



*A service to measure and improve biodiversity using satellite data for monitoring, evaluation and optimization of CAP greening initiatives*



SINERGISE



Horizon Europe  
Research and Innovation  
Programme

Grant agreement number:  
101082634



Funded by  
the European Union



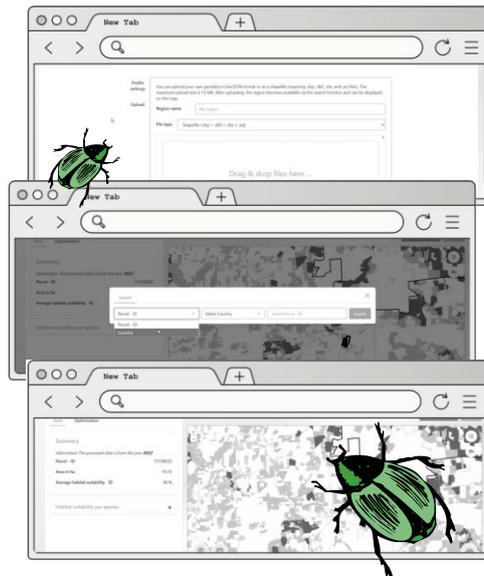
TABLE OF CONTENTS

FARMLAND HABITATS IN LITHUANIA



Image source: [animalspot.net](https://www.animalspot.net)

HUNTING BUGS ON A PLATFORM



A VISIT BY THE DIRECTORATE-GENERAL FOR AGRICULTURE & RURAL DEVELOPMENT



BirdWatch has entered its testing phase. This means we started to share our output with potential users in our four test regions.

This issue focusses on testing activities in **Lithuania**, starting with introducing you to our results for this region.

In the fall, our project partners NPA and ADS carried out detailed, hands-on checks to validate key workflows and to ensure the platform is clear and easy to use for future users.

This “bug-hunting” turned out to be a valuable input in creating a platform which we can safely release once the Bird-Watch project is over!

In parallel, NPA continued to showcase Bird-Watch at different events relevant to policy-makers and the farming community.

In the fall of 2025, NPA was visited by DG Agri’s Oliver Sitar, who - along with his delegation - came to Vilnius to familiarise himself with NPA’s achievements in the integration of satellite data in their daily processes.

FARMLAND BIRD HABITATS IN... LITHUANIA



**BirdWatch** is developing tools to monitor farmland bird habitat suitability and determine measures for its improvement, in line with pertinent policies. Our approach has been described in previous newsletters\*.

Habitat models for eight different farmland bird species, occurring in Lithuania, were developed. Species occurrence data, relevant to the modeling, were provided by the Lithuanian Ornithological Society\*\*.

Data on the agricultural parcels across the country was used to extract farmland boundaries as well as the types of crops grown on them.

Satellite data allowed us to assess climate conditions and land cover types in the areas where

