

PART I

North-West Russian Forests and Forestry

Alexander Dobrovolsky

associate professor at Silviculture Department,
Vice-dean of Forestry Faculty, FTU

e-mail: alexander-83@yandex.ru

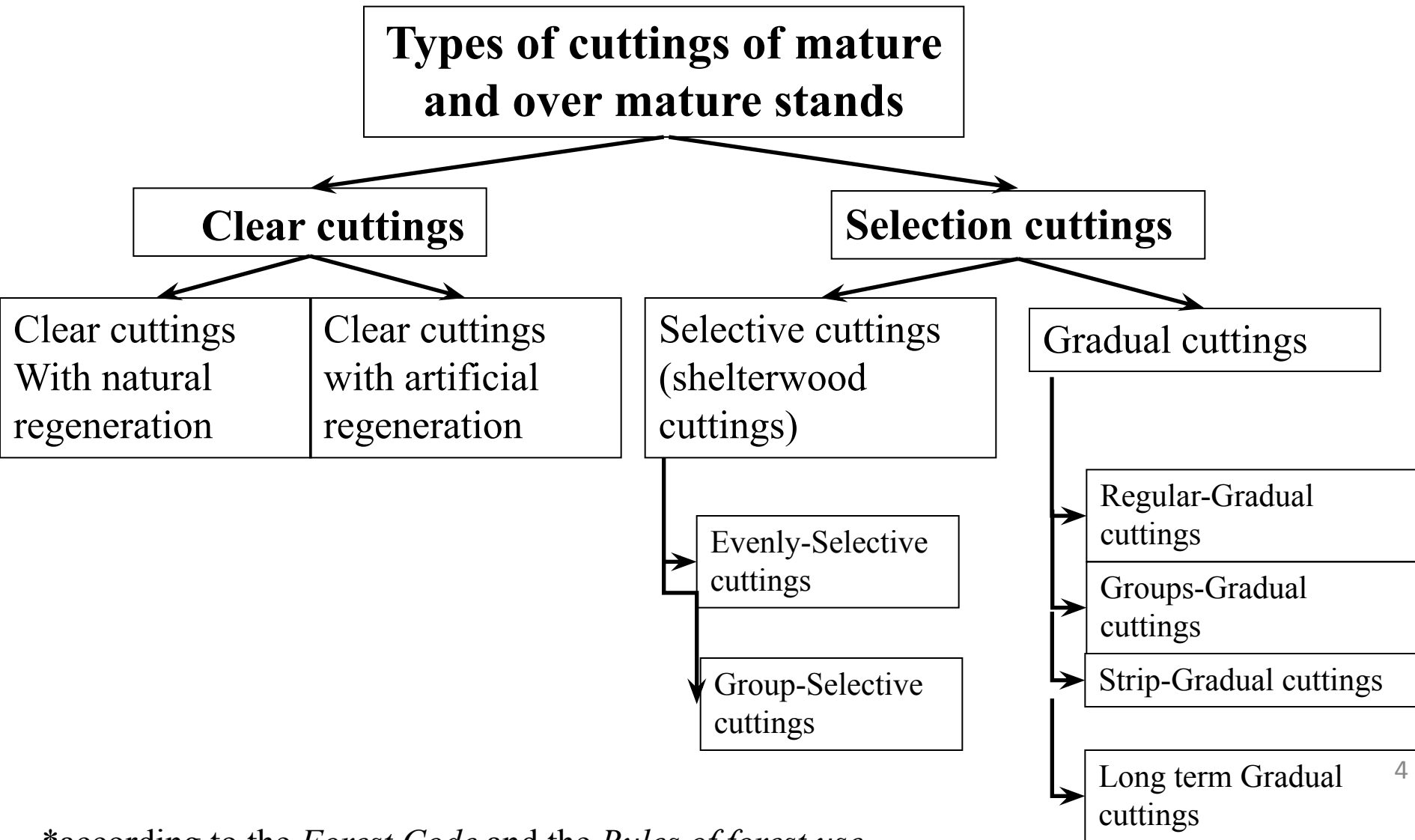




Rotation age

Tree species	The forest Category	
	1	2, 3
	Age of final cuttings, years	
Coniferous		
Cedar	241..280	201..240
Pine	121..140	101..120
Spruce	121..140	101..120
Deciduous		
Birch	71..80	61..70
Aspen	61..70	51..60
Salix sp.	61..70	51..60

Logging of mature and over mature stands*



*according to the *Forest Code* and the *Rules of forest use*

Clear cuttings

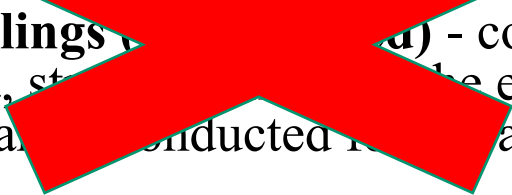


1) Narrow cutting area fellings - continuous felling, felling areas conducted a small area and width, providing a minimum for major cuts to the environmental impact and providing a favorable environment for regeneration. The width of cutting area does not exceed 100 m;

2) Medium cutting area fellings - solid felling conducted felling areas 101-250 m wide;

3) Wide cutting area fellings - continuous felling conducted felling areas 251-500 m wide;

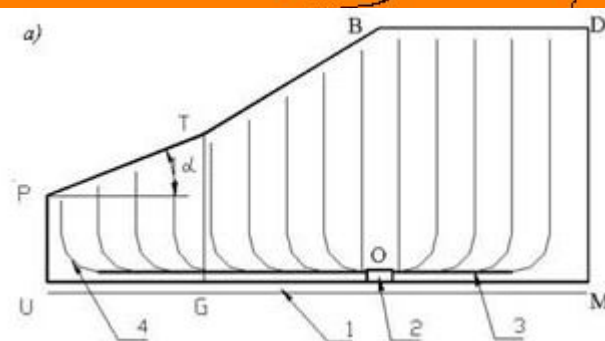
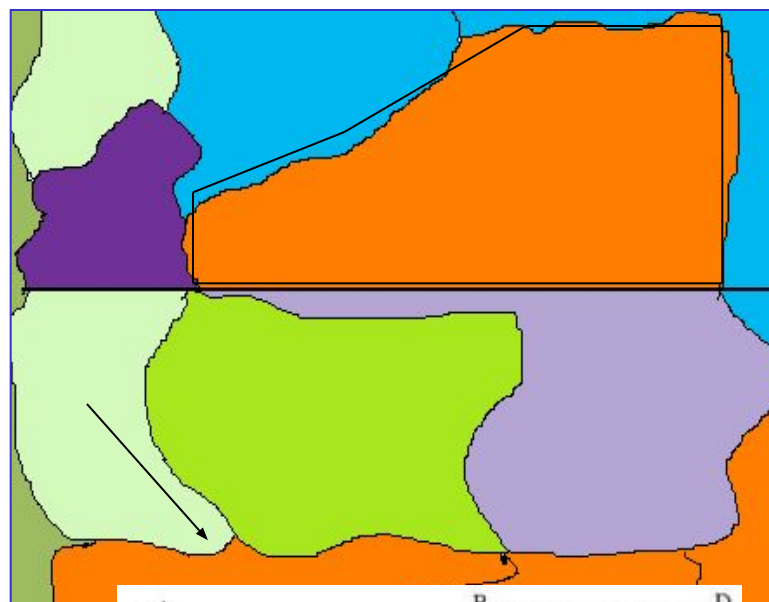
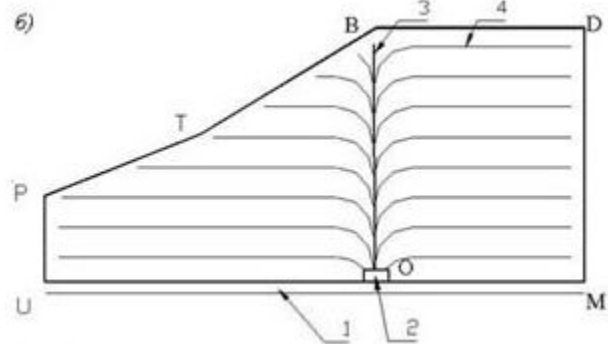
4) Concentrated fellings - continuous felling carried out over a large area, stable the environment. To the concentrated are clear conducted in areas of 50 hectares and more



Organizational and technical parameters

- 1) The rules of selection trees for cuttings;
- 2) Size and shape of the cutting area;

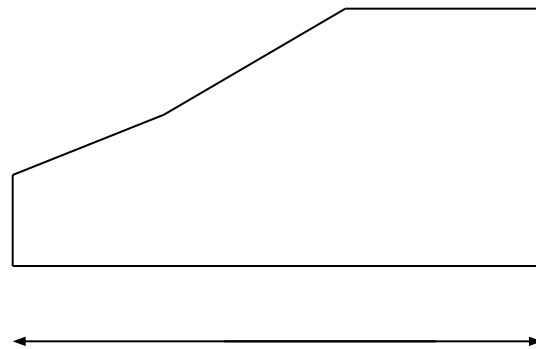
Maximum 50 ha



1- forest road; 2 – loading area; 3 – main strip road 4 – secondary strip road

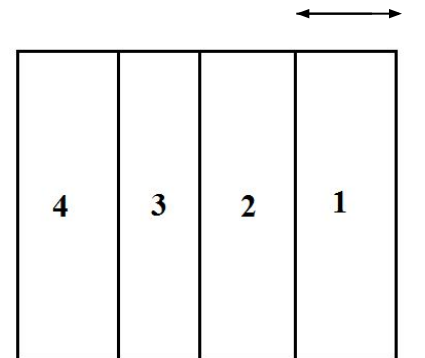
Organizational and technical parameters

- 1) The rules of selection trees for cuttings;
- 2) Size and shape of the cutting area;
- 3) length of the cutting area;
- 4) Width of the cutting area;



Usually doubled height of the frontier stands, from which regeneration expected (maximum 500 m)

