

## **Annual Report of the EU Wild Bird Surveillance 2006 and Preliminary Results of the First Quarter 2007**

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## Objectives

- Present the 2006 wild bird surveillance data reported by MS in a comparative manner
- Present and discuss descriptive analysis of these data with focus on H5N1/ H5 HPAI
- Present data of the first quarter 2007



# Overview of terminology and definitions 1



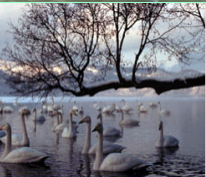
■ **Positive/ Infected:** bird, from which at least one sample tested positive on either PCR or virus isolation.



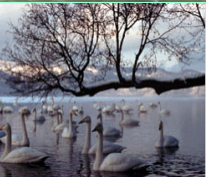
■ **Risk Species:** EFSA (EFSA, 2006) and the 2007 guidelines (SANCO, 2006) (in total 29 species)



■ **Origin:** Relates to the collected information on the status of the bird when sampled. The four categories are: live, hunted, diseased and found dead

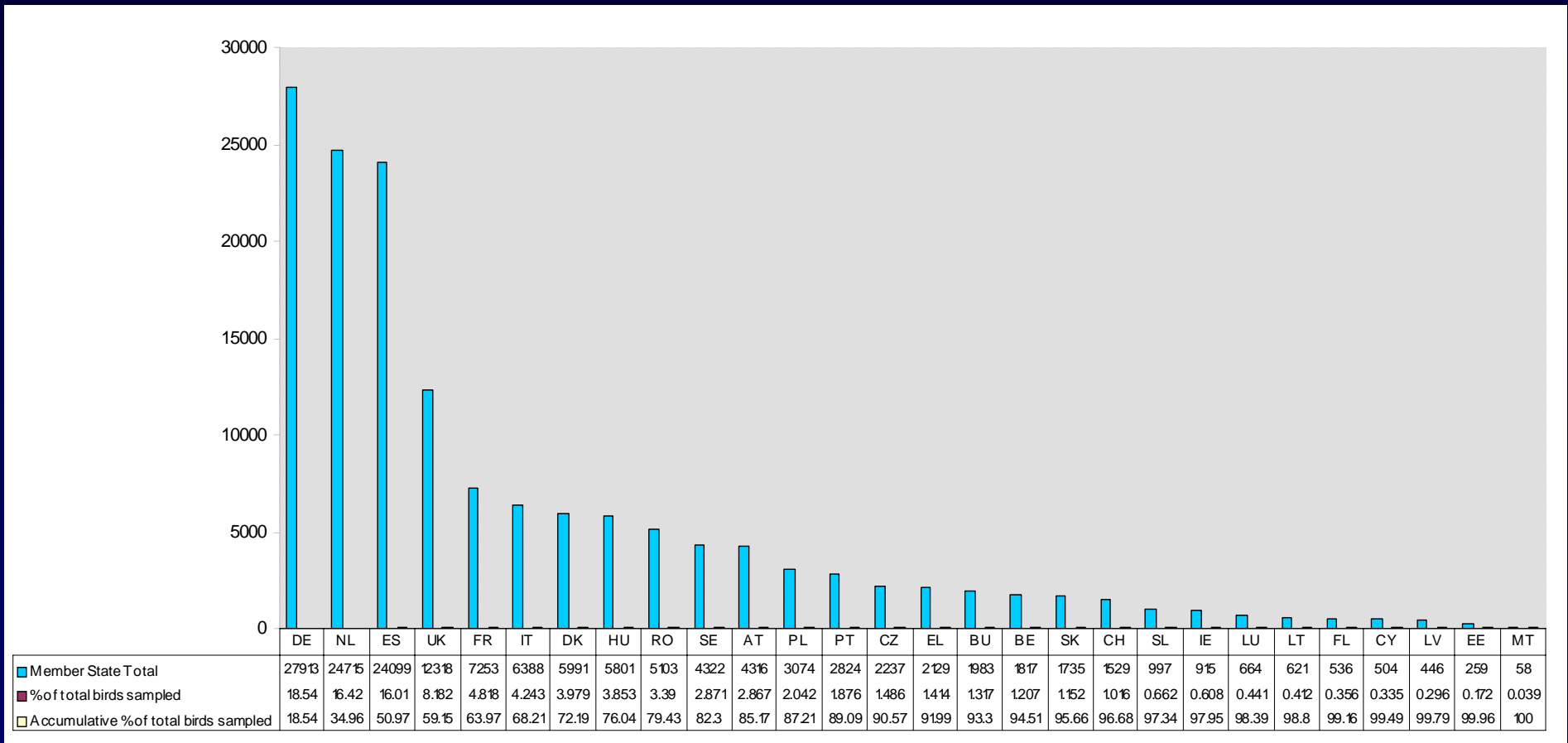


# Overview of terminology and definitions 2



- **Passive surveillance:** For the purpose of this report, passive surveillance will be used as an equivalent to the surveillance of dead or diseased birds
- **Active surveillance:** For the purpose of this report, active surveillance will be used as an equivalent to the surveillance of live or hunted birds
- **Exclusion** of captive birds and data errors in species (extinct etc)
- Unless otherwise stated all totals and overall proportions relate to EU 24 (excl. Spain) + Bulgaria for 2006

