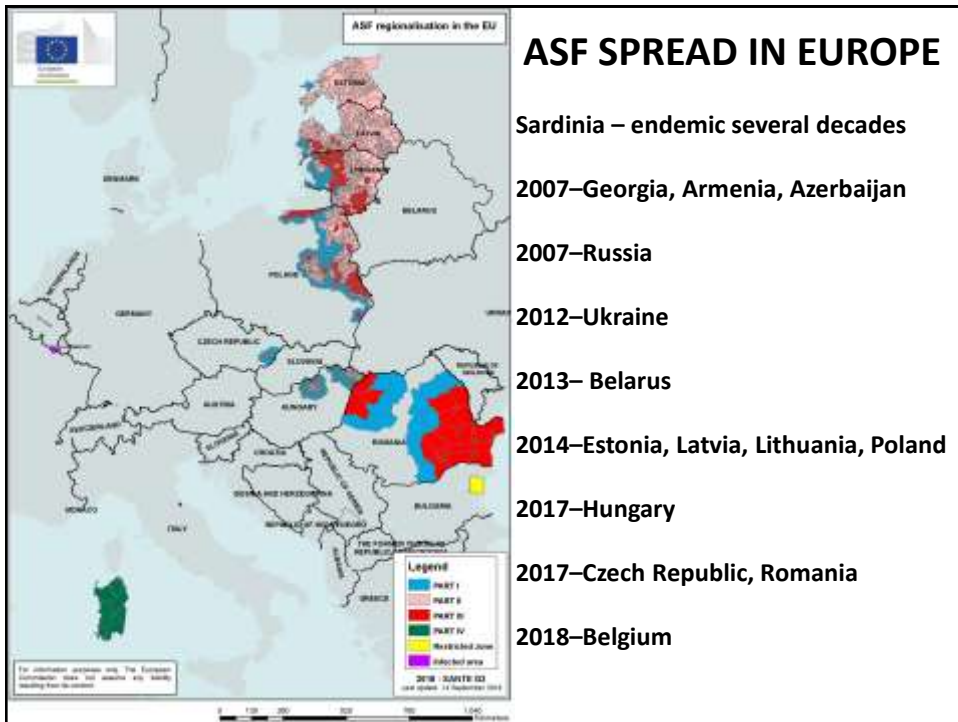# ACTIVITIES OF ENETWILD

Karolina Petrović, J. Vicente, M. Apollonio, O. Keuling, M. Scandura, T. Podgorski, E. Ferroglio, G. Body, G. Smith, S. Croft, M. Sange, A. Cohen, J. A. Blanco, S. Zanet, F. Brivio, P. Acevedo, R. Soriguer **& the ENETWILD consortium**

Mammal Research Institute
Polish Academy of Sciences
Białowieża

- **The project**
- **Data collection & harmonization**
- **Spatial modelling**
- **Next steps & collaboration**

a European network of wildlife professionals capable of providing reliable data on species distribution and abundance of selected host species and their pathogens, now focusing on wild boar populations

ASF SPREAD IN EUROPE

Sardinia – endemic several decades

2007–Georgia, Armenia, Azerbaijan

2007–Russia

2012–Ukraine

2013– Belarus

2014–Estonia, Latvia, Lithuania, Poland

2017–Hungary

2017–Czech Republic, Romania

**2018–Belgium**

The project

PROJECT JUSTIFICATION

- The European Food and Safety Authority (EFSA) has to assess risks related to spread of ASF in wild boar and domestic pigs

- A lack of data on the geographical distribution and abundance of wild boar has hampered these assessments

- Collection of valid data on the distribution and abundance of wild boar is needed, following harmonized methods and filtered by standards of quality

PROJECT OBJECTIVES

1. **To collect existing published and unpublished data** on the geographical distribution and abundance of wild boar

2. **To validate and aggregate data** in a harmonized way in a common database

3. **To promote and coordinate** the generation of new data

4. **Spatial modelling** of wild boar distribution, habitat suitability, ASF spread

5. **To enhance the network of wildlife professionals** and support data collection
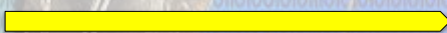
2017 ⟶ **2023**