Restricted by length of forest compartment



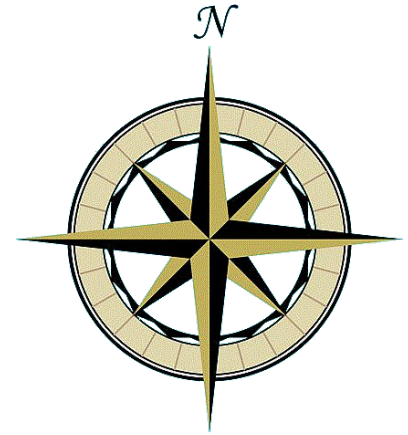
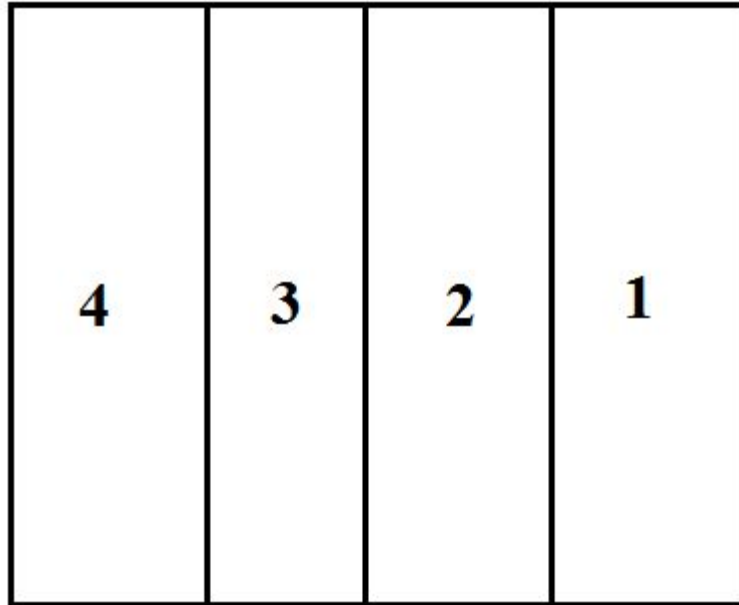
Organizational and technical parameters

- 1) The rules of selection trees for cuttings;
- 2) Size and shape of the cutting area;
- 3) Width of the cutting area;
- 4) length of the cutting area;
- 5) Cutting area direction;
- 6) Cutting direction;

Cutting direction



Wind direction



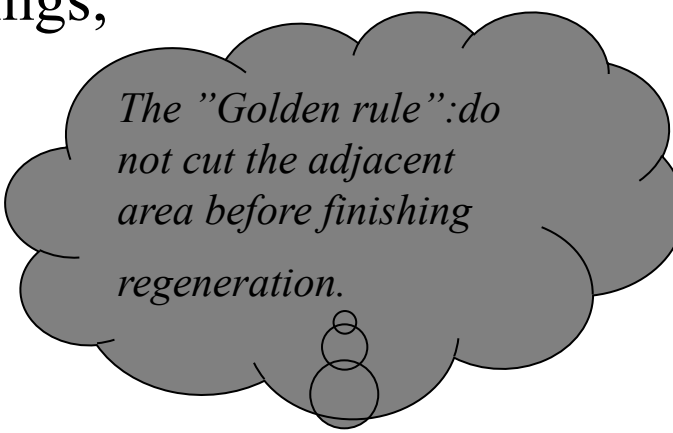
Cutting area direction



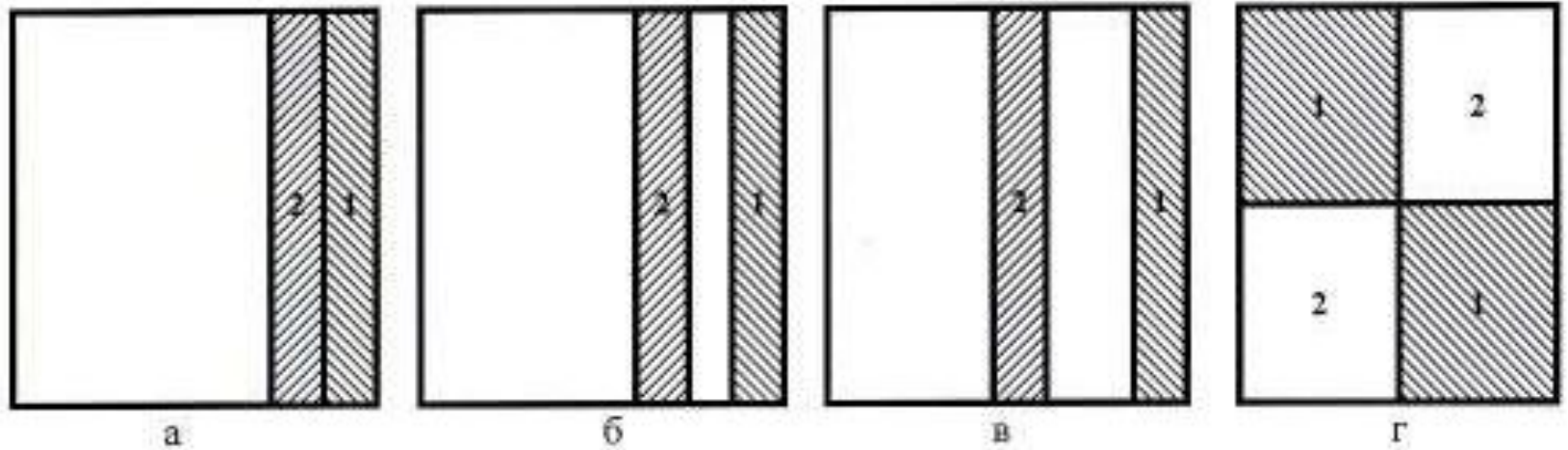
In taiga region of NW Russia
recommended to oriented from
north to south since it more heat
required for seed germination
and needs to increase
evaporation of excess moisture

Organizational and technical parameters

- 1) The rules of selection trees for cuttings;
- 2) Size and shape of the cutting area;
- 3) Width of the cutting area;
- 4) length of the cutting area;
- 5) Cutting area direction;
- 6) Cutting direction;
- 7) The period between cuttings on adjacent area;
- 8) The patterns of way junction harvest area;



The "Golden rule": do not cut the adjacent area before finishing regeneration.

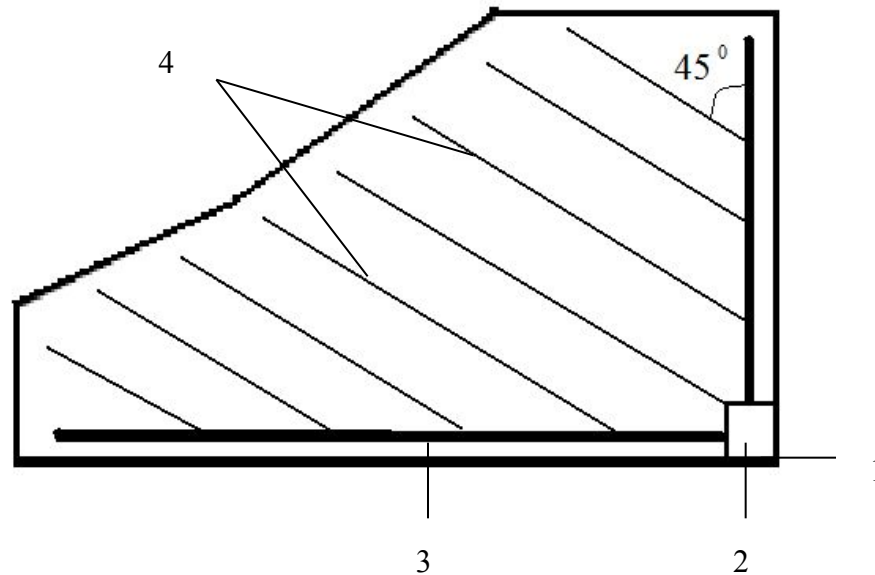


- a – direct joining,
- б – intermingled joining,
- в – rocker joining,
- г – chess joining

Organizational and technical parameters

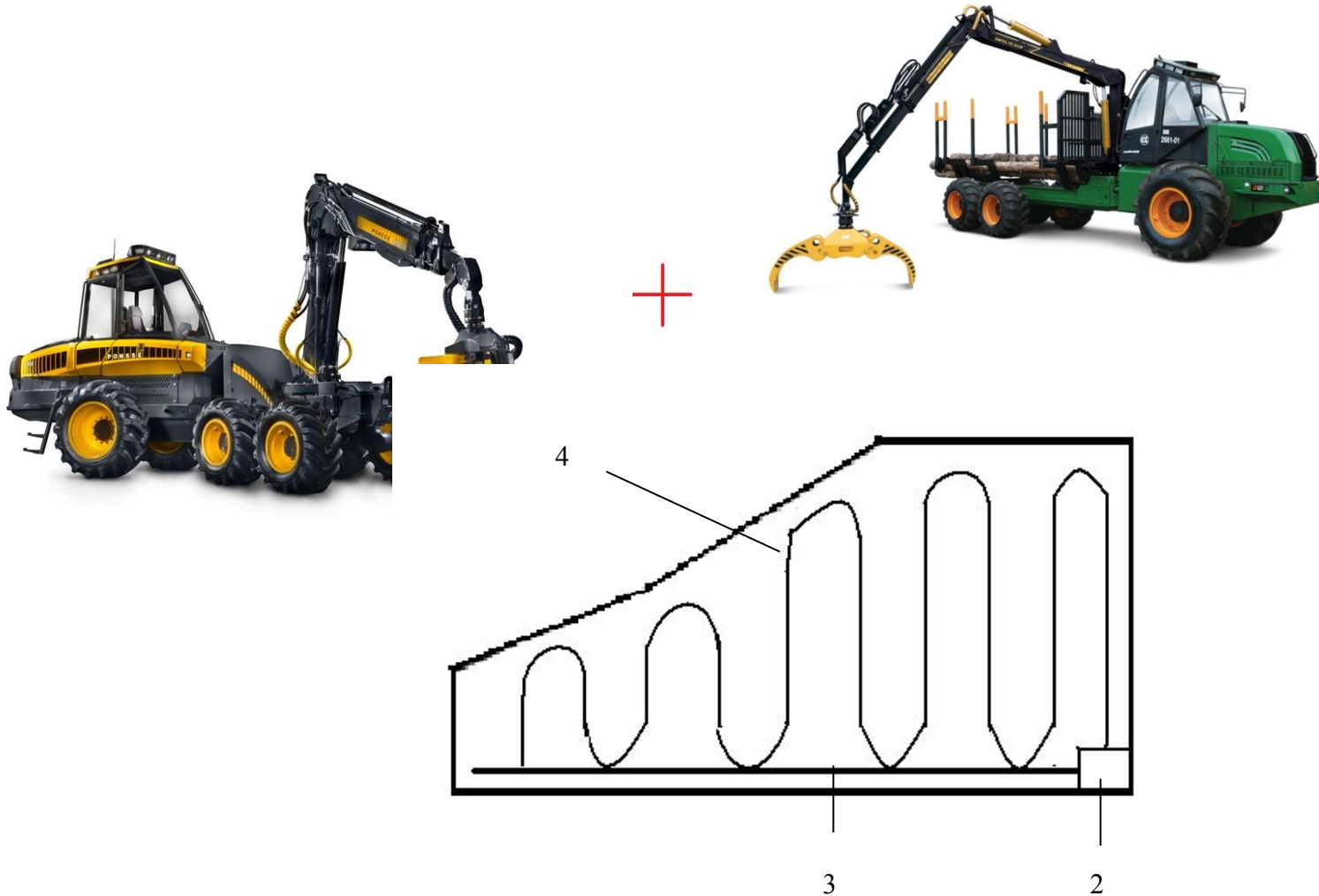
- 1) The rules of selection trees for cuttings;
- 2) Size and shape of the cutting area;
- 3) Width of the cutting area;
- 4) length of the cutting area;
- 5) Cutting area direction;
- 6) Cutting direction;
- 7) The period between cuttings on adjacent area;
- 8) The patterns of way junction harvest area;
- 9) Number of cutting rounds;
- 10) Technology of logging operations;