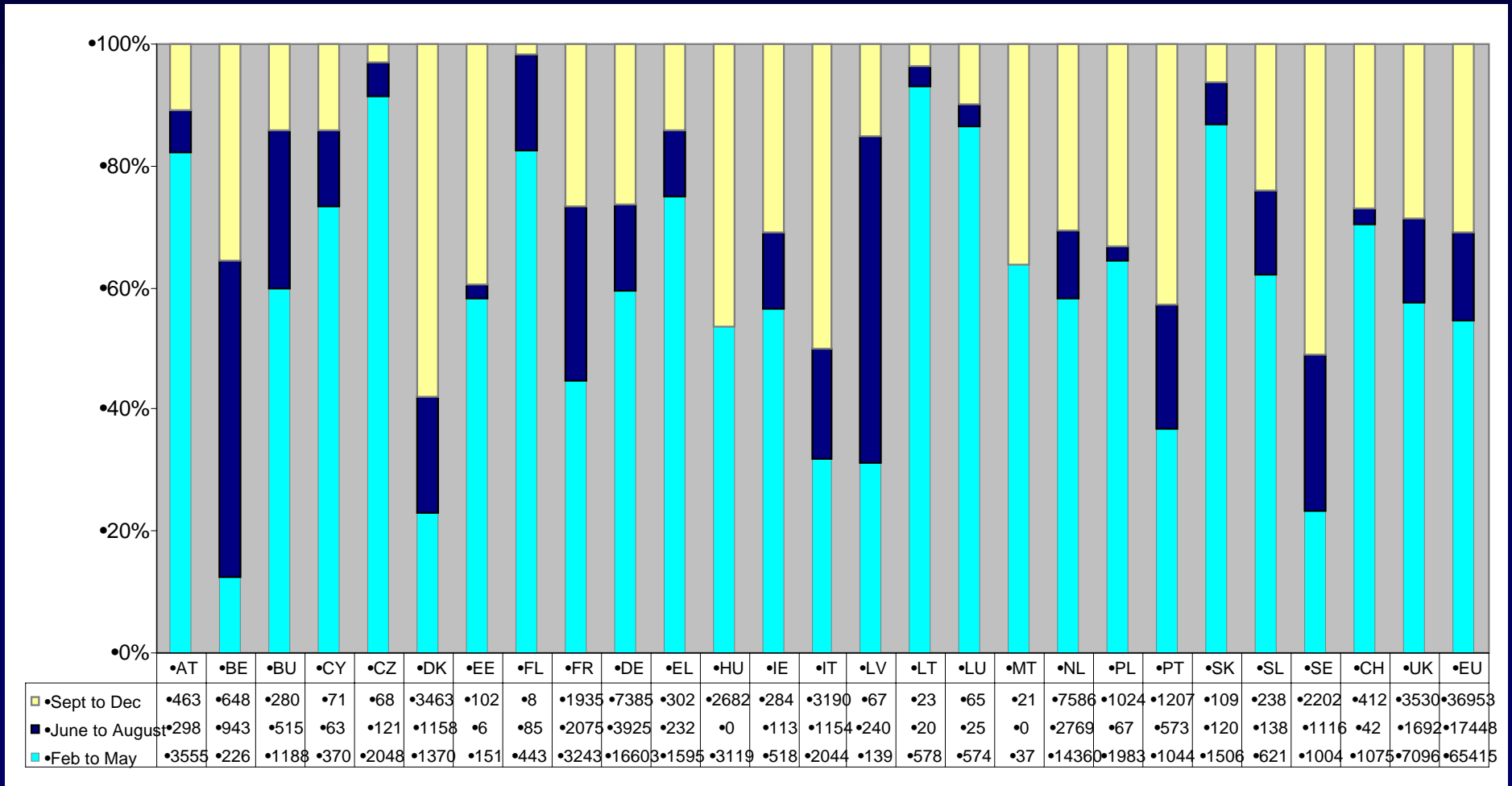
## Total number of birds sampled per Member State in 2006



