



**Animal Markets and
Zoonotic Disease in
Germany**

COUNTRY SUMMARY: GERMANY

CULTURAL CONTEXT

Germany is the largest economy in Europe and a major consumer and producer of livestock, although there are some indications that meat consumption has leveled off or, in some cases, has begun to decline. The country is of particular significance for its economic influence in animal production and consumption, its significantly advanced legal and regulatory systems, and its emerging animal welfare and wildlife trade management principles. In general, Germany is considered a leader on CITES regulation globally and a proactive combatant against wildlife crime, which can contribute to the spread of zoonotic disease. Still, Within the EU, Germany is the largest importer of living wildlife for the exotic pet trade. The country is also known to be a major transit country for the illegal international wildlife trade, including ivory and animal parts moving from Africa to East and Southeast Asia. Wild meat or “game” is eaten with some regularity. Although there are signs of an ongoing change in attitudes regarding farm animals, livestock are considered a commodity.

ANIMAL MARKETS

Hundreds if not thousands of animal markets take place each year, offering live mammals, birds, reptiles, amphibians, fish, and invertebrates for sale as livestock and as pets. Depending on species, sale events are organized locally or at the municipal level by breeders' associations. Some markets take place indoors, others outside. Some are small regional events, whereas others attract larger crowds and visitors from different countries. Some offer only one animal species, but many of these markets offer several species together at a single site. Increasingly, breeders' associations sell their animals online. Game ranching occurs in fenced-in parks, as with deer. There are captive breeding stations for species such as water fowl, set free in the wild once matured, then hunted a few weeks or months later. There is a substantial market for hunted game meat. Swine production in Germany is consistently decreasing year-over-year for myriad reasons, including soaring input costs (especially energy costs), African Swine Fever anxiety, and a “zero-Covid” related drop in exports to China.

DRIVERS OF ZONOTIC DISEASE RISKS

Handling of live animals by potential buyers is a common practice at animal markets, creating a pressure point for zoonotic risks. Hygienic conditions are often lacking, especially at wildlife trade shows and markets. With the high numbers of visitors, crowded halls, and widespread handling of animals, animal welfare problems are regularly observed, resulting in highly stressed animals. Hygienic conditions

welfare problems are regularly observed, resulting in highly stressed animals. Hygienic conditions and veterinarian controls are often problematic. Animals sold as pets are often taken from the wild and moved via opaque trade routes, with unknown medical histories, and high mortality rates during transit. Conditions appear to be most problematic at the middlemen and exporter stages of the wildlife and pet trade, including low hygienic standards due to overcrowded cages or tanks and the mixing of large numbers of animals from many different species, regions, and sources, including sick and injured animals. Conditions are also problematic at importer and wholesaler stages. These types of close interactions between animals and between animals and humans can facilitate disease transmission. In the livestock trade, there are similar risk factors of mixing animals from different sources together and the transport of animals to and from the markets.

RISK MITIGATION AND RELEVANT CHALLENGES

Legal measures to restrict trade in wildlife and exotic pets, including animal markets, would likely reduce the risk of zoonotic disease. Such measures would be most useful and successful if they were to limit ownership to captive-bred specimens of domesticated species, mandated that such breeding facilities and trade be run without direct contact between the animals and potential clients, and if accompanied by

AUTHORS

This report was written by James Brückner and Henriette Mackensen.

ACKNOWLEDGEMENTS

Pro Wildlife is a Germany-based charity, founded in 1999, working on the conservation of and animal welfare for wildlife. A main focus is the trade in live wildlife (mainly exotic pet trade) and in wildlife products. Accordingly, our reply is focusing on wildlife markets and exotic pet trade.

Deutscher Tierschutzbund (German Animal Welfare Federation) was founded in 1881 as the umbrella organization for animal welfare associations and animal shelters in Germany. Today, its affiliates include more than 740 local animal welfare associations with over 550 animal shelters /rescue stations. Experts from the fields of biology, veterinary medicine and law tackle society's animal welfare problems on the basis of scientific knowledge.

TABLE OF CONTENTS: GERMANY

Introduction and Relevant Context	5
Geography and Specifics of the German Case	5
Cultural Relationships with Animals	5
Overview of Markets	7
Types	7
Scale	11
Market Functions	13
Drivers	14
Market Supply Chains	15
Trajectory and Process	15
Sourcing and Process	15
Sale	17
Stakeholders	18
Roles in the Process	18
Number of Actors, Economic Interests	18
Market Supporters and Detractors	20
Risk Analysis	21
Regulatory Approach	21
Prior Policies	21
Landscape of Existing Regulation	22
Current Regulations	22
Regulation Failures and Barriers to Enforcement	23
Analysis of Application	24
Efficacy	24
Extra-Legal Activities	25
Prospective Reform	25
Factors Driving Future Policy Solutions	25
Effects of COVID-19	25
Large-Scale Trends	25
Proposed Reforms	26
Images	28

INTRODUCTION AND RELEVANT CONTEXT

Geography and Specifics of the German Case

Germany is a large Central European nation with many developed population centers that play host to a many animal uses and traffics, bordering Denmark and the Baltic and North Seas to the north; the Netherlands, Belgium, France, and Luxembourg to the west; Poland and the Czech Republic to the east; and Switzerland and Austria to the south, bounded as well by the Alps. It is the largest economy in Europe and a significant consumer and producer of livestock and most other goods, as the third-largest importer/exporter in the world. Within the EU, Germany is the largest importer of (living) wildlife for the exotic pet trade.¹ It is thus of particular significance for this study given its economic influence in the relevant production and consumption areas, its significantly advanced legal and regulatory systems, and its emerging animal welfare and wildlife trade management principles, as addressed within this report. As a developed nation ranking high on a variety of environmental and other global indices, it is ostensibly in position to be a world leader on relevant public health and animal market issues. For example, Germany took decisive action in response to March 2020 COVID-19 outbreaks and imposed significant closures by the end of March 2020 to control spread, including the closure of schools and market spaces and other operations. In general, Germany is considered a leader on CITES regulation globally and a proactive combatant against wildlife crime and the trafficking that might contribute to zoonotic outbreaks, particularly reptiles.² It is also known to be a major transit country for illegal international wildlife trades, however, including ivory and animal parts moving from Africa to East and Southeast Asia.³ Such complexities make it a compelling case study with particular significance in terms of existing and developing regulations.

Cultural Relationships with Animals

In Germany, animal welfare is in general seen as a very important issue. The protection of animals has even been recognized in the constitution since 2002.⁴ There are, however, important differences regarding the perception of animals among the general public. For example, keeping pets is very popular among German citizens. Statistics provided by the pet industry associations, “Industrieverband Heimtierbedarf (IVH) e.V.” and “Zentralverband Zoologischer Fachbetriebe Deutschlands e.V. (ZZF),” show continuous growth. In 2019, there were 34 million pets (excluding ornamental fish and animals kept in terraria) living in German households. In 2020, the number rose to

-
1. Sandra Altherr, Daniela Freyer, and Katharina Lameter, Strategien zur Reduktion der Nachfrage nach als Heimtiere gehaltenen Reptilien, Amphibien und kleinen Säugetieren, edited by Federal Agency for Nature Conservation BfN (Bonn: BfN-Skripten, 2020), 466, <https://d-nb.info/1207495123/34>.
 2. See, for example, Katharina Klaas, Stephan Sina, and Cristiane Gerstetter, Wildlife Crime in Germany (Brussels: European Parliament’s Committee on the Environment, Public Health and Food Safety, 2016), 6, [https://www.europarl.europa.eu/RegData/etudes/IDAN/2016/578958/IPOL_IDA\(2016\)578958_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2016/578958/IPOL_IDA(2016)578958_EN.pdf).
 3. See, for example, Katharina Klaas, Stephan Sina, and Cristiane Gerstetter, Wildlife Crime in Germany (Brussels: European Parliament’s Committee on the Environment, Public Health and Food Safety, 2016), 6, [https://www.europarl.europa.eu/RegData/etudes/IDAN/2016/578958/IPOL_IDA\(2016\)578958_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2016/578958/IPOL_IDA(2016)578958_EN.pdf).
 4. “Animal Welfare Act: Important Questions & Answers,” German Animal Welfare Association, accessed October 23, 2023, <https://www.tierschutzbund.de/information/hintergrund/recht/grundgesetz/>.

34.9 million pets in German households.⁵ In 45% of the households, at least one pet animal was kept. Cats are the most common species, followed by dogs, small companion animals, and pet birds.⁶ A recent survey concluded that 80% of pet keepers regard their pet as a family member, 53% celebrate their animal's birthday, and they spend on average 2.6 hours with their animal per day.⁷ Another study found that 68% of dog owners and 61% of cat owners consider their health condition improved by having pets and that 88% of dog owners and 83% of cat owners feel better with their life in total, thanks to their animals.⁸

The interest in exotic pets has also been booming in recent decades.⁹ Pro Wildlife's study for the German government documented that the range of species in the exotic pet trade has significantly increased, compared to the 1980s and 1990s.¹⁰ The import of reptiles peaked in 2008, with more than 800,000 individuals within 12 months. Reptiles are the only taxonomic group for which EUROSTAT, the statistical office of the European Union, is gathering full data regarding numbers of individuals (not species). Since then, the numbers have gone down, to 347,000 in 2016 (the last year that Pro Wildlife analyzed the import data). However, this decrease is not necessarily documenting a decline in demand, and may at least partially reflect an increase of domestic captive breeding of the most relevant species.

In Germany, the term "exotic pet" has been the subject of some controversy, as "exotic" would only refer to non-native wildlife, while some people also keep native wildlife (such as European salamanders or lizards) as pets.¹¹ Furthermore, the terms "wildlife" and "wild-caught" animals are often conflated in public discussions. "Wildlife" in the German context should be understood as the counterpart to "domesticated" as, for example, a boa constrictor is still "wildlife" despite being bred in captivity. In order to use clear definitions, the German Bundestag in its Decision of 2016 defined pets as "domesticated animals of the genera horses, cattle, pigs, sheep and goats (except the exotic species – i.e., neither native nor domesticated); domesticated yaks and water buffalos; llamas and alpacas, pet rabbits, guinea pigs, pet rats, pet mice, pet dogs and cats, pet pigeons, domesticated pigeons and poultry, such as chicken, turkey, guinea fowls, domesticated geese and ducks, domesticated fish." In contrast, wildlife was defined as "vertebrates, except pets, as well as all arthropods, mollusks, as well as hybrids between wildlife and domesticated animals."¹²

Although there is an ongoing change in societal attitudes in terms of opposition to farm animals

