



Analysis of the expected impacts of the current war and post-war consequences on the state forestry and forest resources of Ukraine

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About the Project “Sustainable Forestry Implementation” (SFI)

The project “Technical Support to Forest Policy Development and National Forest Inventory Implementation” (SFI) is a project established in the framework of the Bilateral Cooperation Program (BCP) of the Federal Ministry of Food and Agriculture of Germany (BMEL) with the Ministry of Environment and Natural Resources of Ukraine (MENR). It is a continuation of activities started in the forest sector within the German-Ukrainian Agriculture Policy Dialogue (APD) forestry component.

The Project is implemented based on an agreement between GFA Group, the general authorized executor of BMEL, and the SFRA since October 2021. On behalf of GFA Group, the executing agencies - Unique land use GmbH and IAK Agrar Consulting GmbH - are in charge of the implementation jointly with SFRA.

The project aims to support sustainable forest management planning in Ukraine and has a working focus on the results in the Forest Policy and National Forest Inventory.

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Overview

Because of the armed aggression of the Russian Federation, starting from 24 February 2022, 1864 thousand hectares of forests or 18% of the total area of the forest fund of Ukraine were located in temporarily occupied territories of 11 regions of Ukraine (Dnipro, Donetsk, Zhytomyr, Zaporizhzhia, Kyiv, Luhansk, Mykolaiv, Sumy, Kharkiv, Kherson, Chernihiv) and Kyiv city. The total growing stock in these areas amounts to 395 million cubic metres.

Additionally, since 2014 year 497 thousand hectares of forests have been occupied in the Autonomous Republic of Crimea, Donetsk and Luhansk oblasts. The total growing stock in these territories amounts to 67 million cubic metres.

Thus, 2362 thousand hectares of forests have been impacted by the war, which corresponds to nearly 23% of the total area of the forest fund of Ukraine. Total growing stock in these territories amounts to roughly 462 million cubic metres.

In terms of administrative units, the share of forests located in the temporarily occupied territories is (was) as follows:

- in the Autonomous Republic of Crimea, Luhansk and Kherson regions - 100%;
- in Dnipro - 0.2%, Donetsk - 61.9%, Zhytomyr - 11.8%, Zaporizhzhia - 61.6%, Kyiv - 43.4%, Mykolaiv - 18.9%, Sumy - 63.7%, Kharkiv - 42.2% and Chernihiv - 59.8%.

The forests of state forestry enterprises under the management of the SFRA amounted to: in 2014 - 358.6 thousand hectares (72.1%), in 2022 - 1192.6 thousand hectares (64.0%) and in total - 1551.2 thousand hectares or (65.7%) of the total area of Ukrainian forests located in the temporarily occupied territories.

The current report includes the areas of the forest fund that were respectively still are under occupation, which were directly affected by the armed aggression of the Russian Federation, within forestry enterprises, structural units (forestries), etc. For this purpose, we used:

- a. Materials of the State Enterprise "Ukrderzhlisproekt", created on the basis of information obtained from official and open sources of information, remote sensing data, and overlaid on the forestry mapping database "Areas and reserves of forests located (located) in the temporarily occupied territories as a result of the armed aggression of the Russian Federation as of 01.07.2022";
- b. Handbook on the Forestry Fund of Ukraine based on the state forest accounting as of 01.01.2011 (compiled by specialists of the production and technological department of the SE "Ukrderzhlisproekt" based on the state forest accounting as of 01.01.2011, the results of which were approved by the order of the SFRA of Ukraine dated 29.03.2012 No. 122);
- c. Distribution of forestry land area by categories of forestry enterprises and institutions subordinated to the SFRA as of 01.01.2019, ha (according to the geographic information base of the SE "Ukrderzhlisproekt").

However, it should be noted that source a. above takes into account the maximum size of the temporary occupation (which did not increase until the end of 2022), it includes information only on forests that were provided for permanent use and for which forest management materials were developed.

Table 1: The forest fund of Ukraine, temporarily occupied as a result of the armed aggression of the Russian Federation

(total area and growing stock - according to the state forestry accounting as of 01.01.2011, area and stocks in the temporarily occupied territory - as of 01.07.2022, according to the data of the SE "Ukrderzhlisproekt", only for forests in which forest management was carried out)

№	Administrative-territorial units	Total area of forest plots, thousand ha	Total growing volume, million m3	Are (were) under occupation since 2014				Are (were) under occupation since 2022				Together are (were) under occupation			
				Total area of forest plots, thousand ha	Total growing volume, million m3	%%		Total area of forest plots, thousand ha	Total growing volume, million m3	%%		Total area of forest plots, thousand ha	Total growing volume, million m3	%%	
						of the total area of forest plots	of total growing volume			of the total area of forest plots	of total growing volume			of the total area of forest plots	of total growing volume
1	AR of Crimea	291,2	40,86	291,2	40,86	100,0	100,0					291,2	40,86	100,0	100,0
2	Vinnytsia	366,4	70,54												
3	Volyn	668,5	127,75												
4	Dnipropetrovsk	189,8	19,78					0,4	0,04	0,2	0,2	0,4	0,04	0,2	0,2
5	Donetsk	199,9	25,73	83,0	10,47	41,5	40,7	40,7	5,53	20,4	21,5	123,7	16,00	61,9	62,2
6	Zhytomyr	1081,9	220,89					127,8	27,80	11,8	12,6	127,8	27,80	11,8	12,6
7	Transcarpathian	687,9	212,95												
8	Zaporizhzhya	116,3	6,38					71,6	4,90	61,6	76,8	71,6	4,90	61,6	76,8
9	Ivano-Frankivsk	605,9	156,26												
10	Kyiv	722,7	154,91					313,3	78,14	43,4	50,4	313,3	78,14	43,4	50,4
11	Kirovohrad	181,3	24,78												
12	Luhansk	348,7	44,59	88,7	12,04	25,4	27,0	260,0	32,55	74,6	73,0	348,7	44,59	100,0	100,0
13	Lviv	671,8	153,83												
14	Mykolaiv	119,2	7,37					22,5	1,44	18,9	19,5	22,5	1,44	18,9	19,5
15	Odesa	220,1	18,58												
16	Poltava	270,7	53,74												
17	Rivne	797,3	137,47												
18	Sumy	452,1	109,23					287,9	76,82	63,7	70,3	287,9	76,82	63,7	70,3
19	Ternopil	194,1	36,38												
20	Kharkiv	401,3	81,13					169,3	38,08	42,2	46,9	169,3	38,08	42,2	46,9
21	Kherson	146,7	11,56					146,7	11,56	100,0	100,0	146,7	11,56	100,0	100,0
22	Khmelnytsk	281,6	57,03												
23	Cherkasy	331,9	72,24												
24	Chernivtsi	255,5	65,49												
25	Chernihiv	708,1	175,36					423,5	117,89	59,8	67,2	423,5	117,89	59,8	67,2
26	Kyiv city	33,3	11,41					0,7	0,24	2,1	2,1	0,7	0,24	2,1	2,1
27	Sevastopol city	34,5	3,7	34,5	3,70	100,0	100,0					34,5	3,70	100,0	100,0
	Total	10378,7	2099,94	497,4	67,07	4,8	3,2	1864,4	394,99	18,0	18,8	2361,8	462,06	22,8	22,0

In addition to these forests, on the territory of the above mentioned 11 oblasts, there were about 479 thousand hectares of forests (including 222.7 thousand hectares field protection forest belts) on the reserve lands that were not provided to the author, no forest management was carried out in them and their condition is not actually known, in particular by oblast (total area of /of which field protection forest belts, thousand hectares):