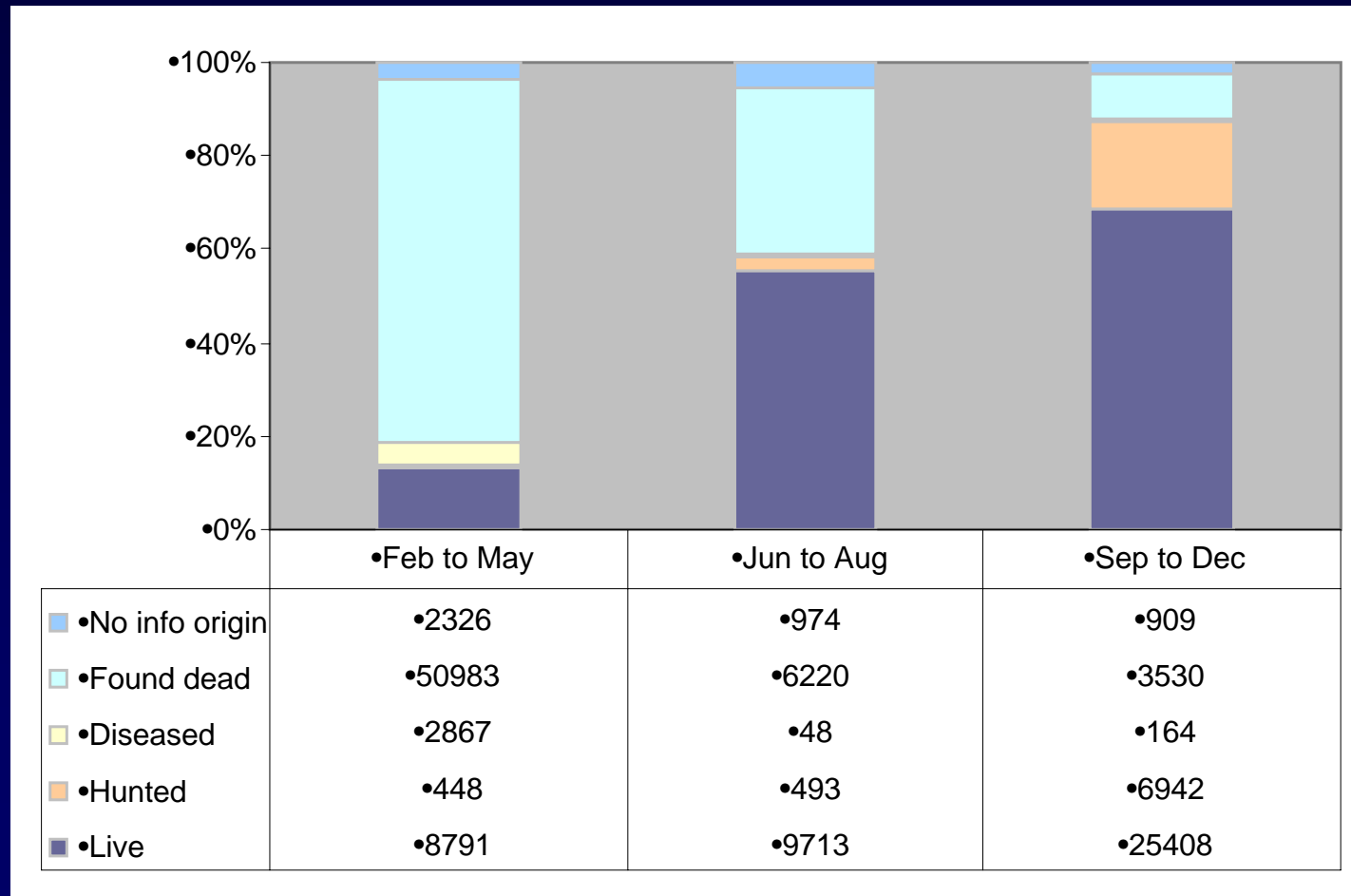
During 2006, 143 915 birds were sampled in the EU 25 + Bulgaria . Romania tested an approximate additional 5103 birds and Switzerland sampled a total of 1529 birds.

# Number and proportion of all birds sampled by season and MS

(EU total = EU 24 + Bulgaria)



