



GF-TADs

GLOBAL FRAMEWORK FOR THE
PROGRESSIVE CONTROL OF
TRANSBOUNDARY ANIMAL DISEASES



Food and Agriculture
Organization of the
United Nations

OIE
WORLD ORGANISATION
FOR ANIMAL HEALTH



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(29 September 2021, virtual)**



Surveillance Activities for *Avian Influenza and Newcastle Disease*

- In 2020: 1224716 samples from poultry and 24907 samples from wild birds were tested for Avian Influenza, of which 340 samples were positive: Kostroma Oblast (36); Astrakhan Oblast (18), Rostov Oblast (17), the Republic of Karachay-Cherkessia (34), the Republic of Tatarstan (59), Samara (3), and Saratov (13), Kurgan (18), Tyumen (23), Chelyabinsk (11), Omsk (91) and Tomsk (15) Oblasts, Khanty-Mansi Autonomous Okrug (2). The testing was carried out as part of subject and federal monitoring as well as monitoring performed at poultry establishments by resident veterinarians.

526925 tests were conducted for Newcastle disease (ND), of which 132 were positive for ND: Vladimir Oblast (33), Kursk Oblast (49), the Republic of Ingushetia (45), the Chechen Republic (5).

- In the first quarter of 2021: 270103 samples were tested for avian influenza of which 40 were positive in the following 4 subjects of the Russian Federation: Krasnodar Krai poultry and wild birds (20), Astrakhan Oblast wild birds (8), Rostov Oblast poultry (10) and the Dagestan Republic wild birds (2). All cases of HPAI were notified to the OIE.

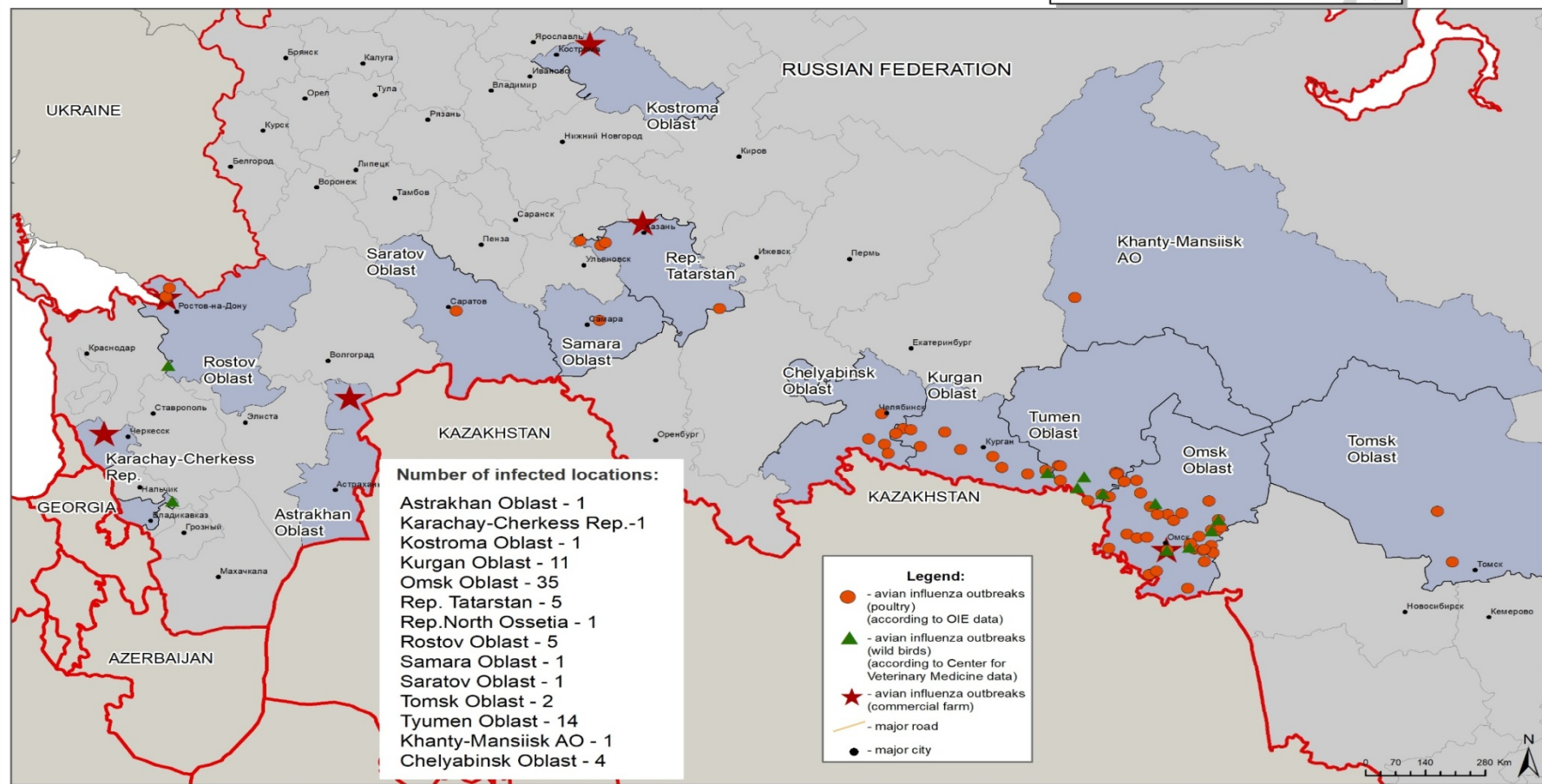
84287 samples were tested for Newcastle disease, no positive cases were detected during the reporting period.