5. "Valuable Roommates: More Care for Pets in Corona Times," The Central Association of Zoological Specialists, accessed Sept. 1, 2022, <https://www.zzf.de/presse/meldungen/meldungen/article/wertvolle-mitbewohner-mehr-fuersorge-fuer-heimtiere-in-corona-zeiten.html>.
6. Ibid. See also "Der Deutsche Heimtiermarkt 2019 - Struktur und Umsatzdaten (The German Pet Market - Structure and Sales Data)," The Central Association of Zoological Specialists and Industrieverband Heimtierbedarf (IVH) e.V., accessed Sept. 1, 2022 at https://www.zzf.de/fileadmin/files/ZZF/Intranet/Dokumente/ZZF_IVH_Folder_2019_Deutscher_Heimtiermarkt_und_Heimtierpopulation.pdf.
7. "The Pet Study 2020," Take Five Media GmbH, accessed Sept. 1, 2022 at <https://takefive-media.de/2020/11/05/die-haustier-studie-2020/>.
8. Renate Ohr, Heimtierstudie 2019: Ökonomische und soziale Bedeutung der Heimtierhaltung in Deutschland (Pet Study 2019: Economic and Social Importance of Keeping Pets in Germany), (Göttingen: Universität Göttingen, 2019), 4, <https://www.uni-goettingen.de/de/document/download/52bbce3b8ebcfef2faa77d50d72a0b21.pdf/Heimtierstudie%202019%20final%20korr.pdf>.
9. Norbert Schneeweiß et al., "Amphibien- und Reptilienhandel als Gefährdungsfaktor für heimische Populationen," *Zeitschrift für Feldherpetologie* 21 (2014): 101–20. See also Mark Auliya et al., "Trade in Live Reptiles, Its Impact on Wild Populations, and the Role of the European Market," *Biological Conservation* 204, Part A (2016): 103–19, <https://doi.org/10.1016/j.biocon.2016.05.017>.
10. Sandra Altherr, Daniela Freyer, and Katharina Lameter, Strategien zur Reduktion der Nachfrage nach als Heimtiere gehaltenen Reptilien, Amphibien und kleinen Säugetieren, edited by Federal Agency for Nature Conservation BfN (Bonn: BfN-Skripten, 2020), 466, <https://d-nb.info/1207495123/34>.
11. Norbert Schneeweiß et al., "Amphibien- und Reptilienhandel als Gefährdungsfaktor für heimische Populationen," *Zeitschrift für Feldherpetologie* 21 (2014): 101–20. See also Mark Auliya et al., "Trade in Live Reptiles, Its Impact on Wild Populations, and the Role of the European Market," *Biological Conservation* 204, Part A (2016): 103–19, <https://doi.org/10.1016/j.biocon.2016.05.017>.
12. "Antrag der Fraktionen der CDU/CSU und SPD: Wildtierschutz weiter verbessern – illegalen Wildtierhandel bekämpfen (Motion By the Parliamentary Groups of the CDU/CSU and SPD: To Further Improve Wildlife Protection – Fight Illegal Wildlife Trade.)," Deutscher Bundestag, July 6, 2016, <https://dip21.bundestag.de/dip21/btd/18/087/1808707.pdf>.

solely being considered livestock, these animals are still measured mostly by their economic value. The animals often have to suffer under living conditions not suitable to fulfill their essential needs and are killed after a short life period, and are used only for human consumption. Attempts to change relevant legislation have been slowed down by the industry and politicians for years. Some animal species such as mice and rats, or animals considered “invasive species” like raccoons, are still often recognized as pests that have to be eliminated. Most people also don’t grant fish, crustaceans, or other invertebrates the same protection status even though they know that, for example, fish are sentient and feel pain.¹³

OVERVIEW OF MARKETS

Types

Several kinds of animal markets take place in Germany throughout the year. There are markets specializing in offering live birds, others in fish, and others in small companion animals like rabbits. There are markets for poultry, livestock, horses, and donkeys, as well as fairs for reptiles, amphibians, and other exotic pets. Some of the markets take place indoors; others are outdoor markets. Some of them are small regional events, whereas others attract larger crowds and visitors from different countries. Some offer only one animal species; others offer several at one market.¹⁴

Cattle and calves: In Germany, there are regularly markets and auctions for cattle and calves. Animals are sold during auctions organized by breeders’ associations or large enterprises, depending on the breeds sold.¹⁵

Sheep and goats: Markets that offer sheep mainly offer young rams of different breeds for sale. These markets are usually one-day events. In the morning, the animals are assessed according to special scoring schemes, and some win prizes. In the afternoon, the animals are auctioned. Sometimes there are also markets for female sheep, but mainly they are designated for male sheep. Markets that offer goats also exist, but they are rare and small.

Horses: There are many horse markets in Germany. However, some of the markets only bear the name according to tradition and in fact primarily sell accessories, show some horse breeds, and sell other animals and goods.¹⁶ One example of a typical horse market is the “Leonberger Pferdemarkt.”¹⁷ It has taken place in the town center since 1684, now occurring once a year in February. At one time, as many

13. Eurogroup for Animals, “Fish Welfare,” Issuu, accessed October 23, 2023, https://issuu.com/eurogroupforanimals/docs/fish_welfare.

14. For example, companion animals, livestock, donkeys, and horses are all sold in Brockum or in Rhede. “Der Traditionelle Viehmarkt (The Traditional Livestock Market),” Brockumer-Großmarkt, accessed October 23, 2023, <http://www.brockumer-grossmarkt.de/die-festtage/der-viehmarkt/>; “Visitors Travel Up to 660 Kilometers to the Viehmarkt in Rhede,” Noz, accessed October 23, 2023, <https://www.noz.de/lokales/rhede/artikel/961016/besucher-reisen-bis-zu-660-kilometer-zu-viehmarkt-in-rhede>.

15. See, e.g., Holstein cattle are sold by Masterrind and Fleckvieh cattle by Zuchtverband Mühldorf. “Animal Marketing,” MasterRind, accessed October 23, 2023, <https://masterrind.com/de/tiervermarktung/>; “Livestock Market,” Zuchtverband für Fleckvieh Mühldorf/Inn, accessed October 23, 2023, <https://www.zuchtverband-muehldorf.de/gro%C3%9Fviehmarkt>.

16. “Ingolstadt Horse Market,” Ingolstädter Pferdemarkt, accessed October 23, 2023, <https://miesbacher-pferdemarkt.de/>.

17. “Der Leonberger Pferdemarkt: Das Traditionelle Highlight des Jahres (The Traditional Horse Market: The Traditional Highlight of the Year),” Leonberg, accessed October 23, 2023, <https://www.leonberg.de/Kultur-Sport-Tourismus/Tourismus/Sehenswertes/Leonberger-Pferdemarkt/>.

as 1,000 horses were sold at this market, but now it is closer to 100. However, thousands of visitors come to see the animals and the surrounding events.¹⁸ Another example is the “Kaltblut-Fohlenmarkt” (coldblood foal market) in Rottenbuch (southern Germany).¹⁹ It is organized by a breeders’ association. The foals are presented in an arena, judged by a jury, and auctioned afterwards.

More and more breeders’ associations sell their animals online.²⁰ The SARS-CoV-2 pandemic further drove this development. Sales of live animals via online marketplaces and social media platforms have a different zoonotic risk potential. The illegal puppy trade, for example, profits by the anonymity of the internet and the possibilities it offers to sell puppies raised cheaply in foreign countries. These puppies are illegally imported to Germany when they are too young, without correct vaccination and identification.

They are then sold to people that obtain the animals via online platforms or social media²¹ or transported further in other European countries such as Spain or Belgium. These puppies can carry parasites with zoonotic potential, such as giardiasis or tapeworms, as well as bacterial or viral infections, such as rabies, leptospirosis, etc.

It is also worth noting that, apart from the usual trade in meat products such as beef, pork, poultry, and fish, there is also a substantial market for hunted game meat in Germany. This includes, especially, roe deer and wild boar, the latter being perhaps the most relevant at 12,966 tonnes in 2019-2020.²² This can be problematic regarding trichinosis, even though every year only a few cases are recorded.²³ There are regulations in place requiring that the meat be officially examined by a veterinarian before it can be sold or consumed.²⁴ Hunters are allowed to consume or even sell the game meat they acquired commercially. However, this applies only to certain game species such as roe deer, red deer, wild boar, and some others.

If hunters operate as dealers, they are obligated to follow European as well as national legislation regarding food hygiene. These include:

- Regulation (EC) No 853/2004²⁵
- Commission Implementing Regulation (EU) No 931/2011²⁶

18. Bernadette Gramm, “The Leonberg Horse Market As An Economic Policy Measure,” *Zeitreise bb*, accessed October 23, 2023, <https://zeitreise-bb.de/der-leonberger-pferdemarkt-als-wirtschaftspolitische-massnahme/>.

19. Elena Siegl, “Foal Market Rottenbuch: 4800 Euros for a Cold-blooded Colt,” *Merkur.de*, September 7, 2019, <https://www.merkur.de/lokales/schongau/rottenbuch-ort121387/rottenbuch-4800-euro-fuer-ein-kaltblut-hengstfohlen-12979886.html>.

20. See, for example “Bayerischer Online-Fohlenmarkt (Bavarian Online Foal Market),” accessed October 23, 2023, <https://www.fohlenkauf.eu/>.

21. See, for example, “Illegaler Heimtierhandel in Deutschland. Auswertung bekannt gewordener Fälle aus dem Jahr 2019 und Ausblick Auswertung bekannt gewordener Fälle aus dem Jahr 2020 (Illegal Pet Trade in Germany Evaluation of Known Cases from 2019 and Outlook Evaluation of Known Cases from 2020),” *Deutscher Tierschutzbund*, published Jan. 2021, accessed Sept. 2, 2022 at https://www.tierschutzbund.de/fileadmin/user_upload/Downloads/Hintergrundinformationen/Heimtiere/Illegaler_Heimtierhandel_in_Deutschland_2019_und_Ausblick_2020_Auswertung.pdf; Anton Althaus, *Illegaler Heimtierhandel in Deutschland. Auswertung bekannt gewordener Fälle aus dem Jahr 2018 (Illegal Pet Trade in Germany. Evaluation of Known Cases from 2018)* (Bonn: Deutscher Tierschutzbund, 2020), <https://docplayer.org/201518915-Illegaler-heimtierhandel-in-deutschland-auswertung-bekannt-gewordener-faelle-aus-dem-jahr-inhalt.html>; Lisa Hoth, Henriette Mackensen, and Esther Müller, “Illegaler Heimtierhandel: Auswertung der Fallzahlen 2018 (Illegal Pet Trade: Evaluation of Cases 2018),” *Deutsches Tierärzteblatt* 68, no. 9 (2020):1088–93.

22. “Wildbretaufkommen 2019/20,” *Deutscher Jagdverband (German Hunting Association)*, accessed October 24, 2023, https://www.jagdverband.de/sites/default/files/2021-01/2021-01_Infografik_Wildbretaufkommen_2019_2020.jpg.

23. “Trichinellosis,” *Robert Koch Institut*, accessed October 24, 2023, https://www.rki.de/DE/Content/Infekt/EpidBull/Merkblaetter/Ratgeber_Trichinellose.html.

24. “Eigenverbrauch, Direktvermarktung, Wildhandel (Own Consumption, Direct Marketing, Game Trade),” *Deutscher Jagdverband (German Hunting Association)*, accessed October 24, 2023, <https://www.jagdverband.de/rund-um-die-jagd/wildbret/eigenverbrauch-direktvermarktung-wildhandel>.

25. “Regulation (EC) No. 853/2004 of the European Parliament and of the Council of 29 April 2004,” accessed Sept. 3, 2022, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:02004R0853-20171121&from=DE>.

26. “Commission Implementing Regulation (EU) No 931/2011,” September 19, 2011, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32011R0931&from=DE>.

- Ordinance on the Hygiene of Foods from Animal Origin (Tier-LMHV)²⁷
- Ordinance on the Monitoring of Foods from Animal Origin (Tier-LMÜV)²⁸
- Statute book on foods and animal feed (LFGB)²⁹

For some game species, there are also limitations regarding their possession, use, or sale that are defined in the Federal Ordinance on the Protection of Game (BWildSchV).³⁰ Some species can only be used for the hunters' own consumption or use. This applies for strictly protected species such as bison or capercaillie. Others can be sold, but not commercially (some bird species like Eurasian woodcock), while others can even be sold commercially (mostly abundant bird species like pheasants, ducks or pigeons).

For decades, hunting and killing of predatory wildlife, such as foxes, martens, or raccoons, had been justified by combating rabies. Since 2008, Germany is officially free from terrestrial rabies.³¹ There have been rare instances of rabies detected in bats.