ENETWILD NETWORK

North West ITAW: enetwild@tiho-hannover.de	**North East** MRI: enetwild@ibs.bialowieza.pl
South West **IREC & ONCFS:** **Project.enetwild@uclm.es**	**South East** UNITO:**enetwild@unito.it** UNISS: **enetwild@uniss.it**

WILD BOAR DATA MODEL (WBDM)

DATA:

- (1) **HUNTING**, (2) **DENSITY** and (3) **OCCURRENCE**
- (2) Spatial information (**hunting grounds**, **administrative units**)
- (3) Temporal information (**data from 2014 – present**)
- (4) Source (**data providers**, open access databases)

STRUCTURE:

- List of fields to fill in, including **data** and **metadata**
- Describing data and information → **STANDARDS**
- These standards are essential for **harmonization of data**

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http://www.enetwild.com

How to download WBDM forms The WBDM Structure

WBDM for Data Occurrence

WBDM for Hunting Bags

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4

Harmonization of hunting data collection frameworks
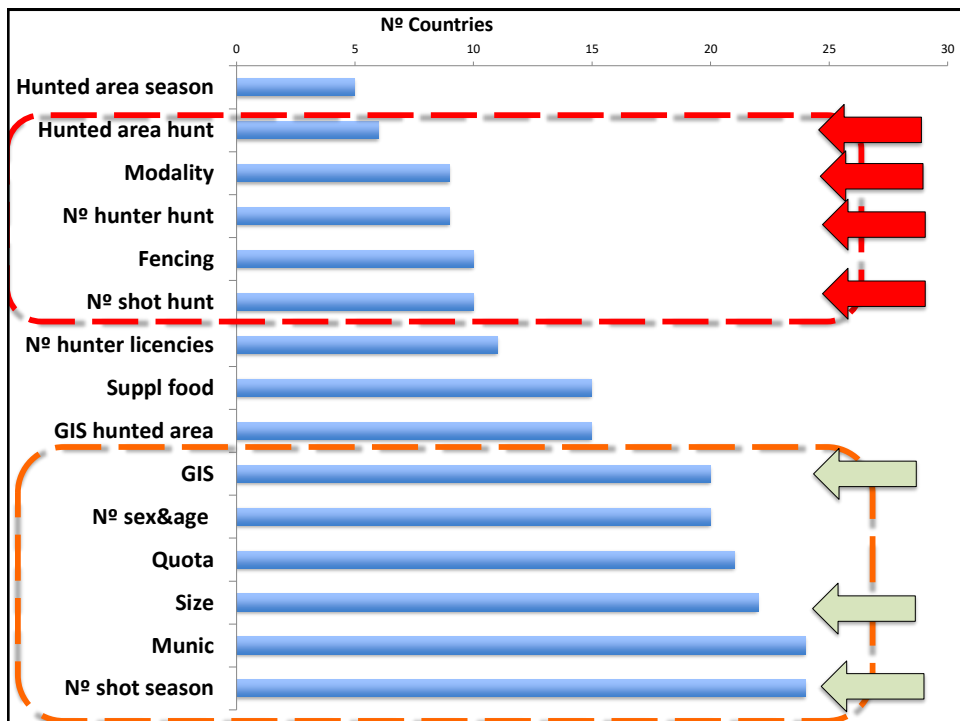
- 🟩 OK!!
- 🟨 Intermediate
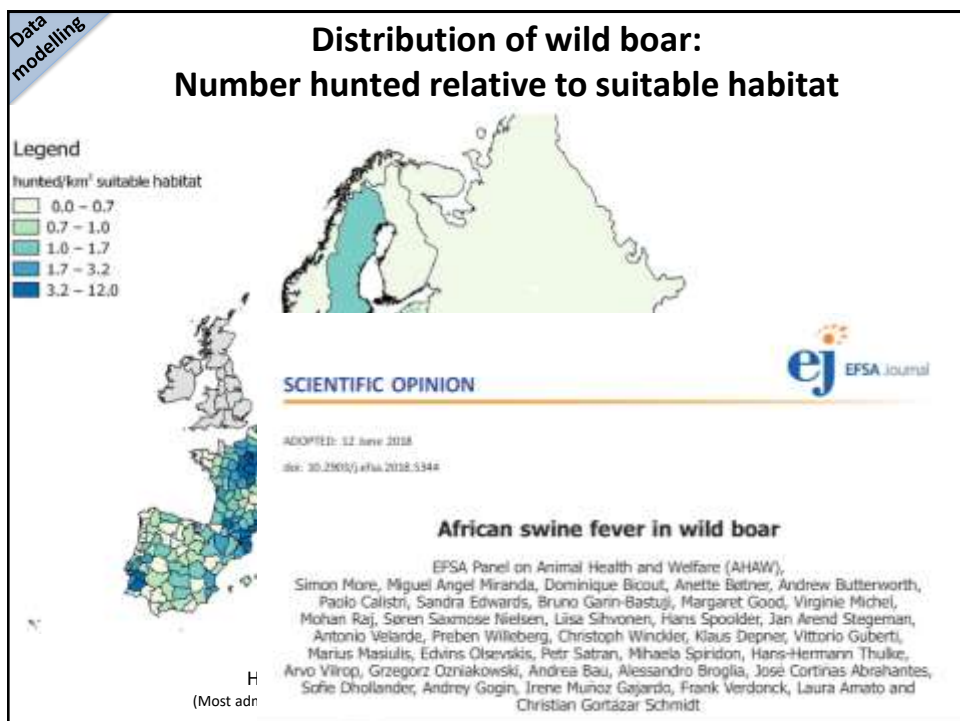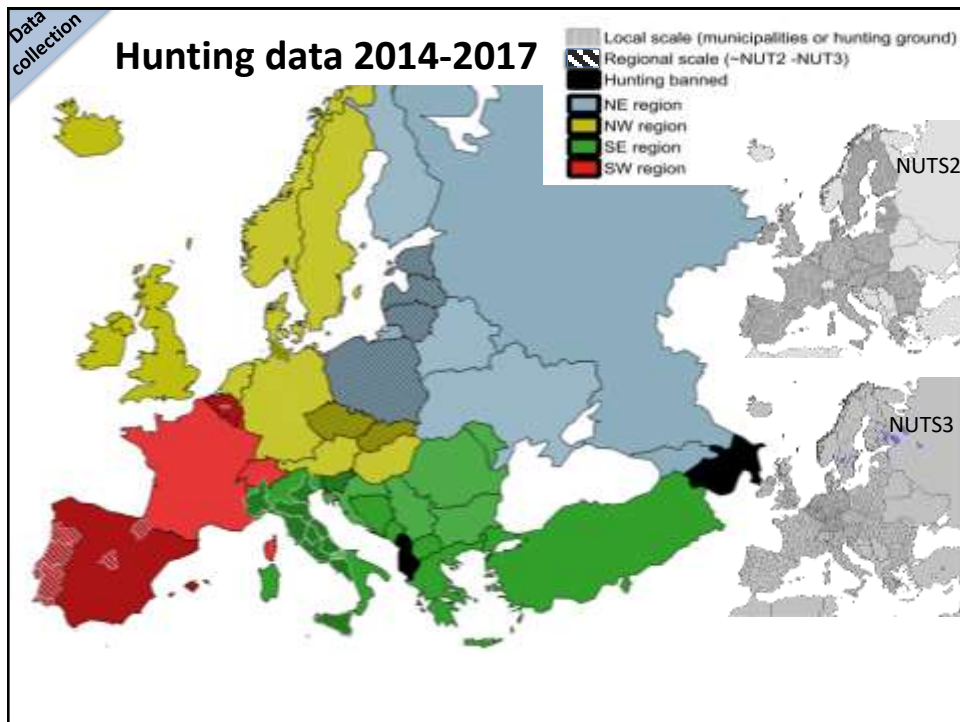- 🟥 Poor!