Traditional method

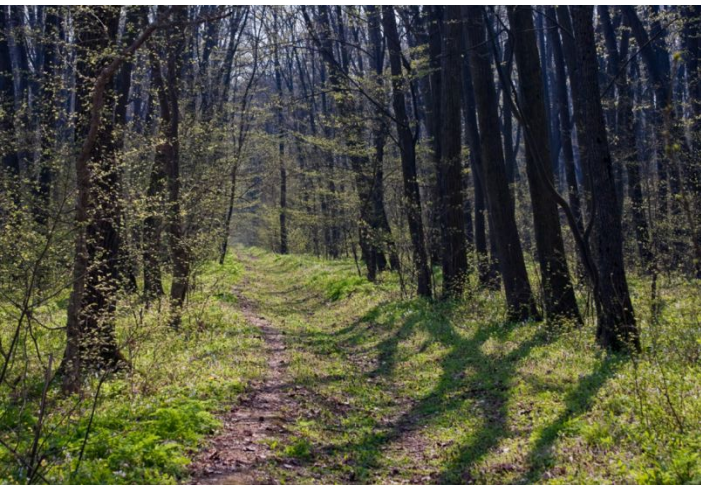
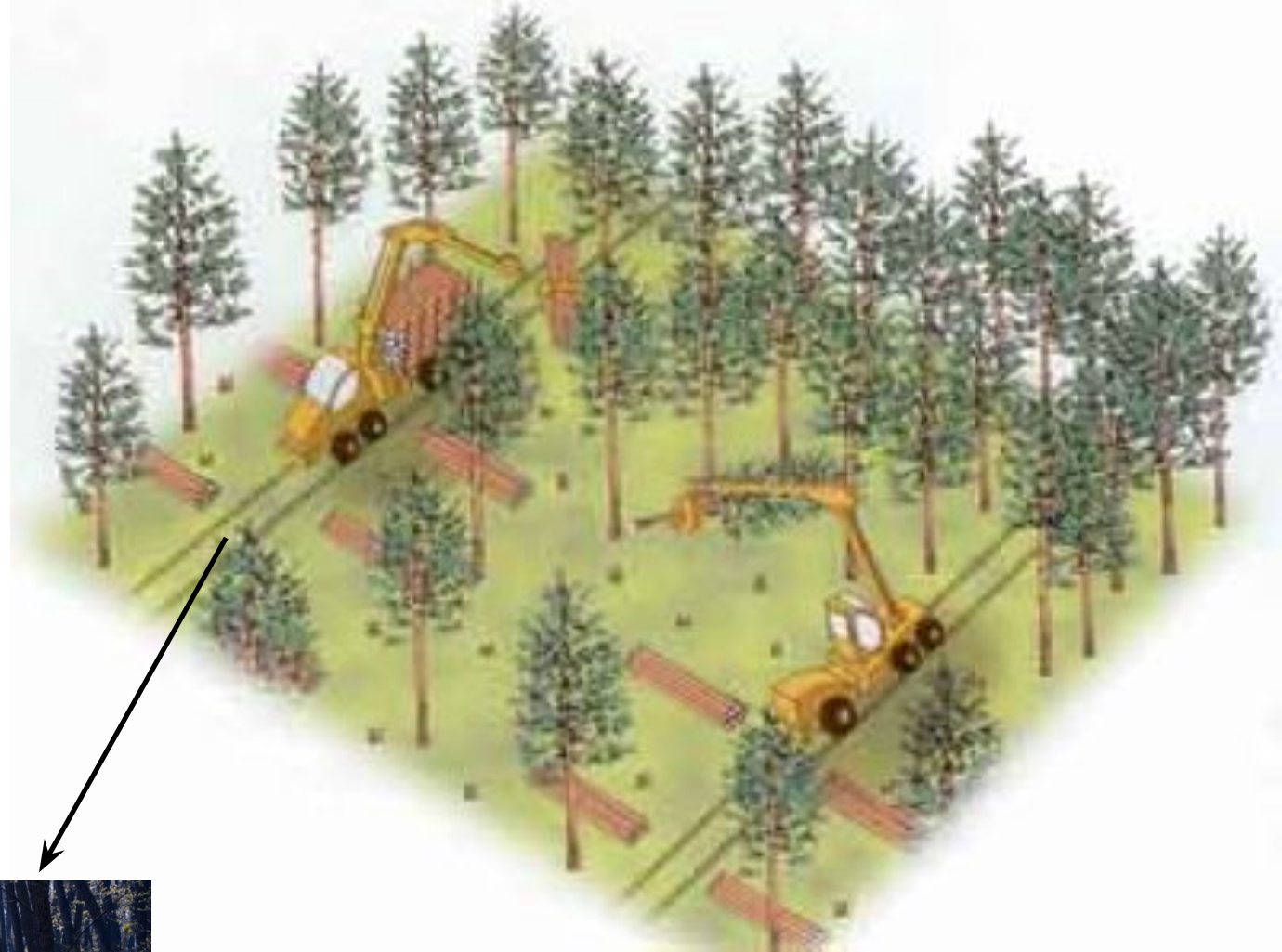


1- forest road; 2 – loading area; 3 – main strip road; 4 – secondary strip road

Scandinavian method



1- forest road; 2 – loading area; 3 – main strip road; 4 – secondary strip road



Organizational and technical parameters

- 1) The rules of selection trees for cuttings;
- 2) Size and shape of the cutting area;
- 3) Width of the cutting area;
- 4) length of the cutting area;
- 5) Cutting area direction;
- 6) Cutting direction;
- 7) The period between cuttings on adjacent area;
- 8) The patterns of way junction harvest area;
- 9) Number of cutting rounds;
- 10) Technology of logging operations;
- 11) The way of cleaning from forest residues;

- a) collecting forest residues in piles (bulk) for later use as fuel or processing;

Areas with
sandy-loam soils

- b) piling on por



Spruce, or pine
stands on wet,
swampy areas

- c) gathering for
burning them;

Areas with
normal drained
loam soils

- d) crushing and scattered forest residues around the cutted area

Scandinavia



Russia



Organizational and technical parameters

- 1) The rules of selection trees for cuttings;
- 2) Size and shape of the cutting area;
- 3) Width of the cutting area;
- 4) length of the cutting area;
- 5) Cutting area direction;
- 6) Cutting direction;
- 7) The period between cuttings on adjacent area;
- 8) The patterns of way junction harvest area;
- 9) Number of cutting rounds;
- 10) Technology of logging operations;
- 11) The way of cleaning from forest residues;
- 12) Regenerations method.

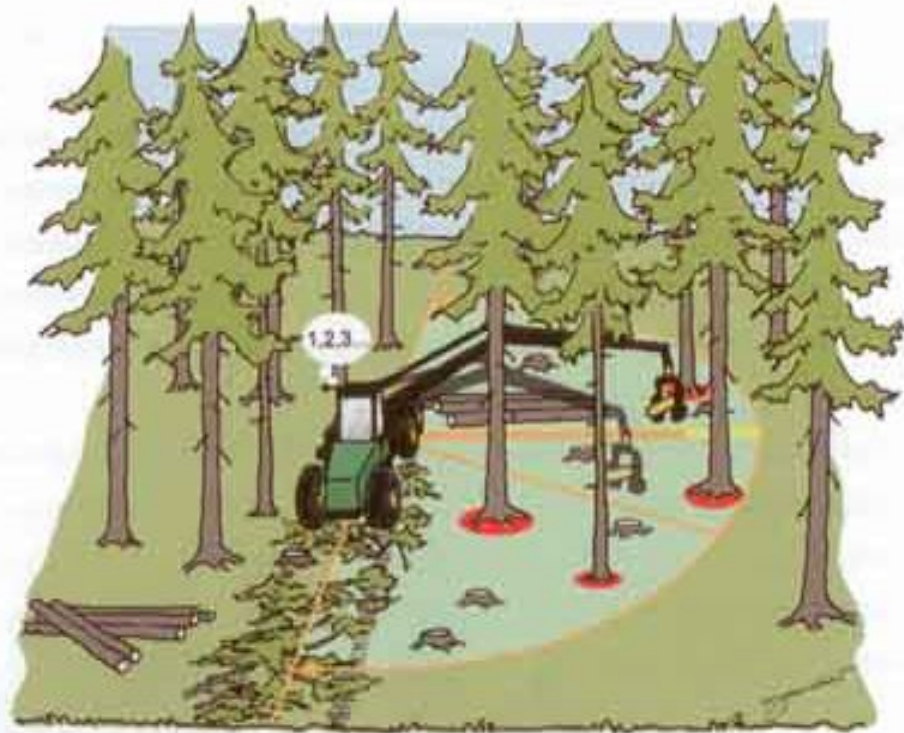
1) Natural regeneration

2) Artificial regeneration:

Parameter	NW Russia
Minimum amount of seedlings	≥ 2500 for Spruce* ≥ 3000 for Pine*
Checking period	The year after cuttings
Tree species	Pine, Spruce