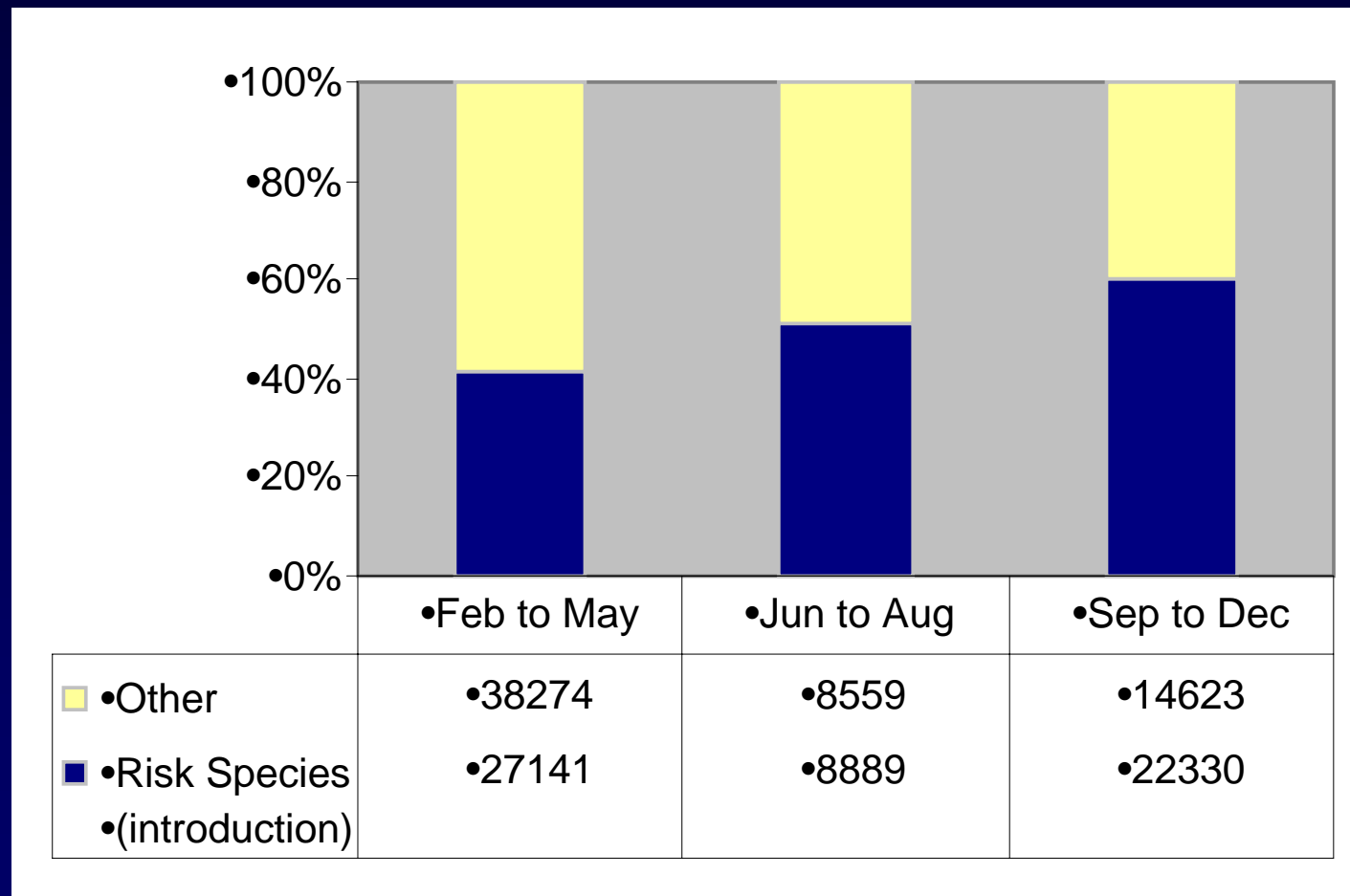
## Number and proportion of total birds sampled by origin and season (EU 24+Bulgaria)





# Number and proportion of birds sampled by risk species

(EU total = EU 24 + Bulgaria)





## Positives H5 N1/ H5 HPAI

- Between February and May 2006, 13 MS and Bulgaria reported a total of 591\* birds infected with H5N1/ H5 HPAI
- In the second and third reporting period only two H5N1/ H5 HPAI cases were detected; one H5N1 positive Great Crested Grebe (*Podiceps cristatus*) from Spain and one H5 HPAI positive hunted Ferruginous Duck (*Aythya nyroca*) from Germany in November respectively were reported

\* 272 H5N1 positive birds found in Germany could not be reported

# Proportion of sampled birds positive by surveillance type and country, for countries that did experience H5N1 cases for H5N1/ H5 HPAI Feb-May 06

■ In most MS higher proportion of H5N1/ H5 HPAI positives in the surveillance of dead and diseased risk species

Member State Excl Spain	Total number sampled	Total number positive	Total positive proportion	Proportion positive of dead or diseased risk species	Positive proportion in live or hunted risk species	Positive proportion in diseased other species	Positive proportion in live or hunted other species
	a	b	a/b	n= number sampled	n= number sampled	n= number sampled	n= number sampled
SL	621	46	7.41%	18.80% n=234	0.00% n=32	0.61% n=330	0.00% n=25
SE	1004	42	4.18%	9.73% n=257	0.00% n=86	6.49% n=262	0.00% n=399
PL	1983	70	3.53%	4.61% n=607	8.61% n=453	0.38% n=780	0.00% n=143
AT	3555	120	3.38%	6.04% n=1806	0.00% n=233	0.94% n=1172	0.00% n=344
DK	1370	45	3.28%	19.21% n=177	0.00% n=169	1.01% n=986	2.63% n=38
CH	1075	32	2.98%	2.91% n=515	0.00% n=0	3.04% n=560	0.00% n=0
FR	3243	65	2.00%	6.03% n=912	0.00% n=145	0.57% n=1743	0.00% n=443
HU	3119	61	1.96%	20.42% n=289	not sampled n=0	0.07% n=2830	not sampled n=0
EL	1595	31	1.94%	6.77% n=443	0.00% n=85	0.10% n=987	0.00% n=80
IT	2044	19	0.93%	8.42% n=202	0.00% n=609	0.83% n=240	0.00% n=275
CZ	2048	14	0.68%	1.31% n=1065	not sampled n=0	0.00% n=983	not sampled n=0
DE	16603	71	0.43%	1.28% n=4058	0.00% n=49	0.15% n=12369	0.00% n=65
BU	1188	4	0.34%	no info	no info	no info	no info
SK	1506	2	0.13%	0.00% n=267	not sampled n=0	0.16% n=1239	not sampled 0
UK	7096	1	0.01%	0.02% n=4291	0.00% n=364	0.00% n=2420	0.00% n=21
TOTAL*	46975	591	1.2%				