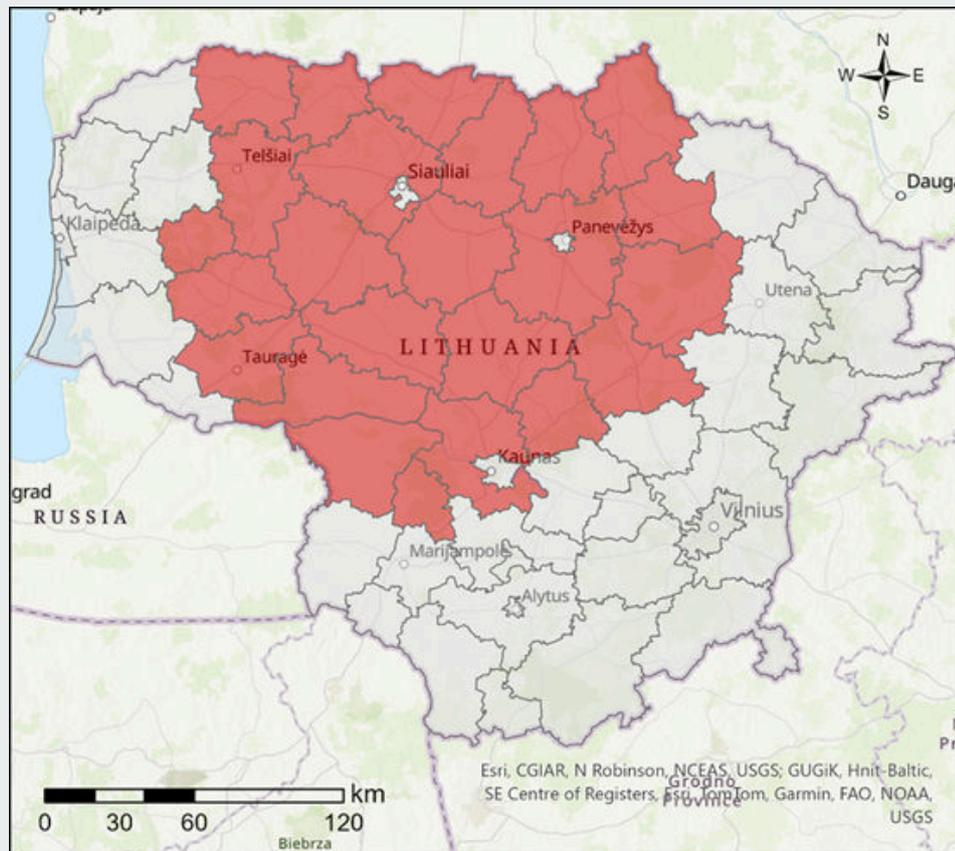


Figure 1: Area with high-intensity agriculture in Lithuania;

the birds were recorded and thus also the range of conditions under which they occur.

Specifically, we are interested in a region of Lithuania in which the intensity of agricultural activity is especially high (Fig. 1).

The following two figures show resulting maps of habitat suitability for two bird species in three different municipalities in Lithuania, with two of them located within the region with high management intensity.

\*[Download our newsletters here](#)

\*\* [Lithuanian Ornithological Society](#)