(Data of the Center of Veterinary Medicine of Ministry of Agriculture of the Russian Federation)



Surveillance or outbreak data for *HPAI*

Outbreaks of Avian Influenza on the territory of the Russian Federation in 2020





PCR positive tests (ARRIAH, 2020)

Poultry

Fed. Okrug/Regions	AIV subtype
<i>Ural</i> Chelyabinsk region	H5N8, H9N2
Tumen region	H5N8
Kurgan region	H5N8
Khanty-Mansi A O – Yugra	H5N8
<i>Siberian</i> Omsk region	H5N8, H5N5
Tomsk region	H5N8
<i>South</i> Astrakhan region	H5N8
Krasnodar krai	H5N8
Rostov region	H5N8
Volgograd region	H9N2
<i>North Caucasian</i> Karachay-Cherkess Rep.	H5N8

Fed. Okrug/Regions	AIV subtype
<i>Volga</i> Saratov region	H5N8
Tatarstan Republic	H5N8
Samara region	H5N8
Penza region	H9N2
<i>Central</i> Kostroma region	H5N8



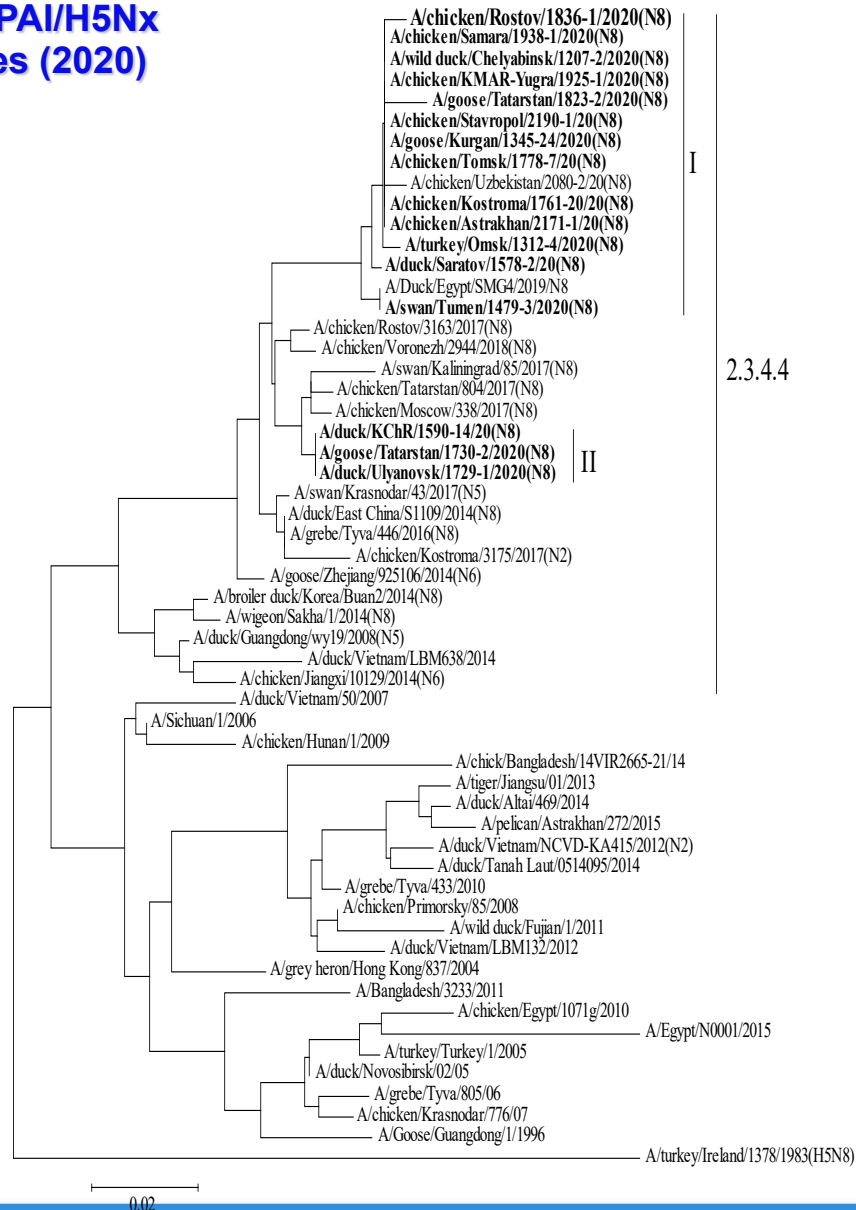
PCR positive tests (ARRIAH, 2020)

Wild birds

Fed. Okrug/Regions	Bird species	AIV subtype
<i>Ural</i> Chelyabinsk region	wild duck	H5N8
Tumen region	gadwall, garganey, common pochard, swan, mallard gadwall	H5N8 H6
Kurgan region	tufted duck coot	H5N8 A
<i>Siberian</i> Omsk region	wild duck	H5N8
Buryatia Rep.	mallard	A
Tomsk region	wild waterfowl	A
<i>South</i> Crymea Rep.	mute swan	H5N8
Rostov region	swan	H5N8, H5N5
<i>North Caucasian</i> North Ossetia – Alania	swan	H5N8
<i>Far Eastern</i> Amur region	wild waterfowl	A



Phylogeny of HPAI/H5Nx Russian isolates (2020)



• Russian isolates belong to clade 2.3.4.4b of the highly pathogenic avian influenza virus subtype H5, which spread during 2016-2020 epizootic in Asia, Europe, Middle East and Africa.

• The virus A/Duck/Egypt/SMG 4/2019(H5N8) is the most genetically similar to identified isolates (the similarity is 99.6 %).

• Avian influenza viruses isolated in China and Egypt in 2017-2018 are 98-98.5% similar.

• The viruses detected in 2020 are genetically similar to H5N8 viruses isolated in 2016-2019 in a number of regions of the Russian Federation with a similarity level of 97%.

• The hemagglutinin cleavage site has the structure-REKRRKR –

• The neuraminidase subtypes of HPAIVs detected in RF in 2020 are N8 and N5.