\* EU member states which reported birds positive for Avian Influenza A/Bulgaria

Legend

No statistically significant difference to total proportion	Statistically significantly lower than total proportion p<0.05	Statistically significantly higher than total proportion p<0.05
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# Results – Risk species

Table 7 Number sampled and number positive of risk species (SANCO 2006, EFSA 2006) Total = EU24 + Bulgaria																															
Number sampled	1/20 Those tested positive are shown as number positive/ number sampled																					** Totals exclude Switzerland									
Number H5/ H5N1 positive	* Those member states, which tested positive for avian influenza where all subtypes, were '8' (no subtype info/ not determined)																					**HPAI H5 +ves	**Total other +ves	**Total Birds Sampled							
Other positive	Member States**																														
Species	AT	BE	BU	CY	CZ	DK	EE	FL	FR	DE	EL	HU	IE	IT	LV	LT	LU	MT	NL	PL	PT	SK	SL	SE	CH	UK					
Anas acuta		3/37							3	5	15		2	3/27	1/7				3/197					1/3	2		1/266	1	11	564	
Anas clypeata				1					3/20	4	1/9			8/76	13/24				1/50					1		16	0	26	201		
Anas crecca	8	8	3	4	4	4/266	1		1/116	49	13	1/67	26/384	11/43			3	5/108		1			2	6/88	3	32/694	0	86	1862		
Anas penelope		2	1		2	7/537		1		99	24		36	8/282	2/23				15/1076						1/94	2	3/251	0	36	2428	
Anas platyrhynchos	13/1773	5/214	8/66	11/28	732	8/234		47	261/3217	53/4428	70	1/758	7/111	103/1964	11/138	34	74	1	322/7064	6/651	2/465	226	8/336	123/1850	4/243	48/3806	34	989	28287		
Anas querquedula	1		2	1					4/64	28	4	1		1/1964	5/11		1	1					4	2				2	0	13	156
Ardeotis albibrons																			4/734									0	4	734	
Anser anser	1/73	4		1	12	1/146	19	47		2/452		10	1	1		1			2/502	61		2		96	5	2/172	3	6	1600		
Anser brachyrhynchus						155				1/452									2/103							2/108	0	4	367		
Anser fabalis			3				12			7/350		9							3/132	68	1			3/103		1	0	13	679		
Aythya ferina		57			3	1			1/40	38	24	2		1/67	11	5			1/4	1	2				6/109	46	1	2	301		
Aythya fuligula	4	129			20	26/41		1		1/132		1		3	6	1/24			1/9		1/1			25/96	6/150	30	48	29	497		
Branta bernicla	11					15				3/132									1/89						2		43	0	1	164	
Branta canadensis		596				123	4	1/9		219		1							3/71					2/199		2/647	2	7	1869		
Branta leucopsis						326	1	4		171	45								2053					3	1	28	0	0	2631		
Branta ruficollis			1							1/4	1/1																1	1	6		
Branta columbianus						1				2	2			1/39												7	0	1	51		
Cygnus cygnus						2/213	47	66	9/445	3/404	1/8		2			6	9		3			7		1/89		7/439	44	22	1738		
Cygnus olor	3/565	18	1		14/358	5/292	14	4/282	3/1576	28/329	57/177	1/190	16/161	1	112	43		7/828	67/832	119			3/125	4/216	4/216	1/125	14/1935	372	44	8174	
Fulica atra	4/248	108	3	1/19	92	29		1/90	3/1158	50	1/48	1	2/200	2	10		1	269	33		17	4		4/211			1	11	2492		
Larus canus		6				2/510		14	74	86	24					48			162	36			1	1/10		16	0	3	987		
Larus ridibundus	2	66		4	92	320	16	23	78	2/342	8	1/28	9	8/205	14	10	3	7	3/2793	60		7	19	8/48	12	80	1	21	4234		
Limosa limosa											1					1											0	0	2		
Netta rufina									13	144	1								20								0	0	178		
Tringa pugnax		3	1							32	1			5		1									5		0	0	53		
Tringa hypoleucos		102				75						3	1/60														0	1	240		
Tringa vanellus	13	32				182	19	2	32	4				1/66					2						4	3	1	0	1	357	

# H5N1/HPAI H5 positives - Genus *Cygnus*

Species	Sampled	Positive	Proportion Positive H5N1/H5 HPAI
<i>Cygnus olor</i>	5326	372	7%
<i>Cygnus cygnus</i>	718	44	6%
<i>Cygnus sp.</i>	824	4	0.49%
<i>Cygnus columbianus</i>	9	0	0%

