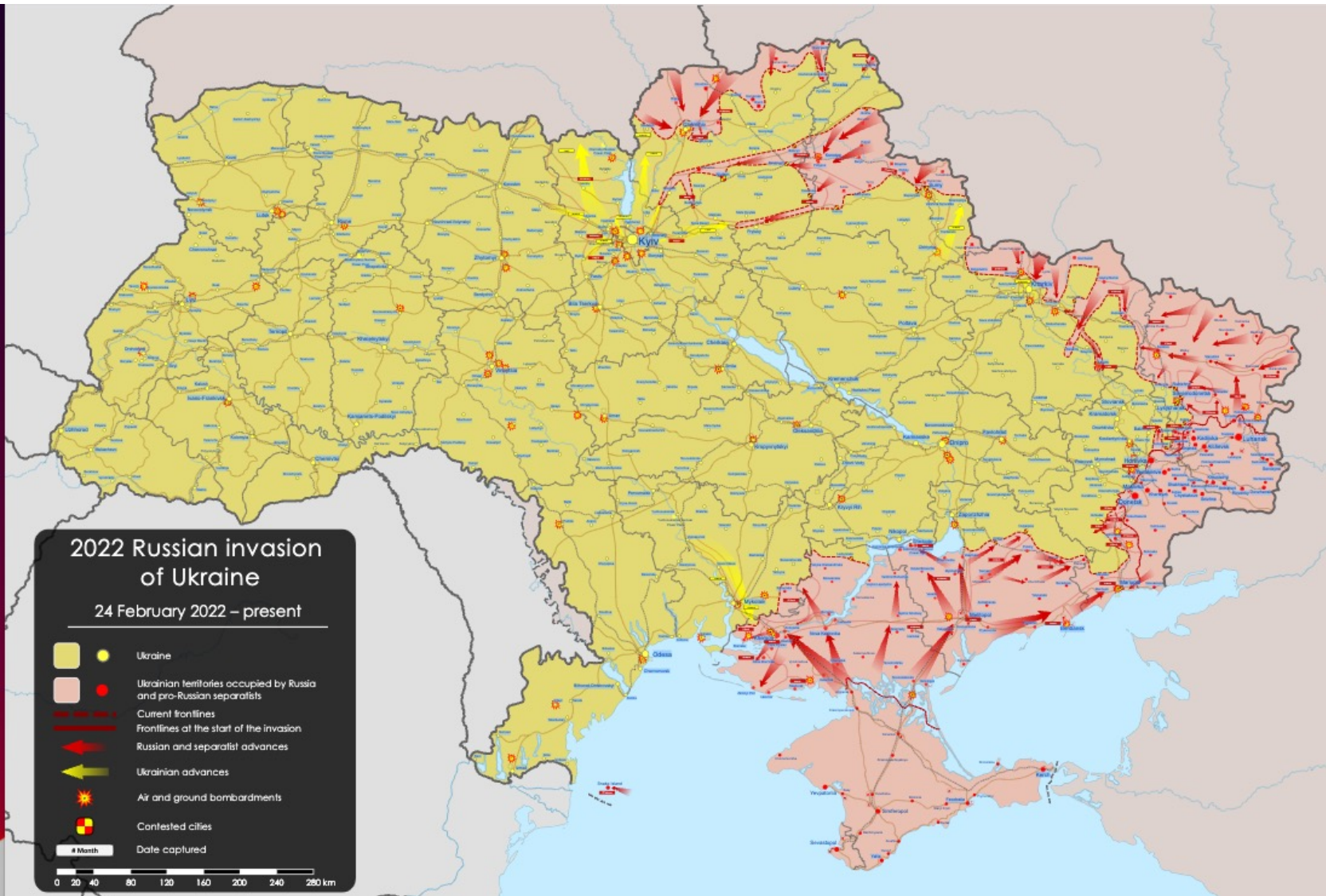
1) Overview of week (Discussion of the whole)

1. U.S. military officials said they expect Russia to carry out a major offensive from the city of Izium to Dnipro, a strategic target in eastern Ukraine.
2. New Commander for Russian Troops
3. Russian forces attacked civilian areas in eastern Ukraine on Sunday as terrified residents joined an exodus of thousands of Ukrainians fleeing westward, heeding warnings by authorities that Russian troops were massing for a major assault.
4. Dozens of bodies have been found on a highway to Kyiv, a local official says.
5. After the deadly strike on the train station in Kramatorsk, Ukraine, those who stayed behind are grim about the future.
6. Spurred by Putin, Russians turn on one another over the war.
7. U.S. blocks Russia's access to dollars for bond payments, S&P claim of default.
8. https://en.wikipedia.org/wiki/Timeline_of_the_2022_Russian_invasion_of_Ukraine_-_11_April

PBS “Ukraine IT in Wartime” Amanpour Summary

- <https://www.youtube.com/watch?v=6T1i4bMbJZ0>
- Ukrainians are holding off Russian forces not just on the ground, but also online. Government officials and a citizen IT army are transforming the digital landscape, adapting everyday technology into wartime survival tools. Investigative journalist Vera Bergengruen joins Hari Sreenivasan to discuss the country’s virtual strategy -- and success.