Every animal species can be a carrier of a zoonotic disease in theory, and therefore every animal market that is open to the public may pose a risk of transmitting diseases. In Germany, poultry markets have been prohibited several times due to the risk of spreading the avian flu.³² The same happened with livestock and horse markets during the foot-and-mouth-disease outbreaks in Europe.³³

Deutscher Tierschutzbund and Pro Wildlife are regularly documenting the wildlife trade via larger trade markets that attract exotic pet traders and clients from longer distances including cross-border traffic. At these markets, handling of live animals by potential clients is a common practice.³⁴ This is despite the practice being prohibited by the “guidelines for the arrangement of animal trade shows under the aspect of animal welfare,” published by the Federal Agricultural Ministry in 2006 and often also by the individual “fair rules” of a market itself.³⁵ While reptiles and amphibians are presented in small plastic boxes or, more rarely, in mini-terrariums, traders are taking out animals to present them to interested visitors; potential clients are then often allowed to take the animals in their hands. This practice is also regularly observed at animal markets for small pet mammals and poultry, where the animals are offered in cages or open cardboard

27. “Ordinance on Hygiene Requirements, Manufacture, Treatment and Placing on the Market of Certain Foods of Animal Origin (Tier-LMHV),” August 8, 2007, <http://www.gesetze-im-internet.de/tier-lmhv/Tier-LMHV.pdf>.

28. “Ordinance Regulating Certain Official Issues Monitoring Manufacturing, Treatment and Placing on the Market of Foods of Animal Origin (Tier-LMÜV),” August 8, 2007, http://www.gesetze-im-internet.de/tier-lm_v/Tier-LM%C3%9CV.pdf.

29. “Lebensmittel-, Bedarfsgegenstände- und Futtermittelgesetzbuch (LFGB) (Food, Consumer Goods and Feed Code),” September 1, 2005, <http://www.gesetze-im-internet.de/lfgb/LFGB.pdf>.

30. “Verordnung über den Schutz von Wild (Bundeswildschutzverordnung - BWildSchV) (Federal Ordinance on the Protection of Game (BWildSchV)),” accessed October 24, 2023, <http://www.gesetze-im-internet.de/bwildschv/>.

31. “Rabies,” Robert Koch Institut, accessed October 24, 2023, https://www.rki.de/DE/Content/Infekt/EpidBull/Merkblaetter/Ratgeber_Tollwut.htm.

32. See, for example, “No Pigeon Market Due to Bird Flu,” OVB Online, July 3, 2009, <https://www.ovb-online.de/weltspiegel/kein-taubenmarkt-wegen-vogelgrippe-382852.html>.

33. “Chronology of Foot and Mouth Disease Outbreak,” The New York Times, March 13, 2001, <https://www.nytimes.com/2001/03/13/world/chronology-of-foot-and-mouth-disease-outbreak.html>.

34. See, for example, Sandra Giltner, “Der Handel von Reptilien in Deutschland Unter Tierschutzrechtlichen Aspekten (Trade in Reptiles in Germany Under Aspects of Animal Protection Law),” PhD dissertation (Munich: Ludwig-Maximilians-Universität München, 2012), https://edoc.ub.uni-muenchen.de/15000/1/Giltner_Sandra.pdf; Sandra Altherr, James Brückner, and Henriette Mackensen, Missstände auf Tierbörsen: Mangelhafte Umsetzung der BMELV-Tierbörsen-Leitlinien – Eine Bestandsaufnahme (Abuses at Animal Exchanges 2010: Inadequate Implementation of the BMELV Animal Exchange Guidelines: An Inventory) (Munich: Pro Wildlife and Deutscher Tierschutzbund, 2010), <https://www.prowildlife.de/wp-content/uploads/2022/01/boersen-doku-2010.pdf>.

35. See, for example, “Terraristika Hamm,” TradeFairDates, accessed October 24, 2023, <https://www.tradefairdates.com/Terraristika-M1165/Hamm.html>.

boxes.³⁶ In a 2010 survey, Deutscher Tierschutzbund and Pro Wildlife noted that, at least at 26 out of 32 live animal markets and exotic pet markets observed, animals were passed around or taken out of their boxes.³⁷ The organizations observed that hygienic conditions at such events were often inappropriate, with hundreds or even thousands of visitors in crowded halls and the animals held in boxes at, behind, or under the display tables. Generally, sinks are not available in the sales rooms, only in restrooms. At that time and during visits in recent years, the organizations did not notice any disinfectants offered for visitors. Often, food stalls are part of such events (located in the halls or in front of the entrance) and it is very likely that many visitors, after touching and handling animals, buy their food without washing their hands or taking other hygienic measures.

During a survey at leading exotic animal markets in the UK, Spain, and Germany, 3.6% of visitors made direct contact with reptiles or amphibians, and 27.3% made indirect contact with a presumed contaminated source.³⁸ This may present zoonotic disease transference risks, including bacterial infections such as salmonellosis associated with reptiles and amphibians.³⁹ Additional risks include protozoan parasites and the transfer of ecto- or endoparasites such as ticks and tapeworms.⁴⁰ Furthermore, as Pasmans et al. (2017) note:

“Some reptile- and amphibian-borne *Salmonella* spp. have the potential to cause severe infections, especially in young children. A significant number of cases of human salmonellosis are attributed to these pets: 0.95% of *Salmonella* cases in the UK (...) and 6% of sporadic *Salmonella* infections in the USA (i.e., not including outbreaks of salmonellosis). However, this needs to be placed in context, as the vast majority of infections in humans are caused by foodborne *Salmonella*. To minimize infection from amphibians and reptiles, handling and hygiene guidelines for veterinarians and the public have been developed by the Association of Reptilian and Amphibian Veterinarians (...). Raising public awareness and applying basic personal and household hygiene (e.g.,

-
36. Veterinary Faculty, *Haltung exotischer Tiere und Wildtiere in Privathand: Situationsanalyse, Bewertung und Handlungsbedarf Insbesondere Unter Tierschutzaspekten: 2. Zwischenbericht, (exotische) Säugetiere und Wildtiere (Keeping of Exotic Animals and Wild Animals in Private Hands: Situation Analysis, Assessment and Need for Action, Especially with Regard to Animal Welfare Aspects: 2nd Interim Report, (Exotic) Mammals and Wild Animals)* (Munich, Ludwig-Maximilians-Universität München, 2018), <https://docplayer.org/109571818-Haltung-exotischer-tiere-und-wildtiere-in-privathand-situationsanalyse-bewertung-und-handlungsbedarf-insbesondere-unter-tierschutzaspekten.html>.
37. Sandra Altherr, James Brückner, and Henriette Mackensen, *Missstände auf Tierbörsen: Mangelhafte Umsetzung der BMELV-Tierbörsen-Leitlinien – Eine Bestandsaufnahme (Abuses at Animal Exchanges 2010: Inadequate Implementation of the BMELV Animal Exchange Guidelines: An Inventory)* (Munich: Pro Wildlife and Deutscher Tierschutzbund, 2010), <https://www.prowildlife.de/wp-content/uploads/2022/01/boersen-doku-2010.pdf>.
38. Clifford Warwick et al., “Visitor Behaviour and Public Health Implications Associated With Exotic Pet Markets: An Observational Study,” *Journal of the Royal Society of Medicine Short Reports* 3, no. 9 (2016): 63, <https://doi.org/10.1258/shorts.2012.012012>.
39. See, for example, Mélanie Colomb-Cotinat et al., “Salmonellosis in Young Children and Pet-Reptiles Exposure: Investigation in Metropolitan France in 2012,” *Bulletin Épidémiologique Hebdomadaire* 1-2 (2014): 2–8, <https://www.pasteur.fr/fr/file/3207/download?token=FZu2u7nr>; Wolfgang Rabsch, “Salmonellen bei Reptilien, Schildkröten & Co. als Infektionsquelle, (Salmonella in Reptiles, Turtles & Co. as a Source of Infection),” Powerpoint presentation, Robert Koch Institut, Berlin, March 2, 2016, https://www.zoonosen.net/sites/default/files/redaktion/dateien/2_Rabsch_Salmonellen%20bei%20Reptilien.pdf; Casey Cain, Drew Tyre, and Dennis Ferraro, “Incidence of Salmonella on Reptiles in the Pet Trade,” *RURALS: Review of Undergraduate Research in Agricultural and Life Sciences* 4, no. 1 (2009): 1, <https://digitalcommons.unl.edu/rurals/vol4/iss1/1>; A. M. Aiken, C. Lane, and G. K. Adak, “Risk of Salmonella Infection with Exposure to Reptiles in England, 2004–2007,” *Eurosurveillance* 15, no. 22 (2010): 19581, DOI:10.2807/ESE.15.22.19581-EN or <https://www.eurosurveillance.org/content/10.2807/ese.15.22.19581-en>; Shauna L. Mettee Zarecki et al., “US Outbreak of Human Salmonella Infections Associated with Aquatic Frogs, 2008–2011,” *Pediatrics* 131, no. 4 (2013): 724–31, DOI: 10.1542/peds.2012-2031.
40. See, for example, Andreas Hassl and Gerald Benyr, “Hygienic Evaluation of Terraria Inhabited by Amphibians and Reptiles: Cryptosporidia, Free-living Amebas, Salmonella,” *Wiener Klinische Wochenschrift* 115, Supp. 3 (2003): 68–71, <https://pubmed.ncbi.nlm.nih.gov/15508784/>; Magdalena Nowak, “Parasitisation and Localisation of Ticks (Acari: Ixodida) on Exotic Reptiles Imported into Poland,” *Annals of Agricultural and Environmental Medicine* 17, no. 2 (2010): 237–42, <https://pubmed.ncbi.nlm.nih.gov/21186765/>; Maaikje Pietzsch et al., “Importation of Exotic Ticks Into the United Kingdom via the International Trade in Reptiles,” *Experimental and Applied Acarology* 38, no. 1 (2006): 59–65, DOI: 10.1007/s10493-005-5318-0; Jean-Michel Hatt, “Ausgewählte Endoparasitosen bei Reptilien (Selected Endoparasitoses in Reptiles),” *World Small Animal Veterinary Association, World Congress Proceedings*, 2010, <https://www.vin.com/apputil/content/defaultadv1.aspx?id=4516402&pid=11310&print=1>.

proper hand washing, keeping any reptile or material used for reptile care separate from food preparation areas) should prevent most cases of reptile-associated salmonellosis.”⁴¹

However, such hygienic conditions are not at all apparent at wildlife trade shows and markets. Arena et al. (2012) conclude: “The purchase of exotic animals from wildlife markets enables diverse pathogens direct access to the domestic environment via sellers and keepers ignorant or disregarding of salient contaminant transmission issues.”⁴²

Scale

All over Germany, hundreds, if not thousands of animal markets are taking place per year, offering live mammals, birds, reptiles, amphibians, fish, and invertebrates as livestock and as pets. Depending on the species, sale events are organized either locally or the municipal level, by breeders’ associations (e.g., for small mammals, birds, or ornamental fish), by private persons on a commercial basis, or by municipalities serving as direct operators. To give an example: In 2010, in the Federal State of Bavaria alone, the following animal trade shows (excluding livestock markets) took place, according to the Bavarian State Parliament:⁴³

- 265 trade shows for small mammals (mostly domesticated animals, such as rabbits, guinea pigs, mice, rats – only sometimes exotic mammals)
- 138 ornamental fish trade shows
- 135 bird and poultry trade shows (some also with small mammals)
- 21 reptile trade shows (including amphibians and invertebrates – and the larger fairs also offering exotic mammals)
- 33 terrarium and aquarium trade shows in combination

Sheep and Goats: Every year, an unknown number of sheep markets take place in Germany. They are located in the federal states (Bundesländer) where most sheep are kept, such as Baden-Württemberg, Bavaria, and Schleswig-Holstein. The largest auction of male sheep (rams) takes place regularly in the city of Husum, northern Germany. In 2019, about 666 sheep were auctioned there.⁴⁴ In 2020, 641 animals were registered according to the official auction catalog. Organizers of these markets are typically the breeders’ institutions, e.g., in Husum the Landesverband Schleswig-Holsteinischer Schaf- und Ziegenzüchter e.V.