EXTERNAL SCIENTIFIC REPORT

ENETWILD

APPROVED: 26 November 2018
doi:10.2903/sp.efsa.2016.EN-1523

Analysis of hunting statistics collection frameworks for wild boar across Europe and proposals for improving the harmonisation of data collection

ENETwild Consortium[1], Joaquín Vicente, Radim Plhal, Jose A Blanco-Aguiar, Marie Sange, Tomasz Podgórski, Karolina Petrovic, Massimo Scandura, Anna Cohen Nabeiro, Guillaume Body, Oliver Keuling, Marco Apollonio, Ezio Ferroglio, Stefania Zanet, Francesca Brivio, Graham C Smith, Simon Croft, Pelayo Acevedo[1], Ramon Soriguer

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Nº Countries

Category	Value
Hunted area season	5
Hunted area hunt	6
Modality	9
Nº hunter hunt	9
Fencing	10
Nº shot hunt	10
Nº hunter licencies	11
Suppl food	15
GIS hunted area	15
GIS	20
Nº sex&age	20
Quota	21
Size	22
Munic	25
Nº shot season	25

Data collection

Hunting data 2014-2017

Legend:
- Local scale (municipalities or hunting ground)
- Regional scale (~NUT2 -NUT3)
- Hunting banned
- NE region
- NW region
- SE region
- SW region

NUTS2

NUTS3

Data modelling

Distribution of wild boar:
Number hunted relative to suitable habitat

Legend
hunted/km² suitable habitat
- 0.0 – 0.7
- 0.7 – 1.0
- 1.0 – 1.7
- 1.7 – 3.2
- 3.2 – 12.0

ej EFSA Journal

SCIENTIFIC OPINION

ADOPTED: 12 June 2018

doi: 10.2903/j.efsa.2018.5344

African swine fever in wild boar

EFSA Panel on Animal Health and Welfare (AHAW),
Simon More, Miguel Angel Miranda, Dominique Bicout, Anette Bøtner, Andrew Butterworth, Paolo Calistri, Sandra Edwards, Bruno Garin-Bastuji, Margaret Good, Virginie Michel, Mohan Raj, Søren Saxmose Nielsen, Liisa Sihvonen, Hans Spoolder, Jan Arend Stegeman, Antonio Velarde, Preben Willeberg, Christoph Winckler, Klaus Depner, Vittorio Guberti, Marius Masiulis, Edvins Olsevskis, Petr Satran, Mihaela Spiridon, Hans-Hermann Thulke, Arvo Viltrop, Grzegorz Oznaiakowski, Andrea Bau, Alessandro Broglia, José Cortinas Abrahantes, Sofie Dhollander, Andrey Gogin, Irene Muñoz Gajardo, Frank Verdonck, Laura Amato and Christian Gortazar Schmidt

6

EXTERNAL SCIENTIFIC REPORT

ENETWILD

Guidance on estimation of wild boar population abundance and density: methods, challenges, possibilities

ENETWILD consortium[i], Oliver Keuling, Marie Sange, Pelayo Acevedo, Tomasz Podgorski, Graham Smith, Massimo Scandura, Marco Apollonio, Ezio Ferroglio and Joaquín Vicente

https://www.efsa.europa.eu/en/supporting/pub/en-1449

- Assessment of the accuracy and reliability of methods for estimation of relative abundance and density of wild boar