2.3.4.4



Surveillance or outbreak data for *HPAI*

Outbreaks of Avian Influenza on the territory of the Russian Federation in 2021



17.09.2021





PCR positive tests (ARRIAH, 2021)

Poultry

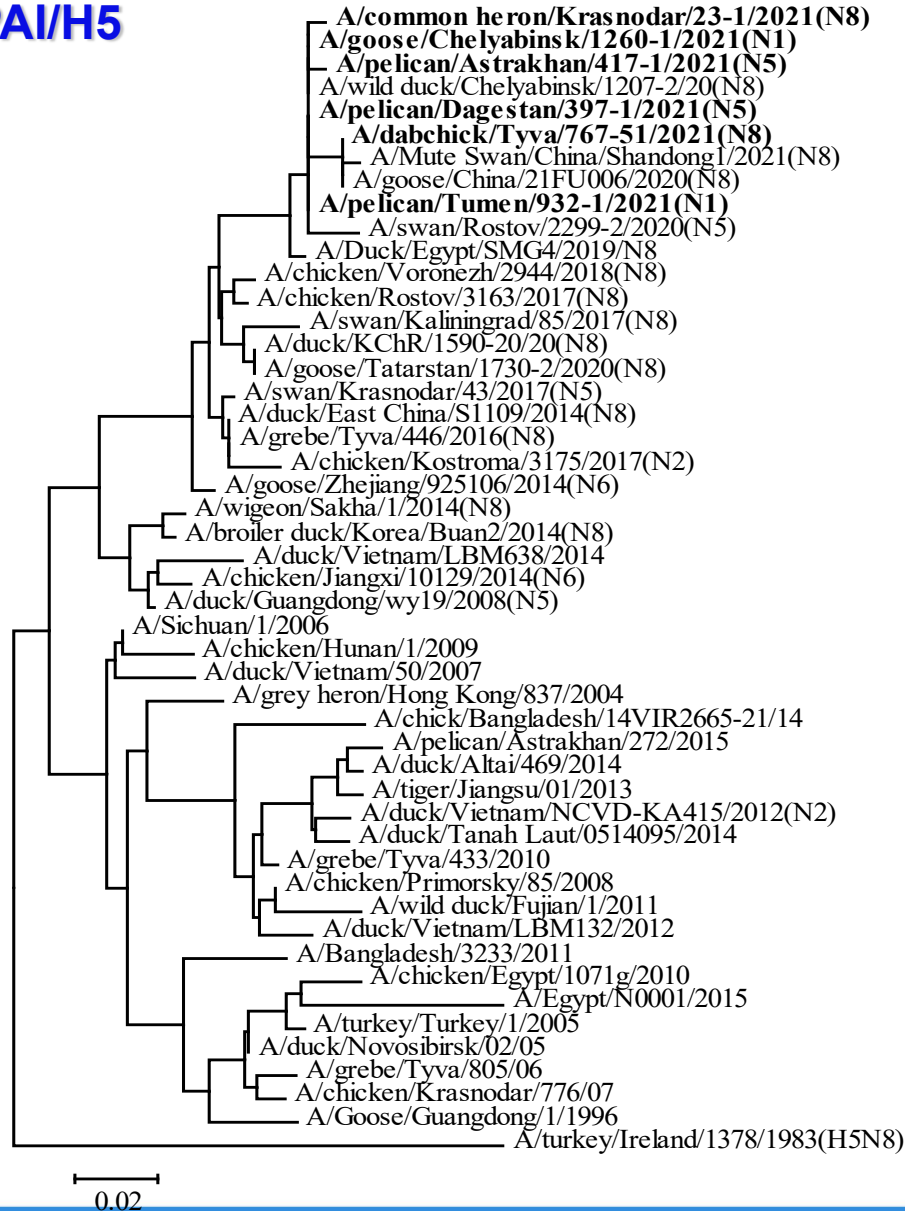
Fed. Okrug/Regions	AIV subtype
<i>South</i> Krasnodar krai	H5N8
Rostov region	H5N8
<i>Ural</i> Tumen region	H5N1
Chelyabinsk region	H5N1
<i>Volga</i> Samara region	H9N2

