

Updates on EFSA's Bird Flu Radar

Early warning of Highly Pathogenic Avian
Influenza (HPAI) in the EU



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Model description

- In the model **the probability of an HPAI outbreak (*P_{intro}*)** is defined as:
 - The probability that HPAI virus enters a given area via wild bird movements (**probability of entry**)
 - AND is able to be transmitted to at least one other wild bird in the area under consideration (**probability of establishment**)

Model description

- *Pintro* is estimated at a **spatial scale of 50x50 km** grid cells and a **temporal scale of one week**
- Each migratory individual wild bird **species has specific probabilities of entry and establishment**
- **Model specificity and sensitivity** were assessed by **comparing Pintro with actual HPAI outbreaks reported in ADIS** (and EMPRES-i in the case of the UK)
- Only the probability of disease occurrence (daily resolution from ADIS) varies from year to year

Full model description?

EXTERNAL SCIENTIFIC REPORT



AUSVET



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Development of a prototype early warning system for avian influenza in the EU based on risk-mapping

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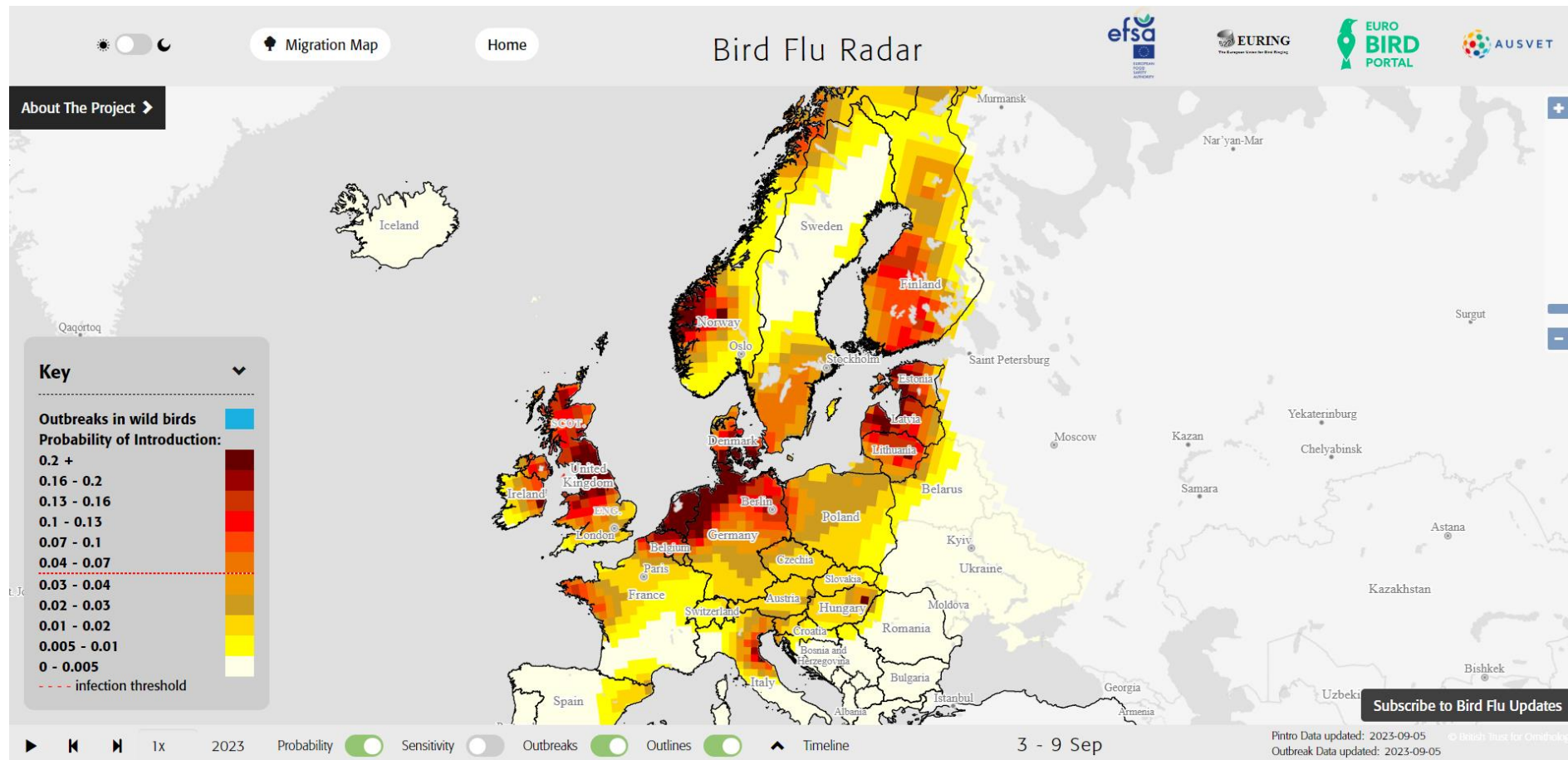
⁴ Ausvet Europe, Lyon, France