- Recommendations for calculating accurate and reliable estimates using the best available and comparable methods (camera traps, drive counts, distance sampling)
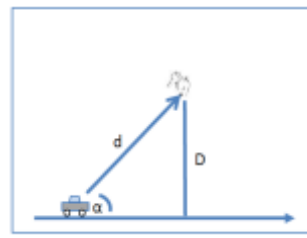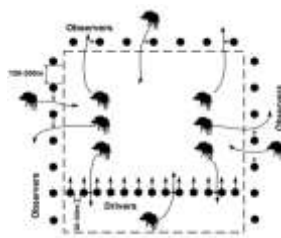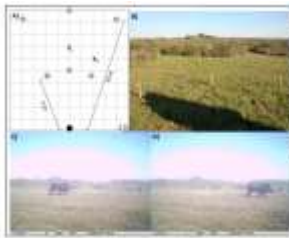
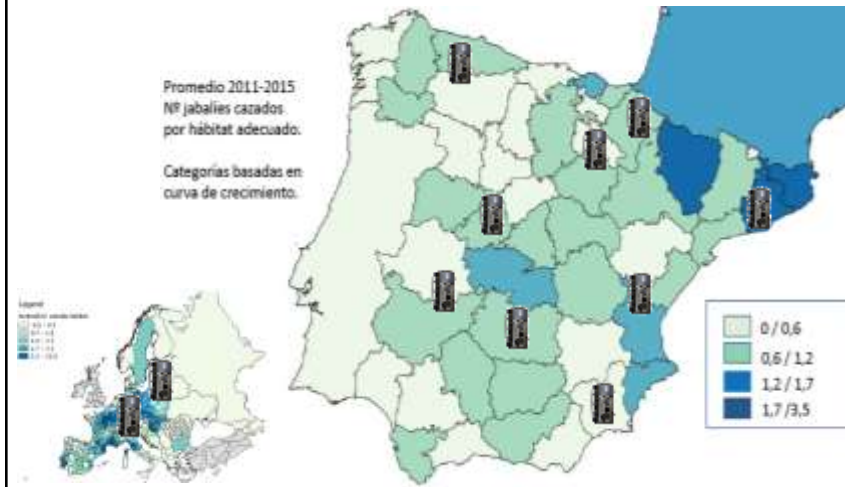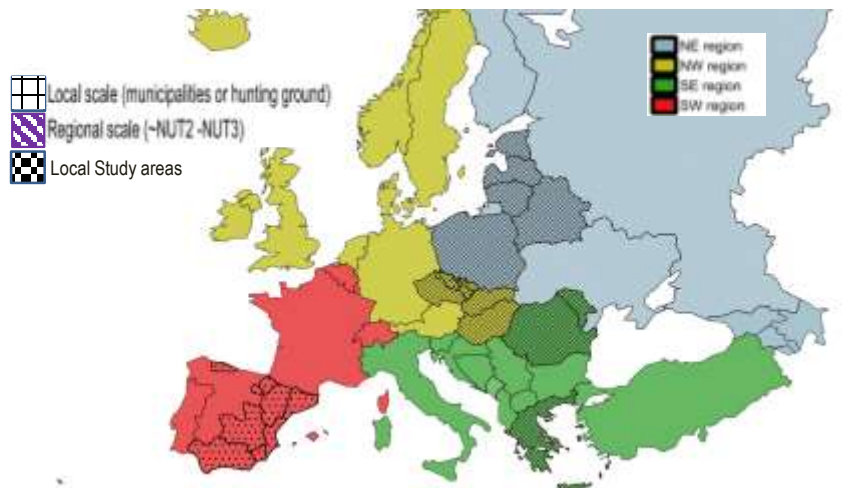| FORM TO COLLECT DATA DURING DRIVE HUNTS (one drive one form)		
Name and position (organizer, ranger, etc.) of count coordinator: /		
E-mail:	Telephone:	
Date:	Municipality:	
Hunting ground ID:	Hunting ground name:	
Hunting drive (name of the patch covered and/or consecutive number within the season):		
Start time:	End time:	
Name and/or name of the stalking site:		
Nº hunters (stalking sites):	Nº beaters:	Nº dogs
Did you look for tracks before?		
Did you bait the hunted area?		
Beaten area (has):	Is there GIS file available? (yes/no):	
Total Nº sighted wild boar (including those hunted):		
Total Nº hunted wild boar:		
Total Nº sighted red deer (including those hunted):		
Total Nº hunted red deer:		
INSTRUCTIONS TO FILL THIS FORM		

