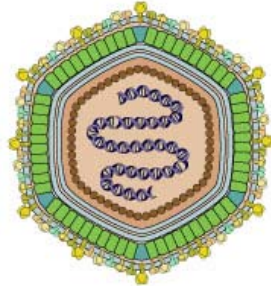


# Epidemiology of African swine fever in wild boar in Poland



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**SCPAFF, Brussels, 13.09.2016**

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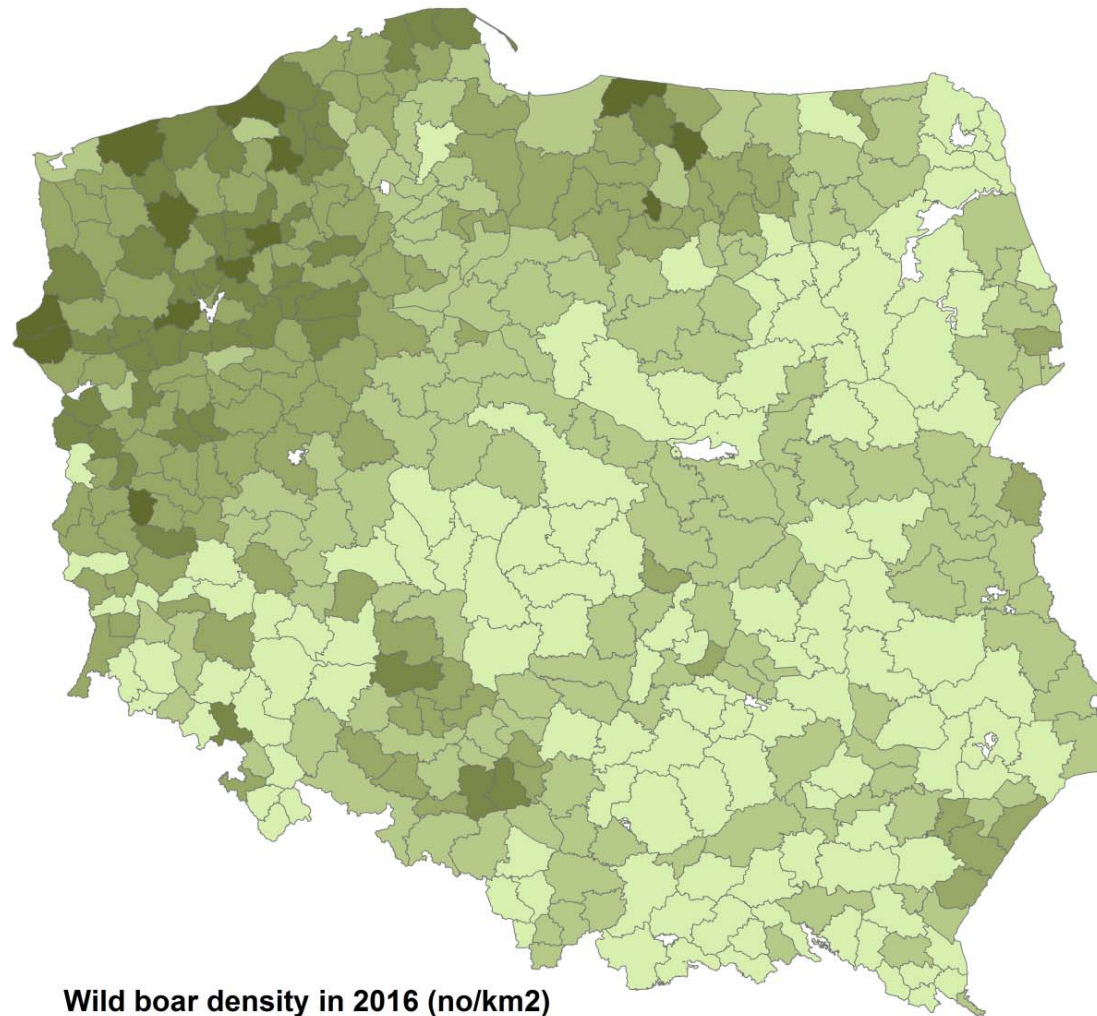


**Wild boar – an important vector and source of infection for pigs**

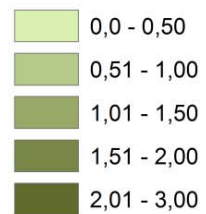
## Wild boar population (WB) in Poland

- current estimations: 264 000 individuals
  
- WB population has increased in the past decade (prior to detection of ASF) for the following reasons:
  - a) global warming resulting in:
    - lower mortality in winter
    - increased frequency of acorn production of oak and beech trees (> nutritional base)
  - b) increased cropland related to maize cultivation
  - c) winter feeding
  - d) varying hunting effectiveness (e.g. avoidance of hog hunting)
  - e) species-specific factors: high plasticity to adapt to changing habitats