Cattle and calves: Every region has a breeders’ association for cattle that organizes the auctions of cattle and calves. Often there is also a show with awards for the best heifer, cow, or bull performance and pedigree. At these auctions, they sell animals for breeding purposes. Young cattle and calves are sold for

41. Frank Pasmans et al., “Future of Keeping Pet Reptiles and Amphibians: Towards Integrating Animal Welfare, Human Health and Environmental Sustainability,” *Veterinary Record*, 181, no. 17 (2017): 450, doi:10.1136/vr.104296.

42. Phillip Arena, Catrina Steedman, and Clifford Warwick, *Amphibian and Reptile Pet Markets in the EU: An Investigation and Assessment* (Brighton: Animal Protection Agency, 2012), http://animal-public.de/wp-content/uploads/2012/04/ARPM2012_v131.pdf.

43. Reply of the State’s Ministry of Environment and Health, dated March 15, 2011, to the Written Question of the Green Party concerning “animal welfare deficits at Bavarian animal trade fairs” as of December 28, 2010, https://www.bayern.landtag.de/www/ElanTextAblage_WP16/Drucksachen/Schriftliche%20Anfragen/16_0008065.pdf.

44. Alfons Deter, “Hoffnung Trotz Schlechter Lammpreise auf Husumer Schafmarkt (Hope Despite Poor Lamb Prices at the Husum Sheep Market),” *Top Agrar Online*, Aug. 16, 2019, <https://www.topagrar.com/panorama/news/hoffnung-trotz-schlechter-lammpreise-auf-husumer-schafmarkt-11740687.html>.

further fattening, but normally none of these animals is destined for immediate slaughter. The auctions are under veterinary service, and every farmer who sells animals and every animal must be registered before entering the facilities. The animals are inspected for symptoms of disease by the responsible veterinarians. The number of animals sold at these auctions is high, but there are no statistics available on total numbers. At the auctions themselves, there is no significant risk of animal welfare problems like violence against the animals. Of course, the transport to the auction, noise, unfamiliar surroundings, other animals, and strange people, etc. can be stressful. In the past, there were problems with lactating cows that were presented with a full udder to promote their milk yield. They were suffering at these auctions by not being milked. Fortunately, veterinarians and market organizers are now more aware of this problem. But animal welfare problems do begin after the animals are sold. If cows are sold to a farm in another region or abroad, they suffer by not being milked during transport. For young calves, the problem is that they are not fed during the transport. Very often, the animals are sold then transported for several hours, so they suffer from hunger and thirst. Other common problems in animal transport such as weather conditions, stocking density, and ceiling height can also cause animal suffering.

Pigs: At the moment no pigs are sold at auctions and markets because of the risk of transmission of African Swine Fever (ASF). The disease was first recorded outside Africa in 2007 in the country of Georgia and has since then spread to several European countries, including Germany in September 2020, where it was detected in several wild boar.⁴⁵ Even before this disease spread in Europe, pigs were only sold in small numbers at markets or auctions because of their susceptibility to stress.

Poultry: Markets for poultry are a niche occurring only at small scale for private smallholders.

Exotic pets: There are dozens of regional and even cross-border events for exotic pets in Germany, attracting traders and clients from longer distances. The largest trade show is Terraristika in the town of Hamm, North Rhine-Westphalia. This event normally occurs four times a year and attracts up to 20,000 visitors, but has been impacted in 2020 due to the SARS-CoV-2 pandemic.⁴⁶ Other larger trade shows take place in Karlsruhe, Ulm, Chemnitz, Leipzig, Offenburg, Mannheim, Braunschweig, Lohmar, and Bad Fallingbostal.⁴⁷ There are hundreds and often thousands of animals officially offered at the tables in the salerooms. In Hamm, for example, more than 500 traders attend.⁴⁸ Many of these are professional traders, each offering dozens or even hundreds of animals. At such cross-regional, nationwide, and international events, the share of wild-caught animals is significantly higher, with the number of

45. "Afrikanische Schweinepest (ASP): Informationen zu Fällen in Deutschland (African Swine Fever (ASF): Information on Cases in Germany)," Bundesministerium für Ernährung und Landwirtschaft, December 19, 2022, <https://www.bmel.de/DE/themen/tiere/tiergesundheit/tierseuchen/asp.html>.

46. "World's largest reptile show attracts 20,000 visitors", Pet Business World, last modified Oc. 19, 2012, available at <https://www.petbusinessworld.co.uk/news/feed/world-s-largest-reptile-show-attracts-20-000-visitors>.

47. Sandra Altherr, Daniela Freyer, and Katharina Lameter, Strategien zur Reduktion der Nachfrage nach als Heimtiere gehaltenen Reptilien, Amphibien und kleinen Säugetieren, edited by Federal Agency for Nature Conservation BfN (Bonn: BfN-Skripten, 2020), 466, <https://d-nb.info/1207495123/34>. See also Sandra Altherr, James Brückner, and Henriette Mackensen, Missstände auf Tierbörsen: Mangelhafte Umsetzung der BMELV-Tierbörsen-Leitlinien – Eine Bestandsaufnahme (Abuses at Animal Exchanges 2010: Inadequate Implementation of the BMELV Animal Exchange Guidelines: An Inventory) (Munich: Pro Wildlife and Deutscher Tierschutzbund, 2010), <https://www.prowildlife.de/wp-content/uploads/2022/01/boersen-doku-2010.pdf>.

48. List of vendors for the Terraristika, Hamm sale, www.terraristikahamm.de website, last modified March 14, 2020, available at <http://www.terraristikahamm.de/content/supplier.php?flagge=0>.

individuals and range of species directly correlated with the number of professional traders.⁴⁹ The authors of the so-called “EXOPET-study,” commissioned by the German Federal Agricultural Ministry, stated that wild-caught animals and animals from ranching and farming were exclusively offered by commercial traders, while only private parties offered captive-bred animals.⁵⁰ The authors conclude that animal trade shows should be limited to regional events and that cross-regional, international, and commercial traders should be excluded.⁵¹ At larger special markets for poultry and small mammals such as rabbits and guinea pigs, commercial traders are also well represented.⁵²

One noteworthy aspect of how these markets are regulated is that the executive regulation of the German Animal Protection Act (AVV) defines a hallmark of animal trade shows being the presentation and exchange of animals among private persons.⁵³ This expresses the will of the legislature that live animal markets should be for private breeders to sell captive-bred animals. Nevertheless, in practice, at least the larger reptile and amphibian trade shows are dominated by commercial traders offering a large number of wild-caught animals, in contrast with other European countries where such trade shows are strictly limited to private breeders.⁵⁴

This AVV is not a law in itself, but an elaboration of the animal welfare law in order to help, for example, district veterinary offices to enforce regulations and protocols. The impression of animal welfare organizations is that this issue, for many years, was not a significant political issue, and therefore the larger exotic animal trade shows were commercialized without restriction. The recent decision by the German Bundestag, discussed further in the subsequent regulatory section, aims to correct this by calling for the exclusion of wild-caught animals and by limiting the number of animals per trader. Simply excluding commercial traders from animal trade shows by law is difficult, however, as it can be in conflict with the German constitutional law by limiting professional practice.

Market Functions

Traditional and exotic-pet markets and animal trade shows were originally seen as meeting points at which private breeders and keepers could exchange animals. Livestock markets mostly kept

49. Sandra Altherr, James Brückner, and Henriette Mackensen, *Missstände auf Tierbörsen: Mangelhafte Umsetzung der BMELV-Tierbörsen-Leitlinien – Eine Bestandsaufnahme (Abuses at Animal Exchanges 2010: Inadequate Implementation of the BMELV Animal Exchange Guidelines: An Inventory)* (Munich: Pro Wildlife and Deutscher Tierschutzbund, 2010), <https://www.prowildlife.de/wp-content/uploads/2022/01/boersen-doku-2010.pdf>.

50. In the context of CITES, “ranching” is defined as the rearing in a controlled environment of specimens (or eggs) taken from the wild. Farmed animals are born in captivity, while at least one parent was taken from the wild. Regarding the sales study, see Veterinary Faculty, *Haltung exotischer Tiere und Wildtiere in Privathand: Situationsanalyse, Bewertung und Handlungsbedarf Insbesondere unter Tierschutzaspekten: 2. Zwischenbericht, (exotische) Säugetiere und Wildtiere (Keeping of Exotic Animals and Wild Animals in Private Hands: Situation Analysis, Assessment and Need for Action, Especially with Regard to Animal Welfare Aspects: 2nd Interim Report, (Exotic) Mammals and Wild Animals)* (Munich: Ludwig-Maximilians-Universität München, 2018), para 3.1.3.3, p. 36, <https://docplayer.org/109571818-Haltung-exotischer-tiere-und-wildtiere-in-privathand-situationsanalyse-bewertung-und-handlungsbedarf-insbesondere-unter-tierschutzaspekten.html>. See also “World’s largest reptile show,” *Pet Business World*.

51. Veterinary Faculty, *Haltung exotischer Tiere und Wildtiere in Privathand: Situationsanalyse, Bewertung und Handlungsbedarf Insbesondere unter Tierschutzaspekten: 2. Zwischenbericht, (exotische) Säugetiere und Wildtiere (Keeping of Exotic Animals and Wild Animals in Private Hands: Situation Analysis, Assessment and Need for Action, Especially with Regard to Animal Welfare Aspects: 2nd Interim Report, (Exotic) Mammals and Wild Animals)* (Munich: Ludwig-Maximilians-Universität München, 2018), <https://docplayer.org/109571818-Haltung-exotischer-tiere-und-wildtiere-in-privathand-situationsanalyse-bewertung-und-handlungsbedarf-insbesondere-unter-tierschutzaspekten.html>.

52. “Tierschutz bei Vogelbörsen und Geflügelmärkten (Animal Protection at Bird Fairs and Poultry Markets),” Bayerisches Landesamt für Gesundheit und Lebensmittelsicherheit, last updated Oct. 10, 2014, https://www.lgl.bayern.de/tiergesundheits/tierschutz/tierhandel/tierboersen/vogelboerse_geflugelmarkt.htm.

See also Veterinary Faculty, *Haltung exotischer Tiere und Wildtiere in Privathand: Situationsanalyse, Bewertung und Handlungsbedarf Insbesondere unter Tierschutzaspekten: 2. Zwischenbericht, (exotische) Säugetiere und Wildtiere (Keeping of Exotic Animals and Wild Animals in Private Hands: Situation Analysis, Assessment and Need for Action, Especially with Regard to Animal Welfare Aspects: 2nd Interim Report, (Exotic) Mammals and Wild Animals)* (Munich: Ludwig-Maximilians-Universität München, 2018), <https://docplayer.org/109571818-Haltung-exotischer-tiere-und-wildtiere-in-privathand-situationsanalyse-bewertung-und-handlungsbedarf-insbesondere-unter-tierschutzaspekten.html>.

53. “Allgemeine Verwaltungsvorschrift zur Durchführung des Tierschutzgesetzes, vom 9. Februar 2000 (General Administrative Regulation to Implement the Animal Welfare Act, Feb. 9, 2000),” https://www.tierhyg.vetmed.uni-muenchen.de/tierschutz/tierschutzlinks/ts_downloads/durchfuehrg.pdf.

54. “World’s largest reptile show,” *Pet Business World*.

their traditional structure. Within the pet markets over the past 25 years, however, some commercially dominated events have developed that now attract up to 600 vendors and up to 20,000 visitors. For some visitors, especially families with children, those large events are akin to visiting a zoo, with animals that can otherwise rarely be seen. In contrast, individuals who wish to increase their collection of rare species have often made their arrangements with traders before the event via special online platforms and specialized social media sales groups, and the event itself is simply a location at which to meet and hand over those animals.⁵⁵

For some commercial traders, especially those who specialized in rarities and do not run their own pet shop, these large events are their main channel for selling their animals. These traders travel from animal fair to animal fair to offer their “goods.” Sometimes, animals never leave the boxes in which they are presented at the different fairs.