Wild birds

Fed. Okrug/Regions	Bird species	AIV subtype
<i>South</i> Krasnodar krai	common heron	H5N8
Astrakhan region	dalmatian pelican	H5N5
<i>North Caucasian</i> Dagestan Rep.	pelican, gull	H5N5
<i>Siberian</i> Republic of Tyva	dabchick common pochard, black-headed gull, tufted duck, cormorant, great-crested grebe black-headed gull	H5N8 H5 H16N3
<i>Ural</i> Tumen region	dalmatian pelican	H5N1
Chelyabinsk region	teal, mute swan	H5N1
<i>Far Eastern</i> Rep. of Sakha-Yakutia	common teal	H6
<i>Central</i> Vladimir region	mallard	H3, H4N6, H9N2



Phylogeny HPAI/H5



**Subtype H5NX
Russian isolates
(2021)**

2.3.4.4

2.3.4

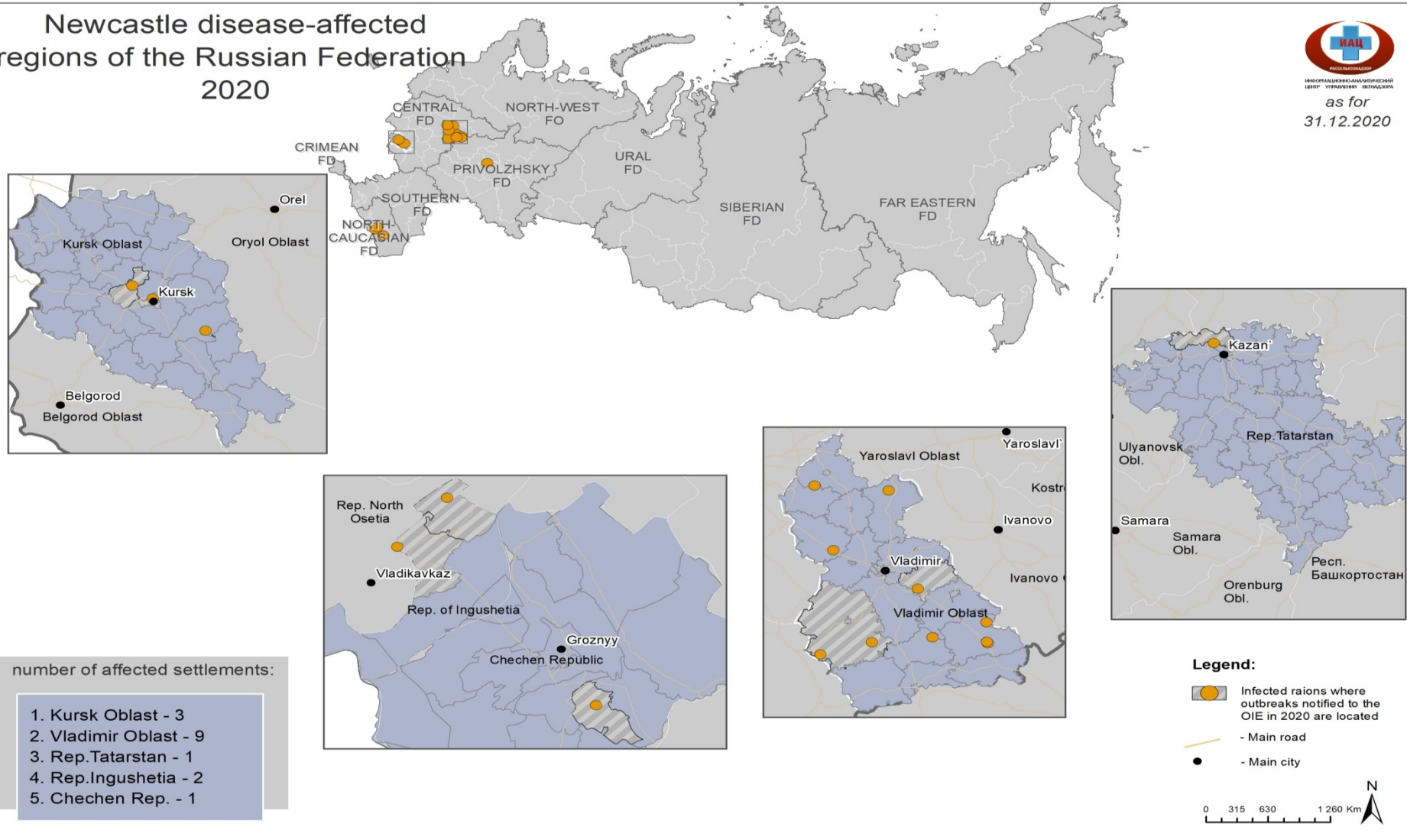
2.3.2