# Wild boar density distribution in Poland (2016 census)



**Wild boar density in 2016 (no/km2)**



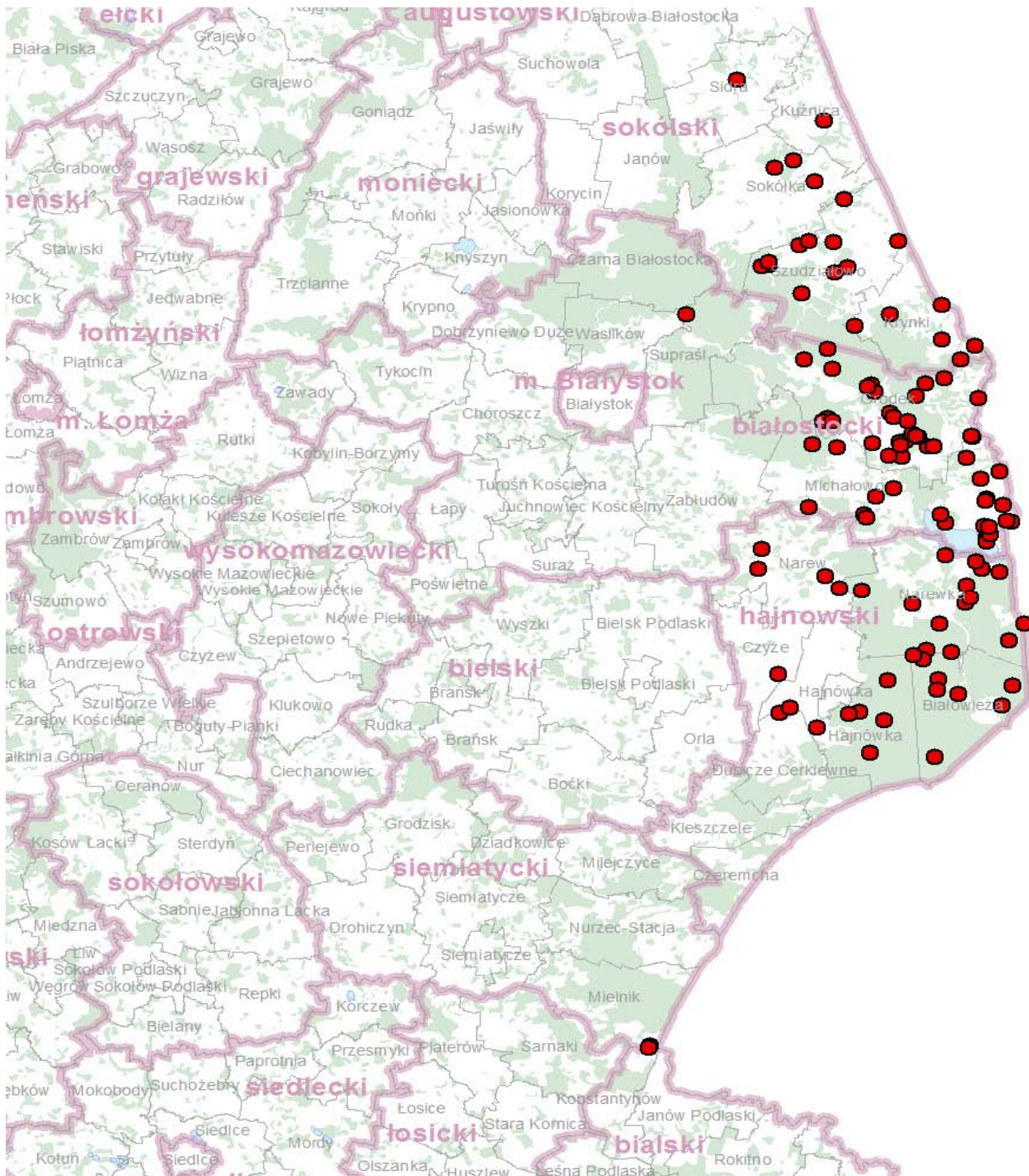
## Hypotheses created by EU experts at the beginning of the epidemic

□ after the emergence of ASF in Poland (February 2014) two hypotheses were formulated:

- *ASF will spark an epidemic and spread West quickly affecting susceptible populations*

- *ASF will fade out due to high virulence of the virus*

□ 30 months later neither hypothesis proved to be true: ASF is entrenched in a small area of eastern Poland and the infected area is expanding very slowly and is density-dependent