FARMLAND BIRD HABITATS IN... LITHUANIA

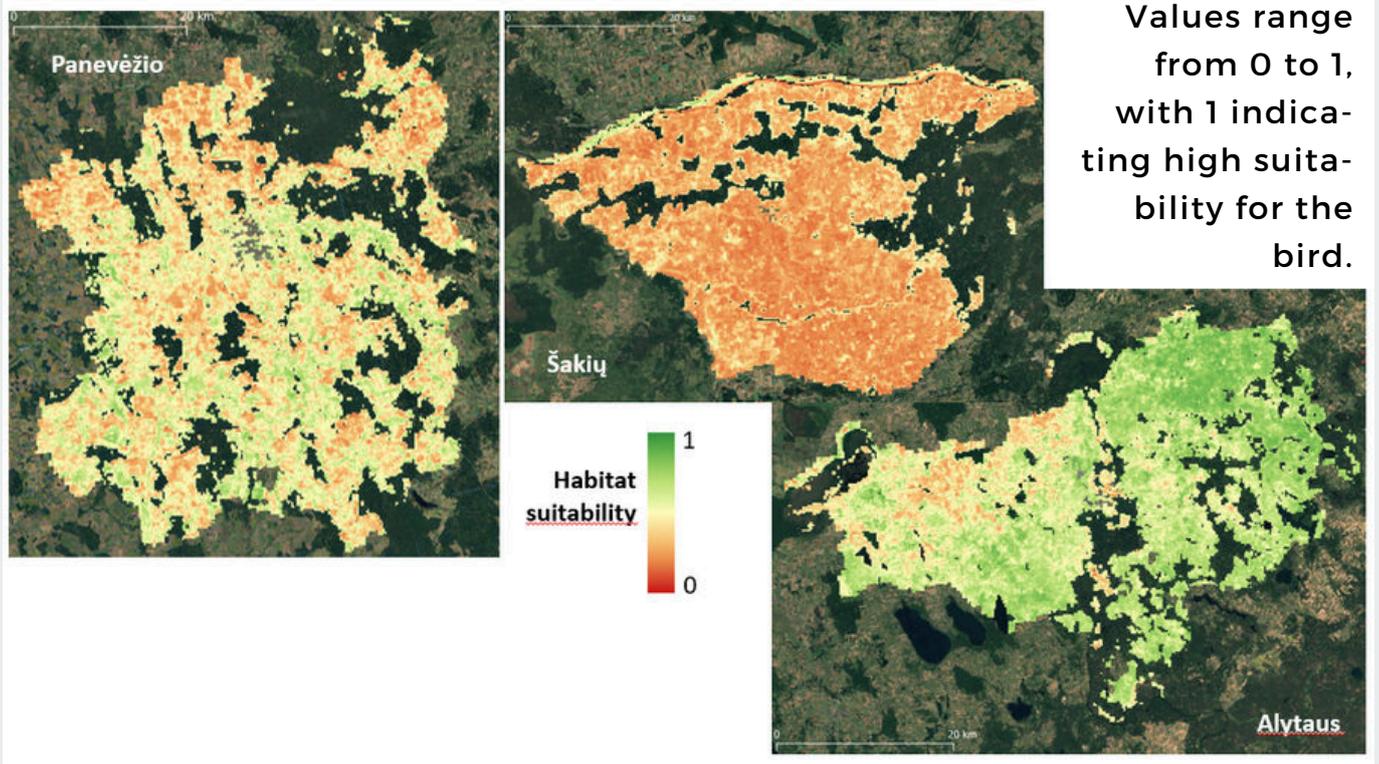


Figure 2: Habitat suitability maps for *Emberiza citrinella*; Background map: Google Satellite

Here, we show the habitat suitability for *Emberiza citrinella*, or Yellowhammer, and *Saxicola rubetra*, also known as Whinchat.

Both seem to find better habitat conditions in the municipality of Alytaus which lies outside of the high-intensity zone (Fig. 2 and Fig. 3).

Among the starkest differences between the municipalities with high agricultural intensity (Panevėžis and Šakių) and the one with a lower intensity (Alytaus), is the proportion of permanent grassland. In the latter case, it is almost 50%, while the former, it lies at just below 30%.

Of course, there are many factors which can potentially influence habitat suitability. Furthermore, these factors usually vary between different species.

This is also what makes it difficult to select the appropriate measures for conservation and restoration purposes.