⁵ Sovon, Dutch Centre for Field Ornithology, Nijmegen, Netherlands

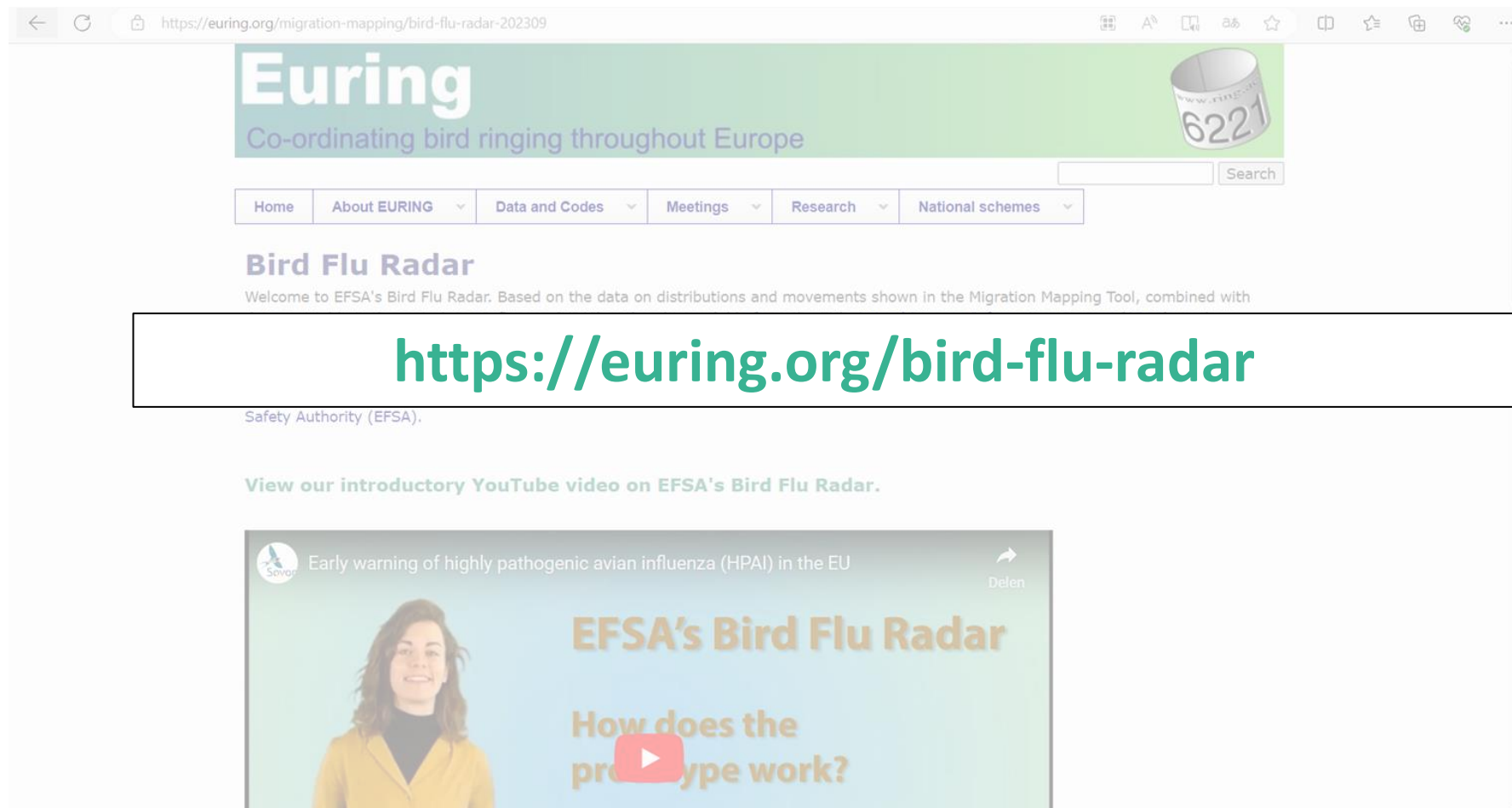
⁶ BTO, Thetford, UK

⁷ EURING, Thetford, UK

Online tool update

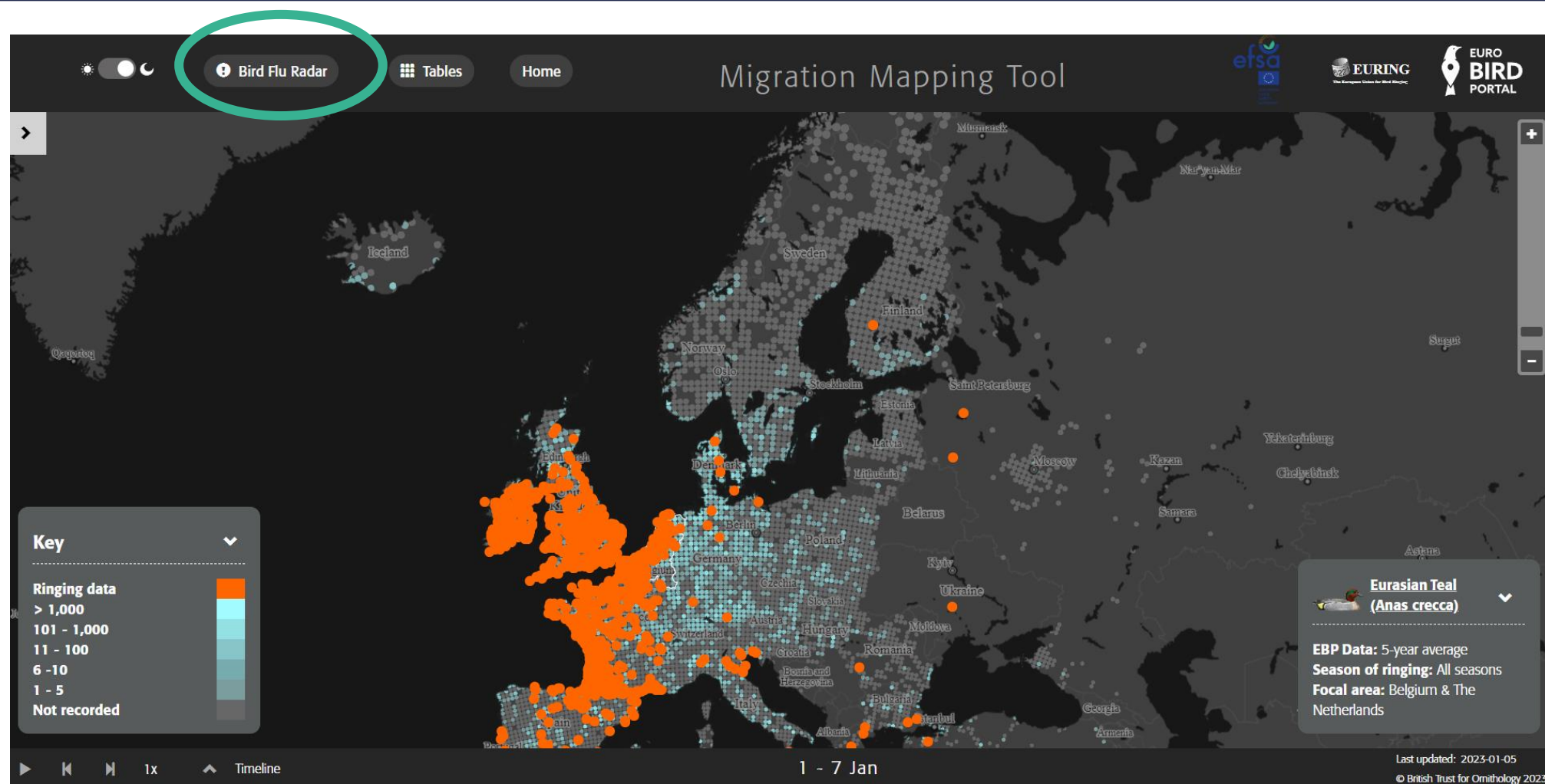


Online tool – *Where will you find it?*

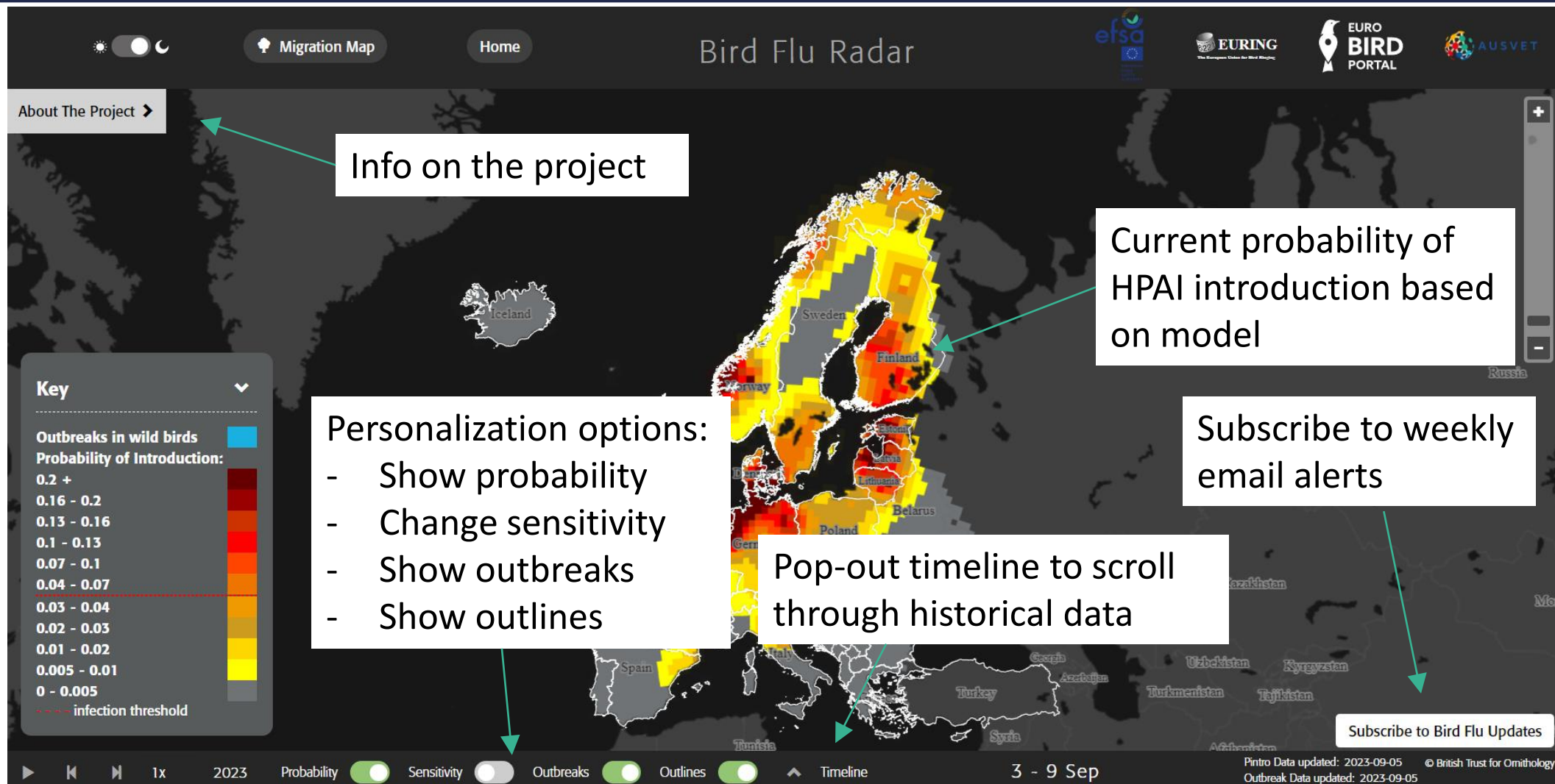


The screenshot shows a web browser window with the URL <https://euring.org/migration-mapping/bird-flu-radar-202309>. The page header features the Euring logo and the tagline "Co-ordinating bird ringing throughout Europe". A navigation menu includes links for Home, About EURING, Data and Codes, Meetings, Research, and National schemes. The main content area is titled "Bird Flu Radar" and includes a search bar. A large green box highlights the URL <https://euring.org/bird-flu-radar>. Below this, there is a link to view an introductory YouTube video on EFSA's Bird Flu Radar. The video thumbnail shows a woman and the text "EFSA's Bird Flu Radar" and "How does the prototype work?".