1.2) Overview of 4/4/2022



Military situation as of 5 April 2022
Yellow - Ukraine
Pink - Occupied Ukrainian territories

[Viewsridge](#) - Own work, derivate of [Russo-Ukraine Conflict \(2014-2021\).svg](#)

1.2) Overview of 4/11/2022



Military situation as of 5 April 2022

Yellow - Ukraine

Pink - Occupied Ukrainian territories

1.3) The Russian military is trying to encircle the Ukrainian army. Seizes the eastern city of Iziium and will try to push southeast to Sloviansk (NYT)



1.4) Dnipro

- Dnipro is a primarily industrial city of around one million people; in being such it has developed into a large urban centre over the past few centuries to become, today, Ukraine's fourth-largest city after [Kyiv](#), [Kharkiv](#) and [Odesa](#).
- The city is built mainly upon both banks of the Dnieper, at its confluence with the [Samara River](#). In the loop of a major meander, the Dnieper changes its course from the north west to continue southerly and later south-westerly through Ukraine, ultimately passing [Kherson](#), where it finally flows into the [Black Sea](#).^{[[citation needed](#)]}
- Nowadays both the north and south banks play home to a range of industrial enterprises and manufacturing plants. The airport is located about 15 km (9.3 mi) south-east of the city.
- The centre of the city is constructed on the right bank which is part of the [Dnieper Upland](#), while the left bank is part of the [Dnieper Lowland](#). The old town is situated atop a hill that is formed as a result of the river's change of course to the south. The change of river's direction is caused by its proximity to the [Azov Upland](#) located southeast of the city.

Dnipro Demographics

Ethnic group	1926^[128]	1939^[129]	1959^[130]	1989^[131]	2001^[131]	2017^[132]
Ukrainians	36.0%	54.6%	61.5%	62.5%	72.6%	82%
Russians	31.6%	23.4%	27.9%	31.0%	23.5%	13%
Jews	26.8%	17.9%	7.6%	3.2%	1.0%	
Belarusians	1.9%	1.9%	1.7%		1.0%	

Dnipro is a major industrial centre of Ukraine. It has several facilities devoted to heavy industry that produce a wide range of products, including [cast-iron](#), [launch vehicles](#), rolled metal, pipes, [machinery](#), different mining combines, [agricultural equipment](#), [tractors](#), [trolleybuses](#), refrigerators, different chemicals and many others.^{[[citation needed](#)]} The most famous and the oldest (founded in the 19th century) is the Metallurgical Plant named after Petrovsky.

New top commander, Gen. Alexander Dvornikov



Dvornikov was Russia's first commander overseeing its brutal campaign in Syria, where Russian forces carried out widespread and indiscriminate bombardments of Syrian civilians, neighborhoods and hospitals in tandem with President Bashar al-Assad's own air wars and sieges. Dvornikov was honored as a "hero of the Russian Federation" in 2016 for his work there.

Moscow is refocusing its efforts on capturing Ukraine's south and east — where Dvornikov was already in command.

Ukraine War Casualties

Breakdown	Casualties	Time period	Source
Civilians	7,438–7,665+ killed	24 February – 8 April 2022	Ukrainian government ^[d]
	1,793+ killed, 2,439+ wounded	24 February – 9 April 2022	United Nations ^[354]
Ukrainian forces (UAF, NGU)	1,300 killed	24 February – 12 March 2022	Ukrainian government ^[355]
	2,000–4,000 killed	24 February – 9 March 2022	US estimate ^[356]
	14,000 killed, 16,000 wounded	24 February – 25 March 2022	Russian government ^[357]
Russian Armed Forces	1,351 killed, 3,825 wounded ^[e]	24 February – 25 March 2022	Russian government ^[357]
Donetsk PR forces	979 killed, 4,265 wounded	26 February – 7 April 2022	Donetsk PR ^[f]
Luhansk PR forces	500–600 killed	24 February – 5 April 2022	Russian government ^[g]
Russian and allied forces (RAF, Rosgvardiya, PMC Wagner, DPR & LPR)	30,000–40,000 casualties ^[h]	24 February – 23 March 2022	NATO estimate ^[367]
	10,000+ killed	24 February – 30 March 2022	US estimate ^[368]
	19,300 losses	24 February – 10 April 2022	Ukrainian government ^[369]

2) Investigations

- 2 minutes
- Send Slides or bring them
- Ongoing

Paula Watson Contribution

- Here's the Bret Stephens' editorial I mentioned in class:
- <https://www.nytimes.com/2022/03/29/opinion/ukraine-war-putin.html?searchResultPosition=3>
- Suppose for a moment that Putin *never* intended to conquer all of Ukraine: that, from the beginning, his real targets were the energy riches of Ukraine's east, which contain [Europe's second-largest known reserves of natural gas \(after Norway's\)](#).

Reporters who have been or are in Ukraine

Lyse	Doucet	BBC	BBC's chief international cor	https://en.wikipedia.org/wiki/BBC_News_Ukrainian
Clive	Myrie	BBC		https://www.thetimes.co.uk/article/the-bbcs-clive-myrie-what-its-like-to-report-from-ukraines-front-line-q60vkrs3b
Andrew E.	Kramer	NYTimes	Times Moscow cor	https://www.nytimes.com/by/andrew-e-kramer
Benjamin	Hall	Fox News	Fox News cor	https://www.nytimes.com/2022/03/14/technology/ukraine-fox-news-benjamin-hall.html
Brent	Renaud	Fox News	Died	https://www.nytimes.com/2022/03/15/business/media/ukraine-fox-news-cameraman-killed.html
Isabelle	Khurshudyan	Washington Post	Moscow Cor	https://www.washingtonpost.com/world/2022/03/04/behind-the-story-ukraine/
Whitney	Leaming	Washington Post	Video Journalist	https://www.washingtonpost.com/people/whitney-leaming/
Salwan	Georges	Washington Post	Photographer	https://www.washingtonpost.com/people/salwan-georges/
Nick	Schifrin	PBS		https://www.pbs.org/newshour/author/nick-schifrin
Simon	Ostrovsky	PBS	Special Cor	https://www.pbs.org/newshour/author/simon-ostrovsky
Yegor	Trojanovsky	PBS	Videographer	https://www.pbs.org/newshour/author/yegor-trojanovsky
Mstyslav	Chernov	AP	Journalist	https://www.pbs.org/newshour/world/they-were-covering-the-russian-attack-on-mariupol-then-these-ap-reporters-became-the-hunted