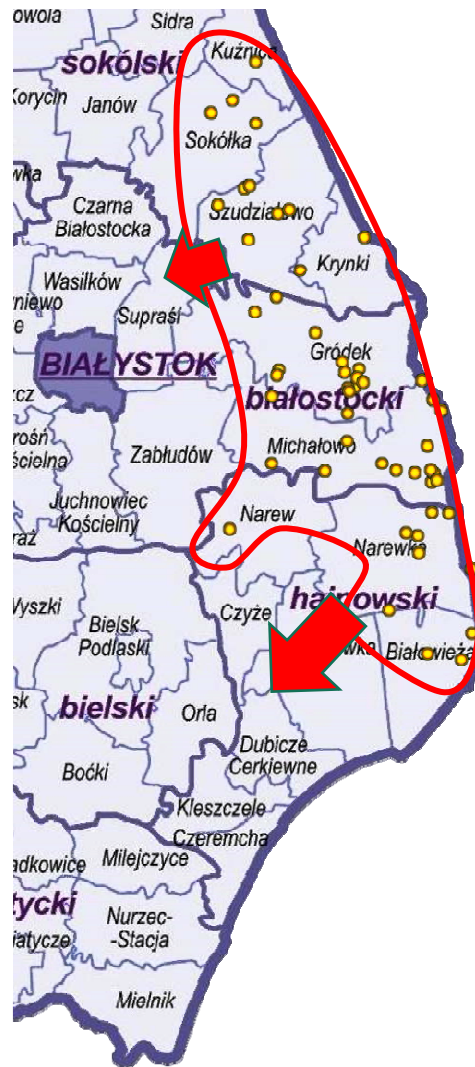
2014-2016

50 km





2014 – 30 cases

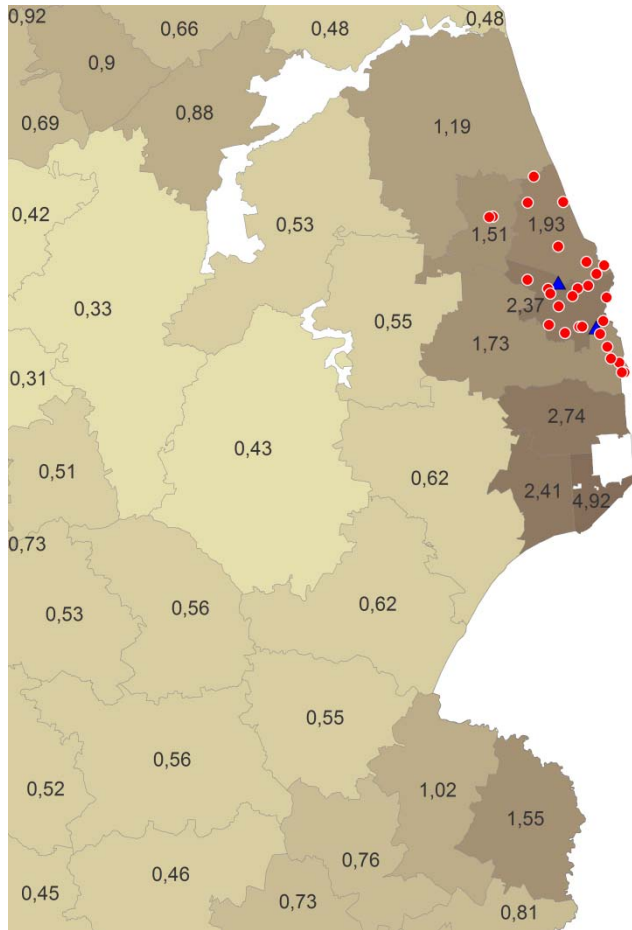


2015 – 53 cases

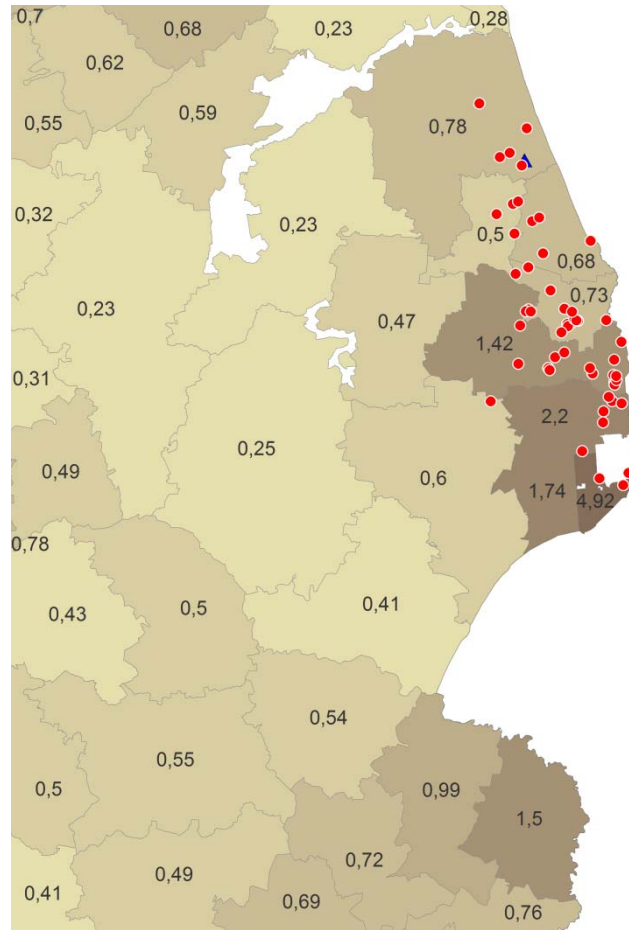


2016 – 28 cases

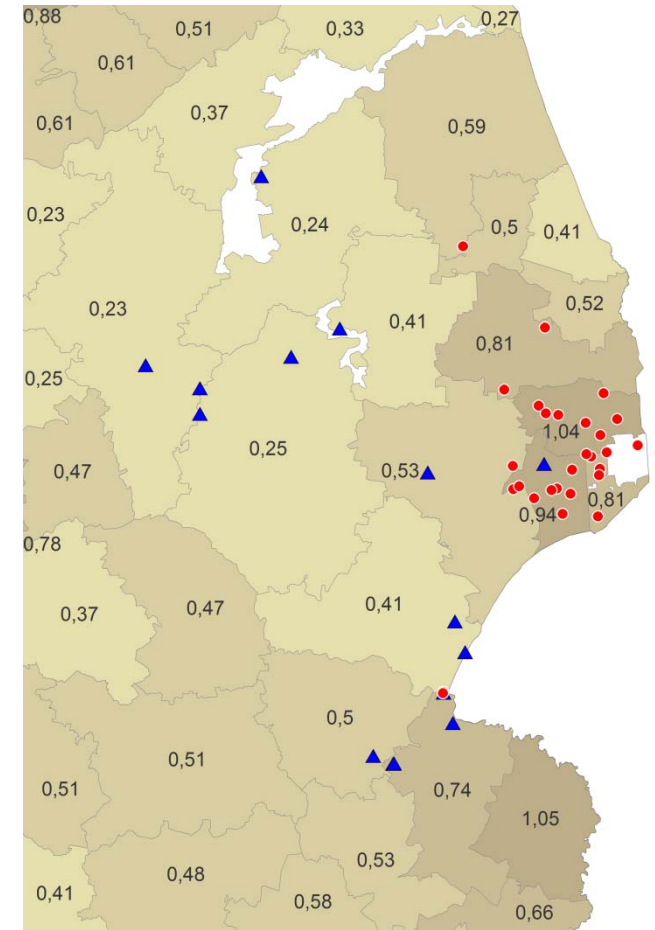
# Tendency to spread within areas with wild boar density > 1 individual/km<sup>2</sup>



**2014 – 30 cases**



**2015 – 53 cases**



**2016 – 28 cases**



# ASF in wild boar in Poland – lessons learned

# 1. Very slow spread of ASF in the population of wild boar

## Why?

- Behavior of wild boar: highly territorial animals, few WB migrate over distances  $> 5$  km
- High virulence of the virus leads to very fast development of clinical signs (high fever, depression etc.) – sick wild boar do not move

**Conclusion:** long distance spread of ASF via wild boar highly unlikely (human involvement necessary)

## 2. Passive surveillance

Period	Part I („buffer“)				Part II+III („infected“)			
	Dead (excluding roadkill)		Killed by vehicles		Dead (excluding roadkill)		Killed by vehicles	
	tested	+	tested	+	tested	+	tested	+
2014	17	0	17	0	115	46 (40%)	68	0
2015	55	0	41	0	130	67 (51%)	53	0
2016 (January – July)	10	0	22	0	54	26 (48%)	11	0

### 3. Active surveillance

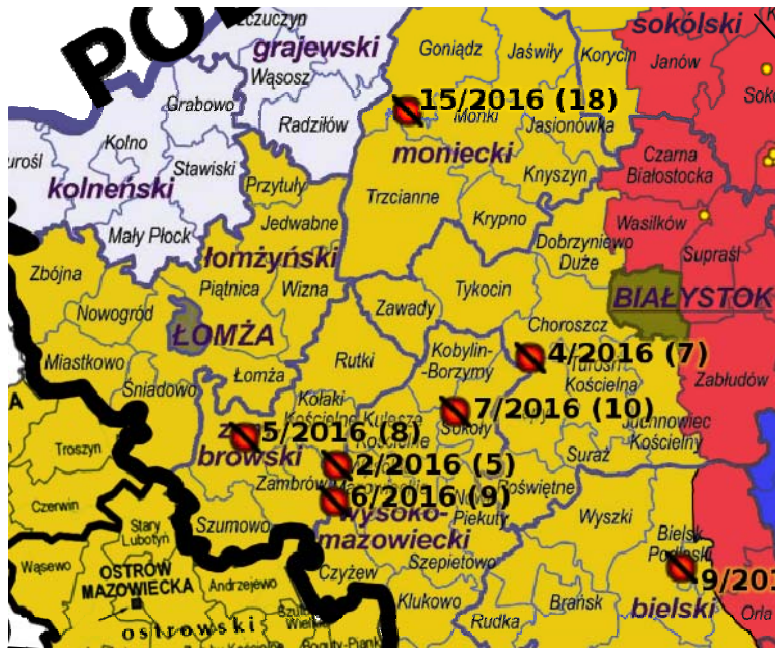
Period	Part I („buffer“)			Part II+III („infected“)		
	tested	positive	prevalence	tested	positive	prevalence
2015	2054	0	0%	3387	14	0.41%
2016 (January – July)	2531	0	0%	1803	6	0.33%