Oblast	Total area of forests on reserve lands, thousand hectares	Area of field protection forest belts, thousand hectares	Percentage
Dnipropetrovsk	79,6	36,7	46,1
Donetsk	58,1	25,5	43,9
Zhytomyr	23,8	3,0	12,6
Zaporizhzhia	49,2	36,5	74,2
Kyiv	18,5	6,8	36,8
Luhansk	48,9	25,3	51,7
Mykolaiv	57,9	31,0	53,5
Sumy	9,2	1,0	10,9
Kharkiv	63,8	22,3	34,9
Kherson	28,6	25,8	90,2
Chernihiv	41,1	8,8	21,4
Total	478,7	222,7	46,5

Impacts of war aggression on state forestry enterprises of SFRA

As a result of the armed aggression of the Russian Federation, starting from 24 February 2022, 1192.6 thousand hectares of forests or 16.3% of the total forest area of state forestry enterprises belonging to the State Forestry Agency (SFRA) were located in the temporarily occupied territories of 11 regions of Ukraine (Dnipro, Donetsk, Zhytomyr, Zaporizhzhia, Kyiv, Luhansk, Mykolaiv, Sumy, Kharkiv, Kherson, Chernihiv). The total growing stock in these areas is 267.53 million cubic metres.

It should be noted that since 2014, the temporarily occupied territories of the Autonomous Republic of Crimea, the city of Sevastopol, Donetsk and Luhansk regions included 358.6 thousand hectares of forests, or 4.9% of their total area. The total growing stock in these territories is 51.74 million cubic metres.

Thus, 1551.2 thousand hectares of forests are (were) located in the temporarily occupied territories, which is 21.3% of the total area of forests of state forestry enterprises belonging to the sphere of management of the SFRA. The total growing stock in these areas is 319.27 million cubic metres.

In terms of administrative units, the part of the forest fund that is (was) under temporary occupation is as follows:

- in the Autonomous Republic of Crimea, the city of Sevastopol, Luhansk and Kherson regions - 100%;
- in Dnipro - 0.3%, Donetsk - 61.7%, Zhytomyr - 12.6%, Zaporizhzhia - 60.5%, Kyiv - 37.9%, Mykolaiv - 15.5%, Sumy - 64.5%, Kharkiv - 41.9% and Chernihiv - 66.1%.

Table 2: The forest fund of permanent forest users of the State Resources Agency, which is (was) located in the temporarily occupied territory as a result of the armed aggression of the Russian Federation

(total area and total reserves - according to the geoinformation database of Ukrderzhlisproekt as of 01.01.2019, area and reserves in the temporarily occupied territory - as of 01.07.2022, according to the data of Ukrderzhlisproekt)

No.	Administrative-territorial units	Total area of forest plots, thousand ha	Growing volume, million m3	Are (were) under occupation since 2014				Are (were) under occupation since 2022				Together are (were) under occupation since 2014			
				Total area of forest plots, thousand ha	Total growing volume, million m3	%%		Total area of forest plots, thousand ha	Total growing volume, million m3	%%		Total area of forest plots, thousand ha	Total growing volume, million m3	%%	
						of the total area of forest plots	of total growing volume			of the total area of forest plots	of total growing volume			of the total area of forest plots	of total growing volume
1	AR of Crimea	212,2	32,05	212,2	32,05	100,0	100,0					212,2	32,05	100,0	100,0
2	Vinnytsia	217,4	46,86												
3	Volyn	608,0	96,76												
4	Dnipropetrovsk	77,1	11,36					0,2	0,02	0,3	0,2	0,2	0,02	0,3	0,2
5	Donetsk	104,8	15,45	43,4	6,32	41,4	40,9	21,3	3,32	20,3	21,5	64,7	9,64	61,7	62,4
6	Zhytomyr	760,1	156,42					95,8	21,76	12,6	13,9	95,8	21,76	12,6	13,9
7	Transcarpathian	555,6	161,76												
8	Zaporizhzhya	50,1	2,68					30,3	2,06	60,5	76,9	30,3	2,06	60,5	76,9
9	Ivano-Frankivsk	445,8	118,85												
10	Kyiv	385,3	93,62					146,2	40,32	37,9	43,1	146,2	40,32	37,9	43,1
11	Kirovograd	121,9	18,98												
12	Luhansk	282,2	37,25	72,1	10,05	25,5	27,0	210,1	27,20	74,5	73,0	282,2	37,25	100,0	100,0
13	Lviv	463,2	111,2												
14	Mykolaiv	63,1	4,30					9,8	0,84	15,5	19,5	9,8	0,84	15,5	19,5
15	Odesa	102,0	12,96												
16	Poltava	216,9	36,47												
17	Rivne	659,6	115,43												
18	Sumy	277,8	74,88					179,3	52,29	64,5	69,8	179,3	52,29	64,5	69,8
19	Ternopil	154,9	31,08												
20	Kharkiv	306,5	68,84					128,3	32,33	41,9	47,0	128,3	32,33	41,9	47,0
21	Kherson	105,6	9,20					105,6	9,20	100,0	100,0	105,6	9,20	100,0	100,0
22	Khmelnyskyi	183,0	39,79												
23	Cherkasy	271,6	63,62												
24	Chernivtsi	238,1	46,41												
25	Chernihiv	401,9	102,90					265,7	78,19	66,1	76,0	265,7	78,19	66,1	76,0
26	Sevastopol city	30,9	3,32	30,9	3,32	100,0	100,0					30,9	3,32	100,0	100,0
	Total	7295,6	1512,41	358,6	51,74	4,9	3,4	1192,6	267,53	16,3	17,7	1551,2	319,27	21,3	21,1

Below is an analysis (for 2021 and the first half of 2022) of the production and financial activities, use of forest resources, reproduction, protection and conservation of forests by state forestry enterprises belonging to the sphere of management of SFRA in 11 regions of Ukraine that suffered the consequences of armed aggression after 24.02.2022. The analysis was carried out on the basis of reporting documents of regional forestry and hunting departments, in particular

- materials of SFRA for consideration at board meetings;
- Results of economic and financial activities of the industry enterprises for the first half of 2021;
- Materials on the results of the work of the enterprises of SFRA of Ukraine for 2021;
- Results of economic and financial activities of the industry enterprises for the first half of 2022;
- Information on the state of activity of the enterprises of SFRA of Ukraine subordinate to the public sector of the economy in the context of Russian aggression (current, as of 24.06.2022).

It should be taken into account that due to the temporary occupation, no reports on the production and financial activities of state forestry enterprises in Donetsk, Luhansk and Kherson regions were prepared.

The armed aggression led to a sharp decline in economic activity due to the temporary occupation of the territory, shutdown of enterprises, physical destruction of facilities, loss of equipment, high level of uncertainty and risks, disruption of logistics and production ties, and forced mass migration of the population. In addition, the operations took place in the context of a general economic downturn, rising inflation and rising prices.

As of 24.02.2022, there were 68 forestry enterprises operating in 11 regions of Ukraine affected by the armed aggression, which belonged to the sphere of management of the SFRA. As a result of the armed aggression, 33 forestry enterprises (49%) were partially damaged. As of 24.06.2022, 34 (50%) carried out production activities, 16 (24%) partially carried out production activities, and 18 enterprises (26%) did not work. In addition, there were 22 state forestry enterprises in the territories temporarily occupied since 2014, including 12 in the Autonomous Republic of Crimea, 1 in Sevastopol, 5 in Donetsk region, and 4 in Luhansk region.