It has been argued by some traders and reptile keepers that, in case of tight restrictions for exotic animal markets in Germany, traffic at similar events in neighboring countries, such as the Terraria in Houten (the Netherlands), the Expoterraria in Barcelona and Madrid (Spain), and the Ziva Exotica in Prague (Czech Republic), might increase; however those events have always been in addition to and not in competition with large events in Germany, as most of the larger traders are moving on from event to event across Europe.⁵⁶

During 2020 and also in the beginning of 2021, most animal fairs in Germany had to be canceled due to the SARS-CoV-2 pandemic. As a result, many breeders turned even more to online market platforms. Online trade is a problematic issue, since it is difficult for buyers to distinguish between legal and illegal offers of animals, and traders can offer their animals anonymously, without the need to identify themselves.

Drivers

Smaller animal markets as well as livestock or horse markets often have a long tradition and a developed regional trade area. They exist in every region in Germany, rural and urban. The Terraristika in Hamm is located in North-Rhine Westphalia, which has almost 18 million people and is the most populous Federal State in Germany. The organizers are based in a town not far away from Hamm. Some of the larger events are located near borders, for example, Wasserburg near the border with Austria and the Terraristika in Hamm, near the Netherlands.

55. Sandra Altherr, Daniela Freyer, and Katharina Lameter, Strategien zur Reduktion der Nachfrage nach als Heimtiere gehaltenen Reptilien, Amphibien und kleinen Säugetieren, edited by Federal Agency for Nature Conservation BfN (Bonn: BfN-Skripten, 2020), 466, <https://d-nb.info/1207495123/34>.

56. Sandra Altherr, James Brückner, and Henriette Mackensen, Missstände auf Tierbörsen: Mangelhafte Umsetzung der BMELV-Tierbörsen-Leitlinien – Eine Bestandsaufnahme (Abuses at Animal Exchanges 2010: Inadequate Implementation of the BMELV Animal Exchange Guidelines: An Inventory) (Munich: Pro Wildlife and Deutscher Tierschutzbund, 2010), <https://www.prowildlife.de/wp-content/uploads/2022/01/boersen-doku-2010.pdf>.

MARKET SUPPLY CHAINS

Trajectory and Process

Sourcing and Process

At animal markets in Germany, with the high numbers of visitors, crowded halls, and widespread handling of boxes and animals, animal welfare problems are regularly observed, and they result in highly stressed animals. Furthermore, hygienic conditions and veterinarian controls are often problematic, with animals being stored in boxes under and behind the display tables or even outside of the sales facilities in transport vehicles.⁵⁷

While livestock, poultry, horses, donkeys, small birds, and companion animals sold in animal markets in Germany are predominantly bred in Germany, ornamental fish, reptiles, amphibians, and other exotic pets often originate in other countries and are either wild-caught (including farmed and ranches) or captive-bred. Pro Wildlife's study for the German Federal Environmental Ministry on the exotic pet trade in Germany has recorded more than 2,000 different species of reptiles, amphibians, and non-domesticated mammals in the German pet trade.⁵⁸ For almost two-thirds of the animals on sale, no origin information was given, while 26% were labeled as "captive-bred." Pro Wildlife identified the most relevant exotic pet species, including reptiles, amphibians, and mammals. Most top sellers, such as ball python (*Python regius*), corn snake (*Pantherophis guttatus*), common boa (*Boa constrictor*), common leopard gecko (*Eublepharus macularius*), and crested gecko (*Correlophus ciliatus*), are commonly bred in captivity in Europe.

Captive breeding: In recent years the use of "rack systems" has increased in order to produce larger numbers of (mainly) snakes under cheaper and space-saving conditions.⁵⁹ The use of such racks has been criticized, as they may compromise the needs of the animals.⁶⁰ Another cause for concern with regard to welfare and hygiene is the prolonged storage of reptiles in plastic boxes, as practiced by several commercial traders.⁶¹

While most individuals of the top exotic sellers are captive-bred, even the most common species, the ball python (*Python regius*), is still imported from range states in significant numbers, with

-
57. Sandra Altherr, James Brückner, and Henriette Mackensen, *Missstände auf Tierbörsen: Mangelhafte Umsetzung der BMELV-Tierbörsen-Leitlinien – Eine Bestandsaufnahme (Abuses at Animal Exchanges 2010: Inadequate Implementation of the BMELV Animal Exchange Guidelines: An Inventory)* (Munich: Pro Wildlife and Deutscher Tierschutzbund, 2010), <https://www.prowildlife.de/wp-content/uploads/2022/01/boersen-doku-2010.pdf>. See also Veterinary Faculty, *Haltung exotischer Tiere und Wildtiere in Privathand: Situationsanalyse, Bewertung und Handlungsbedarf Insbesondere unter Tierschutzaspekten: 2. Zwischenbericht, (exotische) Säugetiere und Wildtiere (Keeping of Exotic Animals and Wild Animals in Private Hands: Situation Analysis, Assessment and Need for Action, Especially with Regard to Animal Welfare Aspects: 2nd Interim Report, (Exotic) Mammals and Wild Animals)* (Munich: Ludwig-Maximilians-Universität München, 2018), <https://docplayer.org/109571818-Haltung-exotischer-tiere-und-wildtiere-in-privathand-situationsanalyse-bewertung-und-handlungsbedarf-insbesondere-unter-tierschutzaspekten.html>.
58. Sandra Altherr, Daniela Freyer, and Katharina Lameter, *Strategien zur Reduktion der Nachfrage nach als Heimtiere gehaltenen Reptilien, Amphibien und kleinen Säugetieren*, edited by Federal Agency for Nature Conservation BfN (Bonn: BfN-Skripten, 2020), 466, <https://d-nb.info/1207495123/34>.
59. Mariah Healey, "Do You Use Reptile Racks? If You're Not a Breeder, Read This," *ReptiFiles*, January 10, 2020, <https://reptifiles.com/reptile-racks-breeder-vs-keeper/>.
60. See, for example, Neil D'Cruze et al., "Dropping the Ball? The Welfare of Ball Pythons Traded in the EU and North America," *Animals* 10, no. 3 (2020): 413, <https://doi.org/10.3390/ani10030413>; E. Schneeloch and K. Henders, "Rack Keeping of Snakes is Contrary to Animal Welfare," *Zeitschrift Amtstierärztlicher Dienst* 24 (2017): 37–8, <https://www.amtstierarzt.de/zeitschrift-amtstieraerztlicher-dienst/1116-atd-1-2017-eine-tierschutzwidrige-rackhaltung-von-schlangen>; Clifford Warwick, Phillip Arena, and Catrina Steedman, "Spatial Considerations for Captive Snakes," *Journal of Veterinary Behavior* 30 (2019): 37–48, <https://doi.org/10.1016/j.jveb.2018.12.006>.
61. Sandra Giltner, "Der Handel von Reptilien in Deutschland Unter Tierschutzrechtlichen Aspekten (Trade in Reptiles in Germany Under Aspects of Animal Protection Law)," PhD dissertation (Munich: Ludwig-Maximilians-Universität, 2012), 65–7, https://edoc.ub.uni-muenchen.de/15000/1/Giltner_Sandra.pdf.

the imported animals being labeled as “farmed” or “ranching,” but in many cases they are still taken from the wild. While information on hygienic standards at such farms is scarce, D’Cruze et al. noted high stocking density, including overt and covert overcrowding; lack of space and shelter; and poor food, water, hygiene, and substrate availability at snake farms in Togo, one of the main suppliers of the international market for this species.⁶² Another survey in Togo found that all but one sample from ball pythons (95%) contained at least one assigned genus of potential zoonotic concern, i.e., *Lysobacter pythonis*.⁶³ A third study expressed animal welfare concerns in the ranching and farming of ball pythons: “It is likely that snakes suffered stress during capture (in most cases physical removal from rodent burrows) and transport (live, in sacks filled with other snakes) and possible that they sustained physical injuries – either or both may result in death or increased susceptibility to disease and/or infection.”⁶⁴

Wild-caught animals: In contrast with the identified top seller species, many of the almost 2,000 reptile and amphibian species that Pro Wildlife recorded in trade are obviously not bred in captivity, or at least not in numbers that meet the demand.⁶⁵ Those animals are mostly taken from the wild, often via unknown trade routes, unknown hygienic conditions, and high mortality rates.⁶⁶ A recent study of almost 4,000 reptile species in the global exotic pet trade supports these findings, estimating that approximately 90% of traded reptile species and half of traded individuals are captured from the wild.⁶⁷

Many ornamental fish imported and traded in Germany are originally caught in the wild, especially fish from saltwater (marine species), where up to 95% are wild-caught.⁶⁸ Fish fairs are mostly organized by breeders’ associations. Therefore, the share of captive-bred fish at these events is high. But there are also fish fairs that are organized by private parties with commercial interests. These events sometimes last several days.⁶⁹ Commercial traders are present, and the amount of fish that have been wild-caught is unclear in these cases.

In Germany, collecting native animals in the wild then selling them commercially is not permitted. This applies to both live and dead animals, and all developmental stages (e.g., eggs, larvae, etc.). National legislation such as the German Federal Nature Conservation Act (BNatSchG) and Federal

62. Neil D’Cruze et al., “Dropping the Ball? The Welfare of Ball Pythons Traded in the EU and North America,” *Animals* 10, no. 3 (2020): 413, <https://doi.org/10.3390/ani10030413>; Neil D’Cruze et al., “Betting the Farm: A Review of Ball Python and Other Reptile Trade from Togo, West Africa,” *Nature Conservation* vol. 40 (2020): 65–91, <https://natureconservation.pensoft.net/article/48046/>.

63. Neil D’Cruze et al., “A Preliminary Assessment of Bacteria in “Ranching” Ball Pythons (*Python regius*), Togo, West Africa,” *Nature Conservation* 39 (2020): 73–86, doi: 10.3897/natureconservation.39.48599.

64. Neil D’Cruze et al., “Searching for Snakes: Ball Python Hunting in Southern Togo, West Africa,” *Nature Conservation* 38 (2020): 13–36, doi: 10.3897/natureconservation.38.47864.

65. Sandra Altherr, Daniela Freyer, and Katharina Lameter, *Strategien zur Reduktion der Nachfrage nach als Heimtiere gehaltenen Reptilien, Amphibien und kleinen Säugetieren*, edited by Federal Agency for Nature Conservation BfN (Bonn: BfN-Skripten, 2020), 466, <https://d-nb.info/1207495123/34>.

66. Sandra Altherr, Daniela Freyer, and Katharina Lameter, *Strategien zur Reduktion der Nachfrage nach als Heimtiere gehaltenen Reptilien, Amphibien und kleinen Säugetieren*, edited by Federal Agency for Nature Conservation BfN (Bonn: BfN-Skripten, 2020), 466, <https://d-nb.info/1207495123/34>; Mark Auliya et al., “Trade in Live Reptiles, Its Impact on Wild Populations, and the Role of the European Market,” *Biological Conservation* 204, Part A (2016): 103–19, <https://doi.org/10.1016/j.biocon.2016.05.017>; Shawn Ashley et al., “Morbidity and Mortality of Invertebrates, Amphibians, Reptiles, and Mammals at a Major Exotic Companion Animal Wholesaler,” *Journal of Applied Animal Welfare Science* 17, no. 4 (2014): 308–21, doi: 10.1080/10888705.2014.91851; Emma R. Bush, Sandra E. Baker, and David W. Macdonald, “Global Trade in Exotic Pets 2006–2012,” *Conservation Biology* 28, no. 3 (2014): 663–76, doi: 10.1111/cobi.12240.