## Detection of ASF in wild boar

Year	Shot wild boar	Found dead wild boar	Total number of cases
2014	9	21	30
2015	13*	41*	53
2016	9	19	28

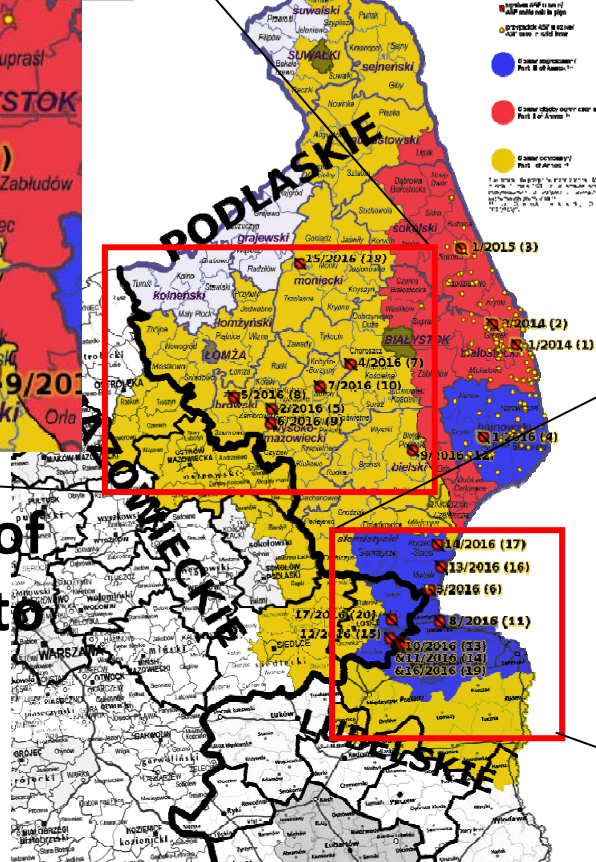
(\* in one case both shot and fallen positive wild boar were indentified)

# 4. Active and passive surveillance in clusters of outbreaks in pigs

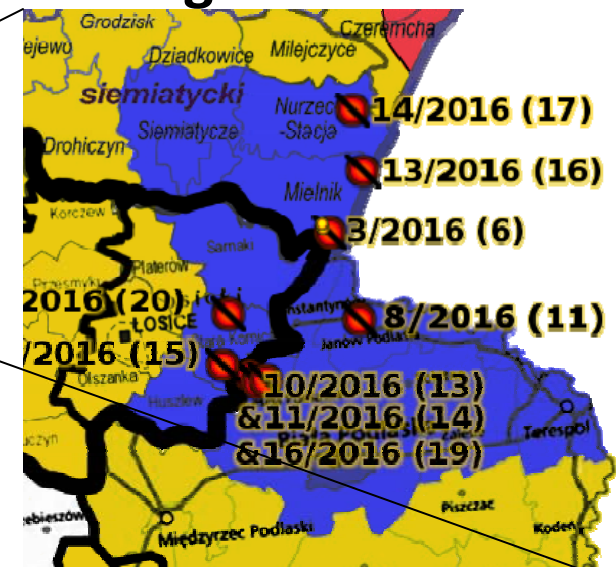


„Northern cluster” of outbreaks – spread due to illegal activities

in dzień / data as of 2016



„Southern cluster” of outbreaks – spread connected with ASF in wild boar population and due to illegal activities



Surveillance performed in the districts of the „northern cluster” of outbreaks:

- In 2016 in total 7 dead wild boar and 645 shot wild boar were tested for ASF (all with negative results)
- Since 1 August until 2 September 2016 5 dead wild boar and 49 shot wild boar were tested for ASF (all with negative results)

Surveillance performed in the districts of the „southern cluster” of outbreaks:

- In 2016 in total 81 dead wild boar and 216 shot wild boar were tested for ASF (with 2 positive results from August)
- Since 1 August until 2 September 2016 32 dead wild boar and 69 shot wild boar were tested for ASF (with 2 positive results)

Cluster	District	Area [km <sup>2</sup> ]	Number of wild boar (as of III.2016)	Density	Number of tested wild boar	Target (from decision 2003/422 proportionally to number of months)	Remarks
North	bielski	1385	589	0,43	273	259	*density is so low that defining areas in which sampling should take place is impossible - fewer wild boar live in those areas than the minimal sample size; obtaining proper sample size impossible without depopulation forbidden by the EU strategy for ASF
	wysokomazowiecki	1288	216	0,17*	174	37	
	zambrowski	733,1	128	0,17*	24	24	
	łomżyński	1354	228	0,17*	3	5	
	moniecki	1382	241	0,17*	172	37	
South	bialski	2754	2073	0,75	117	64	**restrictions applied only 1 month ago; number of wild boar shot/found dead is lower than in the Podlaskie region due to need to adapt the local infrastructure and procedures (cold stores, training of hunters etc.)
	łosicki	771,8	370	0,48	4** (all dead with negative results)	18	
	siemiatycki	1460	645	0,44	180	136	