* Depending on types of forests

Thinnings



Classification of thinnings

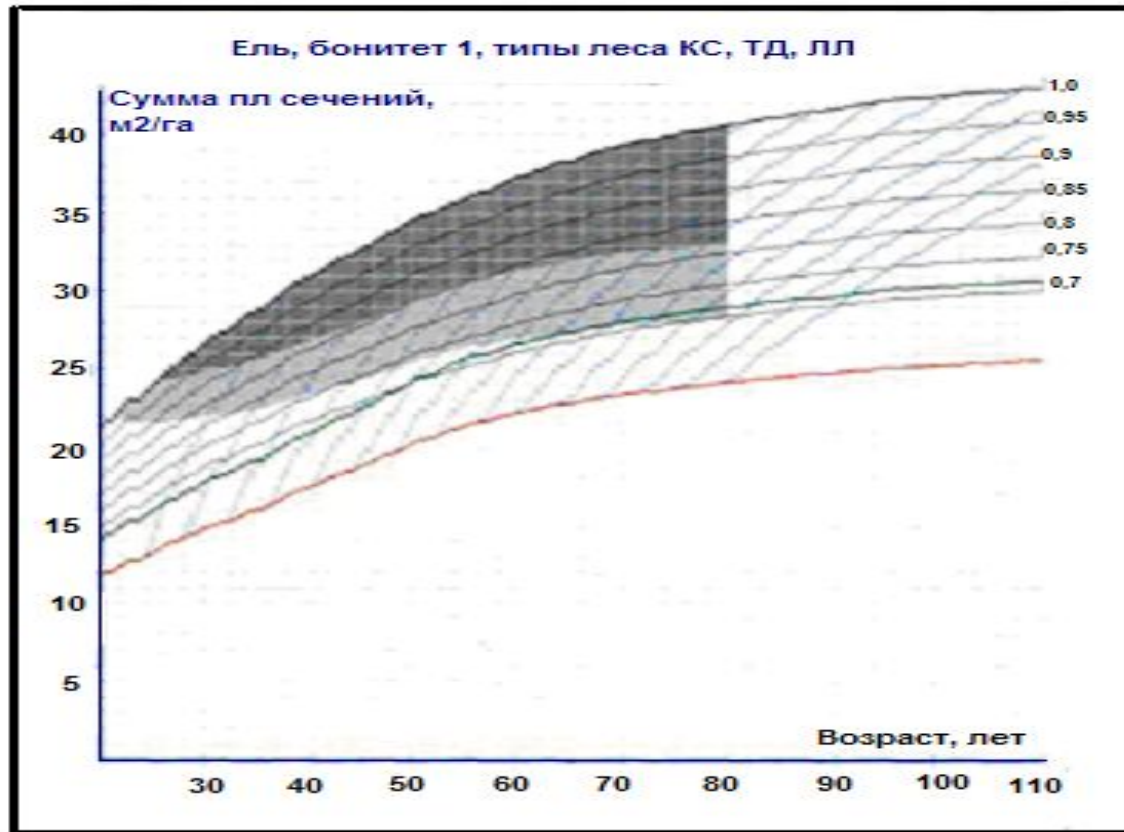
- Brightening
 (“osvetlenie”) up to 10 years
- Cleaning
 (“prochistka”) 11-20
- Thinning
 (“prorezhivanie”) 21-40 (21-30)
- Through-cutting
 (“prohodnaya rubka”) ≥ 41 (≥ 31)

Precommercial
thinnings

Commercial
thinnings

Russia

Ель. Бонитет 1



Программа коммерческих рубок ухода, разработанная СпбНИИЛХ для ельников подзоны южной тайги Псковской, Ленинградской и Новгородской областей 1 класса бонитета. Нижняя красная линия показывает минимальные значения сумм площадей поперечного сечения до которых возможно разреживание в данном возрасте. Заштрихованная область – область рентабельной рубки.

Sweden

Norway spruce G30

Southern Sweden

Site quality 10.1 m³sk/ha and year

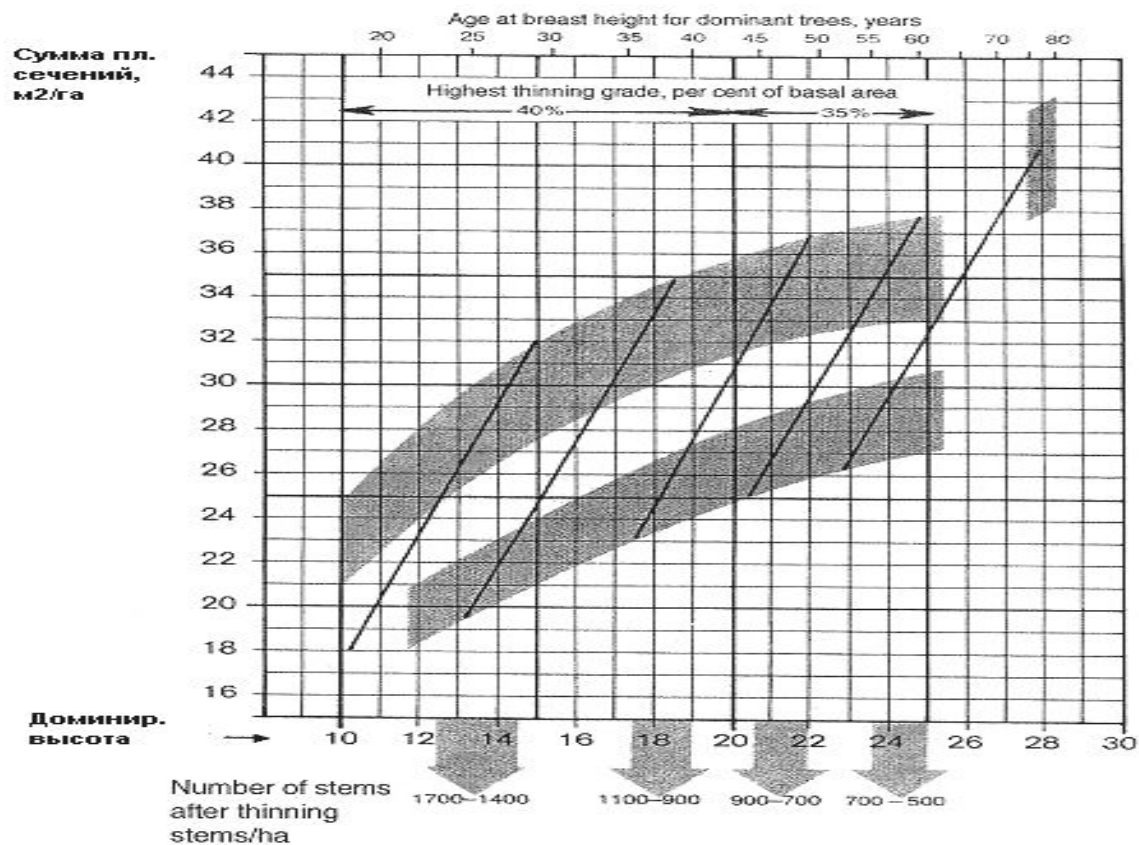
Estimated production level 8.7 m³sk/ha and year

At final felling:

-total age 85 years

-volume ca 465 m³sk

-diameter 28 cm



Comparative analysis of the Swedish and Finnish programs with Russian one

Characteristics	Sweden*	Finland	Russia**
Rotation age	65-75 years	70-90 years	81-100 years
Determination of the time of thinning	Via technical parameters of the stand	Via technical parameters of the stand	Via age of the stand
The timing of the start of the logging	With the dominant height of the stand 10-12 m.	With the average height of the stand 12-15m	30 years
Cutting intensity in middle-age stands	35-40%	30-40%	35- 45%
Cutting intensity in older age groups	30-35%	30-35%	30-35%
Calculation cutting intensity	Via basal area	Via basal area	Via standing volume
The amount of fertilizers (N)	150-200 kg/ha	150-200 kg/ha	150-180 kg/ha
The interval between the application of fertilizers	5-7 years	6-8 years	10-20 years

* Ericson, 1997

** Sennov, 2002

Features of Russian thinning programs in comparison with Scandinavian one

- Longer rotation
- Thinning operations is not depending on technical parameters (dominant height, basal area) but depending on age of the stand
- Thinning programs focus to get a certain assortments to final cutting.
- In case of thinning regimes combined with fertilization, intervals between fertilizer is longer (but the same guidelines in amount) and associated with the timing of thinnings

General similarities

1. Thinning from below is the most often used type of thinning

Thinning from above is recommended only in rare cases, during the thinning in young stands in order to remove “wolves” trees

2. The intensity of the thinning in spruce and pine stands go down with age class increasing.
3. In case of fertilize, recommended amount of nitrogen fertilizers at the same level

Part II

Local features of Russian Forest Policy



1.1. Introduction



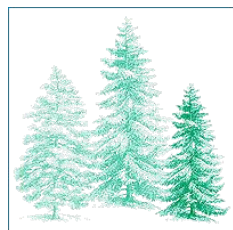
Countries with largest forest area

	<i>Forest area</i> <i>(Mill. ha)</i>	<i>Share of</i> <i>Land Area (%)</i>
• Russian Federation	878	44,7
• Brazil	478	57,2
• Canada	310	33,6
• USA	303	33,1
• China	197	21,2

Global Forest Resources Assessment 2010



Forested Area per capita



- **Forested area in different regions**

- 0.2 ha/person in Asia
- 5.8 ha/person in Russian Federation
- 2.6 Latin American countries
- 0.3 ha/person in Europe
- 0.14 ha/person in Germany
- 3.46 ha/person in Sweden

Contribution of forest sector to GDP

0,8%*

-

0,7%**

*State of Europe's Forests 2015

** Распоряжением Правительства РФ от
06.10.2021 N 2816-р "Прогноз
долгосрочного социально-экономического
развития Российской Федерации на период
до 2030 года»

Forest governance and legislation in Russia

1.2. The Forest Fund of Russian Federation



The definition of woodland

(Термин государственного учета лесного фонда)

...area of at least 0.50 ha, covered under stands of trees with a canopy cover of at least 0,3 (0,4 for young stands), consisting of trees that reach a height of at least 5 meters, including integral open space, and including felled areas that are awaiting restocking. Rows of trees of artificial or natural origin, the width of which is more than 20 metres

Source: www.rosleshoz.gov.ru

The first term You will face studying Russian forest management system is so-called *Forest Fund*. Originally it just meant all forest and related lands under governmental jurisdiction.



The dominant part of the Forest Fund is under management of *Russian Federal Forest Service (Rosleskhoz)*.

However, some parts of the *Forest Fund* are managed by other structures and agencies.

The *Forest Lands* also are divided in two categories :

- “***Lands Covered by Forest***” (or “Stoked Lands”) and
- “***Lands Non-Covered by Forest***” (or “Unstoked Lands”) (but they are still *Forest Lands*).

Forest area in Russia (1000 ha)

Категории лесных земель	Всего земель с лесами	в т.ч. по целевому назначению лесов			Лесные земли	В т.ч. покрытые лесной растительностью
		Защитные	Эксплуатационные	Резервные		
Земли лесного фонда	1 143 563,70	275 002,80	610 723,60	257 837,30	862 575,30	770 315,60
Земли обороны и безопасности	4 745,90	1 281,90	3 462,90	1,1	3 952,30	3 656,70
Земли населенных пунктов, на которых расположены леса	1 350,40	1 350,40	0	0	1 110,60	1 007,30
Земли особо охраняемых природных территорий	26 944,00	26 944,00	0	0	17 850,30	16 878,40
Земли иных категорий	7 078,20	3 152,70	3 767,50	158	6 466,40	5 638,30
в т.ч. участки лесного фонда, ранее находившиеся во владении сельскохозяйственных организаций	4 603,80	2 016,30	2 587,50	0	-	-
Всего лесов	1 183 682,20	307 731,80	617 954,00	257 996,40	891 954,90	797 496,30

Distribution of forest area by species and age groups

	Coniferous					Hardwood					Softwood				
	Total	including				Total	including				Total	including			
		Young stands	midle-age stands	ripening stands	mature and overmature stands		Young stands	midle-age stands	ripening stands	mature and overmature stands		Young stands	midle-age stands	ripening stands	mature and overmature stands
Area, 1000 ha	514743	93642	116662	52450	251988	18184	1907	4680	2016	9580	125920	25722	41390	13586	45221
	70,2	12,8	15,9	7,2	34,4	2,5	0,3	0,6	0,3	1,3	17,2	3,5	5,6	1,9	6,2
Volume, mln. m ³	58461	3015	13801	8111	33534	2047	81	570	250	1146	13982	539	3952	2018	7474
	76,9	4,0	18,1	10,7	44,1	2,7	0,1	0,7	0,3	1,5	18,4	0,7	5,2	2,7	9,8

Rotation age

Tree species	The forest Category	
	1	2, 3
	Age of final cuttings, years	
Coniferous		
Cedar	241..280	201..240
Pine	121..140	101..120
Spruce	121..140	101..120
Deciduous		
Birch	71..80	61..70
Aspen	61..70	51..60
Salix sp.	61..70	51..60

Forest governance and legislation in Russia

1.3. Background of policy making

The fact

... now forestry is unprofitable for the state!