Number of swans sampled and proportion positive for H5N1/H5 HPAI  
Feb- May 2006



- *Cygnus olor* was sampled in 20 MS of which 12 found H5N1/ H5 HPAI positives
- Around 70% of all H5N1/ H5 HPAI positive birds were swans, almost 90% of these swans were mute swans (*Cygnus olor*)
- Proportion of mute swans amongst all positives H5N1/ H5 HPAI varied in MS from relatively low (SE 10% and DK 9%) to very high (over 90% of positives in CZ, EL, PL and SI)
- Mute swans: varying proportion of tested positive ( i.e. around 5% in CZ, DK, DE to around 30% in HU and SE)

# H5N1/HPAI H5 positives - Genus *Aythya*

Species	Sampled	Positive	Proportion
<i>Aythya marila</i>	11	4	36%
<i>Aythya fuligula</i>	244	48	20%
<i>Aythya ferina</i>	118	1	0.8%
<i>Aythya nyroca</i>	24	0	0%
<i>Aythya</i> sp.	2	0	0%



- Cases of H5N1/H5 HPAI in *A. fuligula* were found in Denmark (26), Germany (3) and Sweden (19)
- All positives (4/8) of *A. marila* occurred in Sweden, hardly sampled (2 UK and 1 SI)
- In Denmark and Sweden Tufted Ducks accounted for 60% and 45% of the total H5N1 cases in those countries respectively

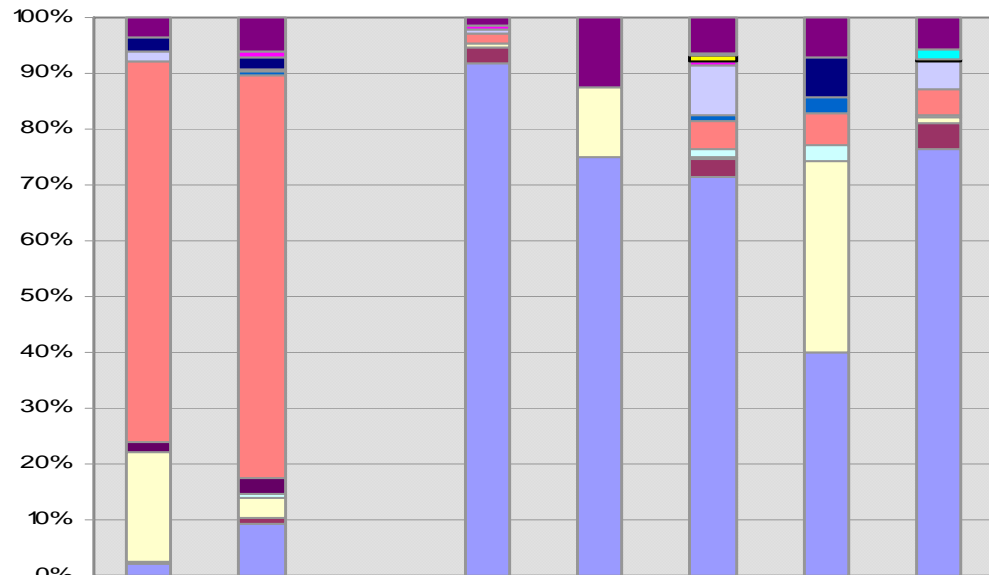
## **H5N1/HPAI H5 - Summary**



In the case of H5N1 infections, testing of dead birds, especially swans, diving ducks and mergansers was the most likely way of detecting infection with this subtype



# Other subtypes



	HPAI H5	HPAI H5N1	HPAI H7	LPAI H5	LPAI H7	LPAI Other	Subtype Pending	No subtype info/
Other Genus	7	24	0	2	2	25	5	58
Tadorna	0	0	0	0	0	2	0	17
Somateria	0	0	0	0	0	4	0	4
Podiceps	0	4	0	1	0	2	0	0
Mergus	5	8	0	0	0	0	5	0
Larus	4	1	0	1	0	35	0	51
Falco	0	3	0	0	0	4	2	0
Cygnus	138	282	0	2	0	20	4	50
Buteo	3	11	0	0	0	0	0	0
Branta	0	3	0	0	0	5	2	2
Aythya	40	14	0	1	2	2	24	12
Anser	1	4	0	4	0	12	0	47
Anas	4	36	0	122	12	279	28	778

- Active surveillance of live or hunted birds appears to result generally in a higher proportion of positives for subtypes other than H5N1 HPAI than passive surveillance of dead or diseased birds
- Targeting risk species, especially dabbling ducks resulted, with a few exceptions, in a higher proportion of LPAI positives than not targeting high-risk species



# Main Findings and Conclusions

- Overall most birds (54%) in the EU were tested between February and May.
- Most MS increased the active surveillance of live and hunted birds in the course of the year and 62% of all live or hunted birds were sampled between September and December
- Passive surveillance significantly decreased in numbers and proportion of the total sampled birds in most MS and 84% of dead and diseased birds were tested between February and May 2006
- Overall the proportion of risk species amongst the sampled birds increased in the course of the year

# Main Findings and Conclusions

- A large heterogeneity occurred between MS in respect to their surveillance programmes and the number of birds tested.
- While some Member States focused on the active surveillance of live birds, others did focus on passive surveillance of dead or diseased birds.
- The degree of targeting of risk species and sample types are also variable between Member States.