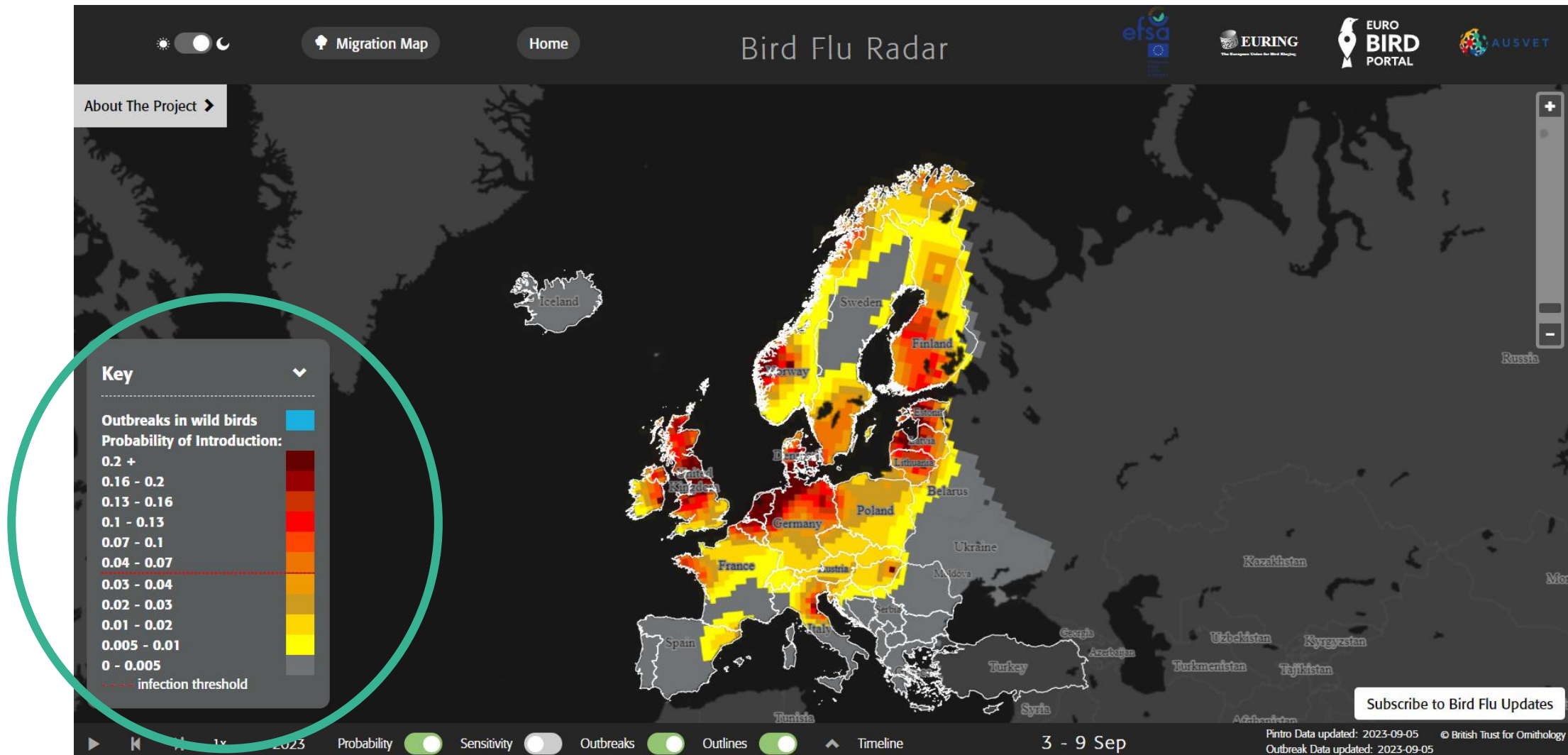
Online tool – *Where will you find it?*



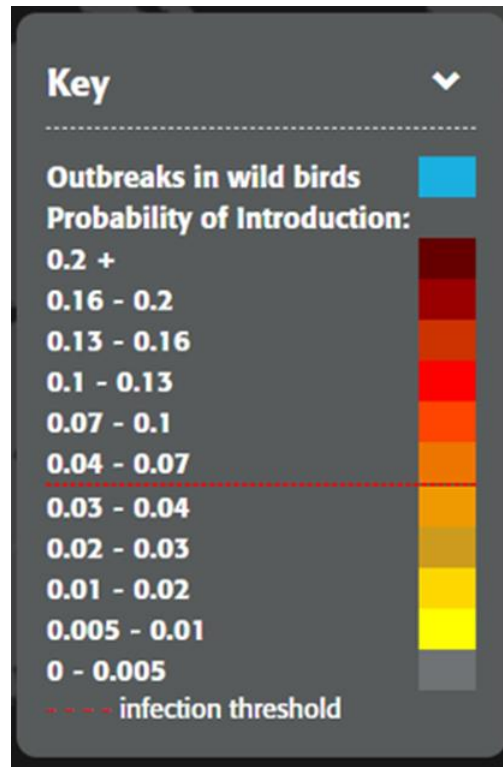
Online tool update



Online tool update - Legend

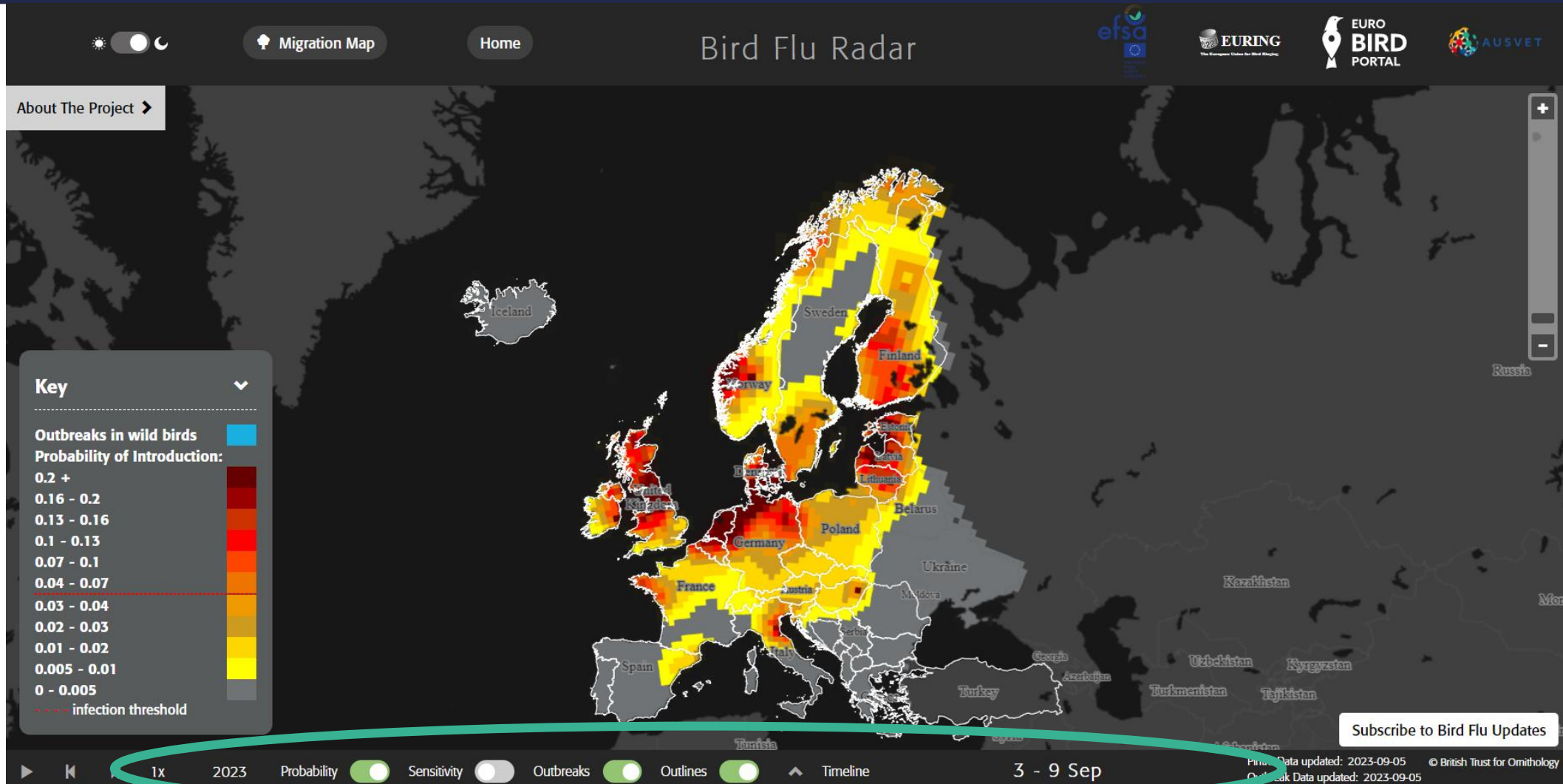


Online tool update - *Legend*



- Red dotted line is **optimal threshold/optimal cut off value:** maximized model sensitivity and specificity
- Calculated by comparing Pintro to actual HPAI outbreaks reported in ADIS