11.12.2004

Valery Roshupkin

Head of the Russian State Forest Service

Forest Service has received from
the federal budget 4,5 billion rubles
in 2003...

But

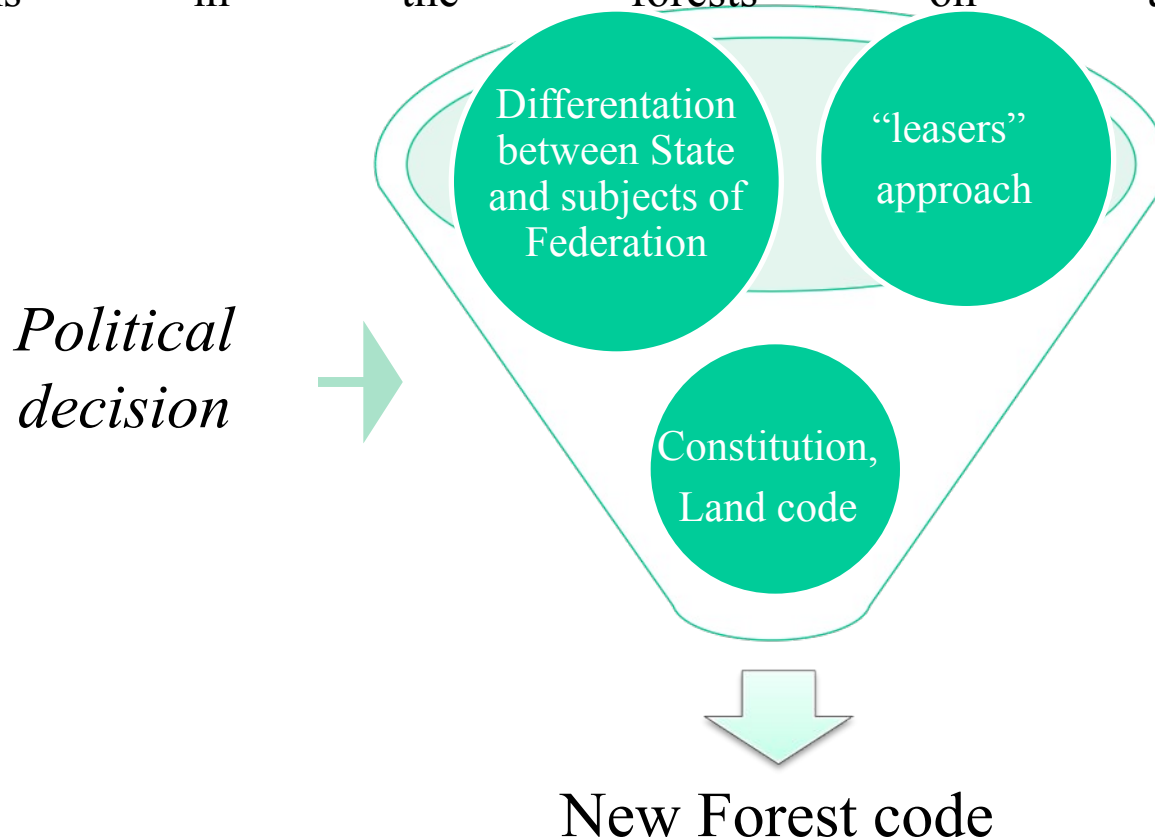
Forest sector have earned 1.5
billion rub at the end of 2003!

Forest governance and legislation in Russia

1.4. Forest legislation and structure of forest sector since 2007

The conceptual framework adopted by the new Forest Code (2006):

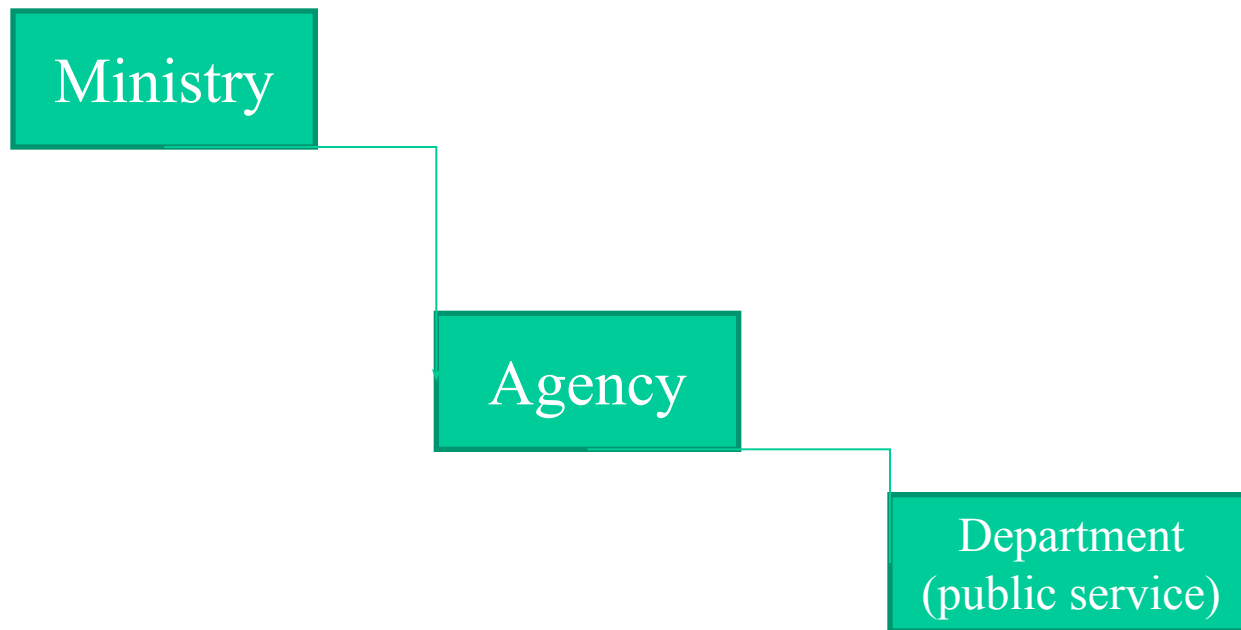
- No private ownership on forestland
- Lease holders – must be the main operators in forest – “Lease out as much as possible”
- State forest enterprises have only control function
- Forest ownership, public policy and regulations and the disposal of forest finance retain for the Russian Federation, but at the same time responsibility for what happens in the forests on a regions.



Multi-level politics in Russia

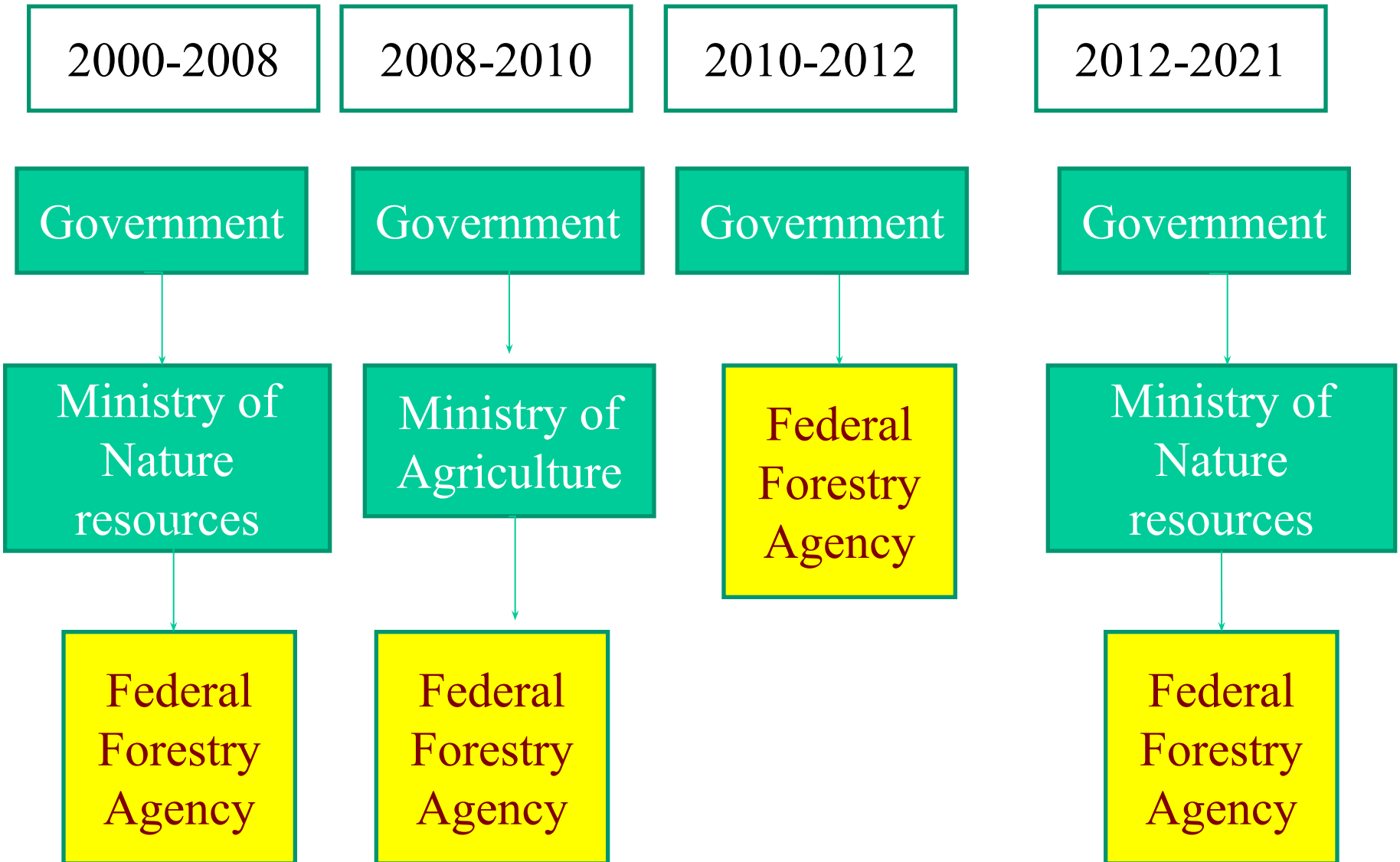
- Russian Federation
 - General norms for forest management
 - Prices for timber
 - Framework for leasing contracts...
- Subjects of the Russian Federation
 - Development of regional forest plans
 - Leasing contracts
 - Forest use and protection
 - Forest control
- Local structures