FARMLAND BIRD HABITATS IN... LITHUANIA

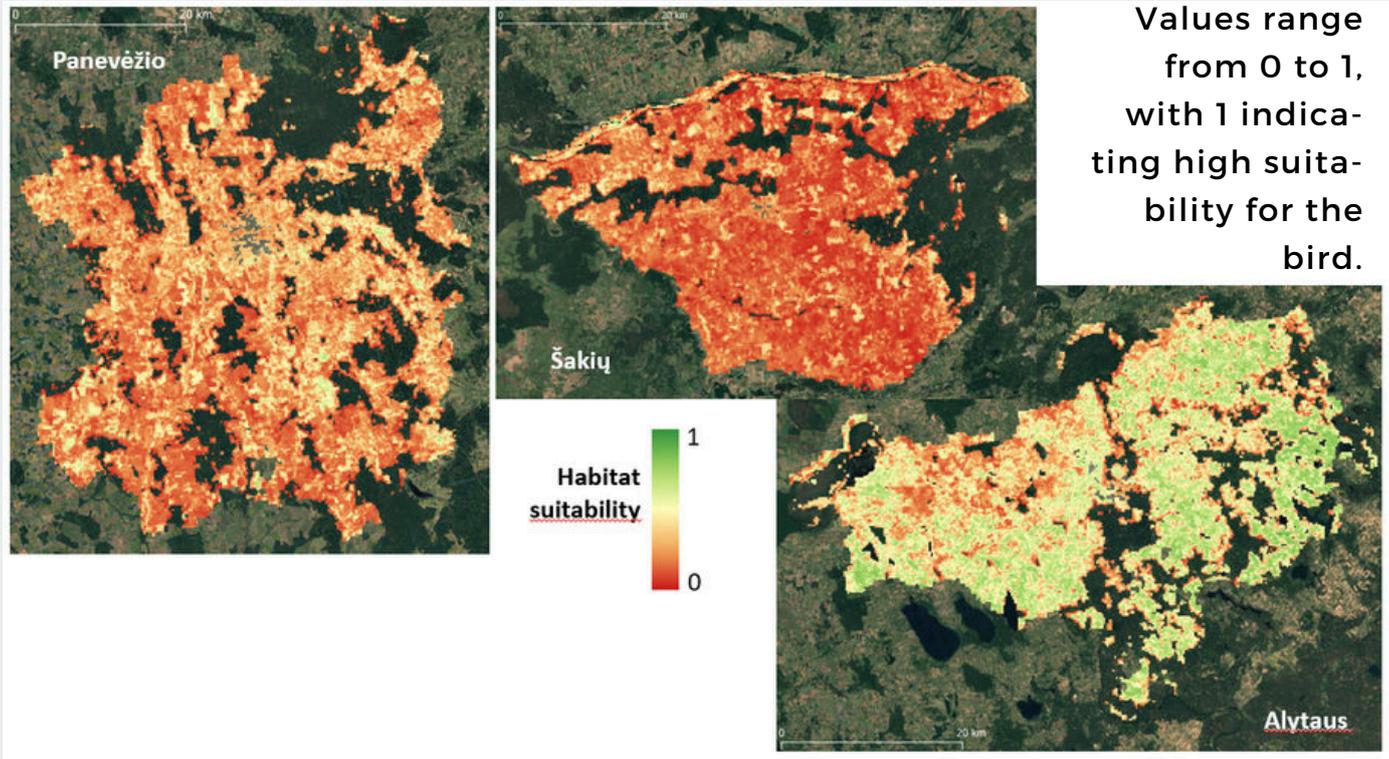


Figure 3: Habitat suitability maps for *Saxicola rubetra*; ; Background map: Google Satellite

To showcase the potential of spatial optimisation as a support for decision-making, we developed an exemplary scenario to calculate which agri-environmental measures could improve farmland habitats.

Hereby, the underlying premise of BirdWatch is

to increase the quality of farmland bird habitats. Thus, our approach is guided by the ultimate requirement that none of the scenario outcomes should decrease the habitat quality of any of the considered bird species. To develop the scenario, the National Paying Agency under the Mini-

stry of Agriculture of the Republic of Lithuania, a consortium partner in BirdWatch, identified the actions which are relevant for the conservation of farmland birds and for which farmers can receive compensation in the context of the EU's Common Agricultural Policy (CAP).

FARMLAND BIRD HABITATS IN... LITHUANIA



The aim of the scenario was to suggest in which areas biodiversity-improving measures should be applied. The main constraint, apart from the habitat suitability, was the budget available for conservation efforts.

Possible measures for the currently selected parcel:	
Grassy element	€206 ha/year
Perennial grass strip	€170.00 ha/year
Tree element	€1329 ha/year
Vegetables	€332.16 ha/year

Figure 4: Example of CAP conservation measures and the height of their respective funding, which can improve farmland bird habitats;

Fig. 4 shows the available budget for some of the conservation measures available under Lithuania's CAP Strategic Plan. An optimal allocation of the measures can then be calculated, aiming for the highest possible positive impact while minimising the total costs.

The optimisation was carried out by our project partner VITO, in consultation with our partners NPA and ADS. Focus is on municipalities, located in the area of highest agricultural intensity (Fig. 1).

Fig. 5 summarises the resulting change in the average habitat suitability per bird species under the considered minimum budget scenario.