Online tool update



Online tool update - *Timeline*

Migration Map Home Bird Flu Radar

About The Project >

Key

- Outbreaks in wild birds
- Probability of Introduction:
- 0.2 +
- 0.16 - 0.2
- 0.13 - 0.16
- 0.1 - 0.13
- 0.07 - 0.1
- 0.04 - 0.07
- 0.03 - 0.04
- 0.02 - 0.03
- 0.01 - 0.02
- 0.005 - 0.01
- 0 - 0.005
- infection threshold

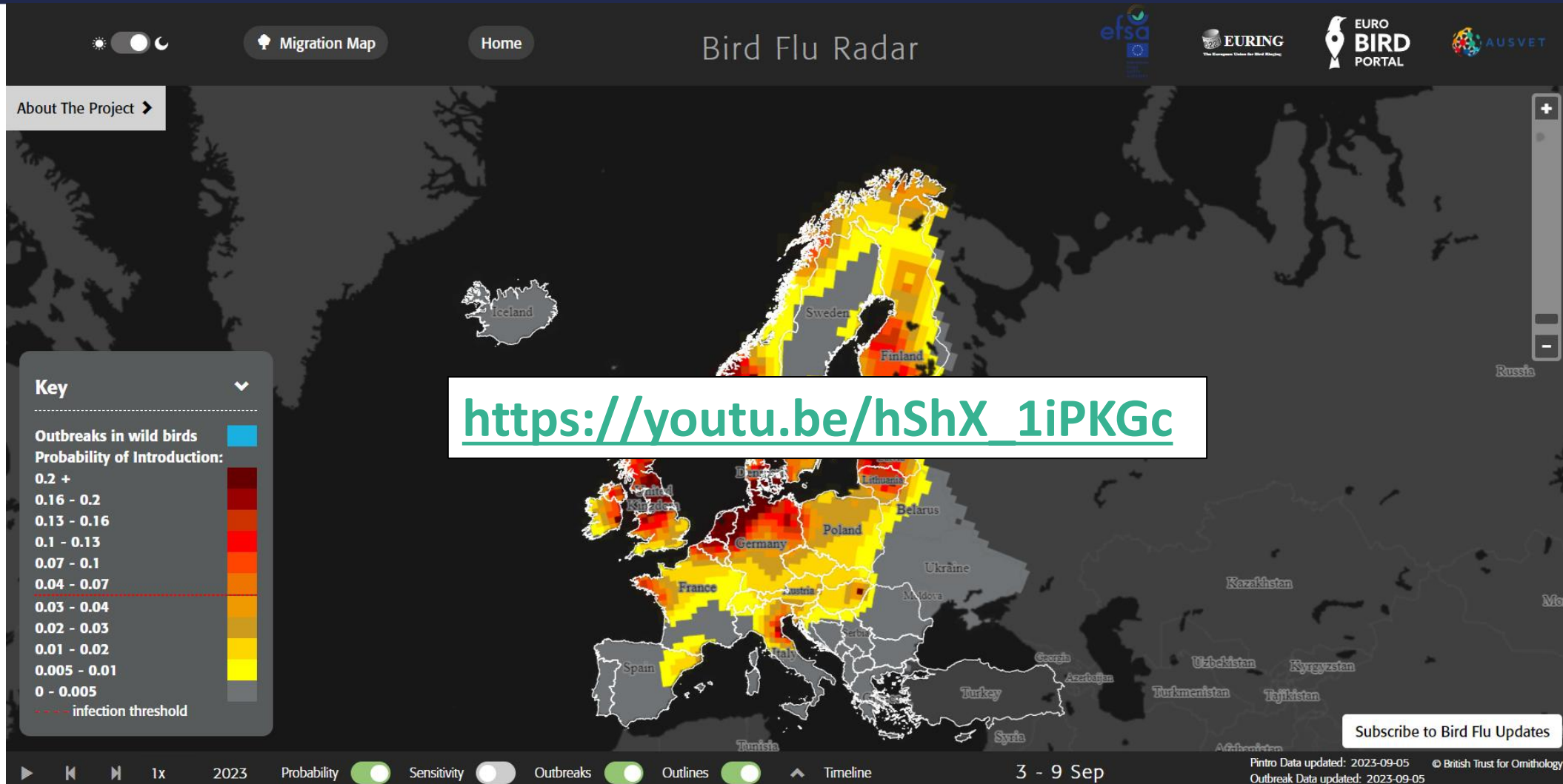
<https://youtu.be/FP-QHOju2SE>

Subscribe to Bird Flu Updates