War Crimes https://en.wikipedia.org/wiki/War_crime

- [Lieber Code](#) (1863) of the Union Army in the American Civil War and the [Hague Conventions of 1899 and 1907](#) for international war.^[1]
- the [Nuremberg principles](#) of law (what is a war crime)
- The 1949 [Geneva Conventions](#) legally defined new war crimes
- International Criminal Court 2002

Crimes against Humanity https://en.wikipedia.org/wiki/Crimes_against_humanity

certain acts that are purposefully committed by a [state](#), or on behalf of a state, as part of a widespread or systematic policy, typically directed against civilians, in times of [war](#) or [peace](#)

War Crimes

Grave breaches of the Geneva Conventions

1. Willful killing, or causing great suffering or serious injury to body or health
2. [Torture](#) or inhumane treatment
3. Unlawful wanton destruction or appropriation of property
4. Forcing a [prisoner of war](#) to serve in the forces of a hostile power
5. Depriving a prisoner of war of a [fair trial](#)
6. Unlawful [deportation](#), confinement or [transfer](#)
7. Taking [hostages](#)
8. Directing attacks against civilians
9. Directing attacks against humanitarian workers or UN [peacekeepers](#)
10. [Killing a surrendered combatant](#)
11. Misusing a flag of truce
12. Settlement of occupied territory
13. Deportation of inhabitants of occupied territory
14. Using poison weapons
15. Using civilians as shields
16. Using [child soldiers](#)
17. Firing upon a [Combat Medic](#) with clear insignia.

Grave breaches of the Geneva Conventions

Acts as part of a non-international conflict

1. Murder, cruel or degrading treatment and torture
2. Directing attacks against civilians, humanitarian workers or UN peacekeepers

Acts as part of an international conflict

1. Taking hostages
2. [Summary execution](#)
3. [Pillage](#)
4. Rape, [sexual slavery](#), forced prostitution or forced pregnancy

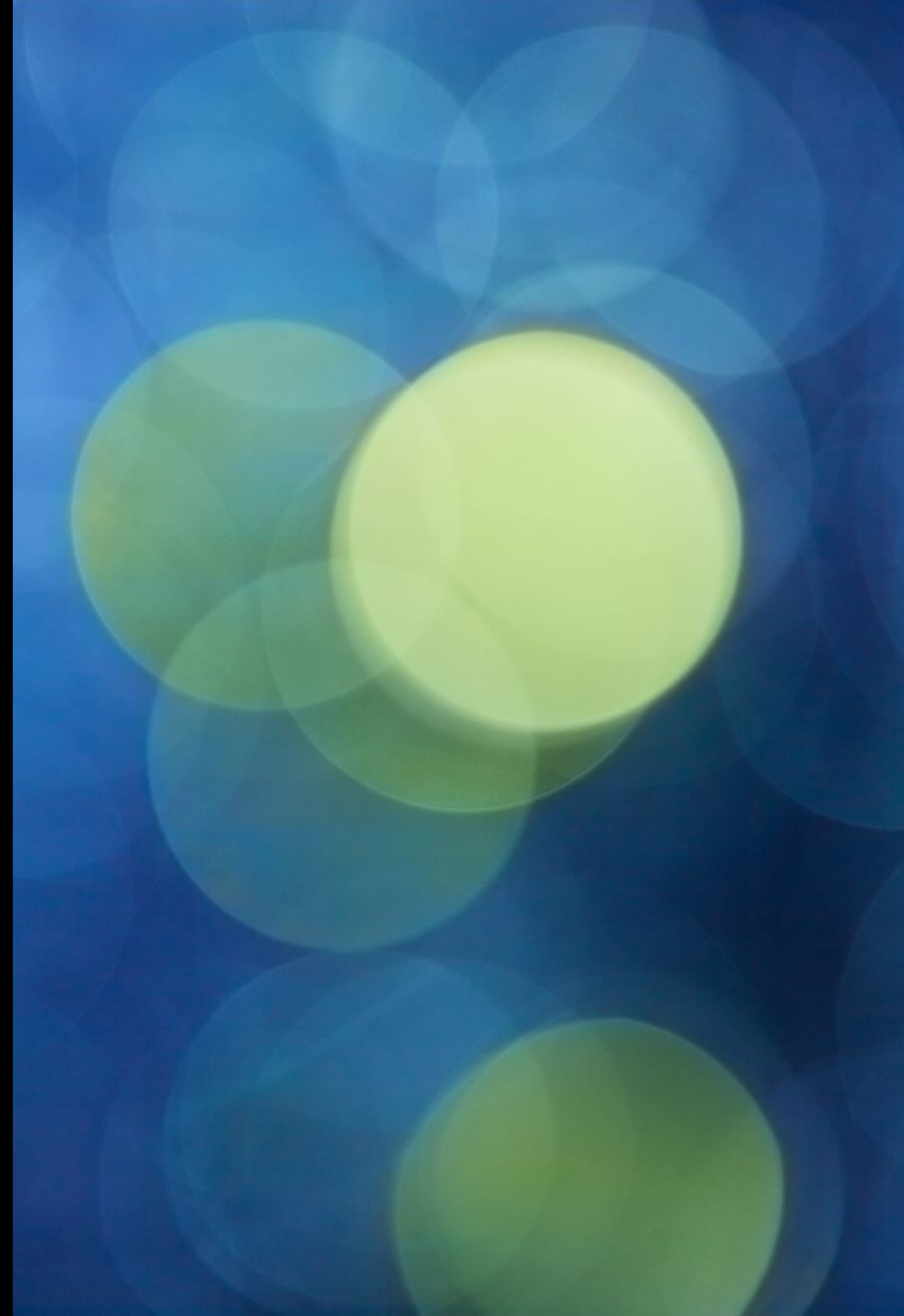
However the court only has jurisdiction over these crimes where they are "*part of a plan or policy or as part of a large-scale commission of such crimes*". [\[11\]](#)

