

A large, semi-transparent watermark or background image occupies the entire page. It features a green silhouette of a monkey on the left and a brown silhouette of a dog on the right, both in profile facing right. The background of the page is a light beige color.

# Review of investigations on wild animal pet markets

Review  
**January 2023**

# How previous investigations in wild animal pet markets inform the state of play of the exotic pet trade in the EU

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# How previous investigations in wild animal pet markets inform the state of play of the exotic pet trade in the EU

## Background

Wild animal pet markets, also called exotic pet fairs, shows, exhibitions or expos, are events organised by the industry and breeder associations; where multiple businesses and hobby breeders display and sell live animals and related-products to visitors. Some of these markets solely focus on traditional pets while others also cover or are dedicated to exotic animals including a wide range of species of birds, reptiles and amphibians, but also mammals and fish and other animals such as spiders or snails. These events can also be the theatre of animal shows, such as birds of prey exhibitions, and lectures where "experts" advise on the keeping of animals. In Europe, such markets are itinerant events meaning that animals are transported across the continent to be displayed at various locations for a short period of time. Some notorious examples of such markets in the EU are Terraristika in Germany, Houten in the Netherlands, and Expoterraria in Spain.

**Figure 1:** Origin and destination of animals displayed at wild animal pet markets in the EU



This review is based on 9 investigations that have been carried out in wild animal pet markets in the EU and UK, addressing animal welfare, public health and invasiveness concerns. In this review, the key findings from these investigations are presented, high-

lighting key knowledge gaps that must be addressed to further understand and tackle the exotic pet trade.

**Table 1:** List of wild animal pet markets investigations assessed in the review

Study	Year	Scope	Countries investigated	Markets investigated
[1]	2019	Species or taxa specific	Netherlands	Terraria (Hasselt, Netherlands), Exopet (Houten, Netherlands)
[2]	2010	Global	Germany	32 markets across Germany
[3]	2012	Species or taxa specific	Spain, Germany, UK	Terraristika (Hamm, Germany), the IHS Show, (Doncaster, UK), and Expoterraria (Sabadell, Spain)
[4]	2020	Species or taxa specific	Netherlands, UK, Spain	Madrid Expo Terraria (Madrid, Spain), Terraria Houten (Houten, Netherlands), Expo Terra Doncaster (Doncaster, UK)
[5]	2021	Global	Italy	I Love Reptiles events (Rome, Italy), Reptiles Day in Longarone (Belluno, Italy), Esotika Pet (Arezzo, Italy)
[6]	2011	Species or taxa specific	Netherlands	40th international frog day (Haarlem, Netherlands)
[7]	2021	Species or taxa specific	Spain	Unknown - 3 sample exercises in Madrid, Spain and 1 in Barcelona, Spain
[8]	2021	Global	Spain, Germany, Netherlands, UK	Unknown except 3 locations - Doncaster, UK; Stafford, UK; Hamm, Germany
[9]	2018	Global	Germany	17 markets across Germany

## Issues

The investigations focused on 3 specific issues that are of particular concern when analysing wild animal pet markets and the exotic animal trade in general: animal welfare, public health and invasiveness. However, these issues were not all analysed in each study, the majority of them focusing on one or the other issue. The risks of invasiveness were only covered in one of the studies, highlighting a lack of evidence in this area.

**Table 2:** Issues covered by the wild animal pet markets investigations assessed in the review

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
<b>Animal welfare</b>		•	•	•	•		•	•	•
<b>Public health</b>			•		•	•	•	•	
<b>Invasiveness</b>			•						

Wild animal pet markets investigations highlighted a number of environmental factors that can contribute to the positive or negative welfare or affect the well-being of the animal. Criterias assessed in the different investigations include:

- Size, visibility/transparency, structuring (incl. shelter) and hygiene (incl. substrate) of containers and enclosures;
- Provision of food and water;
- Health and stress indicators;
- Sociability indicators including individual / group housing (or lack of);
- Presence and positioning of predators and preys;
- Quality and frequency of handling of the animals;
- Period of time that animals are carried around by buyers after purchase;
- Presence of animals with unsuitable needs and characteristics (e.g. nocturnal animals);
- Thermal conditions (temperature, incl. heat sources);
- Knowledge, expertise and competence of sellers, handlers and buyers.