3- stars system of government



Concept of “vertical power”

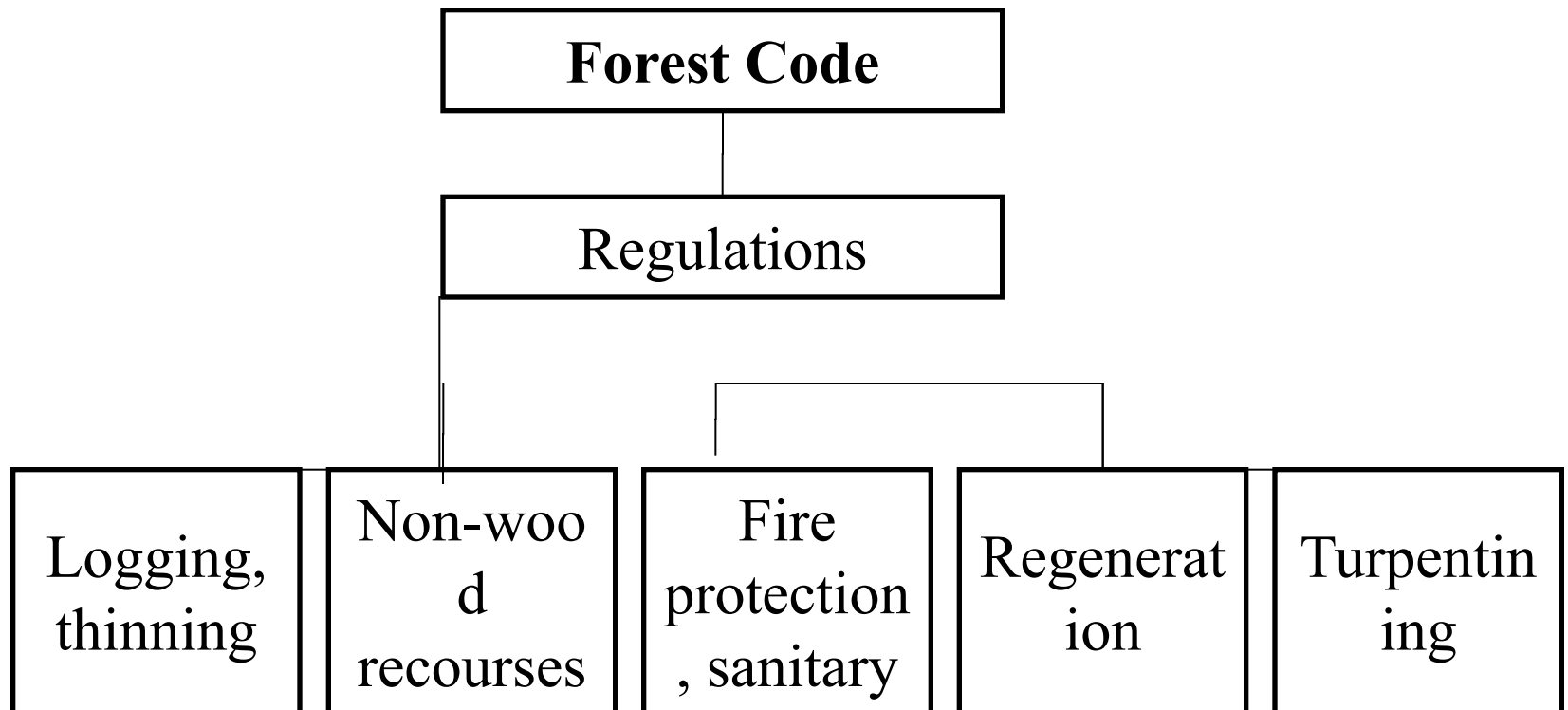
Rosleshoz subordination



Normative levels in general

- Russian constitution
- Presidential and governmental decrees
- Federal decrees (**Forest code**, land code, etc)
- Laws of Subjects of the Federation
- Other normative acts

Structure of sub normative acts



Management regulations levels

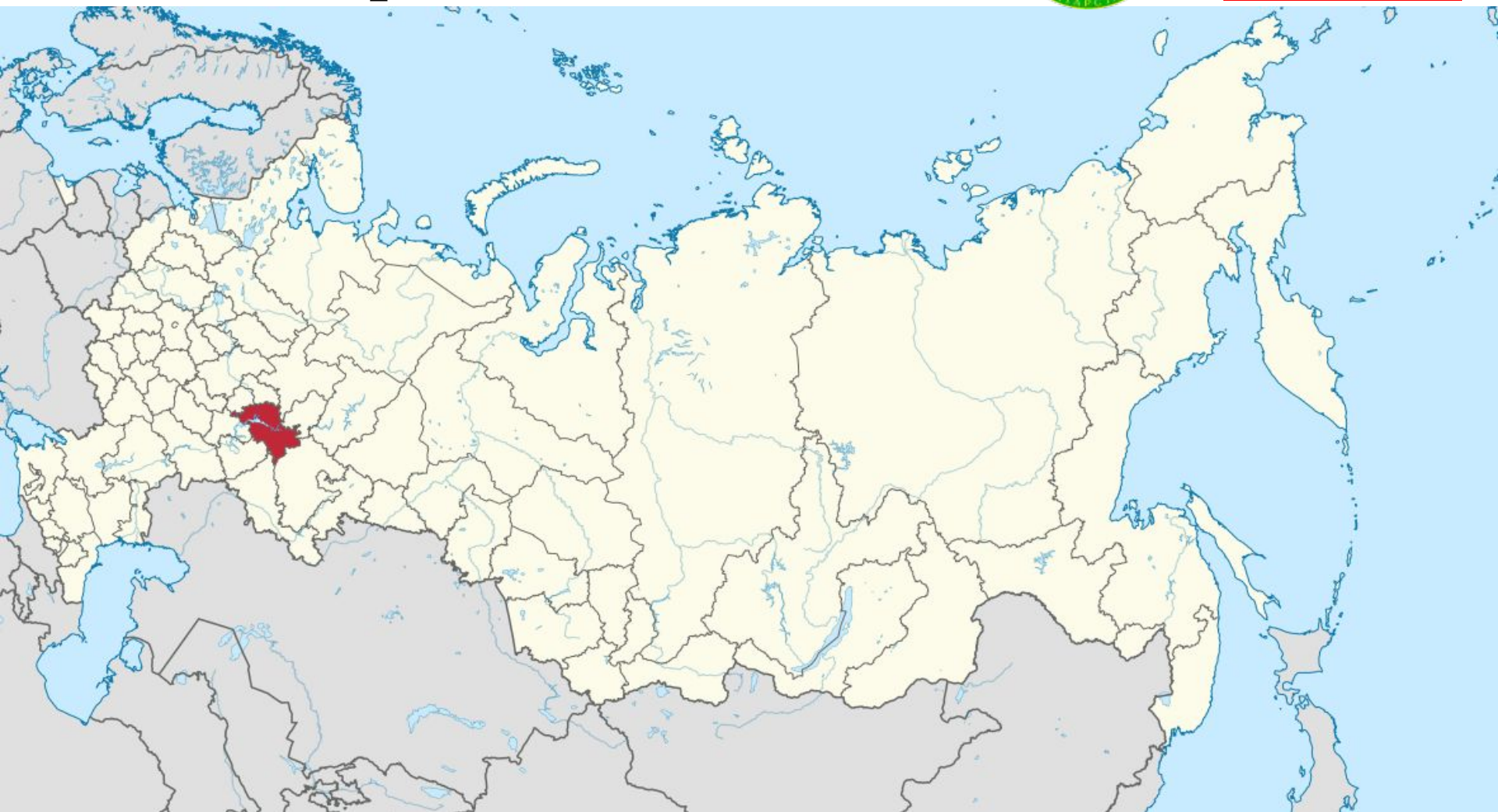
- Forest code
- Forest plan (up to 10 years)
- Forestry regulations of forest districts (up to 10 years)
- Projects of forest management

Structure of governance (2015)



Forest units
(Uchastkovoe lesnichestvo)