67. Benjamin Marshall, Colin Strine, and Alice C. Hughes, “Thousands of Reptile Species Threatened by Under-Regulated Global Trade,” *Nature Communications* 11 (2020): 4738, <https://doi.org/10.1038/s41467-020-18523-4>.

68. H. Blessin and Meerwasseraquaristik, *Lecture at the Bundesverband für Natur und Artenschutz (BNA)*, Feb. 2014 (2014).

69. Veterinary Faculty, *Haltung exotischer Tiere und Wildtiere in Privathand: Situationsanalyse, Bewertung und Handlungsbedarf Insbesondere unter Tierschutzaspekten: 2. Zwischenbericht, (exotische) Säugetiere und Wildtiere (Keeping of Exotic Animals and Wild Animals in Private Hands: Situation Analysis, Assessment and Need for Action, Especially with Regard to Animal Welfare Aspects: 2nd Interim Report, (Exotic) Mammals and Wild Animals)* (Munich: Ludwig-Maximilians-Universität München, 2018), 81, <https://docplayer.org/109571818-Haltung-exotischer-tiere-und-wildtiere-in-privathand-situationsanalyse-bewertung-und-handlungsbedarf-insbesondere-unter-tierschutzaspekten.html>.

Ordinance on the Conservation of Species (BArtSchV) prohibits taking ownership of wild animals as well as possession or commercialization of native species. Wild animals are also protected by European legislation such as the Birds Directive or the Habitats Directive of the European Union.⁷⁰ All wild-caught animals sold in Germany should therefore be imports from other countries.

Furthermore, there are national restrictions such as the National Hunting Act regarding species that can be hunted. Animal species and their parts (antlers, meat, bones, etc.) that are subject to hunting laws can only be taken by licensed hunters, but only within their own hunting district or if they have been invited by the proprietor of the hunting district. Anyone without such licensure would automatically be charged with poaching.

Fur farming is no longer an issue in Germany, as the last fur farm (mink farm) closed in 2019. But there are still some fur-producing countries in Europe (for example, Poland, Spain, Greece, Finland, and Lithuania). Some countries suspended mink farming for a limited period of time due to the spread of SARS CoV2 in mink farms (including Denmark, Sweden, and Italy). Other countries had already banned fur farming in the past (including the UK, Slovenia, Croatia, Austria, Czech Republic, Republic of Macedonia, Serbia, and Estonia), while others, still, are in a transition period until an already determined ban enters into force (this applies to the Netherlands, Belgium, Norway, Luxemburg, France, Slovakia, and Bosnia and Herzegovina); finally, some are, at the time of writing, in parliamentary discussions to adopt a ban (including Ireland, Bulgaria, Montenegro, and Ukraine).

Game ranching in Germany occurs in different ways. On the one hand, there are hundreds of deer parks or enclosures, where mainly fallow deer (*Dama dama*), and to a lesser extent red deer (*Cervus elaphus*), are kept and bred for the purpose of producing game meat. These animals, however, stay in their enclosure their entire lives until they are killed, usually via rifle shot. The meat is then processed either by the owner or by local butchers and then sold at local markets or online. On the other hand, there are still some captive breeding stations for common pheasants (*Phasianus colchicus*) and mallard ducks (*Anas platyrhynchos*) that are set free in the wild once matured, then hunted down a few weeks or months later. The meat is usually processed and consumed or sold locally by the hunters themselves. Some ducks are used as live training devices for hunting dogs on ponds or small lakes, but only a few of them survive and are able to escape.

Sale

One aim of animal markets and trade shows is supplying the pet trade, which means that most animals are sold alive for keeping in private households. Some commercial breeders also buy animals at such events to expand their breeding stocks or to establish new breeding and blood lines. The other aim of these markets is for livestock and poultry sales to farmers (both full- and part-time) and private enthusiasts. The animals serve mainly as new breeding animals and/or to start new groups or enlarge existing groups.

70. The Habitats Directive, available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043> and the Birds Directive, available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0147>.

Stakeholders

Roles in the Process

For wild-caught animals, the chain of custody is from hunters/collectors to middlemen, exporter, importer, wholesale trader, retail trader, and finally the private client. In most countries of origin, local people are trapping or collecting the animals in the wild, and intermediaries transport the animals from local, often remote collection areas to export facilities.⁷¹ In some countries, such as Paraguay, which is a source of imported armadillo, tamandua, and other species, members of indigenous tribes, often hired by landowners, are collecting animals in the wild.⁷²

In Germany, imports of exotic pets are mostly channeled via a small number of commercial importers and wholesale traders, who often specialize in a specific taxonomic group such as reptiles and amphibians, ornamental fish, or invertebrates. Some of these sellers, for example, at the large interregional and international exotic animal markets, sell animals to both retail traders such as pet shops and directly to private-end consumers.

There are two types of consumers/keepers of exotic pets in Germany: one group is interested in commonly available “fancy” animals such as ball pythons, corn snakes, or leopard geckos, all of which are said to be “easy” to keep. The second group is often called “enthusiasts” and is interested in “something special,” including rare species. This group is well aware of the fact that such animals are likely wild-caught, often threatened species, and that they may even be illegally sourced.⁷³ With regards to zoonosis, this is not only relevant for reptiles and amphibians, but also for exotic mammals including primates, rodents, bats, and lions.⁷⁴

Number of Actors, Economic Interests

For wild-caught reptiles, amphibians, and ornamental fish, the profit margin is mainly at the destination-country importer, wholesaler, and retail trader stakeholder levels. Local source collectors receive only a small part of the real value of the animal. For example, as noted by Vinke and Vinke, in Paraguay:

“For amphibians and reptiles, this is in the double-numbered cent-range. For a rare armadillo a hunter gets about 7 Euro and for a collared anteater or tamandua, which costs about 3500 Euro in Germany — one of the importing countries on [our] list for example—a hunter would get just about 30 Euro, but as already well explained by Krieg in 1933 ... it is less than 20 Euro as reported by Ayoreo

71. Janine Robinson et al., “Wildlife Supply Chains in Madagascar from Local Collection to Global Export,” *Biological Conservation* 226 (2018): 144–52, <https://doi.org/10.1016/j.biocon.2018.07.027>.

72. Thomas Vinke and Sabine Vinke, “Legal Wildlife Trade,” *Schildkröten im Fokus* 9 (2012): 21–35, https://cheloniana-science.de/images/artikel/2012_1vinke_en.pdf.

73. Sandra Altherr, Daniela Freyer, and Katharina Lameter, *Strategien zur Reduktion der Nachfrage nach als Heimtiere gehaltenen Reptilien, Amphibien und kleinen Säugetieren*, edited by Federal Agency for Nature Conservation BfN (Bonn: BfN-Skripten, 2020), 466, <https://d-nb.info/1207495123/34>. See also Sandra Altherr and Katharina Lameter, “The Rush for the Rare: Reptiles and Amphibians in the European Pet Trade,” *Animals* 10, no. 11 (2020): 2085, doi: 10.3390/ani10112085; Richard J. Hall, E. J. Milner-Gulland, and F. Courchamp, “Endangering the Endangered: The Effects of Perceived Rarity on Species Exploitation,” *Conservation Letters* 1, no. 2 (2008): 75–81, DOI:10.1111/j.1755-263X.2008.00013.x.

74. Adeline C. Fischer, Franziska Bartsch, and Sandra Altherr, *Endstation Wohnzimmer: Exotische Säugetiere als Haustiere* (Munich: Pro Wildlife, 2015), https://www.prowildlife.de/wp-content/uploads/2016/02/Endstation_Wohnzimmer_Exotische_Saeuger_2015.pdf. See also L. Musing, *Falling Through the System: The Role of the European Union Captive Tiger Population in the Trade in Tigers* (Cambridge, UK: TRAFFIC and WWF, 2020), <https://www.wwf.de/fileadmin/fm-wwf/Publikationen-PDF/TRAFFIC-WWF-Report-Tiger-Falling-Through-The-System.pdf>.

Indians. Moreover, the Indian takes a big risk of injury, because the hunters do their job at night with Flip-Flops and bare hands in the forests.”⁷⁵

A similarly high discrepancy between local profit in the country of origin and the final market price in Europe has been documented in the Philippines, where the price for a Philippine sailfin lizard (*Hydrosaurus pustulatus*) at the local exporter is less than 18 €, while in Europe prices may reach up to 700 €.⁷⁶ In Lao PDR, a collector receives 0.10-0.20 € per Laos warty newt (*Laotriton laoensis*), and the exporter receives 0.53-1.6 €, but the market price in Europe is about 75 €.⁷⁷ For chameleons from Madagascar, a 1999 study reported a price increase from collector to final client of 6,000-fold.⁷⁸ A more recent study on trade in African non-CITES snakes found that prices at exporters varied regionally and were higher in East Africa compared to West Africa. Furthermore, prices from exporter to final client may increase by up to 600%.⁷⁹ According to Robinson et al. (2018a), 13% of households in Madagascar were engaged in live animal collection in the study area (~5% trapped reptiles and amphibians and the remainder trapped invertebrates). This formed part of a diverse livelihood strategy and was more profitable than other activities (in terms of returns per unit of effort), with median earnings of ~US\$100 per season (~25% of Gross National Income per year). However, trapping was part-time, usually undertaken by poorer members of the community, and often perceived as opportunistic, risky, and financially unreliable.”⁸⁰ According to a second study in Madagascar, sales prices of reptiles and amphibians increased over 100-fold between local collectors and exporters, with exporters capturing ~92% of final export price (or 57% when their costs are deducted). However, exporters shouldered the largest costs and financial risks. Local collectors obtained ~1.4% of the final sales price, and opportunities for poverty alleviation and incentives for sustainable management from the trade appear to be limited.⁸¹

Local private breeders of reptiles, fish, birds, and mammals in Germany deliver their animals directly to the buyer, and only in special arrangements to local retailers. The prices for locally bred animals are usually higher than the prices of wild-caught animals. The economic benefits differ greatly, depending on the species bred and the market demands. During the SARS-CoV2 pandemic, the public demand for domesticated pets increased continuously, driving price increases.⁸² This also drove a growth of the illegal pet trade, and especially the illegal puppy trade.⁸³ According to investigations of Deutscher Tierschutzbund, 1,221 animals were illegally traded between January and December 2020. In addition to the majority of dogs (n = 1,054), 139 cats were also illegally traded in the current year. This was the

75. Thomas Vinke and Sabine Vinke, “Legal Wildlife Trade,” Schildkröten im Fokus 9 (2012): 21–35, https://cheloniascience.de/images/artikel/2012_vinke_en.pdf.

76. Christine Canlas, Emerson Y. Sy, and Serene Chng, “A Rapid Survey of Online Trade in Live Birds and Reptiles in the Philippines,” TRAFFIC Bulletin 29, no. 2 (2017): 58–63.

77. Sandra Altherr, Daniela Freyer, and Katharina Lameter, Strategien zur Reduktion der Nachfrage nach als Heimtiere gehaltenen Reptilien, Amphibien und kleinen Säugetieren, edited by Federal Agency for Nature Conservation BfN (Bonn: BfN-Skripten, 2020), 265, table 57, <https://d-nb.info/1207495123/34>.

78. Lee D. Brady and Richard A. Griffiths, Status Assessment of Chameleons in Madagascar (Gland, Switzerland and Cambridge, UK: IUCN, 1999), <https://citeserx.ist.psu.edu/viewdoc/download?doi=10.1.1.549.8124&rep=rep1&type=pdf>.