## 5. Seasonality: higher prevalence in Summer months (June-August)

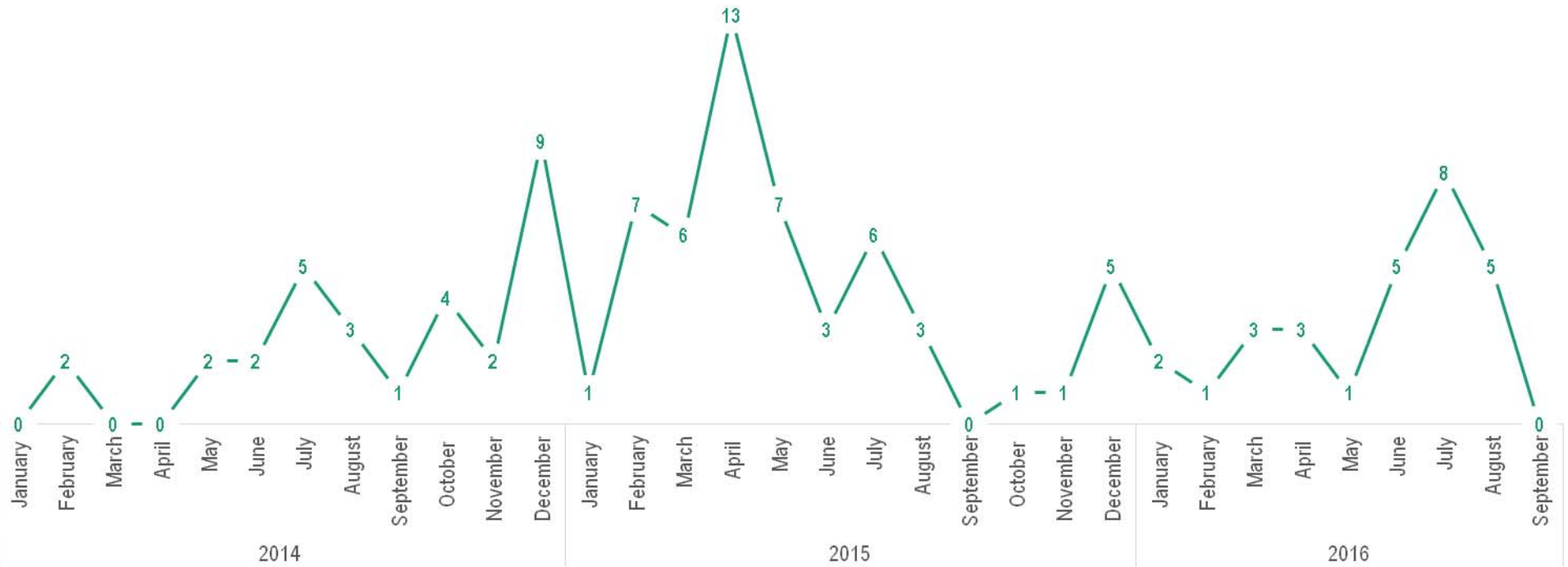
**Hypothesis:** eating of maggots multiplying in tissues of dead wild boar and accidental contact of healthy animals with infected blood/body fluids.

Season	Active surveillance					Passive surveillance				
	positive	negative	total	prevalence	95% CI	positive	negative	total	prevalence	95% CI
Spring	0	446	446	0	0-0.9%	4	45	49	8.2%	3.2-19.2%
Summer	0	988	988	0	0-0.4%	26	81	107	24.3%	17.2-33.2%
Autumn	3	3270	3273	0.09%	0-0.3%	13	144	157	8.3%	4.9-13.7%
Winter	7	3453	3460	0.2%	0.1-0.4%	14	75	89	15.7%	9.6-24.7%
Total	10	8157	8167	0.12%	0.1-0.2%	57	345	402	14.2%	11.1-17.9%



- Increased surveillance activity (search for dead wild boar) in the summer is recommended to identify potentially new areas of ASF occurrence

NO. OF CASES OF ASF IN WILD BOAR IN POLAND (2014-2016)



↑  
**Summer peak in incidence  
already occurred in 2016  
(data as of 12.IX.16)**

# Control measures

# Control of ASF in wild boar



Intensive hunting

**Objective:** achievement of density threshold that will significantly reduce the spread and therefore risk for spill-over from wild to domestic population (based on the current knowledge: 0,5 heads/km<sup>2</sup>)



Collection, testing  
and disposal of wild boar carcasses

**Objective:**

- Reliable assessment of ASF occurrence
- Elimination of a long-lasting source of the virus from environment

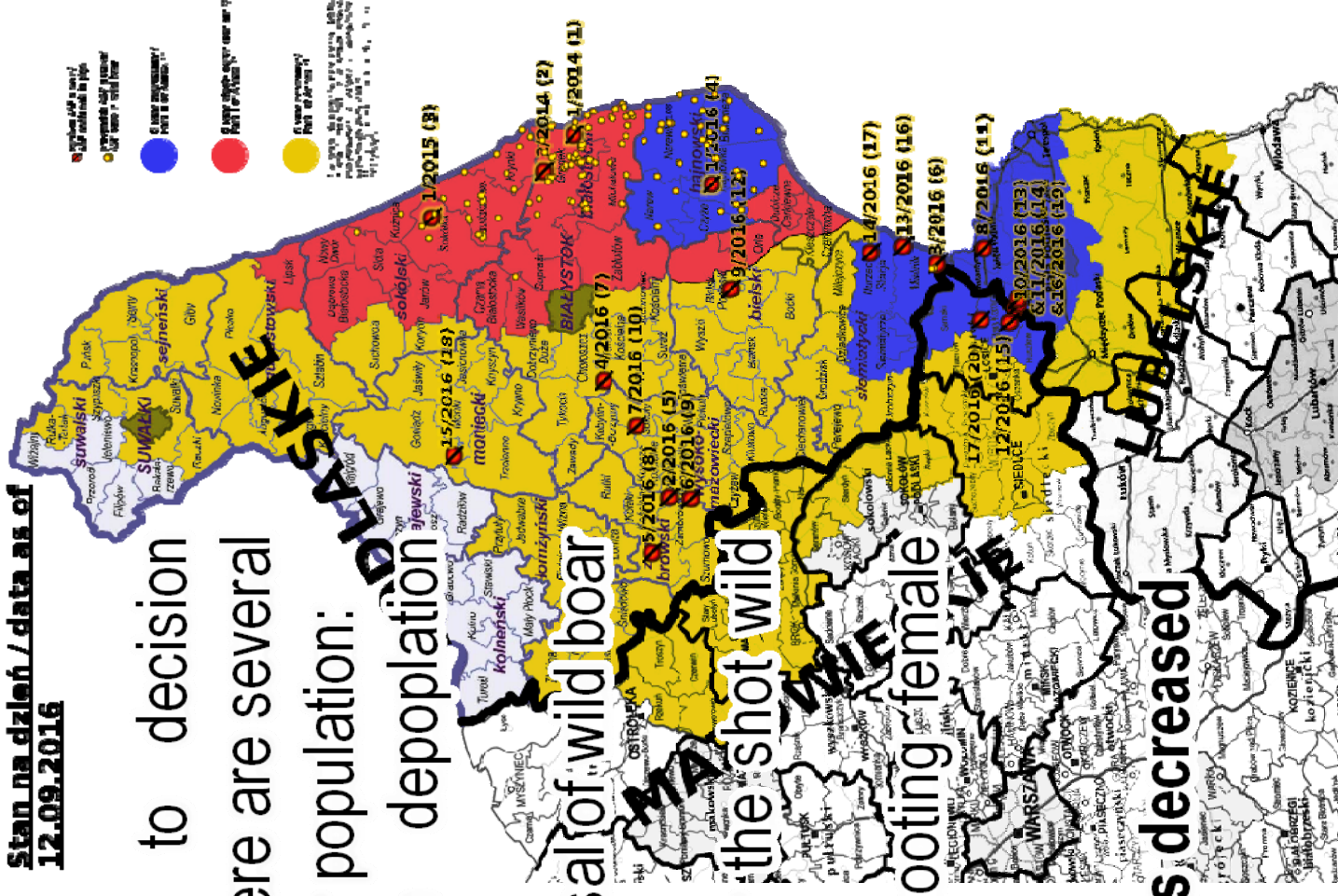
Reduction of wild boar population can reduce (=slow down) the spread of ASF in the population and significantly reduce the risk of virus spill-over to domestic population