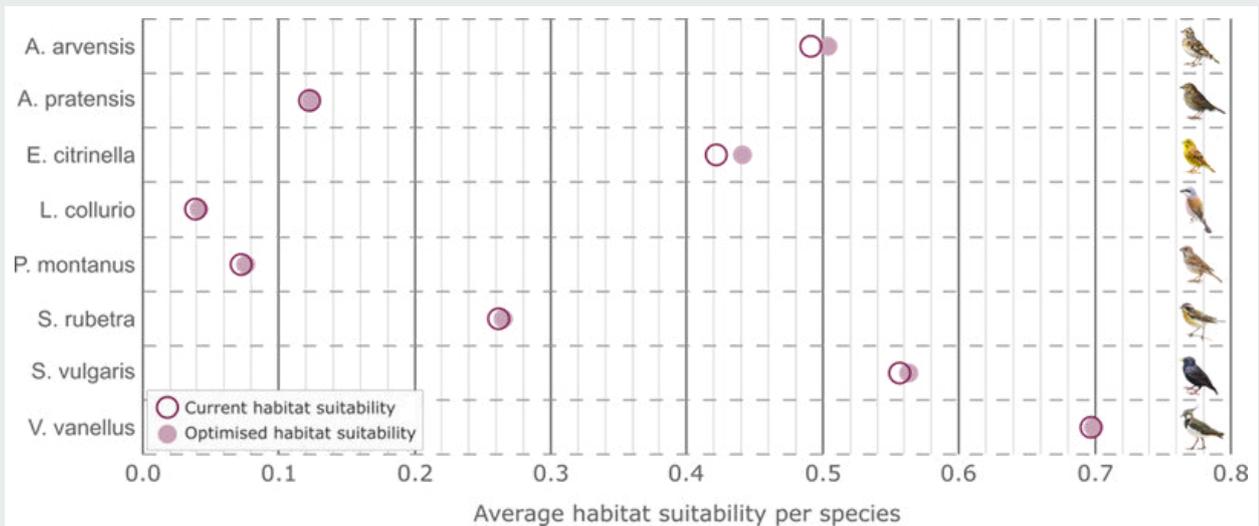


Figure 5: Average habitat suitability per considered bird species, current and optimised scenario

## FARMLAND BIRD HABITATS IN... LITHUANIA



In the habitat optimisation scenario, three of the eight considered species showed a clear increase in average habitat suitability under the proposed allocation of measures: Yellowhammer (+4%), Eurasian skylark (+3%) and Common starling (+1%).

Across species, the most impactful measures in terms of added suitable

habitat per unit area were the establishment of grassy elements and perennial grass strips, which proved to be effective in increasing the suitable area for the Eurasian skylark, Yellowhammer, Common starling and Northern lapwing.

This highlights that prioritising structurally rich landscape elements and

targeted perennial vegetation can deliver the greatest biodiversity returns for a given budget in intensively farmed municipalities (Fig. 6).

However, the budget-focused scenario reveals only modest gains. **Allocating more funding or adjusting measures to fit specific species might increase the potential for improvement.**