Table 3 (operational status on 24.06.2022): Information on the state of affairs of the state forestry enterprises of SFRA, which are (were) located in the temporarily occupied territory as a result of the armed aggression of the Russian Federation (excluding territories temporarily occupied in 2014)

№	Regional departments of forestry and hunting, enterprises, organisations and institutions directly under the jurisdiction of the State Forest Resources Agency	Number of forestry enterprises, units				Carrying out production activities		
		total	including			yes	partially	no
active	partially damaged		destroyed					
1	Dnipropetrovsk	4	4				4	
2	Donetsk	3		3			3	
3	Zhytomyr	13	12	1		12	1	
4	Zhaporizhzhia	3		3			1	2
5	Kyiv	12	6	6		6	4	2
6	Luhansk	5		5				5
7	Mykolaiv	4	3	1		3	1	
8	Sumy	8	7	1		8		
9	Kharkiv	5		5			2	3
10	Kherson	6		6				6
11	Chernihivska	5	3	2		5		
	Total	68	35	33	0	34	16	18
	Total for the State Forest Resources Agency	166	133	33	0	132	16	18
	Note:	besides, there were 32 state forestry enterprises on the temporarily occupied territories since 2014, in particular:						
		- in Autonomous Republic of Crimea - 12;						
		- in Sevastopol city - 1;						
		- in Donetsk region - 5;						
		- in Luhansk region - 4.						

Net income from the sale of products (works, services) decreased by UAH 641.1 million (17%), payments to the state (payment of taxes, fees, single social contribution) decreased by UAH 137.2 million (9%).

Table 4: Analysis of the financial condition of state forestry enterprises belonging to the sphere of management of SFRA, which are (were) in the temporarily occupied territory as a result of the armed aggression of the Russian Federation, for the first half of 2021 and 2022

№	Administrative and territorial units	Net income from products sales (works, services), UAH thousand					Total payments to the state (taxes, fees, unified social contribution), UAH thousand				
		Year 2021		Year 2022	comparison (%)		Year 2021		Year 2022	comparison (%)	
		I half of 2021	per year	I half of 2022	I half of 2022	with year 2021	I half of 2021	per year	I half of 2022	I half of 2022	with year 2021
1	Dnipropetrovsk	22212	59945	22193	100	37	16495,1	39328,9	13611,1	83	35
2	Donetsk	12307	41588		0	0	8930,6	23457,3	4688,9	53	20
3	Zhytomyr	1389181	3366985	1443439	104	43	473096,8	1099232,1	509671,2	108	46
4	Zaporizhzhia	11512	34980	4659	40	13	8077,5	19686,8	4471	55	23
5	Kyiv	697285	1836973	624705	90	34	274951,3	676791,1	271211,9	99	40
6	Luhansk	62307	208675		0	0	28334,9	90479,2	12463	44	14
7	Mykolaiv	10797	33025	15401	143	47	9603,7	24570,7	10052,9	105	41
8	Sumy	659156	1532991	571906	87	37	257773,4	629487,5	254047,4	99	40
9	Kharkiv	192514	513111	92984	48	18	99943,0	235205,0	51460	51	22
10	Kherson	18411	44468		0	0	15221,8	35991,1	7208,6	47	20
11	Chernihiv	706519	1647832	365868	52	22	280450,7	698045,9	196756,2	70	28
	Total	3782201	9320573	3141155	83	34	1472878,8	3572275,6	1335642,2	91	37
	Total for the State Forest Resources Agency	9132005	22799506	10681268	117	47	3615785,8	8906240,3	4332724,7	120	49

The number of full-time employees decreased by 4.1 thousand people (24%), and the average monthly salary decreased from 1% (Zhytomyr region) to 59% (Chernihiv region).

Table 5: Dynamics of the number of full-time employees and average monthly salary of the state forestry enterprises of SFRA located in the temporarily occupied territory as a result of the armed aggression of the Russian Federation for the first half of 2021 and 2022 (without territories temporarily occupied in 2014)

№	Administrative-territorial units	Number of full-time employees, persons					Average monthly salary of full-time employees, UAH				
		Year 2021		Year 2022	comparison (%)		Year 2021		Year 2022	comparison (%)	
		I half of 2021	per year	I half of 2022	First half of the year	with the year 2021	I half of 2021	per year	I half of 2022	First half of the year	with the year 2021
1	Dnipropetrovsk	583	568	486	83	86	7748	9342	8611	111	92
2	Donetsk	275	272		0	0	6924	9701		0	0
3	Zhytomyr	5723	5696	5126	90	90	12768	15013	14846	116	99
4	Zaporizhzhia	309	314	227	73	72	6989	8088	7388	106	91
5	Kyiv	1616	2011	1714	106	85	23260	29543	21335	92	72
6	Luhansk	839	856		0	0	6304	8881		0	0
7	Mykolaiv	375	378	337	90	89	7169	8559	7922	111	93
8	Sumy	2389	2390	2219	93	93	18521	23102	18857	102	82
9	Kharkiv	1332	1333	588	44	44	9162	11399	10885	119	95
10	Kherson	655	679		0	0	7209	7538		0	0
11	Chernihiv	2280	2284	2025	89	89	19213	23632	9793	51	41
	Total	16376	16781	12722	78	76					
	Total for the State Forest Resources Agency	38853	41273	35227	91	85	14138	17504	17895	127	102

Liquid timber (rawndtimber and fuelwood) harvesting decreased by 1240.3 thousand cubic metres (42%), including from the main use of 701.2 thousand hectares (47%).

Table 6: Volumes of liquid timber harvesting by state forestry enterprises of SFRA located in the temporarily occupied territory as a result of the armed aggression of the Russian Federation, and for the first half of 2021 and 2022 (without the territories temporarily occupied in 2014)

№	Administrative-territorial units	Year	Timber harvesting (liquid, tcm)							total for the year	
			1.half of the year					including regional companies	total		
			Firewood for non-industrial use	Firewood for industrial use	long dimension timber	round timber	total				
1	Dnipropetrovsk	2021	17,3	2,9	0	3,1	23,3	0	69,6	0	
		2022	14	3,8		1	18,8	0			
		in % by 2021	81	131	0	32	81	0			
2	Donetsk	2021	10,5	0,2	0	1,8	12,5	0	48,1	0	
		2022	4,2	0	0	0,8	5	0			
		in % by 2021	40	0	0	44	40	0			
3	Zhytomyr	2021	86,5	264,6	185,6	526,9	1063,6	596,5	2387,7	1156,8	
		2022	74,3	204,2	84,2	346,7	709,4	373,5			
		in % by 2021	86	77	45	66	67	63			
4	Zaporizhzhia	2021	6,3	0	0	0	6,3	0	16,5	0	
		2022	1,8	0	0	0	1,8	0			
		in % by 2021	29	0	0	0	29	0			
5	Kyiv	2021	87,3	217,3	0	319,2	623,8	245,2	1303,5	442,5	
		2022	106,3	109,3	0	184,2	399,8	139,9			
		in % by 2021	122	50	0	58	64	57			
6	Luhansk	2021	27,4	17,1	0	58,3	102,8	17,2	317,3	30,3	
		2022	15,8	4,5	0	14,4	34,7	0			
		in % by 2021	58	26	0	25	34	0			
7	Mykolaiv	2021	4,6	0,3	0	0,3	5,2	0	22,3	0	
		2022	10,7	1,1	0	1,5	13,3	0			
		in % by 2021	233	367	0	500	256	0			
8	Sumy	2021	41,2	107,2	0	230,2	378,6	236,3	773,9	441,0	
		2022	34,2	70,7	0	128,3	233,2	124,1			
		in % by 2021	83	66	0	56	62	53			
9	Kharkiv	2021	74,1	37,8	0,6	71,5	184	26,9	478,9	40,4	
		2022	33,4	6,9	0	20,1	60,4	2,7			
		in % by 2021	45	18	0	28	33	10			
10	Kherson	2021	13,9	3,6	0	2,6	20,1	0	51,4	0	
		2022	6,9	2	0	0,4	9,3	0			
		in % by 2021	50	56	0	15	46	0			
11	Chernihiv	2021	71	66,6	1,8	366,1	505,5	367,1	1037,7	689,9	
		2022	40,2	17,6	1	140,9	199,7	147,8			
		in % by 2021	57	26	56	38	40	40			
Total		2021	440,1	717,6	188	1580	2925,7	1489,2	6506,9	2800,9	
		2022	341,8	420,1	85,2	838,3	1685,4	788,0			
		in % by 2021	78	59	45	53	58	53			
Total for the State Forest Resources Agency		2021	1154,6	1671,6	451,9	3440,6	6718,7	3371,0	14869	6086,4	
		2022	1191	1262,7	224	2451,8	5129,5	2244,6			
		in % by 2021	103	76	50	71	76	67			