As these factors impact on the probability of obtaining positive results, the proportion of birds that were found to be positive for avian influenza cannot be directly compared either between species or countries

# Main Findings and Conclusions

The positive proportions cannot be interpreted as indicating prevalence of avian influenza in a country or species due to the following reasons:

- The inability to assess whether the sampled population is representative of the wild bird population,
- the existence of the mentioned heterogeneity of the surveillance methodologies between Member States,
- a generally non-equal probability of a bird to be selected for sampling and to be positive and
- the fact that this population of wild birds is dynamic.

# Main Findings and Conclusions

## Conclusions:

- For detection of H5N1, passive surveillance through the testing of dead and diseased birds, especially swans, diving ducks and Mergansers has been shown to be the most valuable surveillance source, and almost all H5N1 outbreaks were discovered through a positive test result of dead swans. Consequently the maintenance of a good functional passive surveillance system appears very important for the early detection of H5N1.
- All infections were detected in several raptor species such as Buteo, Falcons and Owls. Since these birds get infected through contact while feeding on dead or diseased infected birds they are also a potentially valuable additional surveillance source for avian influenza.
- For the detection of other subtypes, the surveillance of live or hunted birds, especially of dabbling ducks appeared to be the best surveillance source.

# **Preliminary Findings of EU Wild Bird Surveillance for Avian Influenza in the first Quarter 2007**

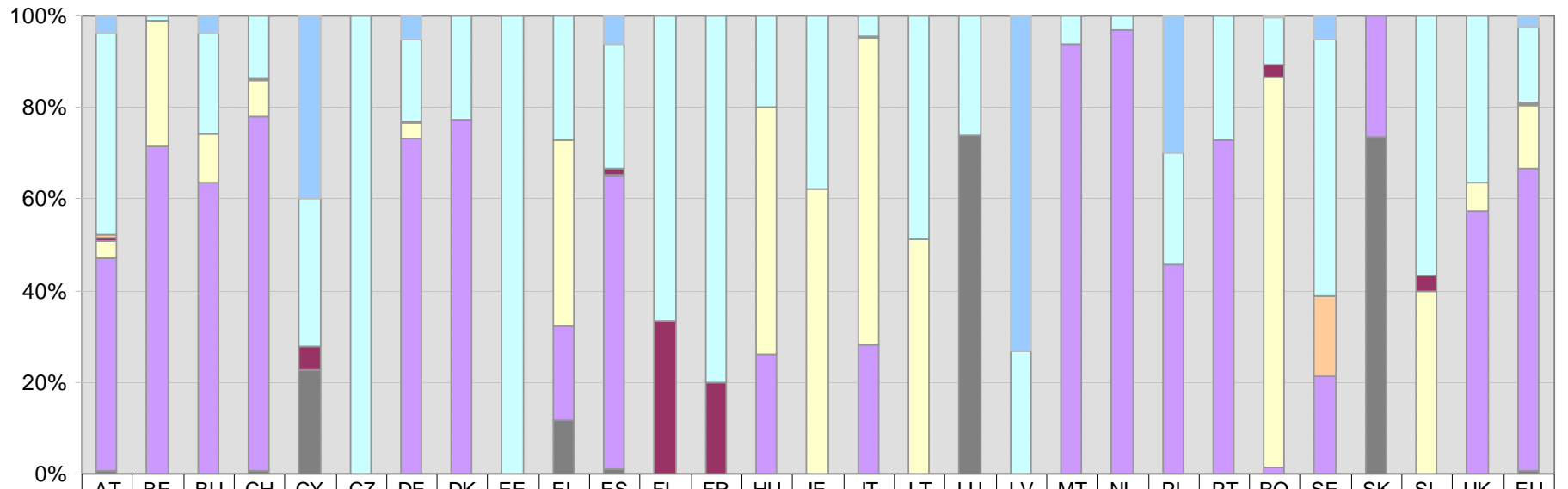
## Number of birds sampled by time period

(excl records with no information on origin of birds)