It is also important to acknowledge a baseline to efficiently assess animal welfare conditions. For instance, scientists used RSPCA minimum guidelines to assess the suitability of the housing conditions of ball pythons according to the following criterias: space, shelter, water, substrate, hygiene [4]. The study found that sellers generally used enclosures that were too small to guarantee the welfare of the snakes, and that they were not provided water or shelter. Although the study found that hygiene conditions were appropriate, the researchers note that sellers may prefer small enclosures in order to facilitate cleaning. The German guidelines on animal welfare for the organisation of wild animal pet markets were also used to assess compliance of these events in extensive exercises conducted in 2010 and 2016 in Germany ([2],[9]). Results from 2010 indicate that sick, injured or severely stressed animals could be observed at 29 of the 32 markets investigated. In 28 of these, the minimum size of containers was not respected while in 2016, that focused only on mammals, more than 60% of the cages did not meet the minimum dimensions in 11 wild animal pet markets. Such conclusions are further consolidated by the findings of other studies ([3],[5],[7],[8]).

A number of studies clearly demonstrate the presence of diseases on wild animal pet markets. For instance, Batrachochytrium dendrobatis (Bd) was identified in 11% of assessed amphibians on markets in Spain [7], and in 7 out of 78 anurans assessed on a wild animal pet market in the Netherlands [6]. While these studies focused on specific taxa, tests on door handles at a market in Germany revealed two positive species of salmonella.<sup>1</sup> One of the studies assessed visitor behaviour and found that among 813 visitors observed, 3.6% made direct contact with animals and 27.3% made indirect contact (touching containers and body or person) [3]. The risk is exacerbated by the presence of multiple species that would not encounter each other in the wild [5]. For all these reasons, these investigations and other studies, in particular listing the potential zoonotic disease outbreak/infection at such markets, have concluded that wild animal pet markets exhibiting exotic animals are at high risk of transmission of infectious pathogens between animals and to humans.<sup>2</sup> This is particularly relevant given recent evidence that the COVID-19 pandemic originated in wild animals and the prevalence of multiple zoonotic diseases.

Beyond public health concerns, safety issues also arise when dangerous or poisonous animals are displayed. This risk was noted in German investigations on 14 of the 32 investigated markets [2].

## Invasiveness

Of all 8 studies assessed, only one significantly addressed the issue of invasiveness and focused on reptiles and amphibians. This study notes that approximately 28% of species offered in wild animal pet markets investigated had a recorded history of invasiveness (50 of the 179 species observed), and argues that captivity and pet trade is a facilitating factor for invasiveness [3]. It is essential to mention that this study also briefly considered the risk that these animals would escape the market itself and noted that one of the pet markets assessed had large doors connecting to the outside and free-ranging invertebrates on site.

<sup>1</sup> Warwick, C., Arena, P.C., Steedman, C., and Jessop, M. (2012). A review of captive exotic animal-linked zoonoses. Journal of Environmental Health 12(1): 9-24.

<sup>2</sup> Ibid.

## Knowledge gaps

While the issues described above have been assessed and documented for a number of markets, we can identify a number of loopholes listed below.

### Link between illegal and legal trade

A review of the pet trade dynamics reveals that it is very likely that species regulated under CITES and that should not be traded are openly offered for sale in the EU.<sup>3</sup> Although this statement was not supported by evidence from wild animal pet markets, investigations in Germany revealed that some animals offered had been caught in the wild with missing origin on the label [2]. It is worth mentioning that the study referring to legal and illegal trade in its title did not investigate the links between illegal and legal trade at wild animal pet markets [7]. Instead, the illegal trade in this study refers to sampling exercises conducted in a private amphibian collection that revealed some individuals had been illegally acquired. It is uncertain whether these specimens had been acquired at wild animal pet markets.