Crimes Against Humanity

a global standard of [human rights](#) was articulated in the [Universal Declaration of Human Rights](#) (1948). [Political groups](#) or states that violate or incite violation of human rights norms, as found in the Declaration, are an expression of the political pathologies associated with crimes against humanity.

Whereas it is essential, if man is not to be compelled to have recourse, as a last resort, to rebellion against tyranny and oppression, that human rights should be protected by the rule of law.

— *Preamble to the Universal Declaration of Human Rights, 1948*



International humanitarian law

https://en.wikipedia.org/wiki/International_humanitarian_law

Two Parts

1. The law of The Hague, referred to in the past as the law of war proper; and
2. The law of Geneva, or humanitarian law.^[9]

1977 Additional Protocols to the Geneva Conventions,

Basic Rules

- i. Persons who are *hors de combat* (outside of combat), and those who are not taking part in hostilities in situation of armed conflict (e.g., [neutral nationals](#)), shall be protected in all circumstances.
- ii. The wounded and the sick shall be cared for and protected by the party to the conflict which has them in its power. The emblem of the "Red Cross", or of the "Red Crescent," shall be required to be respected as the sign of protection.
- iii. Captured persons must be protected against acts of violence and reprisals. They shall have the right to correspond with their families and to receive relief.
- iv. No one shall be subjected to [torture](#) or to [cruel, inhuman, or degrading treatment or punishment](#).
- v. Parties to a conflict do not have an unlimited choice of methods and means of [warfare](#).
- vi. Parties to a conflict shall at all times distinguish between combatants and non-combatants. Attacks shall be directed solely against [legitimate military targets](#).^[32]

IHL provisions and principles protecting civilians

- The principle of [distinction](#) protects civilian population and civilian objects from the effects of military operations.
- Necessity and [proportionality](#) are established principles in humanitarian law.
- The principle of humane treatment requires that civilians be treated humanely at all times.
- Adverse distinction based on race, sex, nationality, religious belief or political opinion is prohibited in the treatment of prisoners of war, [\[46\]](#) civilians, [\[47\]](#) and persons *hors de combat*.
- Women and children are granted preferential treatment, respect and [protection](#). Women must be protected from rape and from any form of indecent assault. Children under the age of eighteen must not be permitted to take part in hostilities.

Crime of Aggression

- A **crime of aggression** or **crime against peace** is the planning, initiation, or execution of a large-scale and serious act of aggression using state military force. [International criminal law](#) provides:
- Crime of Aggression
- Crime of [genocide](#),
- [Crimes against humanity](#)
- [War crimes](#)

Contributory investigations by topic

Ann	Benefiel	#2	Food, fertilizer, refugees
Sharon	Hayes	#2	Food, fertilizer, refugees
Alice	Tiso	#3	Who benefits from the war?
Ann	Reid	#4	Leader's watch
John	McCord	#5	What is right with the Ukrainian military??
Marilyn	Resch	#5	What is wrong with the Russian military?
Richard	Helfrich	#6	Tactics of the week
John	Foltz	#7	Politicians - which best formalize the issues
Trisha	Crowley	#7	Putin - why did he do this?
Roy/Norm	Campbell/Miller	#8	War Crimes
Alan	Conrad	#9	Who is winning?
Jon	Liebman	#10	Peace talks
Joy	Thornton-Walter	#11	History of Ukrainians as a united people
Paula	Watson	#12	Impacts of conflict

Contributory investigations

Nina	Heckman		
Alfred	Heckman		
Maureen	McCord		
Kendall	Rafter		
John	Sapp		
David	Whippo		

Broad Overview Ukrainian Refugees (Ann Benefiel)

4.3 Million to Neighboring Countries

6.5-7.1 Million Internally Displaced

4.3 M External

- **Poland** 2,514,504 refugees
- **Romania** 662,751
- **Hungary** 404,021
- **Moldova** 401,704
- **Russia** 350,632
- **Slovakia** 304,983
- **Belarus** 18,060

People who have travelled from Moldova into Romania may be included in both countries' totals.

Internally Displaced Persons

Numbers very fluid but increasing.

Concern over Vulnerabilities of IDP pop'n:

- disabled
- third country nationals
- detained migrants
- women and children at risk of trafficking and sexual abuse

IOM Estimate:

More than half of internally displaced people are women, and many are particularly vulnerable due to pregnancy, disability, or as a victim of violence.