79. Timm Juul Jensen, Snakes of Africa: Exploitation and Conservation (Masters of Science Thesis, Aalborg University, Denmark, 2017), https://www.researchgate.net/profile/Timm-Jensen/publication/320212948_Snakes_of_Africa_-_Exploitation_and_Conservation/links/59d51d11458515140ee43d78/Snakes-of-Africa-Exploitation-and-Conservation.pdf.

80. Janine E. Robinson et al., “Supplying the Wildlife Trade as a Livelihood Strategy in a Biodiversity Hotspot,” Ecology and Society 23, no. 1 (2018): 13, <https://doi.org/10.5751/ES-09821-230113>.

81. Janine Robinson et al., “Wildlife Supply Chains in Madagascar from Local Collection to Global Export,” Biological Conservation 226 (2018): 144–52, <https://doi.org/10.1016/j.biocon.2018.07.027>.

82. Julia Fietz, “Suddenly Time for Dogs and Cats,” Frankfurter Allgemeine, updated October 16, 2020, <https://www.faz.net/aktuell/rhein-main/mehr-nachfrage-nach-haustieren-in-der-corona-pandemie-17003928.html>.

83. “Puppy Trade: Increase Due to Corona,” Tierschutzbund.de, last modified Jan. 11, 2021, available at <https://www.tierschutzbund.de/news-storage/heimtiere/110121-welpenhandel-anstieg-durch-corona/>.

highest number so far compared to the evaluations from 2014 to 2019.⁸⁴ The cases of illegal pet trade did not stop in 2021, as the pandemic-related increase in demand for pets is also reflected in the numbers of pets illegally traded in the first quarter of 2021. From January until March 2021 alone, about two-thirds of the cases of 2020 were already recorded. A total of 794 animals were illegally transported, the majority being dogs (n = 757), but also, once again, many cats (n = 33).⁸⁵

Market Supporters and Detractors

Exotic pet keepers are in support of wildlife trade shows. This includes the umbrella organization of German reptile and amphibian keepers, the Deutsche Gesellschaft für Herpetologie und Terrarienkunde (DGHT), which regularly runs its own booth at the Terraristika in Hamm. It also includes many exotic pet traders, and especially those running their own stalls at the events. Fish fairs are mainly supported by fish breeders' associations such as the Verband Deutscher Verein für Aquarien- und Terrarienkunde (VDA). Small companion animal markets are mostly organized and supported by local breeding clubs.

Animal welfare NGOs such as Deutscher Tierschutzbund, Pro Wildlife, Animal Public, and PETA have been documenting animal welfare and conservation problems at pet markets over many years and have called for stricter regulations of small animal markets and for a ban of commercial events.

In 2017, there was a joint call issued by the umbrella organization of German pet shops (Zentralverband Zoologischer Fachbetriebe, ZZF), the Federal Veterinary Association (Bundestierärztekammer), several animal welfare groups, and even the umbrella organization of private exotic pet keepers, Bundesverband für fachgerechten Natur- und Artenschutz (BNA), for a ban on commercial animal markets.⁸⁶ The results of the 2017 EXOPET Study, discussed further in the Regulatory Approach section below, also backed such calls for stricter regulations for animal markets, including the call to exclude commercial traders and wild-caught animals from such events. In December 2020, the German Bundestag for the first time passed a Decision calling on the Federal Agricultural Ministry to issue legally binding, nationwide regulations for animal trade shows.⁸⁷

84. "Illegal Heimtierhandel in Deutschland. Auswertung bekannt gewordener Fälle aus dem Jahr 2019 und Ausblick Auswertung bekannt gewordener Fälle aus dem Jahr 2020 (Illegal Pet Trade in Germany Evaluation of Known Cases from 2019 and Outlook Evaluation of Known Cases from 2020)," Deutscher Tierschutzbund, accessed Sept. 2, 2022, https://www.tierschutzbund.de/fileadmin/user_upload/Downloads/Hintergrundinformationen/Heimtiere/Illegaler_Heimtierhandel_in_Deutschland__2019_und_Ausblick_2020_Auswertung.pdf.

85. "Illegal Heimtierhandel in Deutschland Auswertung bekannt gewordener Fälle aus dem Jahr 2020 mit Ausblick auf das erste Quartal 2021 (Illegal Pet Trade in Germany: Evaluation of Known Cases from 2020 With an Outlook for the First Quarter of 2021)," Deutscher Tierschutzbund, April 2021, https://www.tierschutzbund.de/fileadmin/user_upload/Downloads/Hintergrundinformationen/Heimtiere/Illegaler_Heimtierhandel_in_Deutschland_2020.pdf. The animals came mainly from Romania, Bulgaria, Poland, and Hungary. In 83.44% of the cases in which the final destination was declared, Germany was the country of destination. In other cases, it was only a transit country. In 97.61% of the cases in which the age of the animals was known, the dogs and cats were too young to cross the border. In 72.78% of the cases in which dogs and cats were traded, concrete information on the health condition of the animals was provided. In 84.55% of these cases, the animals had diseases. Some of the animals were in a very poor general condition, dehydrated, malnourished, or suffering from fever. Other diseases such as endo- and ectoparasites, as well as the dangerous viral disease parvovirus, were detected during later veterinary examinations or laboratory tests. Animals suffered from diarrhea in 62.60% of the cases in which concrete information on the state of health was available. In 24.27% of the cases in which information was provided on the survival or death of the animals, at least one, and in most cases even several animals, died. Based on the information provided, there were at least 72 animals that died during or after transport.

86. "Animal Associations Demand: Abolish Commercial Animal Exchanges!" Zentralverband Zoologischer Fachbetriebe (ZZF) Position Paper, ZZF.de, published 2017, available at https://www.zzf.de/fileadmin/files/ZZF/Datenblaetter_Formulare_Fotos/Positionspapier-Tierboersen_2017_FINAL.pdf.

87. "Schutz von Exotischen Tieren bei Handel und Haltung Verbessern – Ursachen für Pandemien bekämpfen (Improve the Protection of Exotic Animals in Trade and Husbandry: Combat the Causes of Pandemics)," Deutscher Bundestag Antrag der Fraktionen der CDU/CSU und SPD (Duetscher Bundestag "Motion by the parliamentary groups of the CDU/CSU and SPD"), Drucksache 19/24645 vom 24.11.2020, agreed on December 17, 2020, <https://dip21.bundestag.de/dip21/btd/19/246/1924645.pdf>.

Risk Analysis

Conditions appear to be most problematic at the middlemen and exporter stages of the wildlife and pet trade, including low hygienic standards due to overcrowded tanks, dirt, mixing of many animals from different species, regions, and sources, injured animals, duration of storage, etc. Conditions are also problematic at importer and wholesaler stages, where again many animals from different species and from various geographic regions are stored in the same rooms that are often overcrowded, making it likely that they may have contact with each other.⁸⁸ During transport, animals are often stuffed into small boxes, with many wild-caught animals being injured or dehydrated.⁸⁹ Large animal trade shows, where vendors permit potential buyers to handle the animals, are a major pressure point for zoonotic risks. Concerning the livestock and poultry trades, again there are pressure-point risk factors of mixing different groups of animals and the transport of animals to and from the markets.

REGULATORY APPROACH

Prior Policies

To date, welfare aspects and, to a lesser extent, conservation problems, have been the primary concerns raised regarding animal markets and wildlife trade shows, while zoonotic disease risks have hardly been discussed. Animal welfare organizations, backed by herpetologists and conservationists, had already called for a ban of commercially-dominated animal trade shows many years ago.⁹⁰ And in 2004, a major critique by animal welfare organizations provoked the development of “Guidelines for the Arrangement of Animal Trade Shows with Regards to Animal Welfare Aspects,” published by the Federal Ministry for Agriculture in June 2006.⁹¹ However, these guidelines are not legally binding and in practice have often been ignored. Deutscher Tierschutzbund and Pro Wildlife completed a study in 2010 that arrived at this conclusion after visiting 32 animal markets and exotic pet markets, and their report called for a legally binding and nation-wide decree banning the sale of wild-caught specimens at wildlife trade shows and excluding commercial traders from such events.⁹²

In 2017, the results of the so-called EXOPET study were published, commissioned by the Federal Ministry for Agriculture, which is also responsible for animal welfare issues. This is a neutral description of its formal responsibility: while the full name of the Ministry is “Federal Ministry for Food and Agriculture,” animal welfare and hunting also fall within its scope of responsibilities. There is a potential

88. Shawn Ashley et al., “Morbidity and Mortality of Invertebrates, Amphibians, Reptiles, and Mammals at a Major Exotic Companion Animal Wholesaler,” *Journal of Applied Animal Welfare Science* 17, no 4 (2014): 308–21, doi: 10.1080/10888705.2014.918511.

89. James Green, “Detailed Discussion of Trade in Wild-Caught Reptiles,” Michigan State University College of Law, 2005, <https://www.animallaw.info/article/detailed-discussion-international-trade-wild-caught-reptiles>.

90. Burkhard Thiesmeier et al., “Positionspapier: Tierhandel, Tierhaltung und Feldherpetologie (Position Paper Animal Trade, Animal Husbandry and Field Herpetology),” *Zeitschrift für Feldherpetologie* 24 (2017): 119–27, <https://shop.laurenti.de/media/pdf-Dateien/ZfF%202017-1-10%20-%20Thiesmeier%20et%20al.pdf>. See also Sandra Altherr, James Brückner, and Henriette Mackensen, *Missstände auf Tierbörsen: Mangelhafte Umsetzung der BMELV-Tierbörsen-Leitlinien – Eine Bestandsaufnahme* (Abuses at Animal Exchanges 2010: Inadequate Implementation of the BMELV Animal Exchange Guidelines: An Inventory) (Munich: Pro Wildlife and Deutscher Tierschutzbund, 2010), <https://www.prowildlife.de/wp-content/uploads/2022/01/boersen-doku-2010.pdf>.

91. BMEL (2006).

92. Sandra Altherr, James Brückner, and Henriette Mackensen, *Missstände auf Tierbörsen: Mangelhafte Umsetzung der BMELV-Tierbörsen-Leitlinien – Eine Bestandsaufnahme* (Abuses at Animal Exchanges 2010: Inadequate Implementation of the BMELV Animal Exchange Guidelines: An Inventory) (Munich: Pro Wildlife and Deutscher Tierschutzbund, 2010), <https://www.prowildlife.de/wp-content/uploads/2022/01/boersen-doku-2010.pdf>.

conflict of interest within that Ministry, as there have been ongoing discussions regarding whether it would be better to assign animal welfare to the Ministry for the Environment. But, to date, this has not led to any change, with the agriculture lobby being much better off with the way things stand now. Nevertheless, the 2017 study aimed to identify animal welfare problems related to exotic pets in private households. The study found animal welfare deficits at all animal trade shows and proposed a set of recommendations for stricter regulations, via a nationwide, legally binding decree.⁹³ The recommendations included:

- The prohibition of sales of wild-caught animals (including animals from farming or ranching)
- To limit the number of species as well as individuals per trader to be sold at the show (in order to facilitate controls)
- To ensure a regional character for animal trade shows by excluding cross-regional, international and commercial traders from attending (e.g., by defining a maximal radius, from where traders are admitted).⁹⁴

Landscape of Existing Regulation

Current Regulations

In the absence of legally binding, nationwide, uniform requirements for animal trade shows, the individual regulations are heterogeneous and depend upon the guidelines of the organizer and the requirements of local authorities.⁹⁵

One vague guide is the German Animal Welfare Law, which in its first Article states: “No one should cause pain, suffering, or harm to an animal for no good reason.”⁹⁶ Enforcement of Animal Welfare Law is specified by the executive regulation of the German Animal Protection Act (AVV), which specifies in paragraph 12.2.1.4 that animal trade shows are characterized by the offer or exchange of animals among private persons, which expresses the understanding of the legislative body that those events are not for commercial traders.⁹⁷ For commercial traders, the Animal Welfare Decree for Transports applies regarding the transport of animals to and back from trade shows, but this legal requirement does not apply to private transports.⁹⁸

93. Maria-Elisabeth Krautwald-Junghanns et al., “Tierschutz an Tiermärkten und Tierbörsen: Untersuchung an Terraristik- und Vogelbörsen in Deutschland (Animal Protection at Animal Markets and Animal Exchanges: Investigation at Terrarium and Bird Exchanges in Germany),” *Deutsches Tierärzteblatt* 66, no. 7 (2018): 922–6.