The volume of illegal logging increased by 1.9 thousand cubic metres (45%), and the amount of damage caused increased by 4,588.5 thousand UAH (12%).

Table 7: Volumes of illegal logging detected in the state forestry enterprises of SFRA located in the temporarily occupied territory as a result of the armed aggression of the Russian Federation for the first half of 2021 and 2022 (excluding the territories temporarily occupied in 2014)

№	Administrative-territorial units	Year	Illegal felling and damage to trees and bushes to the point of stopping growth					
			1.half of the year			total for the year		
			quantity of incidents	weight of wood, m3	damage amount, UAH thousand	quantity of incidents	weight of wood, m3	damage amount, UAH thousand
1	Dnipropetrovsk	2021	48	322,0	2528,8	118	1514,0	9105,8
		2022	58	5521,0	36329,5			
		in % by 2021	121	1715	1437			
2	Donetsk	2021	15	150,1	918,0	34	298,0	2018,1
		2022	0	0	0			
		in % by 2021	0	0	0			
3	Zhytomyr	2021	38	330,0	2272,1	125	503,0	3604,0
		2022	44	238,0	1937,6			
		in % by 2021	116	72	85			
4	Zaporizhzhia	2021	49	73,0	634,6	88	322,1	3206,2
		2022	3	0,3	1,9			
		in % by 2021	6	0	0			
5	Kyiv	2021	40	81,0	475,7	117	467,0	4263,5
		2022	0	0	0			
		in % by 2021	0	0	0			
6	Luhansk	2021	32	286,0	2568,8	70	521,0	4597,5
		2022	0	0	0			
		in % by 2021	0	0	0			
7	Mykolaiv	2021	37	213,0	1207,0	82	381,3	3132,9
		2022	24	90,0	1347,0			
		in % by 2021	65	42	112			
8	Sumy	2021	30	48,2	263,4	86	137,3	895,6
		2022	24	33,3	897,9			
		in % by 2021	80	69	341			
9	Kharkiv	2021	162	1669,0	14560,0	327	2896,0	25406,8
		2022	25	129,0	1460,9			
		in % by 2021	15	8	10			
10	Kherson	2021	201	773,0	11044,1	446	2050,0	28936,3
		2022	0	0	0			
		in % by 2021	0	0	0			
11	Chernihiv	2021	15	227,6	1010,9	28	270,6	1193,3
		2022	7	20,0	97,1			
		in % by 2021	47	9	10			
Total		2021	667	4172,9	37483,4	1521	9360,3	86360,0
		2022	185	6031,6	42071,8			
		in % by 2021	28	145	112			
Total for the State Forest Resources Agency		2021	1959	8805,0	71849,3	4636	25722,1	213365,1
		2022	1474	10969,7	87358,9			
		in % by 2021	75	125	122			

The number of forest fires increased almost 3 times (to 377 cases), and their area increased 106 times (to 7.3 thousand hectares).

Table 8: Comparative table of forest fires in the state forestry enterprises of the SFRA located in the temporarily occupied territory as a result of the armed aggression of the Russian Federation for the first half of 2021 and 2022 (without the territories temporarily occupied in 2014)

№	Administrative-territorial units	Year	1.half of the year				total for the year			
			average area of one fire, ha	quantity of fires	area, ha		average area of one fire, ha	quantity of fires	area, ha	
					total	including highland fires			total	including highland fires
2	Dnipropetrovsk	2021	1,40	10	14,03	0	0,78	64	49,7	
		2022	2,37	46	109,2	2,5				
		in % by 2021	169	460	778					
		times	2	5	8					
3	Donetsk	2021	0,37	11	4,02	0	0,19	48	8,9	
		2022	0,51	2	1,01	0				
		in % by 2021	138	18	25					
		times	1	0	0					
4	Zhytomyr	2021	0,56	12	6,73	0	0,82	51	41,7	
		2022	1,01	45	45,45	0				
		in % by 2021	180	375	675					
		times	2	4	7					
5	Zaporizhzhia	2021	0	0	0	0	1,10	3	3,3	
		2022	0	0	0	0				
		in % by 2021								
		times								
6	Kyiv	2021	0,20	16	3,16	0	0,19	67	12,8	
		2022	10,18	102	1038,63	0				
		in % by 2021	5156	638	32868					
		times	52	6	329					
7	Luhansk	2021	0,53	20	10,58	0	0,52	68	35,6	1
		2022	12,00	1	12	0				
		in % by 2021	2268	5	113					
		times	23	0	1					
8	Mykolaiv	2021	0,03	3	0,08	0	0,24	25	5,9	
		2022	26,31	46	1210,22	384,8				
		in % by 2021	98659	1533	1512775					
		times	987	15	15128					
9	Sumy	2021	0,09	3	0,28	0	0,07	7	0,5	
		2022	0,18	5	0,92	0				
		in % by 2021	197	167	329					
		times	2	2	3					
10	Kharkiv	2021	0,50	27	13,48	0	0,36	91	32,7	
		2022	0,17	14	2,37	0				
		in % by 2021	34	52	18					
		times	0,34	1	0,18					
11	Kherson	2021	0,18	29	5,32	0	0,34	114	38,9	
		2022	51,09	91	4648,93	115				
		in % by 2021	27848	314	87386					
		times	278	3	874					
12	Chernihiv	2021	0,96	12	11,47	0	0,72	23	16,5	
		2022	9,67	25	241,8	0				
		in % by 2021	1012	208	2108					
		times	10	2	21					
	Total	2021	0,48	143	69,15	0,00	0,44	561	246,5	1
		2022	19,39	377	7310,53	502,3				
		in % by 2021	4010	264	10572					
		times	40	3	106					
	Total for the State Forest Resources Agency	2021	0,46	169	77,10	0,40	0,44	659	289,0	1
		2022	14,32	540	7730,9	509,1				
		in % by 2021	3113	320	10027	127275				
		times	31	3	100	1273				

The volume of forest reproduction decreased by 5.7 thousand hectares (43%), including the sowing and planting of forests decreased by 4.2 thousand hectares (37%).