RUSSIAN LOSSES SINCE 2/24/22 (John McCord)

TANKS

2609 tanks operational in the Active Army on 2/24/22

~80% were deployed to Ukraine

467 have been verified as lost (destroyed or captured). (The actual number is higher given that verified means there is clear, photographic evidence of the lost tank.)

That is 22% of the total Russian pre-war operational tank inventory

It is over 1/3 of the tanks deployed.

Armored Personnel Carrier losses are higher both in raw numbers and as a percentage of both the invading force and total Army.

Artillery losses are lower – around 6-10% of the deployed force.

What about reserves?

RUSSIAN LOSSES SINCE 2/24/22

TANK RESERVE

The total number of tanks held in reserve is not known but estimated at between 7 and 9 thousand. These are in long term storage. About ½ are in the Far East and are meant to stay there just in case China tries something.

Regardless, these tanks are 3-6 months from being operational and even then most are so antiquated they have little real chance to either survive on the modern battlefield or destroy modern tanks (even modern Russian ones.) Likewise, their ammunition is as old as they are (mid-1960's to late 1970's) and the Russians are not very good at handling old ammunition. Their ammunition is no longer in production.

And there is some question as to just how many can be restored to operational status given 20+ years of meager budgets.

RUSSIAN LOSSES SINCE 2/24/22

SUPPLY VEHICLES

Russian tactical units (battalions) have few support vehicles of any description. Supply is handled at the Army level. Each Combined Arms Army has between 4 and 500 supply trucks.

(By comparison, an American Brigade which is about 1/10 the size can have almost as many supply vehicles.)

As of a few days ago, about 1400 Russian supply trucks have been destroyed – enough to support 3 of the 6 Combined Arms Armies engaged.

And they have little in reserve. They are requisitioning commercial vehicles from Russia to fill the gaps.

RUSSIAN LOSSES SINCE 2/24/22

Personnel

15-17,000 KIA are conservative estimates from the U.S. and NATO.

For this, assume 15,000.

For each KIA figure 2-3 WIA who are also out of the fight for now. That places the total losses at between 45,000 and 60,000. About ½ of the wounded are out of the war for good.

This figure does not include POWs and non-combat losses such as to frostbite, desertion and radiation poisoning which have been problems for the Russian Army as well.

At the high end, the estimated manpower of the invasion force was 210,000 men, about ½ to 2/3 of the entire Army. The invading force has thus suffered at least 21-29% casualties to date.

RUSSIAN LOSSES SINCE 2/24/22

British Intelligence has released information that Russia has started a limited call-up of “reservists.”

Russia does not have reservists as we know them. A Russian “reservist” is merely someone who served in the Army at some point. They don’t train their reserves at all.

The call-up is limited to former “contract” soldiers. These are “volunteers” who signed contracts of service as opposed to being conscripts. The call-up is limited to former contract soldiers who left the army in the last ten years.

But military skills are not like riding a bike. While it might take less time for a former soldier to learn to do his job, he still needs retraining. If these soldiers show up at the front in weeks instead of months, they are no better than conscripts in terms of capabilities and about all they will prove good at is getting killed, wounded or captured.

Ukraine Impacts of War (Paula Watson)

- **European Reliance on Russian Energy**
- **Germany**
- ¼ of energy use dependent on Russia
- ½ of gas; 1 in 2 German homes heated by gas.
- Phased out nuclear power under Merkel. May have to keep coal and nuclear longer than anticipated: environmental effects.
- Phasing out gas could result in a 3% drop in projected GDP: from 6% to 3%.
- **Elements of the Food Crisis**
- Hunger rose by about 18 percent during the pandemic: 720 - 811 million people now. UN: the war's impact: 7.6 million to 13.1 million more.
- **Russia**: largest supplier of wheat; one of the biggest producers of fertilizers.

Elements of the Food Crisis

Hunger rose by about 18 percent during the pandemic: 720 - 811 million people now. UN: the war's impact: 7.6 million to 13.1 million more.

Russia: largest supplier of wheat; one of the biggest producers of fertilizers.

- Over last 5 years, Russia and Ukraine supplied:
- 30% of world's wheat
- 17 % of corn
- 32 % of barley
- 75 % of sunflower seed oil
- The Black Sea area **exports at least 12 percent of the food calories** traded in the world.
- Ukrainian farms are about to miss critical planting and harvesting seasons

Wheat Imports from Russia and Ukraine

- Almost 50 countries: 30 %
- 26 countries 50% +.
- Armenia, Mongolia, Kazakhstan and Eritrea (Ca. 100%)
- Egypt (world's biggest wheat importer) 75%
- Turkey (85%)
- Iran, Bangladesh (60+ %)
- Saudi Arabia (50%)
- China, with worst wheat crop in decades, is planning to buy much more of the world's dwindling supply.
- War torn countries (Yemen, Syria, South Sudan and Ethiopia) face severe hunger emergencies likely to worsen quickly .

Fertilizer/Crops

- 2021: Fertilizer prices tripled (pandemic-related). Climbed more than 40% in the month after fighting began in Ukraine: record highs.
- **Brazil, the world's largest producer of soybeans:** half potash fertilizer from Russia and Belarus.
- Currently three months left. Farmers will use less fertilizer, if any. Brazil's soybean crop, already diminished by a severe drought, now likely to be even smaller.