2.2



Surveillance or outbreak data for *ND*

Newcastle disease-affected regions of the Russian Federation 2020





PCR positive tests (ARRIAH, 2020)

Velogenic isolates

Region	Bird species	Genotype
<i>Central Federal District (9 isolates)</i>		
Vladimir Oblast	Poultry	VII-L (VII.1.1)
Kursk Oblast	Poultry	VII-L (VII.1.1)
<i>North Caucasian Federal District (2 isolates)</i>		
Republic of Ingushetia	Poultry	VII-L (VII.1.1)
Chechen Republic	Poultry	VII-L (VII.1.1)
<i>Volga Federal District (1 isolate)</i>		
Republic of Tatarstan	Rock dove	XXI.1.1 (VIg)

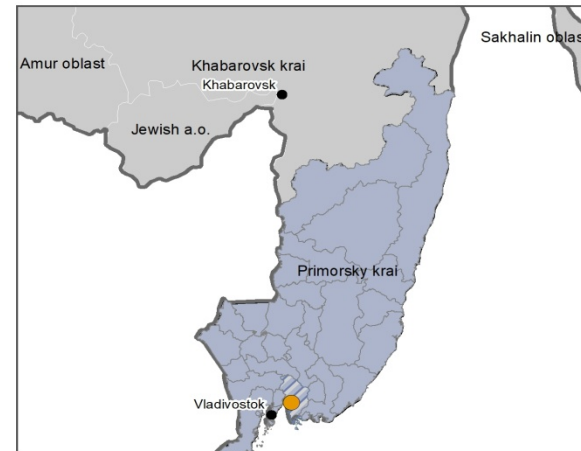
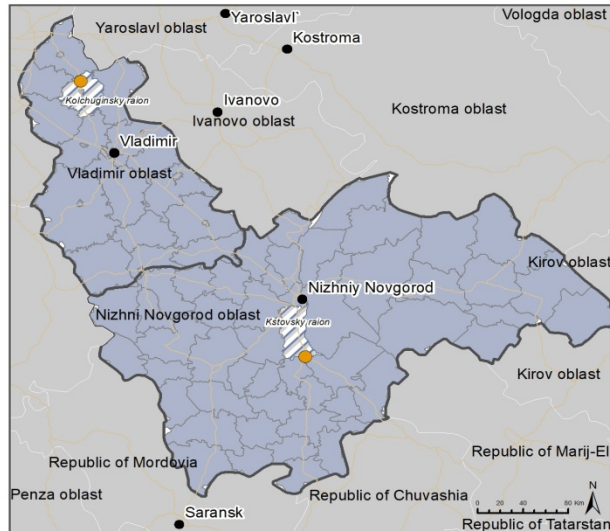
Lentogenic isolates and vaccine strains