Table 9: Reproduction of forests by the state forestry enterprises of SFRA, which belong to the sphere of management of SFRA, located (were located) in the temporarily occupied territory as a result of the armed aggression of the Russian Federation, for the first half of 2021 and 2022 (without the territories temporarily occupied in 2014)

№	Administrative and territorial units	year	Reproduction of forests							
			the first half of the year				total for the year			
			sowing and planting of forests		natural regeneration	total forest regeneration	sowing and planting of forests		natural regeneration	total forest regeneration
total	including afforestation	total	including afforestation							
1	Dnipropetrovsk	2021	214	150	0	214			94	458
		2022	180	107	43	223				
		in % by 2021	84	71	0	104				
2	Donetsk	2021	57	51	24	81	195	97	24	219
		2022	0	0	0	0				
		in % by 2021	0	0	0	0				
3	Zhytomyr	2021	4422	0	1438	5860	6239	18	1916	8155
		2022	3662	100	73	3735				
		in % by 2021	83	0	5	64				
4	Zaporizhzhia	2021	72	71	0	72	756	732	0	756
		2022	5	5	0	5				
		in % by 2021	7	7	0	7				
5	Kyiv	2021	1540	0	312	1852	1895	8	473	2368
		2022	660	2	305	965				
		in % by 2021	43	0	98	52				
6	Luhansk	2021	703	258	58	761	1254	328	307	1561
		2022	0	0	0	0				
		in % by 2021	0	0	0	0				
7	Mykolaiv	2021	111	98	17	128	177	151	63	240
		2022	120	119	0	120				
		in % by 2021	108	121	0	94				
8	Sumy	2021	1152	6	61	1213	1381	54	128	1509
		2022	936	47	69	1005				
		in % by 2021	81	783	113	83				
9	Kharkiv	2021	823	0	20	843	926	12	44	970
		2022	185	4	3	188				
		in % by 2021	22		15	22				
10	Kherson	2021	393	80	33	426	415	80	189	604
		2022	82	10	0	82				
		in % by 2021	21	13	0	19				
11	Chernihiv	2021	1697	34	146	1843	2216	30	254	2470
		2022	1168	18	123	1291				
		in % by 2021	69	53	84	70				
	Total	2021	11184	748	2109	13293	15818	1752	3492	19310
		2022	6998	412	616	7614				
		in % by 2021	63	55	29	57				
	Total for SFRA	2021	23629	1352	8097	31726	31001	3210	13630	44631
		2022	17028	1376	4299	21327				
		in % by 2021	72	102	53	67				

Assessment of damage and losses for forested lands, forest nurseries, forest regeneration of state forestry enterprises of SFRA

The procedure for determining the damage and losses caused to Ukraine as a result of the armed aggression of the Russian Federation (hereinafter referred to as damage and losses), starting from 19 February 2014, is established in accordance with the Procedure for Determining the Damage and Losses Caused to Ukraine as a Result of the Armed Aggression of the Russian Federation, approved by Resolution of the Cabinet of Ministers of Ukraine No. 326 dated 20 March 2022 (as amended by Resolution of the Cabinet of Ministers of Ukraine No. 951 dated 22 July 2022).

The amount of damage and losses is calculated in accordance with the Methodology for Determining Damage and Losses Caused to the Forest Fund as a Result of the Armed Aggression of the Russian Federation, approved by Order of the Ministry of Environmental Protection and Natural Resources of Ukraine No. 414 dated 05.10.2022, registered with the Ministry of Justice of Ukraine on 24 October 2022 under No. 1308/38644.

The methodology is used to determine the damage and losses caused to forestry land plots, linear-type protective plantations, forest nurseries, forest crops and hunting grounds as a result of the armed aggression of the Russian Federation, including the loss of forest plantations and related losses:

- losses of forestry production caused by restrictions on land users' rights;
- losses of damaged, lost harvested timber products;
- lost revenues of forest users caused by temporary occupation of land plots, restrictions on their use, from:
- failure to conduct logging (cost of timber products, rent);
- inability to carry out side use (in particular, harvesting birch juice, berries, mushrooms);
- costs of soil preparation for forest crops;
- costs of growing planting material in forest nurseries, creating and maintaining forest crops.

The following analytical assessment of damages was made for state forestry enterprises belonging to the sphere of management of the State Forestry Agency, which were (are) located in the temporarily occupied territories as a result of the armed aggression of the Russian Federation, after 24.02.2022, and is based on enlarged, aggregated initial data, indirect methods of assessment, taking into account the provisions of the Methodology for determining damage and losses caused to the forest fund as a result of the armed aggression of the Russian Federation, indicators of state forest accounting and reporting documents of regional forestry and hunting departments.

Losses in forestry production caused by restrictions on the rights of permanent forest users amount to UAH 75631.3 million. The following indicators were used for calculations:

- The coefficient of land productivity reduction (1-K) was established on an estimated basis, taking into account the period of temporary occupation and the nature of land damage;
- average amount of losses per 1 ha - in accordance with the Standards of forestry production losses set out in paragraph "b" of the Annex to the Resolution of the Cabinet of Ministers of Ukraine No. 1279 of 17 November 1997 "On the Amount and Procedure for Determining Losses of Agricultural and Forestry Production Subject to Compensation";
- area of the damaged or mined area - according to Table 2.

Note: there is a inconsistency between the regulatory legal acts (the Standards for forestry production losses set out in paragraph "b" of the Annex to the Resolution of the Cabinet of Ministers of Ukraine of 17 November 1997 No. 1279 "On the Amount and Procedure for Determining Losses of Agricultural and Forestry Production Subject to Compensation" and the Methodology for Determining Damage and Losses Caused to the Forest Fund as a Result of the Armed Aggression of the Russian Federation, approved by the Order of the Ministry of Ecology and Natural Resources of Ukraine No. 414 of 05.10.2022, registered with the Ministry of Justice of Ukraine No. 1308/38644) on the classification of certain categories of forests into groups of forests.

In particular, the Standards for forestry production losses set out in paragraph "b" of the Annex to the Resolution of the Cabinet of Ministers of Ukraine of 17 November 1997 No. 1279 "On the Amount and Procedure for Determining Losses of Agricultural and Forestry Production Subject to Compensation" do not contain relevant indicators for the second group of forests in the Dnipro, Donetsk, Zaporizhzhia, Luhansk, Mykolaiv, Kharkiv and Kherson regions.

In view of the above, the average amount of losses for the second group of forests was assumed to be the same as for the first group of forests.

Table 10. Determination of the amount of forestry production losses caused by the restriction of the rights of permanent forest users of SFRA or deterioration of land quality as a result of the armed aggression of the Russian Federation after 24.02.2022. (ALP = $(1 - C) \times AL \times DLA$)