- Each stalked hunter must fill in this form for his position (fields indicated in grey)
- Next, all data must be summarized in a single form by the co-ordinator of the drive count, who will fill in the form for the total count of the event. You should consider the possible double counting by neighbour hunting positions
- It is very important to fill in the form even if no piece has been seen or hunted, in this case in the corresponding boxes it will be set 0
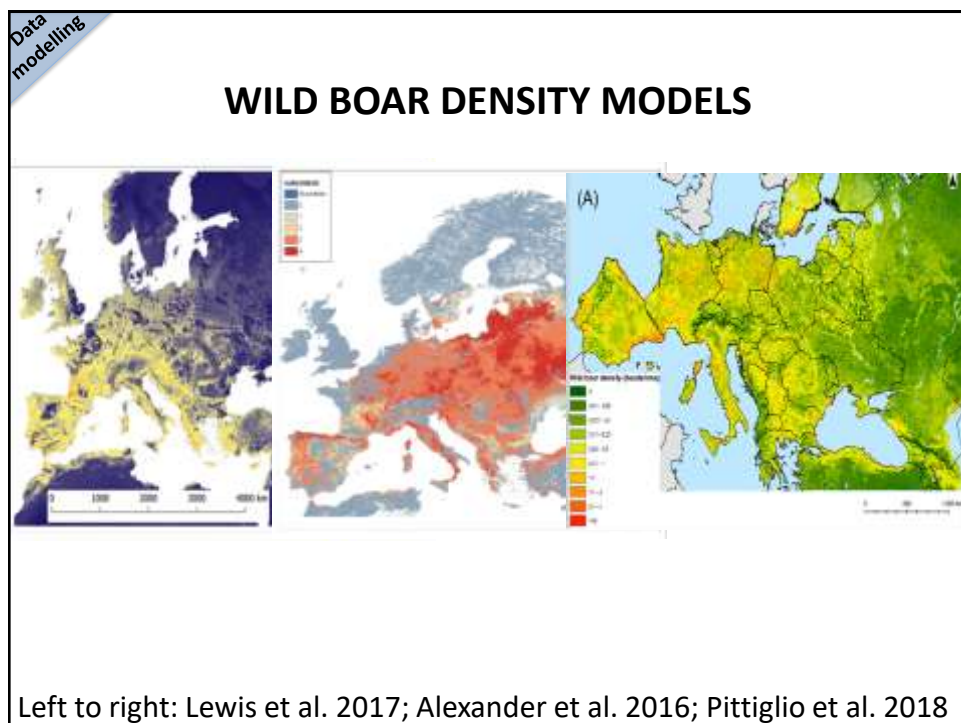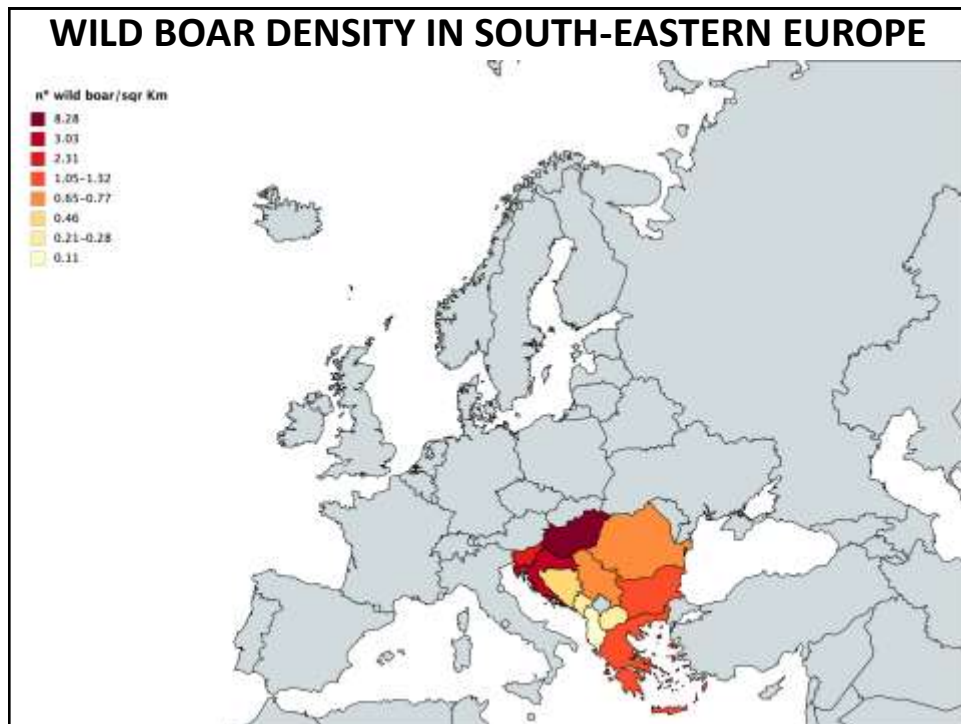
Calibration of high quality hunting data as a proxy of density

Describing the relationship between density values based on driven hunts *vs* independent density values (camera traps)