Region	Bird species	Genotype
<i>Ural Federal District (1 isolate)</i>		
Chelyabinsk Oblast	Poultry	BOR82 Ic (I.1.2.1)
<i>Siberian Federal District (2 isolates)</i>		
Irkutsk Oblast	Poultry	V4 Ia (I.1.1)
Krasnoyarsk Krai	Poultry	B1 II
<i>Northwestern Federal District (1 isolate)</i>		
Vologda Oblast	Poultry	B1 II
<i>North Caucasian Federal District (1 isolate)</i>		
Stavropol Krai	Poultry	H III
<i>Far Eastern Federal District (1 isolate)</i>		
Amur Oblast	Waterfowl	Ib (I.2)



Surveillance or outbreak data for *ND*

Newcastle disease-affected regions of the Russian Federation 2021



Legend:

- Infected raions where outbreaks notified to the OIE in 2021 are located
- Main road
- Main city

number of affected settlements:

1. Vladimir Oblast - 1
2. Nizhny Novgorod Oblast - 1
3. Khanty-Mansiysk A.O. - 1
4. Primorsky Krai - 1



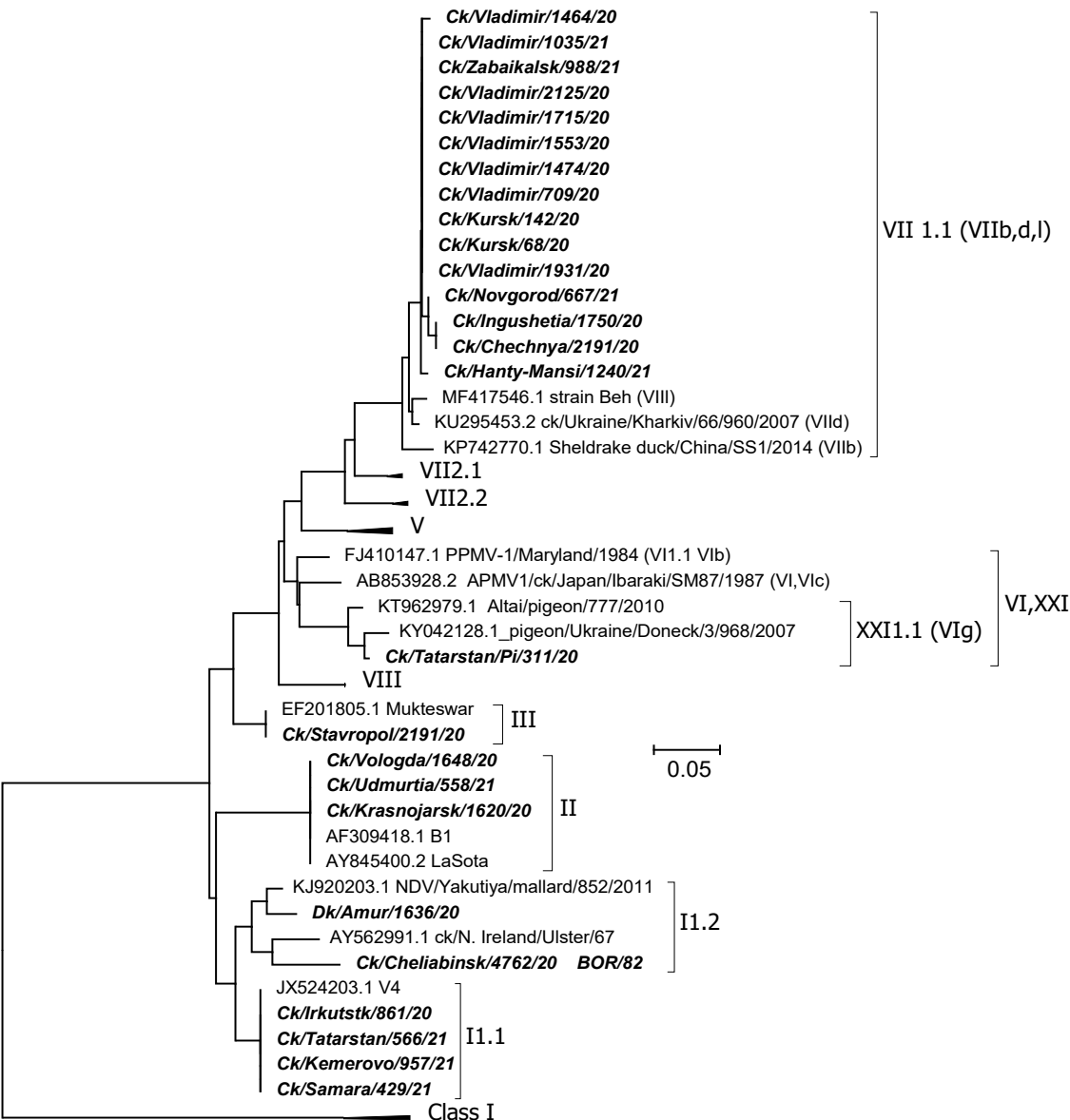
PCR positive tests (ARRIAH, 2021)