Impacts

- North Africa and the Middle East Uprisings:
- Often start with food shortages and widen to broader political issues; e.g., Arab spring
- Supermarket prices are expected to rise by as much as 20 percent

3) Introduction

1. Origins.
 2. Reasons for conflict. (History, Resources)
 3. Past conflicts.
 4. Motivations for conflict.
 5. Alliances.
 6. Goals.
- https://en.wikipedia.org/wiki/Timeline_of_the_2022_Russian_invasion_of_Ukraine

3.1) CNN Why Russia might invade Ukraine (Map) Reprise

- <https://www.cnn.com/videos/opinions/2022/01/18/ukraine-russia-crisis-maps-lon-orig-cb.cnn>

3.2) A Brief Summary of the Recent History of Ukraine

[A brief history of modern Ukraine - BBC News – YouTube](#)

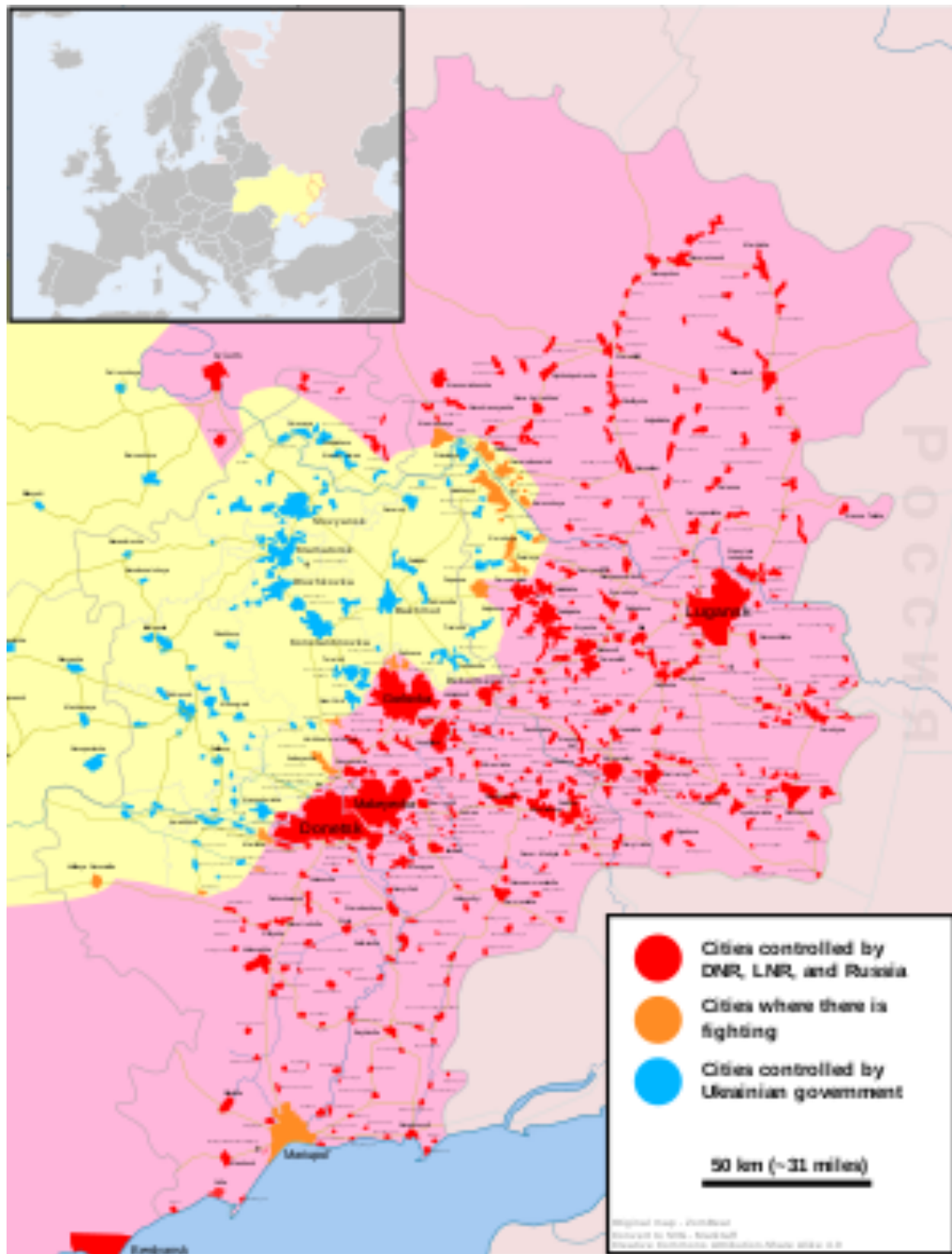
Why Donbas is at the heart of the Ukraine crisis

<https://www.cnn.com/2022/02/19/europe/donbas-ukraine-russia-intl-cmd/index.html>

Picturing the size of the Donbas

- The Donbas is defined in more than one way, but usually it includes the Ukrainian oblasts of Donetsk (26,500 sq km with 4,100,000 people) and Luhansk (26,700 sq km and 2,121,000 people)
- So the Donbas is about 53,200 sq km and 6,222,000 people for a population density of 117 people/square km
- For comparison, Southern Illinois is about 1/3 the area of the state of Illinois, or about 48,000 sq km (almost the same area as the Donbas), however it is much less populated, only about 1.2 million people or 25 people/square km. Southern Illinois is about that portion of the state that lies along and south of I64.

3.3) Donbas Region



Military situation as of 24 March 2022: Pink highlights areas held by the DPR/LPR, yellow highlights areas held by the Ukrainian government.



Soviet Russian propaganda poster from 1921 that says "The Donbas is the heart of Russia"

[Nazi Germany](#)'s leader [Adolf Hitler](#) viewed the resources of the Donbas as critical to [Operation Barbarossa](#).