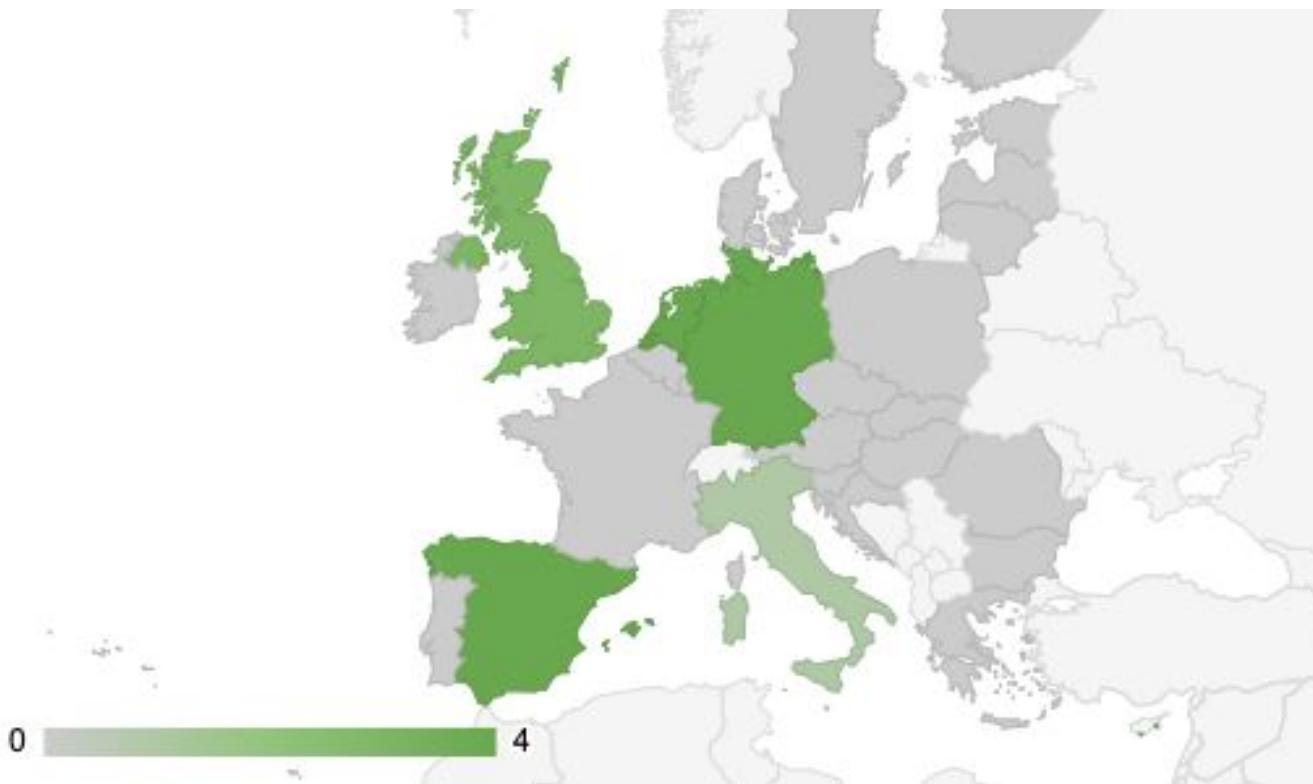
It is therefore needless to say that the presence of illegal activities in wild animal pet markets have not been appropriately investigated. It is extremely important to focus on who the sellers are and emphasise investigations on the origins of the animals displayed. For instance, profiling of sellers at wild animal pet markets could be helpful to better understand whether these are commercial or non-commercial breeders. Such investigations have been conducted in the German investigations [2]. Beyond the legal or illegal aspect of such activities, the conservation status of the species displayed at wild animal pet markets could also inform whether the trade and trade regulations align with actions to protect biodiversity.

### Geographical scope and routes

The investigations assessed in this review covered only 4 countries of the EU and the UK. There has been a clear focus of investigations in the Netherlands, Spain and Germany. There is a possibility that this scope does not reflect the extent of investigations conducted in the EU. Some investigations may have been conducted in other languages than English, German and French, and are not taken into consideration in this review.

<sup>3</sup> Auliya, M. et al. (2016). Trade in live reptiles, its impact on wild populations, and the role of the European market. Biological Conservation 204: 103–119.

**Figure 2:** Map of wild animal pet markets investigations conducted in the EU



It is uncertain why there are such discrepancies. It could be explained by the fact there are no wild animal pet markets in other countries. However, it is unlikely as research reveals that reptile markets are also organised in many other EU countries, including Czech Republic, Austria and France [3]. This could however be explained by the popularity of these events in these countries as, for instance, Germany is a central actor of the exotic pet trade within the EU.<sup>4</sup> Another factor to consider is the presence or not of animal welfare organisations with the capacity to investigate these events. Indeed, 3 of the 8 investigations assessed have been conducted by animal welfare organisations. Finally, the enforcement of a positive list in a number of EU countries can also influence the organisation of wild animal pet markets. It would be interesting to understand how the adoption of such lists have impacted the markets and, for instance, monitor the situation of the Netherlands that recently adopted a positive list and is also a focus of the previous investigations.