SAV	Vidutinis buveinės tinkamumo balas									Tinkamos buveinės plotas (km <sup>2</sup> )							
	Vieversys	P. Kalviukas	G Starta	P. medšark.	Karklažvi rblis	Kiauliukė	Varnėnas	Pempė	P.	Vieversys	P. Kalviukas	G Starta	P. medšark.	Karklažvi rblis	Kiauliukė	Varnėnas	Pempė
Jonavos r. sav.	3.18%	0.82%	6.10%	3.91%	4.32%	2.07%	1.63%	0.42%	13.68%	250.00%	19.59%	NA	NA	16.67%	4.81%	1.66%	
Kauno r. sav.	4.63%	1.09%	6.96%	5.97%	3.84%	0.86%	1.52%	0.32%	23.42%	92.31%	32.10%	NA	NA	NA	6.07%	1.20%	
Raseinių r. sav.	1.83%	1.19%	4.74%	5.19%	2.88%	1.41%	0.70%	0.14%	9.84%	26.19%	18.38%	NA	NA	1.31%	1.91%	0.35%	
Šakių r. sav.	4.19%	0.67%	6.73%	4.26%	2.57%	0.70%	2.10%	0.48%	29.45%	2.86%	38.28%	NA	NA	NA	5.01%	0.70%	
Biržų r. sav.	3.12%	0.20%	3.90%	6.85%	3.97%	0.68%	2.40%	0.40%	23.77%	26.70%	33.39%	NA	NA	NA	17.73%	0.83%	
Kėdainių r. sav.	2.11%	-0.41%	5.58%	4.02%	2.26%	1.90%	1.60%	0.38%	11.55%	165.63%	18.34%	NA	NA	3.33%	5.35%	1.10%	
Kupiškio r. sav.	2.79%	-0.27%	4.49%	7.01%	5.03%	1.46%	2.31%	0.33%	15.54%	10.87%	22.04%	NA	NA	0.78%	8.52%	1.02%	
Panevėžio r. sav.	2.02%	-0.73%	4.55%	4.07%	3.37%	1.27%	1.25%	0.20%	11.36%	47.25%	17.45%	NA	NA	0.00%	5.69%	0.74%	
Pasvalio r. sav.	2.63%	-0.41%	4.54%	6.65%	1.95%	-0.01%	1.66%	0.34%	25.31%	86.49%	35.17%	NA	NA	NA	9.65%	0.80%	
Akmenės r. sav.	3.12%	1.66%	6.49%	6.30%	2.68%	1.61%	1.55%	0.43%	17.96%	225.00%	32.80%	NA	NA	3.45%	6.25%	1.45%	
Joniškio r. sav.	2.83%	0.42%	6.38%	5.44%	1.92%	1.52%	1.32%	0.44%	21.88%	NA	28.57%	NA	NA	NA	8.57%	1.15%	
Kelmės r. sav.	1.67%	-0.53%	3.16%	5.78%	5.20%	0.76%	0.30%	0.09%	7.00%	9.68%	13.24%	NA	NA	-0.13%	0.79%	0.27%	
Pakruojo r. sav.	2.45%	1.82%	6.05%	4.83%	1.90%	1.08%	1.76%	0.37%	19.08%	833.33%	63.89%	NA	NA	NA	6.50%	0.77%	
Radvilišio r. sav.	2.25%	-0.77%	5.12%	3.42%	2.34%	1.90%	1.00%	0.30%	11.62%	71.29%	20.70%	NA	NA	0.71%	2.93%	0.76%	
Šiaulių r. sav.	2.28%	-1.23%	5.09%	3.35%	2.89%	1.99%	1.05%	0.37%	14.91%	NA	26.48%	NA	NA	2.20%	2.56%	1.37%	
Tauragės r. sav.	4.26%	2.12%	4.37%	6.94%	7.97%	1.11%	0.98%	0.17%	14.21%	1.84%	12.26%	NA	NA	1.23%	2.26%	0.62%	
Šilalės r. sav.	1.09%	1.66%	1.46%	6.03%	10.28%	0.52%	0.36%	0.02%	3.17%	4.22%	4.33%	NA	NA	-0.88%	0.63%	-0.08%	
Jurbarko r. sav.	4.20%	2.44%	6.21%	5.54%	4.02%	1.15%	1.46%	0.36%	15.48%	2.86%	42.42%	NA	NA	NA	5.50%	0.94%	
Mažeikių r. sav.	2.65%	2.44%	5.04%	6.73%	3.63%	1.13%	1.37%	0.21%	12.18%	37.14%	13.22%	NA	NA	0.41%	4.16%	0.43%	
Telšių r. sav.	1.72%	0.71%	2.64%	7.23%	6.84%	0.70%	0.63%	0.14%	7.01%	24.00%	9.92%	NA	NA	-0.85%	1.18%	0.44%	
Anykščių r. sav.	2.46%	-0.18%	3.54%	4.75%	5.69%	1.31%	1.35%	0.41%	9.92%	24.41%	10.86%	NA	NA	-1.25%	3.62%	1.35%	
Ukmergės r. sav.	2.21%	0.14%	4.18%	4.77%	4.96%	1.12%	1.58%	0.39%	12.50%	29.46%	12.12%	NA	NA	1.90%	5.08%	1.37%	
Kazlų Rūdos sav.	5.19%	1.83%	6.18%	5.69%	5.12%	0.62%	1.44%	0.27%	35.19%	0.00%	22.05%	NA	NA	NA	5.23%	1.18%	
Rietavo sav.	1.08%	1.62%	2.10%	8.14%	9.16%	0.97%	0.42%	0.15%	4.07%	4.47%	8.09%	NA	NA	-0.79%	0.89%	0.30%	