№	Region	Forestgroup ^{PS}	Coefficient of land productivity decrease (1-C)	Average losses per hectare, UAH thousand (AL)	Area of damaged or mined land, thousand hectares (DLA)	Amount of forestry production losses, thousand UAH (APL)	Amount of losses in forestry production, UAH million (ALP)
1	Dnipropetrovsk	I	0,8	145,0	0,1	11600	11,6
		II	0,8	145,0	0,1	11600	11,6
		Total			0,2	23200,0	23,2
2	Donetsk	I	1	163,1	11,9	1940890	1940,9
		II	1	163,1	9,4	1533140	1533,1
		Total			21,3	3474030,0	3474,0
3	Zhytomyr	I	0,2	75,0	13,4	201000	201,0
		II	0,2	44,4	82,4	731712	731,7
		Total			95,8	932712,0	932,7
4	Saporizhzhia	I	1	250,9	5,8	1455220	1455,2
		II	1	250,9	24,5	6147050	6147,1
		Total			30,3	7602270,0	7602,3
5	Kyiv	I	0,2	80,5	8,8	141680	141,7
		II	0,2	47,7	137,4	1310796	1310,8
		Total			146,2	1452476,0	1452,5
6	Luhansk	I	1	118,6	27,3	3237780	3237,8
		II	1	118,6	182,8	21680080	21680,1
		Total			210,1	24917860,0	24917,9
7	Mykolaiv	I	0,9	241,6	4,3	934992	935,0
		II	0,9	241,6	5,5	1195920	1195,9
		Total			9,8	2130912,0	2130,9
8	Sumy	I	0,3	79,6	21,5	513420	513,4
		II	0,3	47,1	157,8	2229714	2229,7
		Total			179,3	2743134,0	2743,1
9	Kharkiv	I	0,9	91,9	21,8	1803078	1803,1
		II	0,9	91,9	106,5	8808615	8808,6
		Total			128,3	10611693,0	10611,7
10	Kherson	I	1	167,3	20,1	3362730	3362,7
		II	1	167,3	85,5	14304150	14304,2
		Total			105,6	17666880,0	17666,9
11	Chernihiv	I	0,3	75,0	58,5	1316250	1316,3
		II	0,3	44,4	207,2	2759904	2759,9
		Total			265,7	4076154,0	4076,2
Total		I			193,5	14918640,0	14918,6
		II			999,1	60712681,0	60712,7
		Total			1192,6	75631321,0	75631,3

Damages caused by the loss of damaged or lost harvested timber products to permanent forest users are estimated at UAH 144 million and are based on indirect methods of assessment, taking into account the remaining timber, the duration of temporary occupation, etc.

Table 11: Determination of the amount of damages caused by the loss of damaged or lost harvested forest products to permanent forest users of SFRA as a result of the armed aggression of the Russian Federation after 24.02.2022

№	Region	Types of losses	Average realisable value of 1 dense cubic metre, UAH (Tp)	Price of revalued timber value, UAH (Prt)	Weight of wood, thousand cubic metres (Ww)	Amount of damages, thousand UAH (D)	Amount of losses, UAH million (L)
1	Dnipropetrovsk	damaged	665,3	500,0	0,1	16,5	0,0
		lost	665,3		0,1	66,5	0,1
		total			0,2	83,1	0,1
2	Donetsk	damaged			0,0	0,0	0,0
		lost	568,5		1,0	568,5	0,6
		total			1,0	568,5	0,6
3	Zhytomyr	damaged	1377,5	900,0	7,8	3724,5	3,7
		lost	1377,5		7,8	10744,5	10,7
		total			15,6	14469,0	14,5
4	Zaporizhzhia	damaged	0		0	0,0	0,0
		lost	685,4		0,6	411,2	0,4
		total			0,6	411,2	0,4
5	Kyiv	damaged	1307,5	1000,0	12,7	3905,3	3,9
		lost	1307,5		12,7	16605,3	16,6
		total			25,4	20510,5	20,5
6	Luhansk	damaged			0	0,0	0,0
		lost	616,1		23,4	14416,7	14,4
		total			23,4	14416,7	14,4
7	Mykolaiv	damaged	570,7	400,0	0,3	51,2	0,1
		lost	570,7		0,3	171,2	0,2
		total			0,6	222,4	0,2
8	Sumy	damaged	1917,7	1400,0	16,0	8283,2	8,3
		lost	1917,7		16,0	30683,2	30,7
		total			32,0	38966,4	39,0
9	Kharkiv	damaged	913	700,0	10,0	2130,0	2,1
		lost	913		10,0	9130,0	9,1
		total			20,0	11260,0	11,3
10	Kherson	damaged			0	0,0	0,0
		lost	680,2		1,3	884,3	0,9
		total			1,3	884,3	0,9
11	Chernihiv	damaged	1428,4	1100,0	24,0	7881,6	7,9
		lost	1428,4		24,0	34281,6	34,3
		total			48,0	42163,2	42,2
Total		damaged			70,9	25992,29	26,0
		lost			97,2	117963,03	118,0
		total			168,1	143955,32	144,0

The lost revenues of forest users caused by temporary occupation of land plots, restrictions on logging (the cost of forest products) are estimated at 2646 thousand cubic metres and UAH 3323.1 million and are based on indirect methods of estimation, taking into account the reporting data of regional forestry departments for the previous year.

Table 12. Calculation of unreceived income of forest users caused by temporary occupation of land plots, restrictions on not conducting logging (cost of forest products), to permanent forest users of SFRA as a result of the armed aggression of the Russian Federation, after 24.02.2022

№	Region	Actual average weighted market price of wood species for the previous period (year), UAH/cubic metre	Reduction in timber harvesting volumes, thousand cubic metres	Amount of unreceived income, thousand UAH (Estimated value)	Amount of unreceived income, UAH million (Estimated value)
1	Dnipropetrovsk	665,3	32	21290	21,3
2	Donetsk	568,5	38	21603	21,6
3	Zhytomyr	1377,5	600	826500	826,5
4	Zaporizhzhia	685,4	12	8225	8,2
5	Kyiv	1307,5	400	523000	523,0
6	Luhansk	616,1	280	172508	172,5
7	Mykolaiv	570,7	3	1712	1,7
8	Sumy	1917,7	280	536956	537,0
9	Kharkiv	913	350	319550	319,6
10	Kherson	680,2	51	34690	34,7
11	Chernihiv	1428,4	600	857040	857,0
	Total		2646	3323074	3323,1

Costs due to the impossibility of harvesting secondary forest materials and making side use of forests, using useful properties of forests, and farming are estimated at UAH 51.8 million and are based on indirect methods of estimation, taking into account the reporting data of regional forestry departments for the previous year.

Table 13. Determination of expenses due to the impossibility of harvesting secondary forest materials and incidental use, use of useful properties of forests, agriculture, for permanent forest users of SFRA as a result of the armed aggression of the Russian Federation, after 24.02.2022

№	Region	Income from sales of other products for the previous period (year), thousand UAH	Capacity reduction index	Amount of expenses, thousand UAH (Aexp)	Amount of losses, UAH million (Aexp)
1	Dnipropetrovsk	5649	0,3	1695	1,7
2	Donetsk	5232	0,8	4186	4,2
3	Zhytomyr	31557	0,2	6311	6,3
4	Zaporizhzhia	20879	0,8	16703	16,7
5	Kyiv	5817	0,3	1745	1,7
6	Luhansk	5486	1	5486	5,5
7	Mykolaiv	10723	0,3	3217	3,2
8	Sumy	1981	0,7	1387	1,4
9	Kharkiv	4255	0,6	2553	2,6
10	Kherson	5088	1	5088	5,1
11	Chernihiv	4918	0,7	3443	3,4
	Total	101585		51813	51,8

The cost of soil preparation for the creation of forest crops is estimated at UAH 14.4 million, taking into account the reporting data of the regional forestry and hunting departments for the previous year and the tasks for forest crop production for 2022.