In brief, the current investigations are insufficient to reflect the true scope of wild animal pet markets in the EU as they only focus on a handful of countries and markets, some of

<sup>4</sup> Altherr, S., and Lameter, K. (2020). The Rush for the Rare: Reptiles and Amphibians in the European Pet Trade. *Animals* 10(11): 2085.

which are covered by several investigations. It would be particularly interesting to map wild animal pet markets in the EU, as well as trade routes to better understand how animals are transported across the continent to be displayed in different events. Future investigations could focus on the issues described above (animal welfare, public health and invasiveness), and use similar methodologies to extend and expand the analysis. Such investigations would also provide solid data to determine or extrapolate the number of animals exhibited at such events in the EU, which remains unknown.

## Taxa

The majority of the investigations assessed focused on reptiles and amphibians with little focus on mammals, birds, fish and invertebrates. The academic studies tend to focus on one specific taxa or species while broader investigations could focus on all animals present on the market. While some markets focus on reptiles and amphibians, it would be important to get a full picture of how many animals and which species are concerned by this trade and exhibited at these events. One of the studies, published in 2012 lists the species of reptiles and amphibians displayed [3] while a list of mammal species offered on wild animal pet markets in Germany is provided by another study [9].

**Table 3:** Taxa covered by the wild animal pet markets investigations assessed in the review

Study	Taxa investigated					
	Invertebrates	Fishes	Amphibians	Reptiles	Birds	Mammals
[1]						<input checked="" type="checkbox"/>
[2]	<input checked="" type="checkbox"/>					
[3]			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
[4]				<input checked="" type="checkbox"/>		
[5]	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
[6]			<input checked="" type="checkbox"/>			
[7]			<input checked="" type="checkbox"/>			
[8]	<input checked="" type="checkbox"/>					
[9]						<input checked="" type="checkbox"/>

It is important to note that the study [1] focusing on mammals does not aim to report on animal welfare, public health or invasiveness issues but instead reports on the number of mammal species offered in the exotic pet trade. This study concludes that 17 mammal species were offered in two wild animal pet markets in the Netherlands, which is signifi-

cant and could lead to more thorough investigations covering the issues mentioned.

Such investigations would be particularly interesting with regards to public health that has been covered only for specific species or taxa, or more broadly as it relates to the transmission risks. This recommendation also applies to the invasiveness risk that has not been assessed for taxa other than reptiles and amphibians. The other study focusing on mammals [9] focused on animal welfare issues and compliance with guidelines.

## Requirements and safety procedures

Competent authorities or wild animal pet markets' organisers can provide for requirements for sellers to be authorised to display animals.<sup>5</sup> These requirements can support minimal animal welfare standards or public safety measures. The investigations conducted in Germany for instance focused on assessing compliance of exhibitors with the German guidelines on animal welfare for the organisation of wild animal pet markets [2]. However, in other instances, there is no overview of such requirements and how they are complied with.

## Profile of visitors/buyers

Additional efforts could be provided to investigate the drivers to purchase exotic animals at such markets. There is no or limited information on the destination of the animals, the awareness of the customers and their capacity to handle animals.<sup>6</sup> It would also be interesting to understand on which criteria customers base their decisions and if, for instance, animal welfare standards at the point of sale is an important aspect for them to consider. This could be done through visitors' surveys, questionnaires and interviews.

## Popularity and trend

There is no information regarding the popularity of these events, their attendance and, most importantly, the trend. Questions related to the increase or decrease of visitors and purchases' numbers or events organisations could inform the situation. In addition, as we

<sup>5</sup> Interzoo, for instance, provides for species-specific guidelines and prior approval for the exhibition of live animals. Read more at <https://www.interzoo.com/en/exhibitors/exhibition-presentation/pet-presentation>.

<sup>6</sup> The capacity to handle animals is of particular importance for public safety, as the number of bites from non-native snakes has increased, for instance in the UK. Pardeep S. et al. (2022) Bites by exotic snakes reported to the UK National Poisons Information Service 2009–2020, Clinical Toxicology.

observe increased awareness and action against such markets<sup>7</sup> it would be interesting to know how wild animal pet markets' organisers, sellers, buyers, and visitors respond.

<sup>7</sup> The Doncaster Council's Licensing Committee has recently announced that it would no longer approve the venue of the largest UK reptile market in the city because of illegal trade and animal welfare concerns. Eurogroup for Animals (11 April 2022). "Fate is sealed for UK's most notorious reptile market". Available at <https://www.eurogroupforanimals.org/news/fate-sealed-uks-most-notorious-reptile-market> [Consulted on 27 July 2022].

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