**Stan na dzień / data as of**  
**12.09.2016**

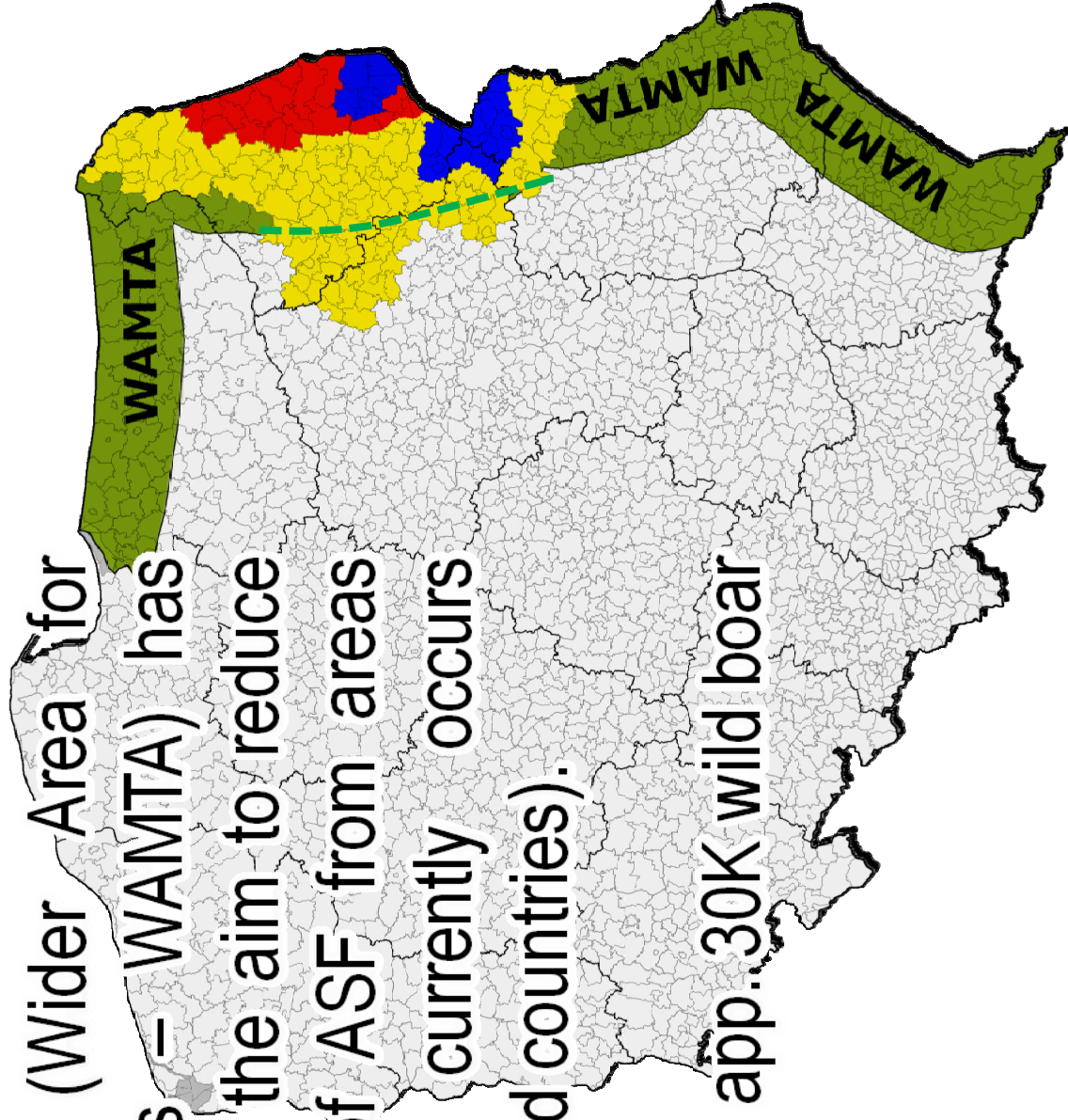
In the areas indicated in Annex to decision 2014/709/EU (mostly Parts II and III) there are several measures aimed to control the wild boar population:

- Intensified hunting (although no depopulation attempts are made)
  - Only hunts that do not lead to dispersal of wild boar are allowed
  - Hunters get a financial incentive for shooting female wild boar
  - Additional incentive is given for shooting wild boar
  - Feed ban
- = reproductive capacity of wild boar is decreased**