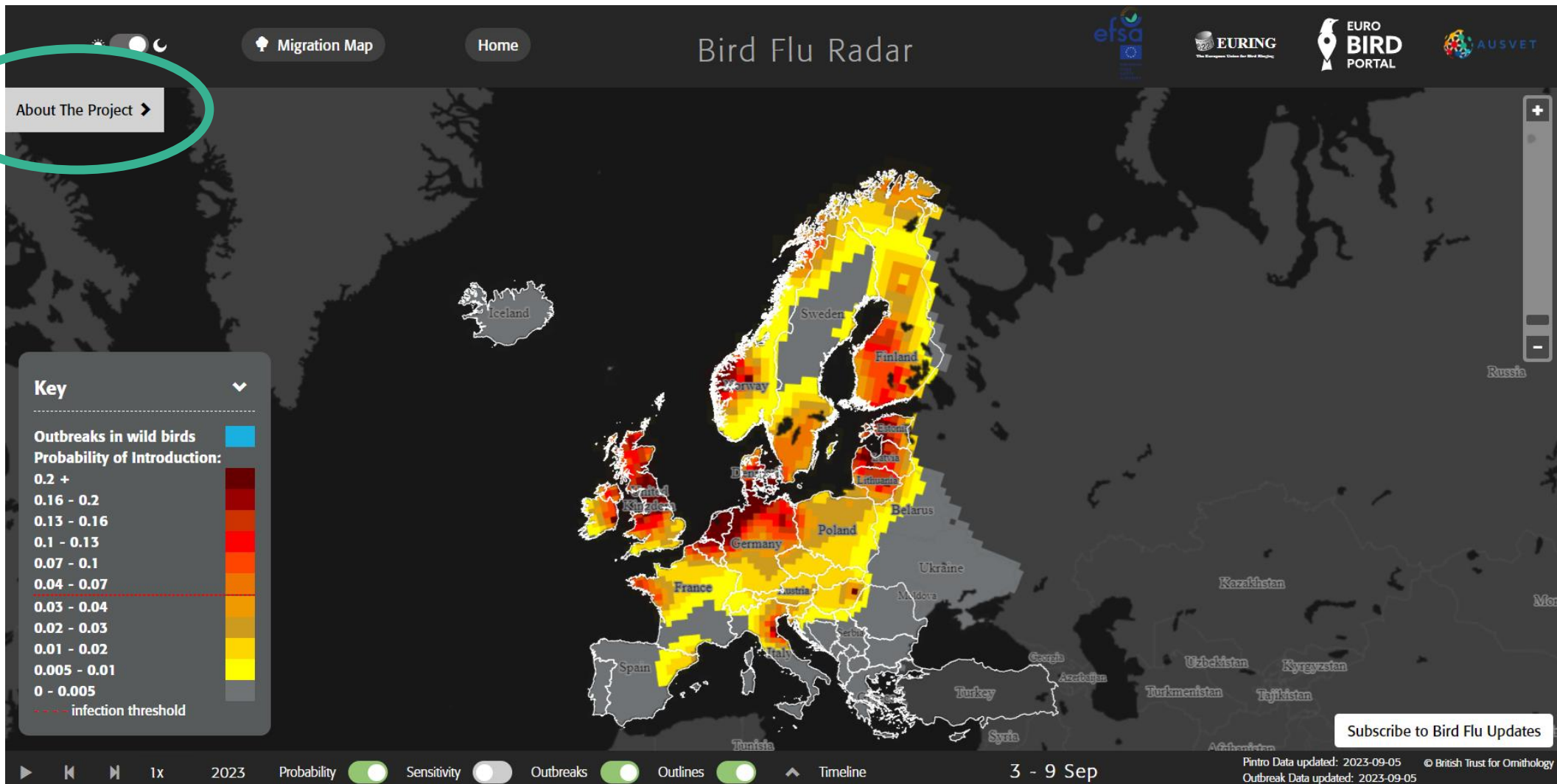
1x 2023 Probability Sensitivity Outbreaks Outlines Timeline 3 - 9 Sep

Pintro Data updated: 2023-09-05 © British Trust for Ornithology
Outbreak Data updated: 2023-09-05

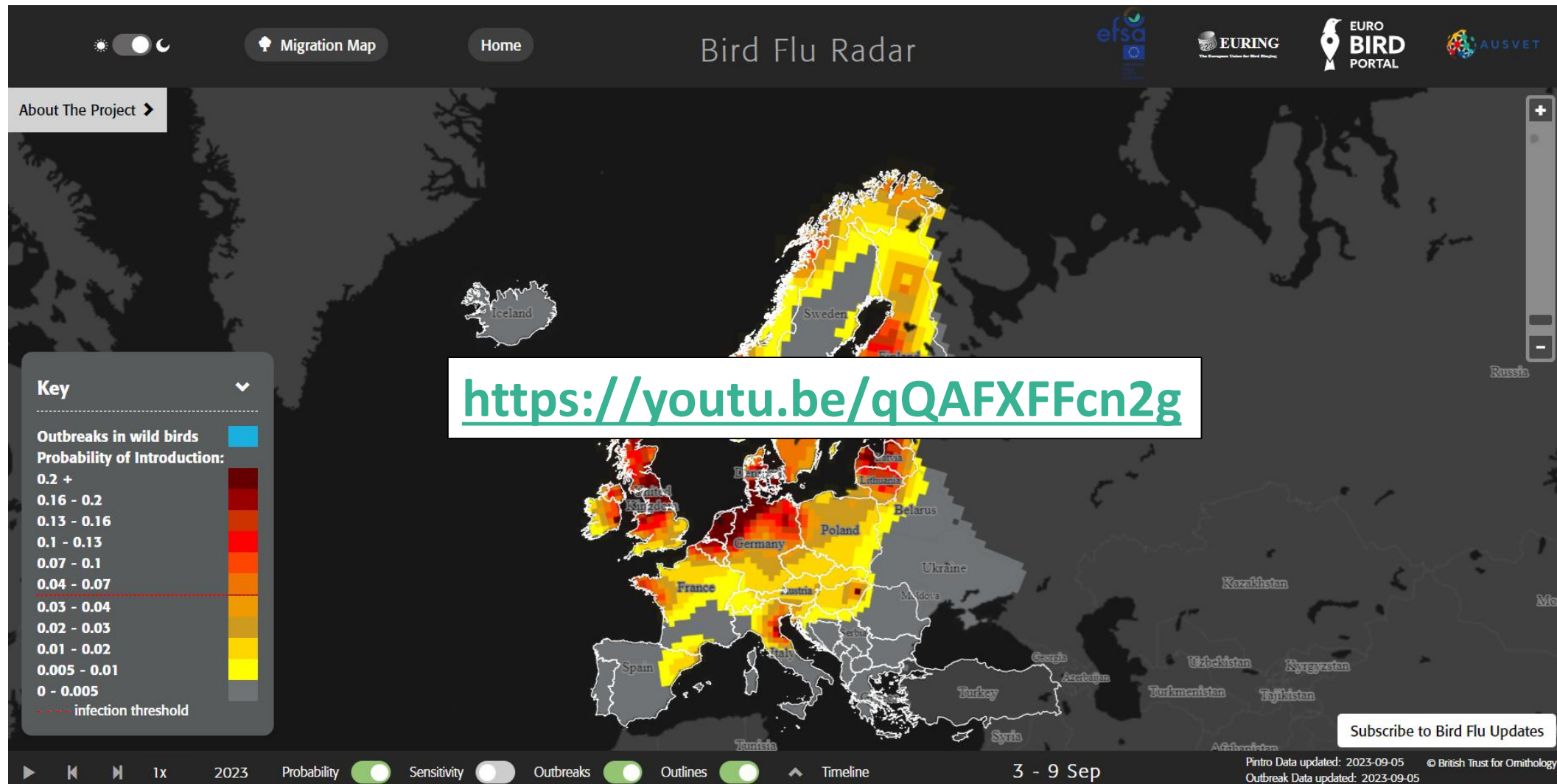
Online tool update - *Personalisation*



Online tool update – *About the project*



Online tool update – *About the project*



Online tool update – *About the project*

Key

Outbreaks in wild birds

Probability of Introduction:

0.2 +	Dark Red
0.16 - 0.2	Red
0.13 - 0.16	Orange-Red
0.1 - 0.13	Orange
0.07 - 0.1	Light Orange
0.04 - 0.07	Yellow-Orange
0.03 - 0.04	Yellow
0.02 - 0.03	Light Yellow
0.01 - 0.02	Very Light Yellow
0.005 - 0.01	Lightest Yellow
0 - 0.005	White

--- infection threshold

- Timeline of the project
- Project members
- Model description
- Input data
- References
- Disclaimer

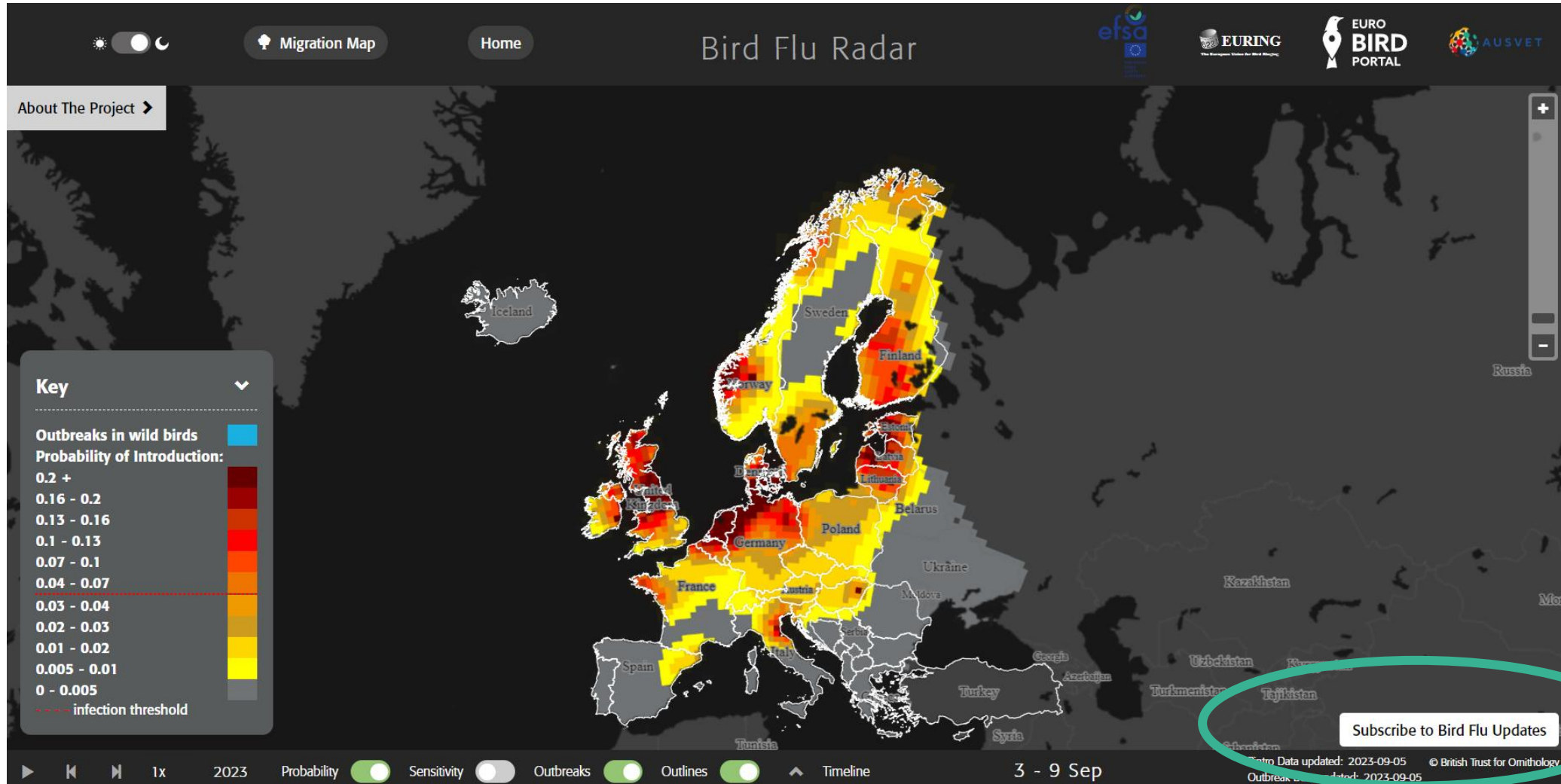
Subscribe to Bird Flu Updates

Pinto Data updated: 2023-09-05 © British Trust for Ornithology
Outbreak Data updated: 2023-09-05

Notes on the tool update

- **The tool is still being updated and perfected**, so the final version of the tool might look a little different than shown here
- Official launch date will be communicated by EFSA in their news brief, but will be somewhere in the upcoming weeks in September

Weekly alert email – *How to subscribe?*



Weekly alert email – *How to subscribe?*

Subscribe to HPAI Updates

HPAI Updates Subscription Service

Be updated automatically when the probability of HPAI introduction into wild birds is high in your selected area. To sign up, please enter your email address below, then respond to the confirmation email we send you.

You will be able to select geographical areas of interest after we confirm your email address.

Email Address

DISCLAIMER: The data we use to track the spread of HPAI is based heavily around livestock fowl and so may not alert you to the more natural spread of HPAI in the area (disclaimer disclaimer: this text was written for testing purposes and will need to be replaced before this goes live)

Cancel Submit

Key

Outbreaks in wild birds

Probability of Introduction:

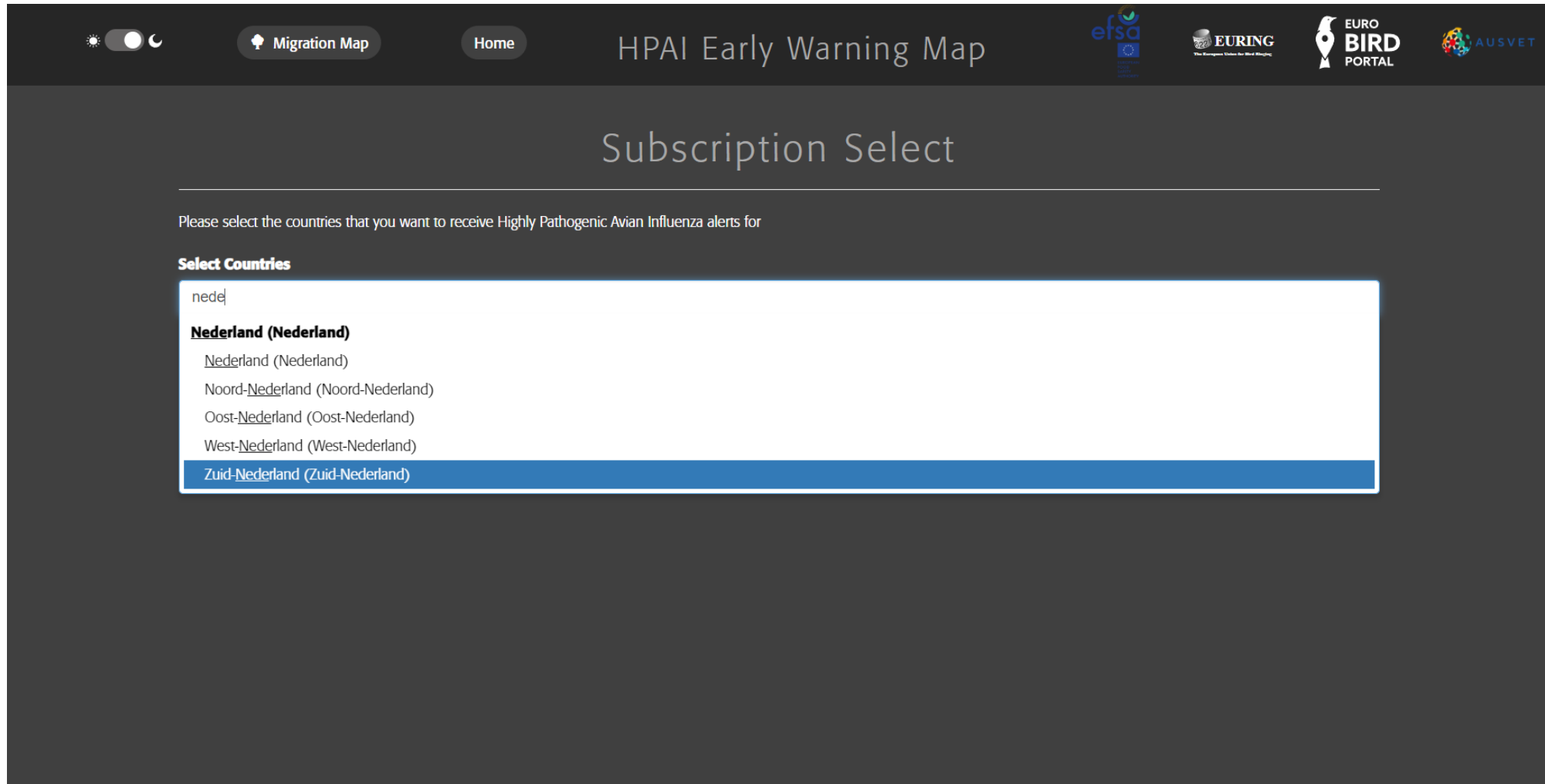
- 0.2 +
- 0.16 - 0.2
- 0.13 - 0.16
- 0.1 - 0.13
- 0.07 - 0.1
- 0.04 - 0.07
- 0.03 - 0.04
- 0.02 - 0.03
- 0.01 - 0.02
- 0.005 - 0.01
- 0 - 0.005

--- infection threshold

Subscribe to Bird Flu Updates

Pintro Data updated: 2023-09-05 © British Trust for Ornithology
Outbreak Data updated: 2023-09-05

Weekly alert email – *How to subscribe?*



The screenshot shows the 'Subscription Select' page of the HPAI Early Warning Map. The page has a dark grey background. At the top, there is a navigation bar with a sun/moon toggle, 'Migration Map' and 'Home' buttons, and logos for 'efsa', 'EURLING', 'EURO BIRD PORTAL', and 'AUSVET'. The main heading is 'Subscription Select'. Below it, a text prompt asks the user to select countries for alerts. A search box contains 'nede' and a dropdown menu lists options: 'Nederland (Nederland)', 'Nederland (Nederland)', 'Noord-Nederland (Noord-Nederland)', 'Oost-Nederland (Oost-Nederland)', 'West-Nederland (West-Nederland)', and 'Zuid-Nederland (Zuid-Nederland)'. The last option is highlighted in blue.

efsa

Migration Map Home

HPAI Early Warning Map

efsa EURLING EURO BIRD PORTAL AUSVET

Subscription Select

Please select the countries that you want to receive Highly Pathogenic Avian Influenza alerts for

Select Countries

nede

- Nederland (Nederland)**
- Nederland (Nederland)
- Noord-Nederland (Noord-Nederland)
- Oost-Nederland (Oost-Nederland)
- West-Nederland (West-Nederland)
- Zuid-Nederland (Zuid-Nederland)**

efsa
EUROPEAN
FOOD
SAFETY
AUTHORITY

Weekly alert email – *Contents*

- **Access to map** showing probability of introduction (Pintro) of selected country or NUTS-1 level region
- **Summary statistics** on Pintro in the selected countries/regions
 - Median probability
 - Maximum probability
 - Number and percentage of cells with a Pintro higher than the threshold value
 - Pintro of the lower and upper quartile of cells
- **Number of H5 and H7 avian influenza outbreaks** that occurred in the selected countries/regions over the last week

Current model limitations

- **Abundance and migration patterns currently do not change** from one year to another
- **Cyprus and Türkiye are not included** in the model because of lack of input data
- Outbreaks that fall outside of the grid are not taken into account

Solved model limitation



• The delay in reporting outbreaks

- Data source has **changed from EMPRES-i to ADIS** (except for the UK)
- EU countries need to report primary outbreaks to ADIS within 24 hours: short delay period
- Less underestimation of Pintro

What's next?

1. ✓ September 2023 - Exploration and test of different **data sources for data on disease outbreaks and new web interface**
2. August 2024 - Update of the risk assessment model based on **new versions of the models related to wild bird abundance and movements** including **additional species**
3. August 2024 - Expansion of the risk assessment model to allow the **prediction of the risk of introduction and establishment of HPAI in poultry**
4. August 2025 - **Update and improvement** of the risk assessment model based on new integrated version of the models related to wild bird abundance and movements
5. December 2025 - **Final model validation**

Questions?