Figure 6: The improvements in habitat suitability, broken down by municipality for which the optimisation scenario was calculated

## HUNTING BUGS ON A PLATFORM



Last fall, NPA and ADS actively tested the Bird-Watch platform in the Lithuania test region, focusing on the validation of key workflows to ensure the platform is ready for future users. The aim was not only on confirming that features work as expected, but also on identifying areas where the user journey could be smoother when

clients and stakeholders first explore the system.

While the testing phase took longer than originally planned, this was a conscious decision: the teams aimed to capture and report as many issues as possible, so that later rollouts come with minimal disruption and fewer unexpected system behaviour (Fig. 6).

This extra effort helped ensure that users can better understand the platform and test it in practice without unnecessary friction.

Check out our Policy Brief focusing on Lithuania, to learn more what future users could do with BirdWatch!\*

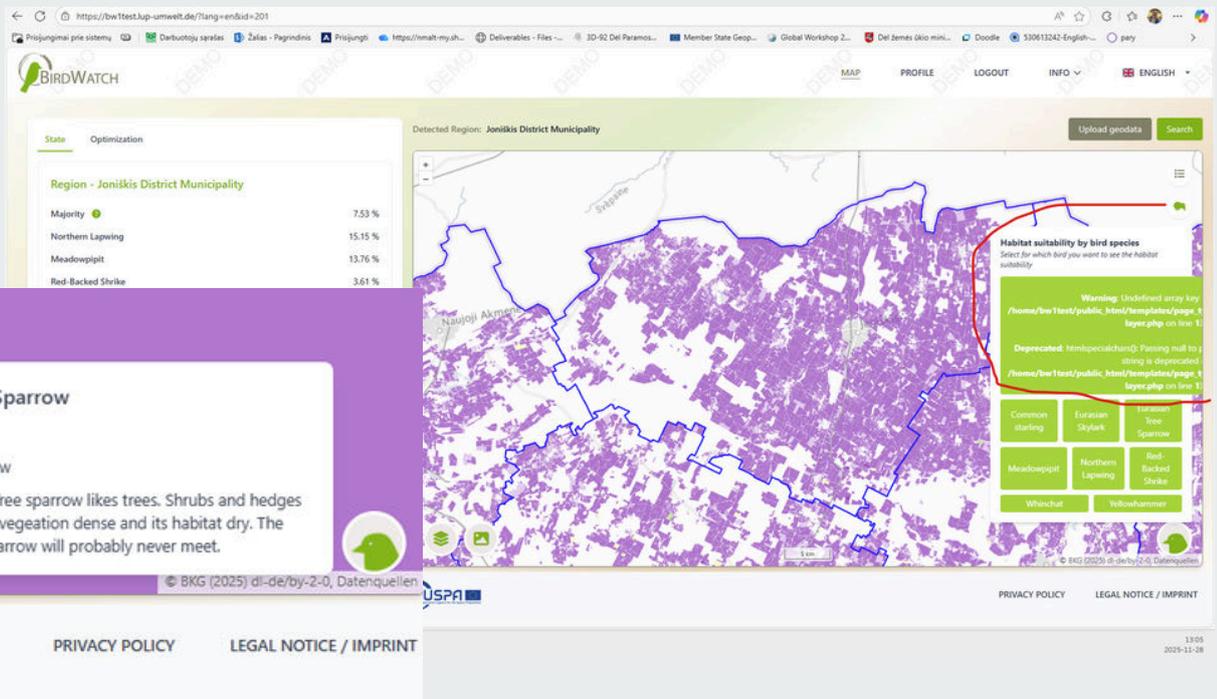


Figure 6: NPA and ADS hunted for hiccups in the BirdWatch user interface

[\\*Download our policy briefs here](#)



**NPA PRESENTS BIRDWATCH TO THE DIRECTORATE-GENERAL FOR AGRICULTURE & RURAL DEVELOPMENT**

Last fall, Oliver Sitar, Director of the European Commission’s (EC) Directorate-General for Agriculture and Rural Development (**DG Agri**), accompanied by representatives of the EC agricultural and rural development policy sector, and of the Ministry of Agriculture, visited the National Paying Agency in Lithuania (Fig. 7).

The purpose of the visit was to familiarise with the institution’s key processes, the principles of EU support administration and monitoring. The EC representative was particularly interested in the NPA, with its 26 years of experience, annually paying out around 1 billion euros of the EU support to the agricultural sector.

NPA Deputy Director, Tomas Orlickas, highlighted the role of international projects with the participation of the NPA. These initiatives play a significant role in further development, testing and introducing innovations in the daily activities of the institution.