Table 14. Determination of the costs of soil preparation for the creation of forest crops for permanent forest users of the SFRA as a result of the armed aggression of the Russian Federation, after 24.02.2022, $CPr = (Crp + GenExp) \times Ar$

№	Region	Preparation costs per hectare, thousand UAH (Cpr)	General and administrative expenses per hectare, UAH thousand (GenExp)	Area where soil preparation was carried out, ha (Ar)	Total soil preparation costs, thousand UAH (CPr)	Total soil preparation costs, UAH million (CPr)
1	Dnipropetrovsk	3	1	150	600	0,6
2	Donetsk	3	1	190	760	0,8
3	Zhytomyr	3	1	200	800	0,8
4	Zaporizhzhia	3	1	400	1600	1,6
5	Kyiv	3	1	300	1200	1,2
6	Luhansk	3	1	1000	4000	4,0
7	Mykolaiv	3	1	100	400	0,4
8	Sumy	3	1	150	600	0,6
9	Kharkiv	3	1	400	1600	1,6
10	Kherson	3	1	300	1200	1,2
11	Chernihiv	3	1	400	1600	1,6
	Total			3590	14360	14,4

The damage and losses caused to forest nurseries and forest crops are estimated at UAH 1530.8 million. The calculations are based on:

- the costs of previous years for the organisation and establishment of forest nurseries and non-closed forest crops, where it is impossible to carry out maintenance, supplementation, etc;
- losses of forestry production in damaged and mined areas;

the amount of damage caused to the forest by destruction or damage to seedlings, saplings in forest nurseries and destruction of forest crops (according to Annex 3 and Annex 4 to the Resolution of the Cabinet of Ministers of Ukraine of 23 July 2008 No. 665 "On Approval of Tariffs for Calculating the Amount of Damage Caused to the Forest").

Table 15: Determination of damage and losses caused to forest nurseries and forest crops, permanent forest users of SFRA as a result of the armed aggression of the Russian Federation, after 24.02.2022, (Estimated = LAOE + AO + DC)

№	Region	Amount of losses on the organisation and establishment of forest nurseries and forest crops, thousand UAH (LAOE)	Amount of forestry production losses, thousand UAH (LA)	Amount of damage caused to the forest by destruction or damage to seedlings, saplings in forest nurseries and destruction of forest crops, thousand UAH (DC)	Damage and losses, thousand UAH (Estimated)	Losses and damage, UAH million (Estimated)
1	Dnipropetrovsk	6750	52200	8063	67013	67,0
2	Donetsk	9300	101122	11109	121531	121,5
3	Zhytomyr	9000	5328	10751	25079	25,1
4	Zaporizhzhia	13500	225810	16126	255436	255,4
5	Kyiv	9000	5724	10751	25475	25,5
6	Luhansk	58500	462540	69880	590920	590,9
7	Mykolaiv	1500	21744	1792	25036	25,0
8	Sumy	9000	8478	10751	28229	28,2
9	Kharkiv	13500	74439	16126	104065	104,1
10	Kherson	19500	217490	23293	260283	260,3
11	Chernihiv	9000	7992	10751	27743	27,7
	Total	158550	1182867	189393	1530810	1530,8

Table 15.1 Amount of losses in forestry production, $(LA = (1 - C) \times AL \times PA)$

№	Region	Coefficient of land productivity decline, (1 - C)	Average losses per hectare, UAH thousand (AL)	The area of the damaged or mined plot, ha (PA)	Amount of losses, thousand UAH (LA)	Amount of losses, UAH million (LA)
1	Dnipropetrovsk	0,8	145	450	52200	52,2
2	Donetsk	1	163,1	620	101122	101,1
3	Zhytomyr	0,2	44,4	600	5328	5,3
4	Zaporizhzhia	1	250,9	900	225810	225,8
5	Kyiv	0,2	47,7	600	5724	5,7
6	Luhansk	1	118,6	3900	462540	462,5
7	Mykolaiv	0,9	241,6	100	21744	21,7
8	Sumy	0,3	47,1	600	8478	8,5
9	Kharkiv	0,9	91,9	900	74439	74,4
10	Kherson	1	167,3	1300	217490	217,5
11	Chernihiv	0,3	44,4	600	7992	8,0
	Total			10570	1182867	1182,9

The total amount of damage and losses caused to forestry land plots, forest nurseries, and forest crops caused by the restriction of land users' rights is estimated at UAH 80659.4 million (EUR 2077.8 million), which consists of

- losses of forestry production - 93.72%;
- losses due to damaged or lost harvested timber products - 0.18%;
- lost income from not conducting logging - 4.12%;
- expenses due to the impossibility of harvesting secondary forest materials and making side use of forests, using useful properties of forests, and farming - 0.06%;
- costs of soil preparation for forest crops - 0.02%;
- damage and losses caused to forest nurseries and forest crops - 1.90%.

Table 16. The total amount of damage and losses caused to forestry land plots, forest nurseries, forest crops and hunting grounds caused by the restriction of the rights of land users of SFRA in the temporarily occupied territories and other territory of Ukraine as a result of the armed aggression of the Russian Federation, after 24.02.2022

№	Region	Losses in forestry production, UAH million	Losses due to damaged or lost harvested timber products, UAH million	Loss of income from not conducting logging, UAH million	Expenses due to the impossibility of harvesting secondary forest materials and making side use of forests, using useful properties of forests, and farming, UAH million	Expenditures on soil preparation for forest crops, UAH million	Damage and losses caused to forest nurseries and forest crops, UAH million	Total amount of damage and losses, UAH million	Total amount of damage and losses, million EUR
1	Dnipropetrovsk	23,2	0,1	21,3	1,7	0,6	67,0	113,9	2,9
2	Donetsk	3474,0	0,6	21,6	4,2	0,8	121,5	3622,7	93,3
3	Zhytomyr	932,7	14,5	826,5	6,3	0,8	25,1	1805,9	46,5
4	Zaporizhzhia	7602,3	0,4	8,2	16,7	1,6	255,4	7884,6	203,0
5	Kyiv	1452,5	20,5	523,0	1,7	1,2	25,5	2024,4	52,1
6	Luhansk	24917,9	14,4	172,5	5,5	4,0	590,9	25705,2	661,9
7	Mykolaiv	2130,9	0,2	1,7	3,2	0,4	25,0	2161,4	55,7
8	Sumy	2743,1	39,0	537,0	1,4	0,6	28,2	3349,3	86,2
9	Kharkiv	10611,7	11,3	319,6	2,6	1,6	104,1	11050,9	284,5
10	Kherson	17666,9	0,9	34,7	5,1	1,2	260,3	17969,1	462,7
11	Chernihiv	4076,2	42,2	857,0	3,4	1,6	27,7	5008,1	128,9
	Total, UAH million	75631,4	144,0	3323,1	51,8	14,4	1530,7	80695,4	2077,8
	% %	93,72	0,18	4,12	0,06	0,02	1,90	100,00	
	Total, EUR million (38,8377)	1947,4	3,7	85,6	1,3	0,4	39,4	2077,8	

Losses caused to the state due to unauthorised use of forest lands (lost income) of permanent forest users of the SFRA

The state's lost income from the use of forest areas covered with forest vegetation as a result of the armed aggression of the Russian Federation is estimated at UAH 4,816.3 million (EUR 124.8 million). The calculations are based on the state forestry records and updated data of the State Enterprise "Ukrderzhlisproekt" on the area of forest plots covered with forest vegetation and annual changes in the stock, as well as on the reporting data of the regional forestry and hunting departments on the actual average weighted market price of timber.