Republic of Tatarstan



Схематическая карта Республики Татарстан

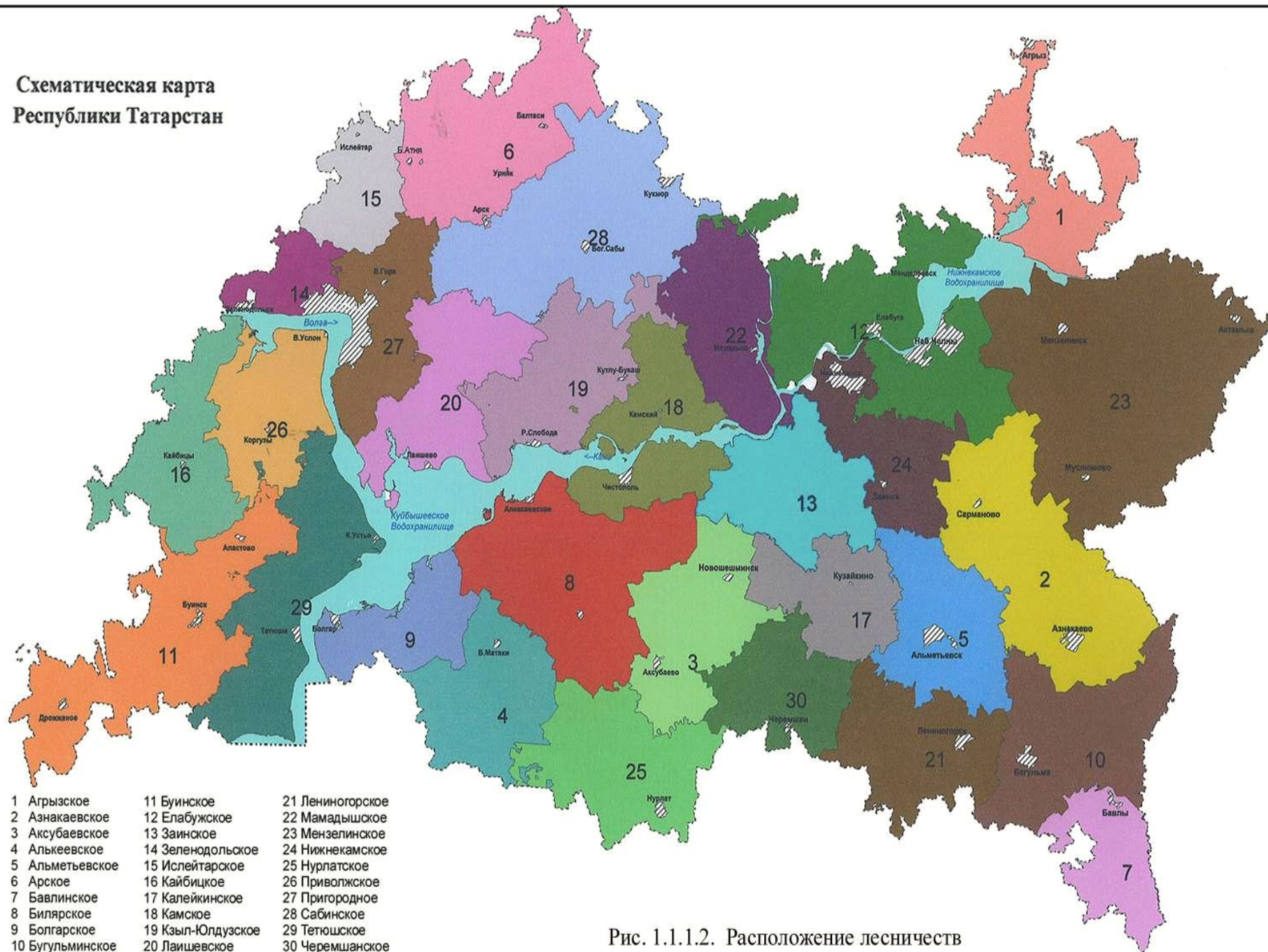
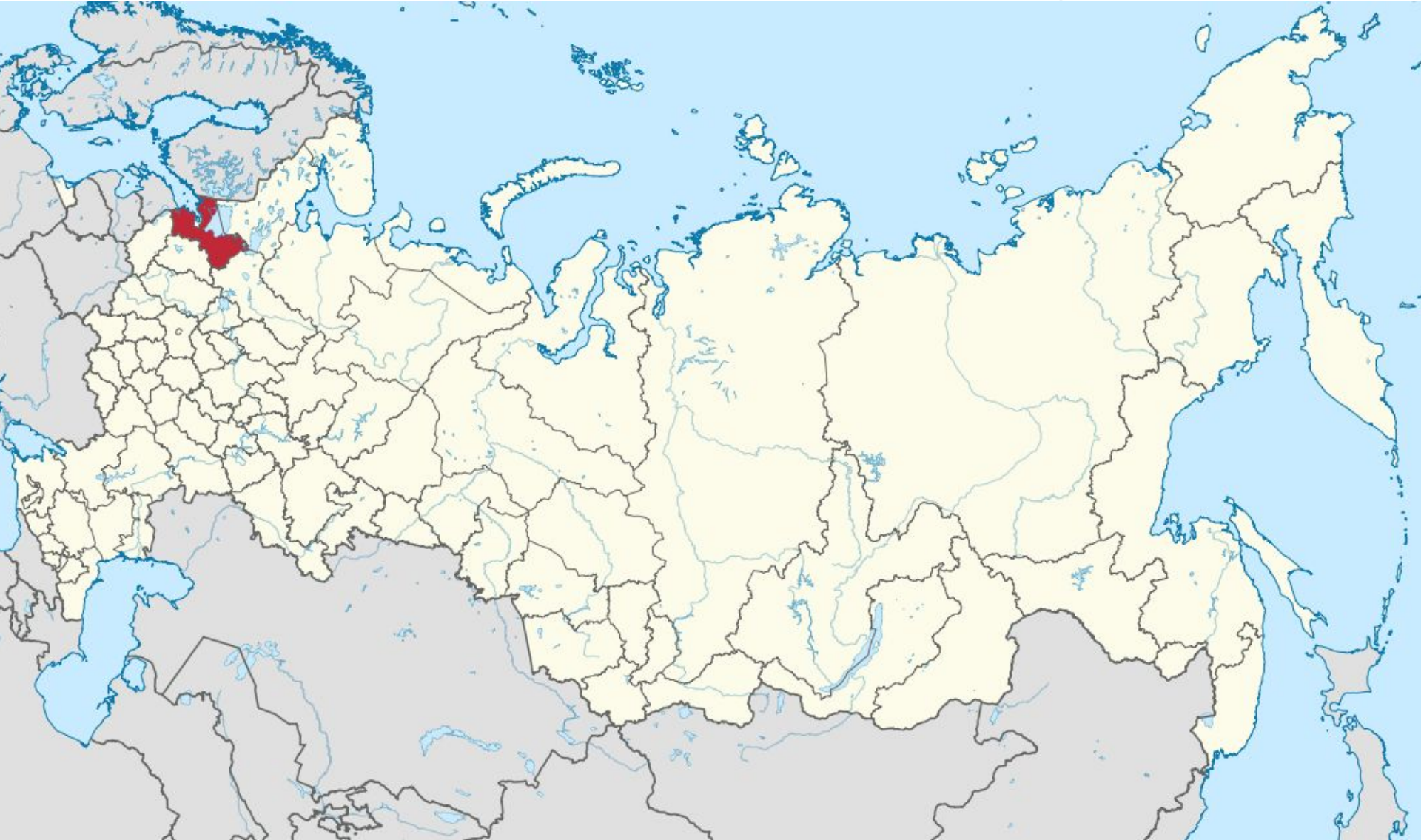


Рис. 1.1.1.2. Расположение лесничеств

Leningrad region



- Area – 83908 km²
- Population – 1774 mln.
- 3,38 ha of forest land per capita (forest rich region)
- Forest fund – 6 mln. ha
- Forest covered area - 55,5 % from the total region area
- Main functions of forests – timber production, recreation, conservation
- Total amount of foresters and forest workers – 14400 (415 ha/person)
- Total forest area leased out – more than 92 %
- System of forest use and control:
 - 18 Control units
 - 1 Management Unit (2 subdivisions)
- Average area of forest district – 330 000 ha



A basic territorial managerial units in the field of forest exploitation, conservation, protection and reforestation are **forest districts (лесничества)** and **forest-parks (лесопарки)**.

The forest fund lands shall consist of **forest districts** and **forests-parks**.

Forest districts and forests-parks shall be likewise located on land:

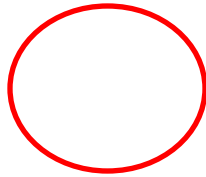
- 1) intended for ensuring defence and security where there are forests;
- 2) of settlements where municipal forests are located;
- 3) of specially protected natural territories where there are forests.

Forest Code

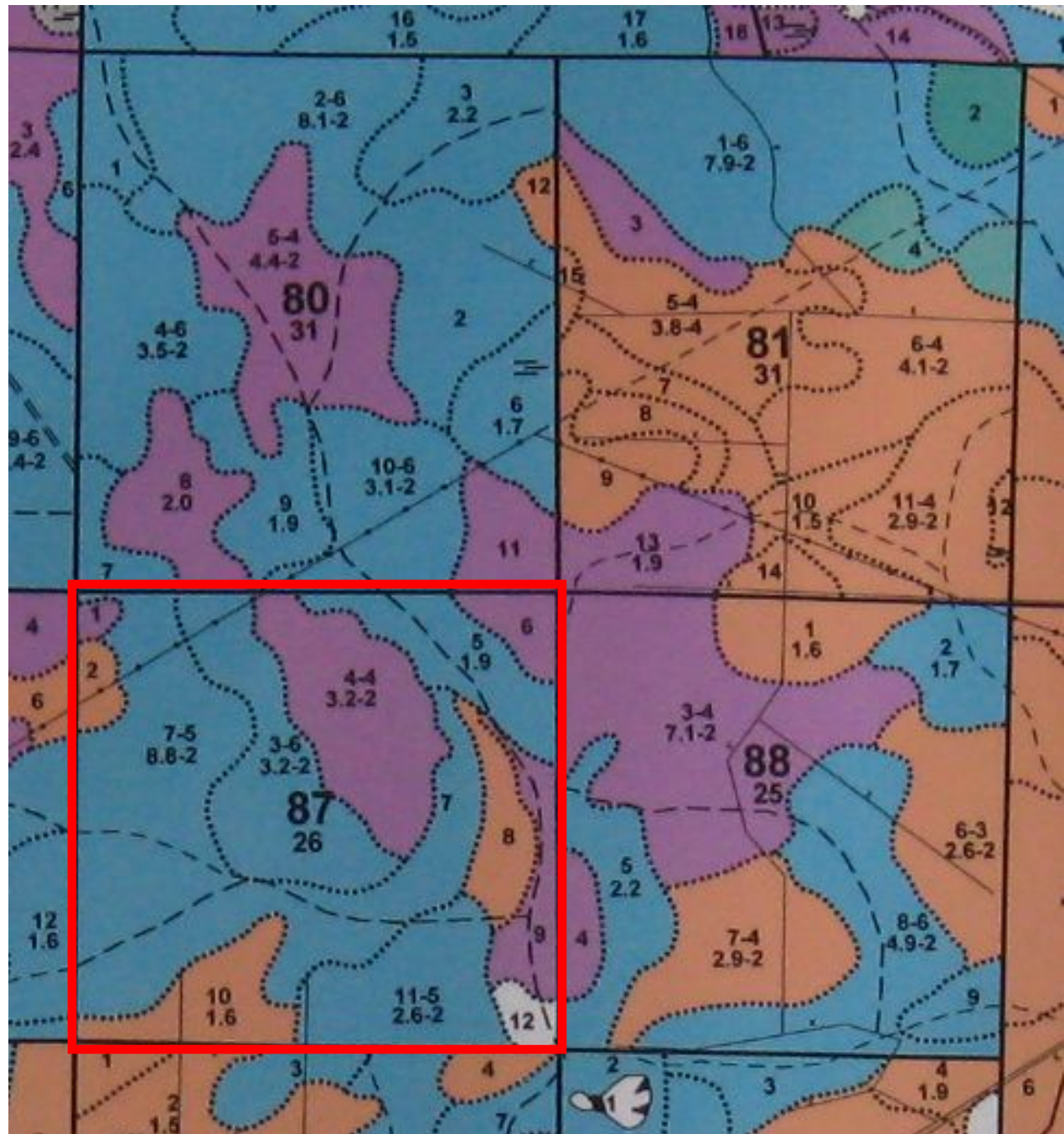
- The object of forest relations – forest block (лесной участок)

“The location, boundaries and area of forest blocks shall be determined in accordance with compartments and (or) subcompartments, their boundaries and area”