Velogenic isolates

Region	Bird species	Genotype
<i>Central Federal District (1 isolate)</i>		
Vladimir Oblast	Poultry	VII-L (VII.1.1)
<i>Far Eastern Federal District (1 isolate)</i>		
Zabaykalsky Krai	Poultry	VII-L (VII.1.1)
<i>Volga Federal District (1 isolate)</i>		
Nizhny Novgorod Oblast	Poultry	VII-L (VII.1.1)
<i>Ural Federal District (1 isolate)</i>		
Khanty-Mansi Autonomous Okrug (Yugra)	Poultry	VII-L (VII.1.1)

Lentogenic isolates and vaccine strain

Region	Bird species	Genotype
<i>Volga Federal District (3 isolates)</i>		
Samara Oblast	Poultry	V4 Ia (I.1.1)
Udmurt Republic	Poultry	La Sota II
Republic of Tatarstan	Poultry	V4 Ia (I.1.1)
<i>Siberian Federal District (1 isolate)</i>		
Kemerovo Oblast	Poultry	V4 Ia (I.1.1)



In 2020-2021, the following genetic groups of NDV were identified:

- lentogenic and mesogenic **vaccine strains of genotypes I** (strains V4, BOR74), **II** (strains B1, La Sota) and **III** (strain H) in samples from chickens from different regions of the Russian Federation;

- in 2020, in samples from waterfowl from the Amur Region, **an avirulent virus of genotype Ib (I.2)** class II, and in samples from a pigeon from the Republic of Tatarstan, **a virulent isolate of genotype VIg (XXI.1.1)** was detected;

- virulent isolates of genotype VII-L (VII.1.1)** causing outbreaks in different regions of the Russian Federation. The sequence of the protein F cleavage site of the identified isolates contains several basic amino acids and phenylalanine at position 117 (112RRQKR^F117), which makes it possible to classify them as highly virulent viruses.



Capacity building activities or support to provided as OIE or regional reference laboratory/centre

- ARRIAH animal facilities allow the performance of tests for the evaluation of pathogenicity of AIV and NDV and vaccine potency in challenge trials
- The construction of a new well- equipped BSL3 laboratory has been completed last year. The lab has a great potential for molecular diagnostic & sequencing to analyze virus isolates at the genomic level
- Training courses, workshops for AI&ND diagnostics for the personnel of regional veterinary laboratories, experts from laboratories of CIS countries.
- Organization of ring trials
- Consultations for veterinary laboratories and experts of the CIS countries (Belorussia, Kazakhstan, Kyrgyzstan, Tadjikistan, Uzbekistan)
- ARRIAH coordinates implementation of CIS joint actions to prevent HPAI



Suggestions for future activities for the Avian Disease network

- To speed up exchange of relevant information on AI&ND outbreaks/detections in frames of the network
- To facilitate exchange of virus isolates between laboratories of the region
- To share information on tracing wild birds