Figure 7: Illustrious guests visit the National Paying Agency of Lithuania

NPA PRESENTS BIRDWATCH TO THE DIRECTORATE-GENERAL FOR AGRICULTURE & RURAL DEVELOPMENT



Among the highlighted projects, BirdWatch was presented as a project on preserving and maintaining farmland biodiversity, specifically by guiding the implementation of preventive and protective agri-environmental measures, with the support of a combination between Earth Observation data, species habitat modeling and optimisation.

The guest was especially impressed by the advanced remote monitoring tools, that are used and continuously developed by the NPA, and expressed his positive view on their further elaboration. EC representative Oliver Sitar noted that the NPA's operations and certain processes, particularly inspections, deserve attention across Europe, and that innova-

tive technologies, such as **satellite-assisted optimisation of monitoring**, should serve as an example for institutions working in the agricultural sectors of other EU Member States. He expressed a firm position that the dialogue between the NPA and EC representatives should continue.



Image source: Susanne Seidel, Rémy Schaepmann



*Don't hesitate to get in touch with us!*

### Project Management

*Dr. Annett Frick*

Mail: [annett.frick@lup-umwelt.de](mailto:annett.frick@lup-umwelt.de)

Tel: +49 331 275 77 60

*Dr. Nastasja Scholz*

Mail: [nastasja.scholz@lup-umwelt.de](mailto:nastasja.scholz@lup-umwelt.de)

Tel: +49 331 275 77 0

### Project Lead



Luftbild Umwelt Planung GmbH  
<https://www.lup-umwelt.de>

### Consortium



Eurac Research Institute for  
Earth Observation  
<https://www.eurac.edu/en>



Sinergise laboratory for  
geographical information  
systems, Ltd.  
<https://www.sinergise.com>



University of Potsdam  
<https://www.uni-potsdam.de/>



VITO - Vlaamse Instelling  
voor Technologisch  
Onderzoek  
<https://vito.be/en>



National Paying Agency under  
the Ministry of Agriculture of  
the Republic of Lithuania  
<https://www.nma.lt>



Bioland e.V.  
<https://www.bioland.de/>



Agro Digital Solutions  
<https://www.agrodigitalsolutions.eu>



Research Institute for  
Nature and Forest  
<https://www.vlaanderen.be/nbo/en-gb/homepage/>