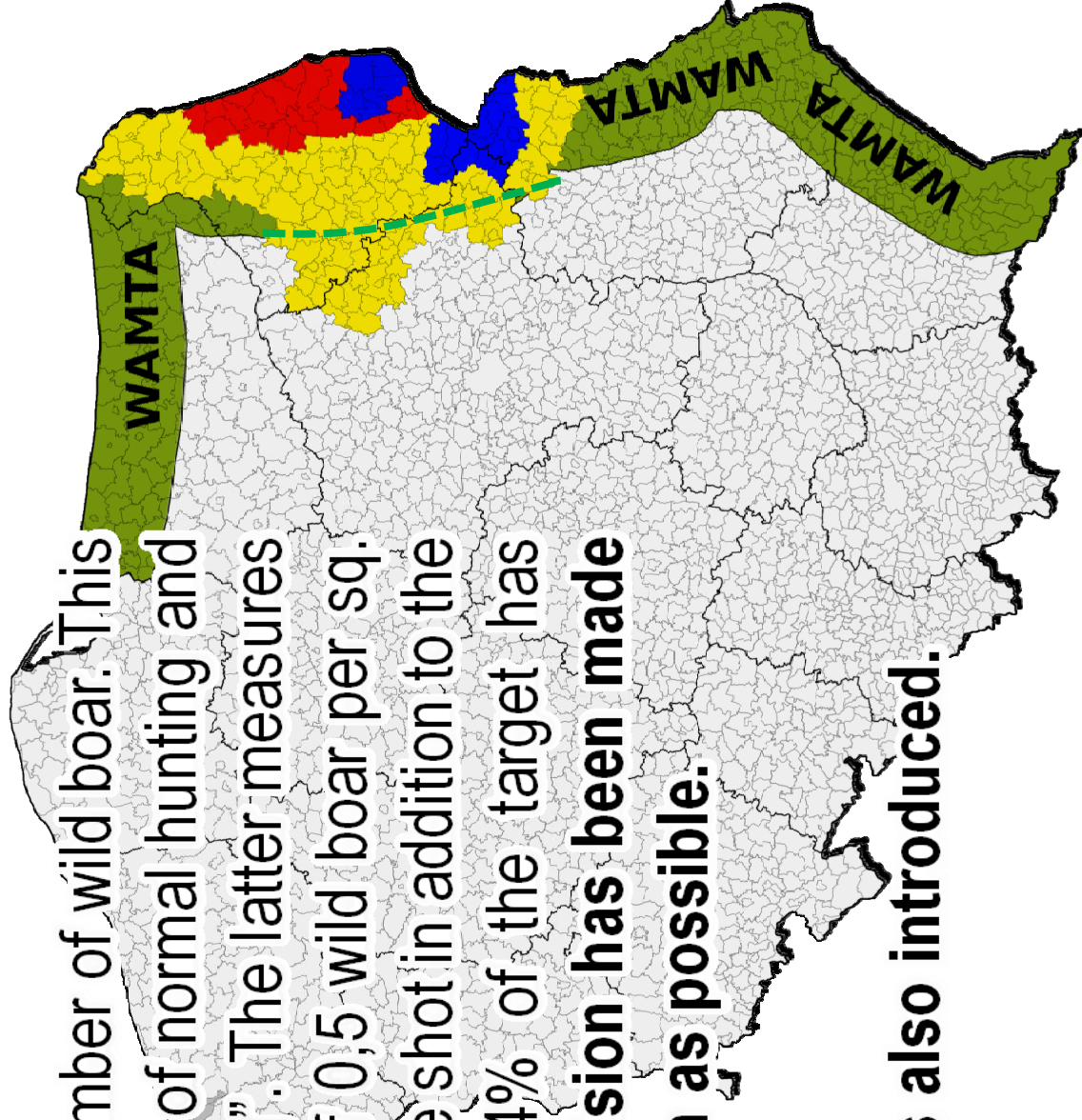
Additionally WAMTA (Wider Area for Medium Term Actions – WAMTA) has been established with the aim to reduce risk of transmission of ASF from areas where the disease currently occurs (affected areas and third countries).

The measures apply to app. 30K wild boar present in the area.



Main goal is to decrease number of wild boar. This is achieved by combination of normal hunting and additional „sanitary shooting”. The latter measures aim is to achieve density of 0,5 wild boar per sq. km. App. 8K wild boar will be shot in addition to the normal hunts. Currently 64% of the target has been met. **Recently a decision has been made to reach the target as soon as possible.**