Article 69 (2) of FC

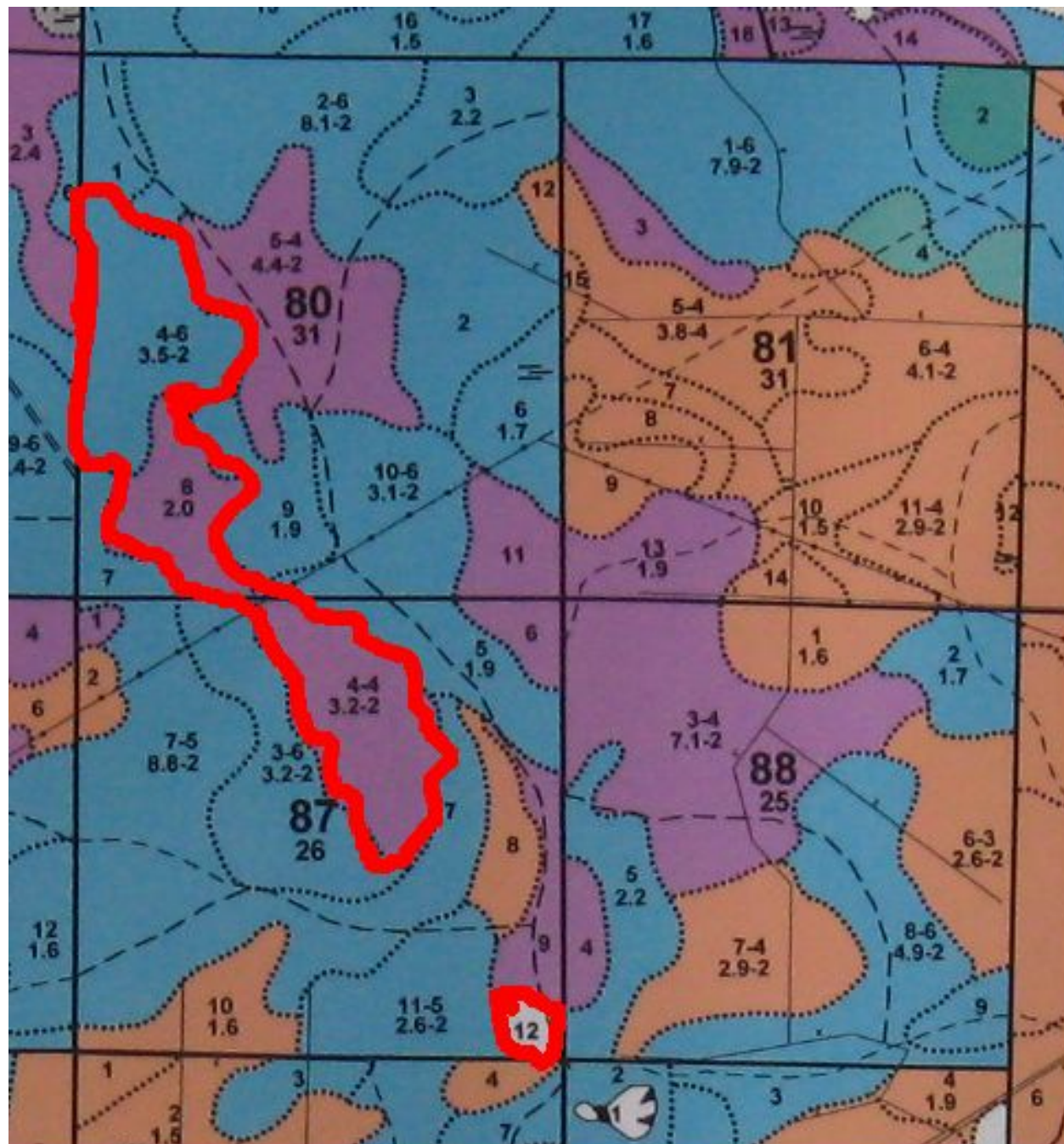


compartments





forest blocks
(лесной
участок)



Ownership of Forest Blocks

“Forest blocks within the composition of the forest fund land shall be under federal ownership”

Article 8 (1) of FC

Long-term use

Leasing contract
10-49 years

Short-term use

sale-and-purchase contract
1 year and less

Maximum duration of any
Exploitation rights

49 years

Types of Forest Exploitation

- 1) logging;
- 2) preparing turpentine;
- 3) procuring and collecting non-wood forest resources;
- 4) storing up food forest resources and gathering of medicinal herbs;
- 5) game husbandry and hunting;
- 6) farming;
- 7) scientific research and educational activities;
- 8) recreational activities;
- 9) creating man-made forests (forest plantations) and their exploitation;
- 10) cultivation of fruit woods, berry plants, decorative plants and medicinal plants;

- 11) carrying out works aimed at geological exploration of subsurface resources, development of mineral deposits;
- 12) construction and operation of water reservoirs and other artificial water bodies, as well as of hydro-engineering structures and specialized ports;
- 13) construction, re-construction and operation of power transmission lines, communication lines, roads, pipelines and other linear facilities;
- 14) processing of wood and other forest resources;
- 15) exercising religious activities;

Article 25 (1) of FC



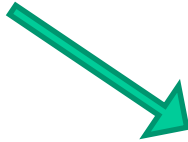
Subdivision of Forests According to Their Designation Purpose

- protective forests
- Merchantable (exploitation) forests
- reserved forests

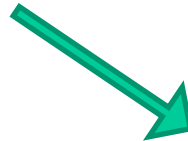
Article 10 (1) of FC

Steps of forest renting

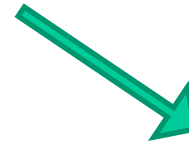
Preparation of technical
documentation for forest block



Participation on forest auction



Make a project of forest management



Make a forest declaration (every year)

Forest governance and legislation in Russia

1.5. Timber transportation and export



Timber transportation since 2014

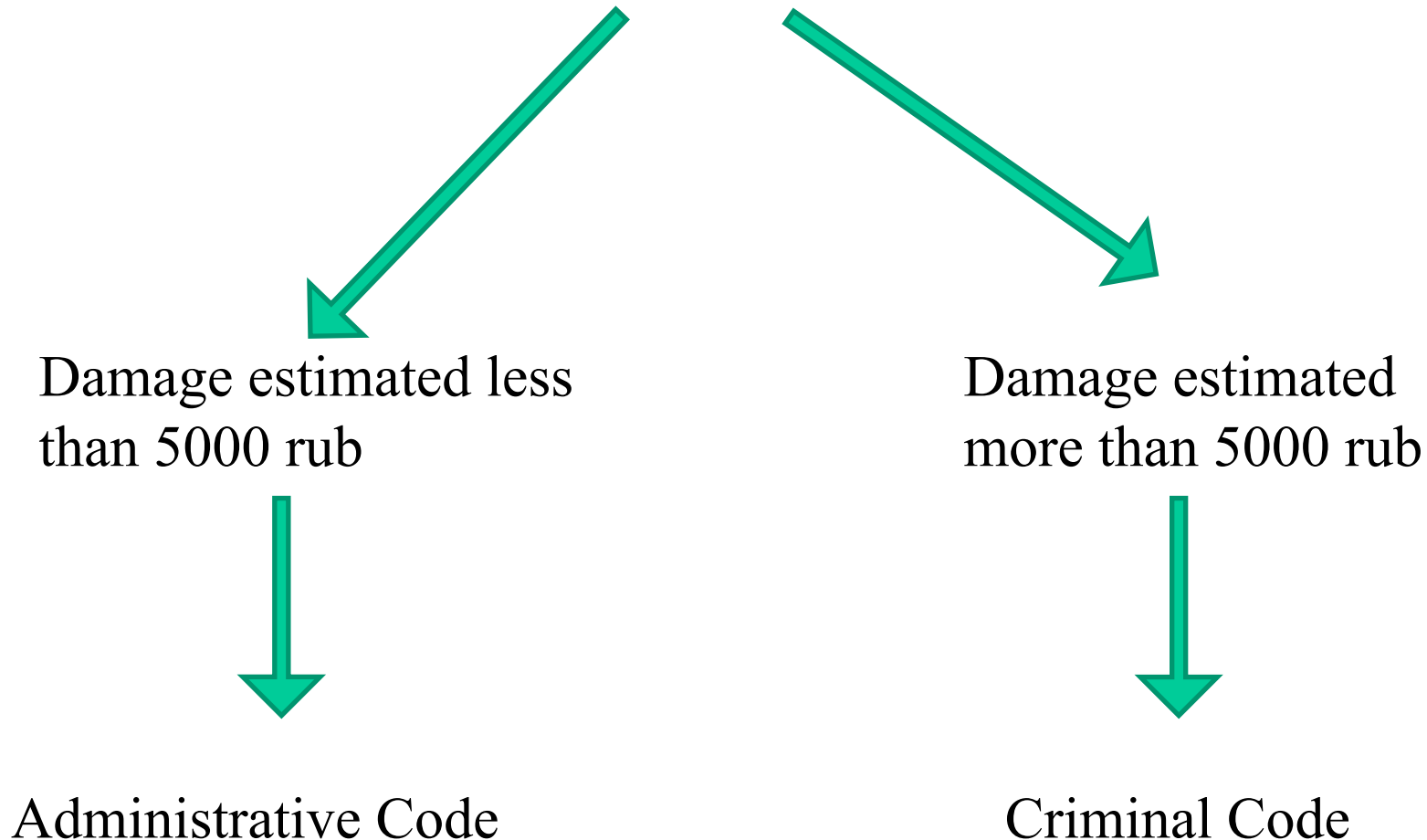
- Obligatory registration of the timber transported from the forest
- Timber transportation requires additional accompanying document (information about the owner, customer, transported company, timber volume, species and assortment composition, place of origin and destination...)
- Each log of valuable species (oak, beech, ash) must be marked individually.
- Severe punishment for violation of law – high penalty and transport confiscation.

Federal law № 415 from 28.12.2013

Forest governance and legislation in Russia

1.6. Punishment for illegal activities with forest recourses

Punishment for illegal activities with forest resources



The Code of Administrative Violations:

Illegal logging, damage to forest plantations or unauthorized excavation in the forests of trees, shrubs, lianas.

... administrative fine on citizens at the rate from 3000 to 4000 rubles;

on officials - from 20000 to 40000 rubles;

on legal entities - from 100000 to 300000 rubles...

Article 8.28 Of The Administrative Code.
Illegal logging, damage to forest plantations
or unauthorized excavation in the forests of
trees, shrubs, lianas.

CRIMINAL CODE OF THE RUSSIAN FEDERATION

Illegal logging ... if committed in **substantial scale*** –
shall be punished by a fine of up to 500000 rubles ...
or imprisonment for the 1 year

Illegal logging ... if committed in **large scale**** –
shall be punished by a fine from 500000 up to 1000000 rubles ...
or imprisonment for the 4 years

Illegal logging ... if committed in **extra large scale*** or by an organized group** –
shall be punished by a fine from 1000000 up to 3000000 rubles ...
or imprisonment for the 7 years

* - more than 5000 RUB

** - more than 250000 RUB

*** - more than 1000000 RUB

Article 260 of Criminal Code

Thank you for attention!