During the reconstruction of the Donbas after the end of the Second World War, large numbers of Russian workers arrived to repopulate the region, further altering the population balance. In 1926, 639,000 ethnic Russians resided in the Donbas.^[33] By 1959, the ethnic Russian population was 2.55 million.

The Donbas represents one of the largest coal reserves in Ukraine having estimated reserves of 60 billion tonnes of coal.^[95]

Coal mining in the Donbas is conducted at very deep depths. Lignite mining takes place at around 600 metres (2,000 ft) below the surface, whilst mining for the more valuable [anthracite](#) and [bituminous coal](#) takes place at depths of around 1,800 metres (5,900 ft).

3.6) Donbas list of engagements

https://en.wikipedia.org/wiki/War_in_Donbas

- 2014–2022
 - Separatists take control of parts of Donetsk and Luhansk oblasts
 - [Minsk Protocol](#) ceasefire signed on 5 September 2014^[5]
 - [Minsk II](#) ceasefire came into effect on 15 February 2015
 - Renewed attempt to implement Minsk II on 1 September 2015^[6]
 - [Increased tension and heightened escalation between Ukraine and Russia](#), beginning in 2021 and continuing in 2022
 - Official [recognition](#) of the Donetsk and Luhansk People's Republics by Russia on 21 February 2022
 - Russia launches a [full-scale invasion of Ukraine](#) on 24 February 2022 with participation of DPR and LPR
- 2022–present
 - Both separatist and Russian forces take control of additional parts of Donetsk and Luhansk oblasts
 - Ukrainian forces retain some parts of Donetsk and Luhansk oblasts

3.5 Dnipro

- Dnipro is a primarily industrial city of around one million people; in being such it has developed into a large urban centre over the past few centuries to become, today, Ukraine's fourth-largest city after [Kyiv](#), [Kharkiv](#) and [Odessa](#).

Ethnic group	1926^[128]	1939^[129]	1959^[130]	1989^[131]	2001^[131]	2017^[132]
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Jews	26.8%	17.9%	7.6%	3.2%	1.0%	
Belarusians	1.9%	1.9%	1.7%		1.0%	

Economy

- several facilities devoted to heavy industry that produce a wide range of products, including [cast-iron](#), [launch vehicles](#), rolled metal, pipes, [machinery](#), different mining combines, [agricultural equipment](#), [tractors](#), [trolleybuses](#), refrigerators, different chemicals and many others. [[citation needed](#)] The most famous and the oldest (founded in the 19th century) is the Metallurgical Plant named after Petrovsky.

3.5 Dnipro



Dnipro has become a logistical hub for humanitarian aid and a reception point for people fleeing the war. Roughly equidistant from most of the war's major battlegrounds — Donetsk, Mariupol, Kherson and Kharkiv are all within 200 miles— the city's location is also proving critical for supplying the Ukrainian defence effort.

3.6) Gas Fields in Ukraine

- [Ukraine](#) was estimated to possess [natural gas](#) reserves of over 1 trillion cubic meters,^[1] and was ranked 26th among countries with proved reserves of natural gas.^[2] Its total gas reserves have been estimated at 5.4 trillion cubic meters.^[3] In 2021, Ukraine produced 19.8 billion cubic meters (bcm or Gm³) of natural gas, while its annual domestic demand was 27.3 bcm.
- According to a report issued by the [OECD](#), over 70% of the domestic gas production is covered by [UkrGasVydobuvannya](#).^[5] UkrGasVydobuvannya is a subsidiary of the state-owned company [Naftogaz](#). Private gas production companies in Ukraine are [DTEK Oil&Gas](#), Ukrnaftoburinnya, [Burisma](#), Smart Energy, Poltava Petroleum Company, Geo Alliance Group, and KUB-GAS.^[6]

2022 Ukraine war-related gas issues

https://en.wikipedia.org/wiki/Russia%E2%80%93Ukraine_gas_disputes#2022_Ukraine_war-related_gas_issues

- Following [the escalation](#) of the [Russo-Ukrainian War](#), Ukraine's Crisis Committee approved by order of the Ministry of Energy of Ukraine decreed on 26 February 2022 that non-transit natural gas exports from Ukraine would be prohibited.^{[160][161]} By 4 March 2022 LLC Gas TSO of Ukraine had shut down 16 gas distribution stations which, two days later increased to 39 stations.^{[162][163][164]} In Kyiv alone, six gas distribution stations that provided service to 96,000 civilians were disconnected and cannot be repaired due to active shelling.^[165]
- On 23 March 2022, President Vladimir Putin announced that he had made a decision whereby payments for Russian pipeline gas would be switched from "the currencies that had been compromised" (US dollar and euro) to payments in [roubles](#) vis-à-vis the previously formally designated "unfriendly countries", including all European Union states as well as Ukraine; on 28 March, he ordered the [Central Bank of Russia](#), the government, and Gazprom to present proposals by March 31 for gas payments in rubles from "unfriendly countries".^{[166][167][168]}

3.6) Gas Fields in Donbas

(Russia-Ukraine disputes.

https://en.wikipedia.org/wiki/Russia%E2%80%93Ukraine_gas_disputes)