<i>Active surveillance in sampled birds</i>					<i>Passive surveillance in sampled birds</i>				
Member State	Feb - May 2006	Jun - Aug 2006	Sep - Dec 2006	Jan - Mar 2007	Member State	Feb - May 2006	Jun - Aug 2006	Sep - Dec 2006	Jan - Mar 2007
AT	577	45	349	70	AT	2978	253	114	63
BE	226	943	648	643	BE	Na	Na	Na	7
BU*	0	0	0	116	BU*	0	0	0	34
CH	0	0	347	237	CH	1075	42	65	41
CY	26	9	22	0	CY	137	44	48	56
CZ	0	0	0	0	CZ	2048	121	68	46
DE	114	1078	5613	4150	DE	16427	2660	1148	978
DK	207	1017	3411	450	DK	1163	141	52	133
EE	0	0	87	0	EE	0	6	15	4
EL	165	107	248	143	EL	1430	125	54	90
ES	NI	NI	NI	1887	ES	NI	NI	NI	874
FL	312	26	2	0	FL	131	59	6	3
FR	588	1720	1657	0	FR	2655	355	278	170
HU	0	0	2646	391	HU	3119	0	36	98
IE	0	0	192	172	IE	518	113	92	104
IT	884	697	2639	2670	IT	442	457	550	132
LT	2	0	0	22	LT	576	20	23	21
LU	200	0	0	0	LU	374	25	65	23
LV	17	239	45	0	LV	122	1	22	4
MT	21	0	21	30	MT	16	0	0	2
NL	4099	2436	7404	6087	NL	10261	71	182	198
PL	596	50	1010	140	PL	1387	17	14	75
PT	278	275	948	387	PT	766	298	257	144
RO	NI	NI	NI	311	RO	NI	NI	NI	47
SE	485	1087	2159	31	SE	519	29	43	45
SK		21	93	10	SK	1506	99	16	28
SL	57	91	214	12	SL	564	47	23	18
UK	385	365	2942	1433	UK	6711	1327	588	818
EU	9239	10206	32350	19155	EU	53850	6268	3694	4215
* No data supplied on origin of birds sampled for 2006					* No data supplied on origin of birds sampled for 2006				

- Total Number of samples EU 27 23979
- Only 5 countries tested more than 1000 birds
- 11 MS tested less than 100 birds overall in the first quarter of 2007
- Active surveillance compared to Feb –May 06 almost doubled, compared to Sep-Dec around half the number of birds tested overall
- Passive surveillance compared to Feb-May 06 is 6% of the number of birds sampled, compared to Sep- Dec also slight decrease overall

# Number and Proportion of sampled birds by origin and MS



	AT	BE	BU	CH	CY	CZ	DE	DK	EE	EL	ES	FL	FR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SK	SL	UK	EU
No info origin	5	0	6	0	37	0	272	0	0	0	181	0	0	0	0	1	0	0	11	0	0	91	0	1	4	0	0	0	609
Found dead	61	7	34	38	30	46	967	133	4	63	795	2	136	98	104	126	21	6	4	2	198	75	144	37	45	0	17	818	4011
Hunted&Diseased	1	0	0	0	0	0	4	0	0	0	1	0	0	0	0	4	0	0	0	0	0	0	0	0	14	0	0	0	24
Diseased	1	0	0	1	5	0	11	0	0	0	46	1	34	0	0	2	0	0	0	0	0	0	0	10	0	0	1	0	112
Hunted&Healthy	5	179	17	22	0	0	195	0	0	95	4	0	0	263	172	1883	22	0	0	0	0	0	0	306	0	0	12	139	3314
Live&Healthy	64	464	99	215	0	0	3951	450	0	48	1882	0	0	128	0	783	0	0	0	30	6087	140	387	5	17	10	0	1294	1605
Injured	1	0	0	2	21	0	0	0	0	27	33	0	0	0	0	4	0	17	0	0	0	0	0	0	0	28	0	0	133



## Positives First Quarter 2007

- In total 220 birds tested positive for AI in 11 MS
- No HPAI was detected
- H5 LPAI was found in 9 birds in 5 MS: 1 Mallard (*Anas platyrhynchos*) and 1 *Anser albifrons* in Germany, 1 Mallard and 1 *Anser albifrons* in the Netherlands, 2 black swan (*Cygnus atratus*) in Italy 1 mute swan and 1 *Anas acuta* in the UK and 1 *Anas crecca* in Ireland
- H7 LPAI was detected in 3 birds in 3 MS: 1 *Cygnus sp.* in Germany, 1 mallard (*Anas platyrhynchos*) in Italy and 1 *Cygnus olor* in Hungary
- 32 other LPAI infections were found and for 174 birds that tested positive the subtype information was not available.

# References

Migratory birds and their possible role in the spread of HPAI" adopted by the Animal Health and Welfare Panel of EFSA on 12<sup>th</sup> May 2006 and the work carried out by ORNIS committee and contractors to DG Environment (Source: SANCO/10268/2006).

- **Thanks for the photos to:**
- Andrew Dunn : <http://www.andrewdunnphoto.com>
- Adam Kumiszca
- Andy Bright: <http://www.digiscoped.com>
- [www.pbs.org/wgbh/nova/hokkaido/images/legswa.jpeg](http://www.pbs.org/wgbh/nova/hokkaido/images/legswa.jpeg)
- Lukasz Lukasik