**In that area a feed ban was also introduced.**

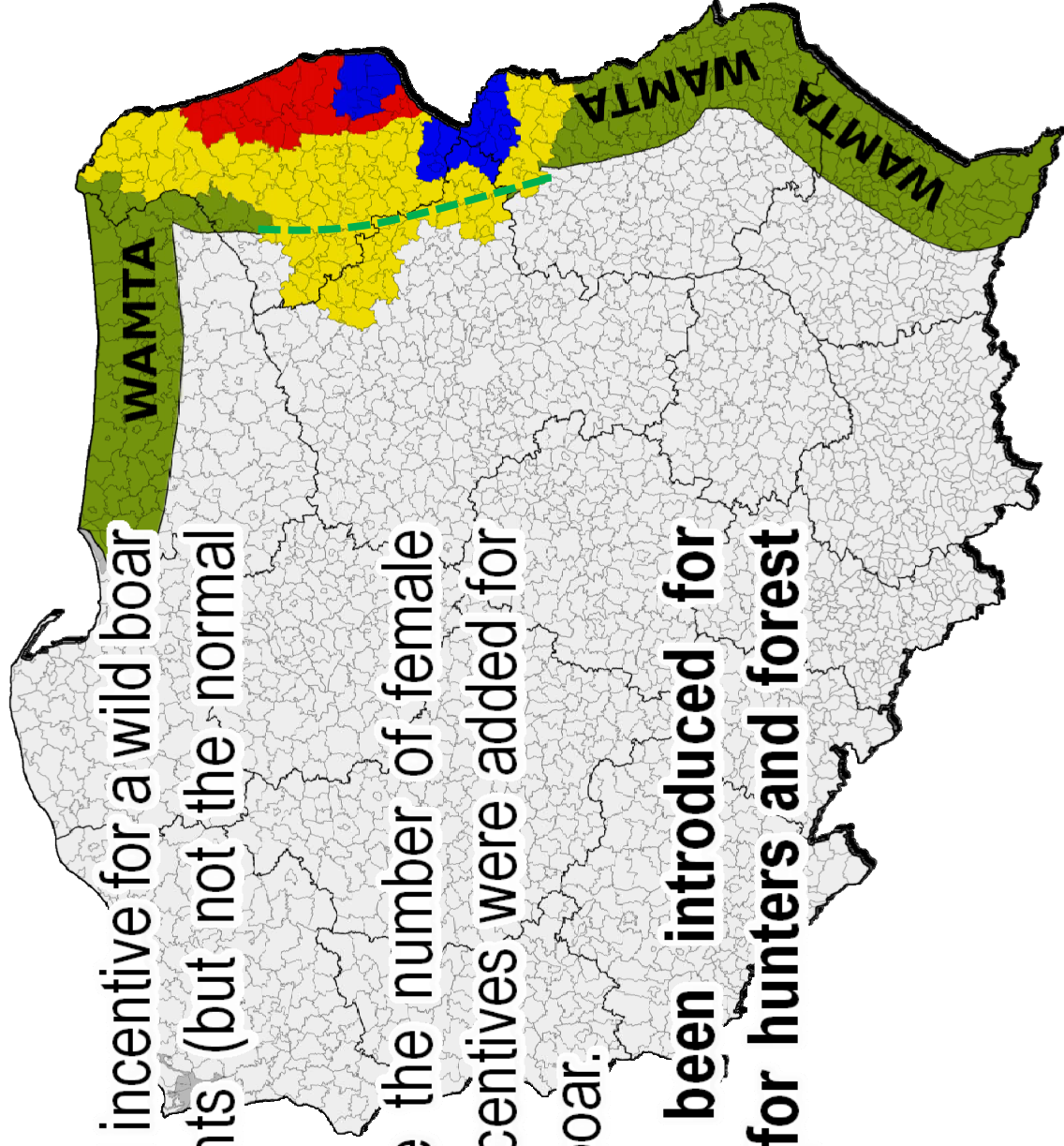




Hunters receive a financial incentive for a wild boar shot in the „sanitary” hunts (but not the normal hunts).

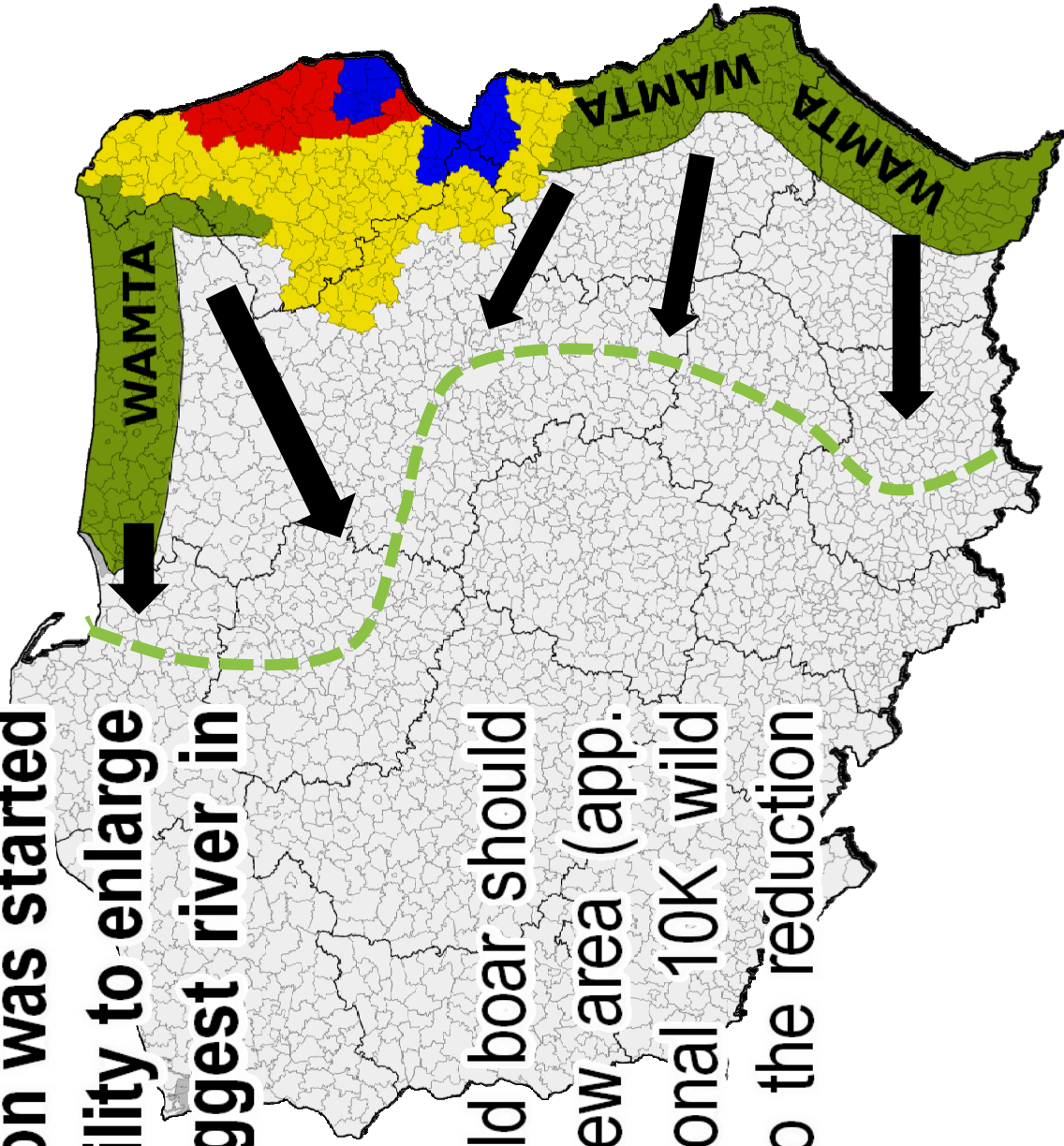
Also, in order to increase the number of female wild boar shot financial incentives were added for shooting **any** female wild boar.

**Recently payment has been introduced for finding dead wild boar (for hunters and forest rangers).**



**Recently a discussion was started to assess the possibility to enlarge that area to the biggest river in Poland (Vistula).**

**Additional 40-50K wild boar should be present in the new area (app. 80K in total). Additional 10K wild boar will be subject to the reduction efforts (18K in total).**



# Conclusions

- ASF spread is slow in wild boar population; human involvement is necessary to transfer the virus over long distances
- Passive surveillance – method of choice for early disease detection and for providing evidence for disease freedom
- ASF shows a tendency for increased incidence in the summer months
- Control measures must be two-fold:
  - reduction of the population
  - removal of dead carcasses

**Thank you!**