Table 17. Lost state income from the unauthorised use of forest areas covered with forest vegetation as a result of the armed aggression of the Russian Federation after 24.02.2022, in forests belonging to the sphere of management of the SFRA, (UR = A × AG × T × PS)

№	Region	The area of forest areas covered with forest vegetation (occupied territories), in thousand hectares (A)	Annual growth (annual change in stock) cubic metres/ha (AG)	Term of unauthorised use of forest areas covered with forest vegetation (occupation) (in years), (T)	Actual average weighted market price of wood species UAH/cubic metre (PS)	Unreceived state revenue, thousand UAH (UR)	Unreceived state revenue, UAH million (UR)	Unreceived government revenue, EUR million (UR)
1	Dnipropetrovsk	0,2	3,0	1	665,3	399	0,4	0,01
2	Donetsk	18,8	2,6	1	568,5	27788	27,8	0,7
3	Zhytomyr	87,9	3,6	1	1377,5	435896	435,9	11,2
4	Zaporizhzhia	22,7	1,4	1	685,4	21782	21,8	0,6
5	Kyiv	136,3	4,2	1	1307,5	748491	748,5	19,3
6	Luhansk	170,0	2,6	1	616,1	272316	272,3	7,0
7	Mykolaiv	7,0	1,8	1	570,7	7191	7,2	0,2
8	Sumy	169,7	4,1	1	1917,7	1334278	1334,3	34,4
9	Kharkiv	121,4	3,3	1	913	365766	365,8	9,4
10	Kherson	76,0	2,1	1	680,2	108560	108,6	2,8
11	Chernihiv	249,0	4,2	1	1428,4	1493821	1493,8	38,5
	Total	1059,0				4816289	4816,3	124,0

Total losses of state forest fund and losses of permanent forest users of SFRA

All losses of the forest fund as a result of the armed aggression of the Russian Federation after 24.02.2022 caused to the state and losses caused to permanent forest users of SFRA on forestry land plots are estimated at UAH 85511.9 million (EUR 2201.8 million), which consist of

- damages caused to the state ("lost income") - UAH 4816.3 million (EUR 124.8 million);
- losses caused to permanent forest users - UAH 80659.4 million (EUR 2077.8 million).

Table 18. Total losses of the forest fund as a result of the armed aggression of the Russian Federation after 24.02.2022 caused to the state and losses caused to permanent forest users of the SFRA on forestry land plots

No	Region	Losses incurred by the state ("unreceived income"), UAH million	Damages caused to permanent forest users of the SFRA on forestry land plots	Total losses, UAH million	Total losses, EUR million (38,8377)	%
1	Dnipropetrovsk	0,4	113,9	114,3	2,9	0,1
2	Donetsk	27,8	3622,7	3650,5	94,0	4,3
3	Zhytomyr	435,9	1805,9	2241,8	57,7	2,6
4	Zaporizhzhia	21,8	7884,6	7906,4	203,6	9,2
5	Kyiv	748,5	2024,4	2772,9	71,4	3,2
6	Luhansk	272,3	25705,2	25977,5	668,9	30,4
7	Mykolaiv	7,2	2161,4	2168,6	55,8	2,5
8	Sumy	1334,3	3349,3	4683,6	120,6	5,5
9	Kharkiv	365,8	11050,9	11416,7	294,0	13,4
10	Kherson	108,6	17969,1	18077,7	465,5	21,1
11	Chernihiv	1493,8	5008,1	6501,9	167,4	7,6
	Total	4816,4	80695,5	85511,9	2201,8	100,0
	%	5,6	94,4	100,0		
	Total, EUR million(38,8377)	124,0	2077,8	2201,8		

The amount of other damage and losses on forestry lands, including those caused to buildings, structures, and objects under construction, was not assessed due to the lack of initial data necessary for the assessment and relevant information sources for part of the temporarily occupied territory due to the ongoing hostilities.

Summary

1. In the temporarily occupied territories there were respectively are:

- in 2014 - 497.4 thousand hectares of forests (4.8%) of Ukraine with a total growing stock of 67.07 million cubic metres (3.2%), including 358.6 thousand hectares of forests (4.9%) of state forestry under SFRA with a total growing stock of 51.74 million cubic metres (3.4%);
- from 24.02.2022 - 1864.4 thousand hectares of forests of Ukraine (18.0%) with a total growing stock of 394.4 million cubic metres (18.8%), including 1192.6 thousand hectares of forests (16.3%) of state forests under administration of SFRA with a total growing stock of 267.53 million cubic metres (17.7%);
- a total of 2361.8 thousand hectares of forests in Ukraine (22.8%) with a total growing stock of 462.06 million cubic metres (22.0%), including 1551.2 thousand hectares of forests (21.3%) of state forests under SFRA with a total growing stock of 319.27 million cubic metres (21.1%).

2. Consequences of armed aggression after 24.02.2022 for state forestry enterprises of the SFRA are:

- out of 68 forestry enterprises located in the temporarily occupied territories, 33 (49%) were partially damaged. As of 24.06.2022, 34 (50%) were engaged in production activities, 16 (24%) in partial production activities, and 18 enterprises (26%) were not operating;
- net income from the sale of products (works, services) decreased by UAH 641.1 million (17%), payments to the state (payment of taxes, fees, unified social tax) decreased by UAH 137.2 million (9%);
- the number of full-time employees decreased by 4.1 thousand people (24%), the average monthly salary decreased from 1% to 59%;
- harvesting of liquid timber decreased by 1240.3 thousand cubic metres (42%), including from the main use logging on 701.2 thousand hectares (47%);
- the volume of illegal logging increased by 1.9 thousand cubic metres (45%), and the amount of damage caused increased by 4588.5 thousand UAH (12%)
- the number of forest fires increased almost 3 times, and their area increased 106 times;
- the volume of forest reproduction decreased by 5.7 thousand hectares (43%), including the planting of forests by 4.2 thousand hectares (37%).

3. Forestry losses caused to the state and damages caused to permanent forest users of the SFRA

According to the analytical assessment of the amount of forestry losses caused to the state and damages caused to permanent forest users of the SFRA on forestry land plots located in the temporarily occupied territories as a result of the armed aggression of the Russian Federation after 24.02.2022:

- In general, all losses of the forest fund as a result of the armed aggression of the Russian Federation after 24.02.2022 caused to the state and losses caused to permanent forest users of the SFRA on forestry land plots are estimated at UAH

85511.9 million (EUR 2201.8 million), including damages caused to the state (lost income) - UAH 4816.3 million (EUR 124.8 million);

- losses caused to permanent forest users - 80659.4 million UAH (2077.8 million EUR), of which:
 - losses of forestry production - 75631.3 million UAH (1947.4 million EUR);
 - losses due to damaged or lost harvested timber products - UAH 144 million (EUR 3.7 million);
 - lost income from not conducting logging - UAH 3323.1 million (EUR 85.6 million);
 - expenses due to the impossibility of harvesting secondary forest materials and making side use of forests, using useful properties of forests, and farming - UAH 51.8 million (EUR 1.3 million);
 - costs of soil preparation for the creation of forest crops - UAH 14.4 million (EUR 0.4 million);
 - damage and losses caused to forest nurseries and forest crops - UAH 1530.8 million (EUR 39.4 million).

4. Total economic losses

Within the administrative regions, all losses of the forest fund as a result of the armed aggression of the Russian Federation after 24.02.2022, caused to the state, and losses caused to permanent forest users of the SFRA on forestry land plots are as follows:

Region	Estimated economic losses, million UAH
Dnipropetrovsk	114.3
Donetsk	3 650.5
Zhytomyr	2 241.8
Zaporizhzhia	7 906.4
Kyiv	2 772.9
Luhansk	25 977.5
Mykolaiv	2 168.6
Sumy	4 683.6
Kharkiv	11 416.7
Kherson	18 077.7
Chernihiv	6 501.9
Total	85 511.9