WILD BOAR DENSITY DATA 2014-2017

WILD BOAR DENSITY IN SOUTH-EASTERN EUROPE

WILD BOAR DENSITY MODELS

Left to right: Lewis et al. 2017; Alexander et al. 2016; Pittiglio et al. 2018

Slide 1

Data modelling

WILD BOAR DENSITY MODELS

| Document	Model validation,	Factors limiting the use of this methodology by ENETWILD
Lewis et al. (2017)	4-fold **cross validation**; **Mean Square Error** (0.22); **Pearson's cor** obs. vs. pred. (0.8)	**Lack of repeatability & flexibility to incorporate new data**
Bosch et al. (2017)	Agreement between classification scor and **density of boar sightings**	**Use of unstandardized hunting data**
Vilaça et al. (2014)	**Cross validation**; **AUC** (0.8); **MESS** (>0)	**Does not consider unequal hunting effort**
Alexander et al. (2016)	**None** explicitly reported	
Pittiglio et al. (2018)	Independent va al. 2006); high l	
Bosch et al. (2014a)	Comparison	
Jordt et al. (2016)	Comparison	
Croft et al. (2017)	**Cross validat** re	
Bosch et al. (2012)	Comparison	
Bosch et al. (2014b)	**Cross valid**	
Acevedo et al. (2014)	**Cross vali** correlati	
McClure et al. (2015)	High correlatio **plots** of suita quantile) agains	

EXTERNAL SCIENTIFIC REPORT

APPROVED: 21 December 2018

doi:10.2903/sp.efsa.2019.EN-1535

Wild boar in focus:
initial model outputs of wild boar distribution based on occurrence data and identification of priority areas for data collection

ENETWILD consortium[1], Simon Croft, Graham Smith, Pelayo Acevedo, Joaquín Vicente

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Slide 2

Data modelling

ENETWILD INITIAL MODEL

Wild boar abundance (predicted number hunted/ UTM 10 x 10 km2)

Predicted number of wb hunted
- 0 - 750
- 750 - 1500
- 1500 - 3000
- 3000 - 6000
- >6000
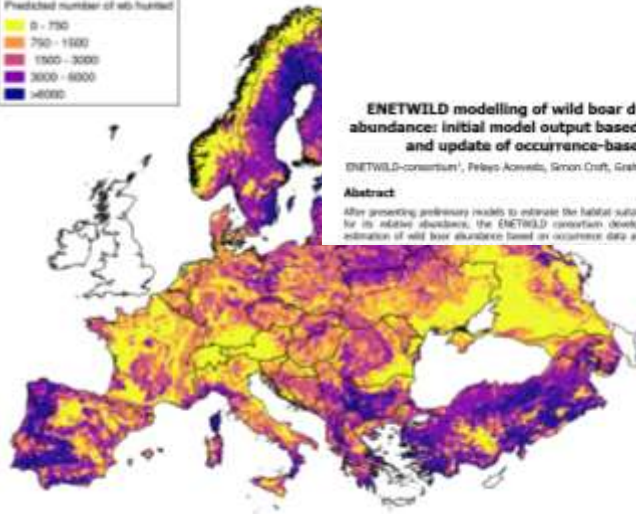
ENETWILD modelling of wild boar distribution and abundance: initial model output based on hunting data and update of occurrence-based models

ENETWILD-consortium[1], Pelayo Acevedo, Simon Croft, Graham Smith, Joaquín Vicente

Abstract

After presenting preliminary models to estimate the habitat suitability for wild boar as a proxy for its relative abundance, the ENETWILD consortium developed further models for the estimation of wild boar abundance based on occurrence data and hunting yields (HY) which

Next Steps & collaboration ………. We request/offer

- **Data** (EFSA: Open data, certain requirements)
  - Grey literature (e. g. reliable densities) and databases on small projects
  - Presence (presence/background), i.e. camera traps
  - Hunting bags → data at smallest possible spatial level

- **Generation (harmonized & standardized) new data and provide support & guidance, training**

- **Harmonizing data collection (hunting) and provide a harmonized framework (Standards & Data collection models)**

Next Steps & collaboration ………. We request/offer

- **Calibration hunting and density data: hunting areas of known density required!**

- **Improved spatial models, comparing and combining different types of data and approaches**

- **Wild boar made the way: harmonization of data collection & modelling in other species**

Next …

Next Steps & collaboration ………. We offer

- **Enhancing a network of wildlife professionals:**

  – **ENETWILD workshop at 34th IUGB Congress 26-30 August 2019, Kaunas, Lithuania**

  – **Citizen science project (2019-2020): pilot study to evaluate its added value for data collection**

COLLABORATORS

http://www.enetwild.com/collaborators/

THANK YOU!!