- Ukraine has Europe's third-largest [shale gas](#) reserves at 1.2 trillion cubic meters (tcm).^[20] There are two potentially large shale gas fields.^[20]
- 1) The [Yuzivska gas field](#) located in [Donetsk Oblast](#) (province) and [Kharkiv Oblast](#); and
- 2) The [Olesska gas field](#) in [Lviv Oblast](#) and [Ivano-Frankivsk Oblast](#).^[20]
- Ukraine signed a shale gas 50-year production sharing agreement with [Royal Dutch Shell](#) on 25 January 2013 involving the Yuzivska gas field.^{[3][25]} The \$10 billion deal was the largest [foreign direct investment](#) ever for Ukraine.^[25]

3.6) Gas Fields in Donbas

- The **Yuzivska gas field** is a [Ukrainian natural gas field](#) that was discovered in 2010. It was expected to begin production in 2017, but development was halted because of the outbreak of the [2014 war](#) in the [Donbas](#) region.^[1] The total [proven reserves](#) of the Yuzivska gas field are around 70.8 trillion cubic feet ($2000 \times 10^9 \text{m}^3$) and production is slated to be around 960 million cubic feet/day ($27.4 \times 10^6 \text{m}^3$). The total exploration investment is expected to range between 250 and 300 million US\$.

Kramatorsk

- In [Kramatorsk](#), a city in northern Donetsk Oblast, separatists attacked a police station on 13 April, resulting in a shootout.^[96] The fighters, members of the [Donbas People's Militia](#), later captured the police station. They removed the police station's sign and raised the flag of the Donetsk People's Republic over the building.^[97] They then issued an ultimatum that stated that if the city's mayor and administration did not swear allegiance to the Republic by the following Monday, they would remove them from office.^[97] Concurrently, a crowd of demonstrators surrounded the city administration building, captured it, and raised the Donetsk People's Republic flag over it. A representative of the Republic addressed locals outside the occupied police station, but was received negatively and booed.^[97]
- After a government counter-offensive as part of the "Anti-Terrorist Operation" in Donetsk Oblast on 2–3 May, the insurgents were routed from Kramatorsk's occupied [SBU](#) building.^[98] Despite this, Ukrainian troops quickly withdrew from the city for unknown reasons, and the separatists quickly regained control. Sporadic fighting continued until 5 July, when the insurgents withdrew from Kramatorsk.^[99]

Mariupol

- Donetsk People's Republic activists took control of the city administration building in Mariupol on 13 April.^[106] The Ukrainian government claimed to have "liberated" the building on 24 April, but this was denied by locals interviewed by the [BBC](#) near the building.^[107]
- Clashes between government forces and pro-Russian groups escalated in early May when the city administration building was briefly retaken by the [Ukrainian National Guard](#). The pro-Russian forces quickly took the building back.^[108] Militants then launched an attack on a local police station, leading the Ukrainian government to send in military forces. Skirmishes between the troops and local demonstrators caused the city administration building to be set on fire.^[who?] Government forces were unsuccessful in forcing out the pro-Russians, and only further inflamed tensions in Mariupol.^[108]
- On 16 May, [Metinvest](#) steelworkers, along with local police and security forces, routed the insurgents from the city administration and other occupied government buildings in the city.^[109] Most insurgents left the city, and the few who remained were said to be unarmed.^[who?] Despite this, the headquarters of the Donetsk People's Republic remained untouched, and pro-Russian demonstrators^[clarification needed] could still be seen outside the burnt city administration.^[110]
- Ukrainian troops gained control of the city on 13 June with assistance from the National Guard.^[111] The headquarters of the DPR was captured, and Mariupol was declared the provisional capital of Donetsk Oblast, instead of Donetsk city, which was occupied by separatists.^[112]

3.6) Why the War in Ukraine might become very brutal.

- Attack versus defense
- Urban Warfare
- Militaries not build for Urban warfare and organized around mobility
- Goal might be resources, not populations

Markov Stochastic Lanchester models

- The 3:1 rule of combat states that in order that for the attacker to win the battle, his forces should be at least three times the force of the defender. This somewhat vague statement has resulted in numerous interpretations and discussions from historical and military science points of view.

The Eight Rules of Urban Warfare and Why We Must Work to Change Them - Modern War Institute

- <https://mwi.usma.edu/the-eight-rules-of-urban-warfare-and-why-we-must-work-to-change-them/>
1. The urban defender has the advantage.
 2. The urban terrain reduces the attacker's advantages in intelligence, surveillance, and reconnaissance, the utility of aerial assets, and the attacker's ability to engage at distance.
 3. The defender can see and engage the attacker coming, because the attacker has limited cover and concealment.
 4. Buildings serve as fortified bunkers that must be negotiated.
 5. Attackers must use explosive force to penetrate buildings.
 6. The defender maintains relative freedom of maneuver within the urban terrain.
 7. The underground serves as the defender's refuge.
 8. Neither the attacker nor the defender can concentrate their forces against the other.

Conclusion from Modern War Institute

“Since modern militaries do not sufficiently understand the city attack as terrain-based positional warfare, they apply the principles, tools, and methods of enemy-based maneuver warfare that rely on maneuver and firepower. Ultimately, this fundamental misunderstanding leads to the destruction of entire cities, building by building.”

4) Discussion Time.

- How can the UN be made more useful?
- What actions can NATO take?
- Are sanctions enough?

5) Next week

1. Overview of week (E.g. see New York Times, Bloomberg News, BBC, Wikipedia,) Discussion of the whole.
2. Updates from contributory investigations (Slide 4.) Come prepared to make a 2 minute update on your investigation.
3. Summary of Weekly Theme. Led by Roy and Norm.
Leaders of the Nations in conflict. Military and Political figures.
4. Discussion of the whole.

Journalists