94. Veterinary Faculty, *Haltung exotischer Tiere und Wildtiere in Privathand: Situationsanalyse, Bewertung und Handlungsbedarf Insbesondere unter Tierschutzaspekten: 2. Zwischenbericht, (exotische) Säugetiere und Wildtiere (Keeping of Exotic Animals and Wild Animals in Private Hands: Situation Analysis, Assessment and Need for Action, Especially with Regard to Animal Welfare Aspects: 2nd Interim Report, (Exotic) Mammals and Wild Animals)* (Munich: Ludwig-Maximilians-Universität München, 2018), para 3.1.3.8., 46, <https://docplayer.org/109571818-Haltung-exotischer-tiere-und-wildtiere-in-privathand-situationsanalyse-bewertung-und-handlungsbedarf-insbesondere-unter-tierschutzaspekten.html>.

95. Alexandra Bläske, “Tierschutzaspekte Bei der Privaten Haltung Von und Dem Handel mit (Exotischen) Säugetieren in Deutschland (Animal Welfare Aspects in the Private Keeping and Trade of (Exotic) Mammals in Germany),” (Inaugural-Dissertation, Tierärztliche Fakultät der Ludwig-Maximilians-Universität München, 2019), Chapter 6, 62, https://edoc.ub.uni-muenchen.de/24132/1/Blaeske_Alexandra.pdf.

96. Tierschutzgesetz (“Animal Welfare Act”), Bundesministerium der Justiz und für Verbraucherschutz (“Federal Ministry of Justice and Consumer Protection”), enacted May 18, 2006, <https://www.gesetze-im-internet.de/tierschg/BJNR012770972.html>.

97. “Allgemeine Verwaltungsvorschrift zur Durchführung des Tierschutzgesetzes vom 9. Februar 2000 (General Administrative Regulation for the Implementation of the Animal Welfare Act of February 9, 2000),” http://www.verwaltungsvorschriften-im-internet.de/bsvwvbund_09022000_32135220006.htm.

98. Bundesministerium der Justiz und für Verbraucherschutz (2009): *Verordnung zum Schutz von Tieren beim Transport und zur Durchführung der Verordnung (EG) Nr. 1/2005 des Rates (Tierschutztransportverordnung - TierSchTrV)*, as of 11 February 2009 (“Ordinance on the Protection of Animals During Transport and On the Implementation of Council Regulation (EC) No. 1/2005 ((Animal Protection Transport Ordinance - TierSchTrV)”), https://www.gesetze-im-internet.de/tierschtrv_2009/BJNR037500009.html.

Commercial breeders are also obliged to have a permit issued by the competent authority according to §11 of the German Animal Welfare Law. Furthermore, the organizer of an animal market is required to prove his expert knowledge to the competent authority according to §11(1)7.

Again, the Guidelines for the Arrangement of Animal Trade Shows with Regards to Animal Welfare Aspects (as of 2006) are not legally binding, and their enforcement clearly depends on the personal commitment of local veterinary authorities. These guidelines include a reference to the Federal Law on Animal Health, which only provides very vague requirements in Article 3, requesting keepers of animals make sure that epizootic diseases are neither introduced into their stock nor spread from their stock.⁹⁹

Furthermore, the EU Wildlife Trade Regulation 338/97 and its implementation by the Federal Law on Nature Protection are relevant for species that are protected by CITES or are native to the EU/Germany. The EU Wildlife Trade Regulation 338/97 is the EU's implementation of CITES decisions and in theory also enables the EU to take stricter domestic measures such as putting a CITES species on a higher EU protection level, as for example is the case for European species of small cetaceans. Regulation 338/97 itself does not need to be incorporated into German law, because regulations—other than directives—enacted at the EU-level apply automatically to all EU-member states. However, related sanctions must be regulated on a national level, and this is done via the Federal Law on Nature Protection.¹⁰⁰

Regulation Failures and Barriers to Enforcement

In the case of large, international events, which attract visitors from all over the country and even beyond, local authorities may be instructed to not impede the process of the trade shows. We observed, for example, a situation in which the local official veterinarian was confronted with serious animal welfare deficits at an international reptile trade show. The responsible veterinarian replied that the organizer would have a kind of “custom and practice.” A disciplinary complaint by Pro Wildlife at a higher level had no consequences, from which the organization concluded that the economic importance of the show to the town obviously is too great to be impeded, with all local hotels and restaurants benefiting from these huge events.

For a long period, the situation at such animal trade shows was completely overseen by the Federal Government or, after repeated proof of animal welfare and conservation deficits by NGOs, seen as the responsibility of the Federal states or the communities. In 2011, the Federal Agricultural Ministry stated in its official reply to a formal interpellation by the opposition that it would have “presently no reasons to assume that there would be regular deficits at animal trade shows.”¹⁰¹

Only in recent years have discussions regarding stricter regulations for animal trade shows

99. Bundesministerium der Justiz und für Verbraucherschutz (2019) (“Law on the Prevention and Control of Animal Diseases - Animal Health Law”), <https://www.gesetze-im-internet.de/tiergesg/BJNR132400013.html>.

100. BFN Schriften 22: Legal Regulations, Legal Instruments and Competent Authorities with Relevance for Marine Protected Areas (MPAs) in the Exclusive Economic Zone (EEZ) and the High Seas of the OSPAR Maritime Area, 2000, <https://www.bfn.de/en/activities/cites/regulationslegalbases/regulations.html>.

101. “Antwort der Bundesregierung auf die Kleine Anfrage der Abgeordneten Alexander Süßmair, Kornelia Möller, Ingrid Remmers, weiterer Abgeordneter und der Fraktion DIE LINKE (Answer of the Federal Government in Response to the Question from MPs Alexander Süßmair, Kornelia Möller, Ingrid Remmers, Another MP and the Parliamentary Group DIE LINKE),” BMEL, Drucksache 17/4393, Tierschutz auf Tierbörsen (“Animal Welfare on Animal Fairs”), January 31, 2011, <http://dipbt.bundestag.de/dip21/btd/17/046/1704618.pdf>.

emerged at the Federal level, in both the Bundestag and in the Agricultural Ministry. Stricter regulations for animal trade shows entered the Federal coalition agreement for the first time in 2013, aiming to “prohibit commercial trade shows for exotic animals.”¹⁰² However, this aim was not implemented, and instead the Federal Agricultural Ministry, responsible for animal welfare issues, commissioned the previously discussed EXOPET study. In the subsequent coalition agreement in 2017, a more vague text was included, only mentioning animal welfare problems in different areas such as the animal trade shows, which are to be targeted by practical measures.¹⁰³

On December 17, 2020, a motion of the governing parties CDU/CSU/SPD, entitled “Protection of Exotic Animals During Orade and ownership—Fighting the Causes for Pandemics,” was accepted by the Bundestag. Some of the demands of the motion concern stricter regulation of animal markets.¹⁰⁴ As of June 2021, no legal draft had been issued by the responsible ministry.¹⁰⁵

Analysis of Application

Efficacy

At present, the local official veterinarian can impose a monetary fine on traders and visitors that violate the market’s trade rules. In severe or repeating cases, the trader may be excluded from present and even future shows.¹⁰⁶ However, in practice, this depends heavily upon the personal commitment of the local veterinarians. In addition, especially at large events, this is a huge challenge, as animals are constantly replenished from cars outside during the full length of the event, and with thousands of animals at, under, or behind the tables in the halls, often in stacked boxes. In the case of violations of international (CITES) or EU legislation, animals, especially illegal animals, can be seized. Those larger trade shows are also an opportunity for visitors and clients to meet nearby and exchange animals that were pre-ordered online. Those animals do not show up within the saleroom but are handed over at parking lots or in hotels nearby, which makes control by authorities even more difficult.¹⁰⁷

Many online advertisements offer such offsite sales at or near the Terraristika in Hamm. During visits to Hamm, Pro Wildlife regularly observed people meeting and making their deals in the parking lot next to the sales hall or at the adjacent coffeehouse.¹⁰⁸ The evening before the Hamm trade show,

102. “Deutschlands Zukunft gestalten – Koalitionsvertrag zwischen CDU, CSU und SPD, 18. Legislaturperiode (Shaping Germany’s Future Coalition Agreement Between the CDU, CSU and SPD),” 84, https://ec.europa.eu/migrant-integration/library-document/shaping-germanys-future-coalition-between-cdu-csu-and-spd-18th-legislative-period_en.

103. “Ein neuer Aufbruch für Europa – Eine neue Dynamik für Deutschland – Ein Neuer Zusammenhalt für Unser Land. Koalitionsvertrag Zwischen CDU, CSU und SPD”, 19. Legislaturperiode (A New Beginning for Europe - A New Dynamic for Germany - A New Cohesion for our Country. Coalition Agreement between CDU, CSU and SPD, 19th Legislative Period),” 86, https://archiv.cdu.de/system/tdf/media/dokumente/koalitionsvertrag_2018.pdf?file=1.

104. “Antrag der Fraktionen CDU/CSU/SPD, ‘Schutz von Exotischen Tieren bei Handel und Haltung Verbessern – Ursachen für Pandemien Bekämpfen’ (Motion of the parliamentary groups CDU/CSU/SPD ‘Improve the Protection of exotic animals in trade and husbandry – fight the causes of pandemics),” Drucksache 19/24645, <https://dserver.bundestag.de/btd/19/246/1924645.pdf>.

105. The next Bundestag (parliament) elections upcoming as of this publication will take place in September 2021.

106. “Leitlinien zur Ausrichtung von Tierbörsen unter Tierschutzgesichtspunkten (Guidelines for Organizing Animal Fairs from an Animal Welfare Perspective),” (Berlin: Bundesministerium für Ernährung, Landwirtschaft, und Verbraucherschutz, 2006), https://www.bmel.de/SharedDocs/Downloads/DE/_Tiere/Tierschutz/Gutachten-Leitlinien/Ausrichtung-Tierboersen.pdf?__blob=publicationFile&v=2.

107. Frank Osiewacz, “112 Poison Dart Frogs Confiscated in Hammer Hotel Room,” Wa.de, March 17, 2020, <https://www.wa.de/hamm/pfeilgiftfroesche-hamm-hotelzimmer-beschlagnahmt-zeitpunkt-terraristika-13603255.html#:~:text=Der%20Zoll%20hat%20in%20einem,Zollfahndungsamtes%20Essen%20gegen%C3%BCber%20dem%20WA>. See also Hanna Gersmann, “Caught Illegally, Sold Legally,” Taz, Dec. 11, 2015, <https://taz.de/Reptilienmesse-in-Hamm/!5256626/>; Wolfgang Dahlmann, “It is Illegal Outside of the World Reptile Exchange ‘Terraristika,’” Wa.de, March 10, 2016, <https://www.wa.de/nordrhein-westfalen/illegal-geht-ausserhalb-welt-reptilienboerse-terraristika-hamm-6197274.html>.

108. “That was the ‘Terraristika’ in Hamm,” Rheinische Post, last updated December 19, 2016, https://rp-online.de/nrw/panorama/das-war-die-terraristika-in-hamm_bid-21098239#3; or “That was the ‘Terraristika’ in Hamm,” Rheinische Post, last updated December 19, 2016, https://rp-online.de/nrw/panorama/das-war-die-terraristika-in-hamm_bid-21098239#7.

traders and clients also meet in hotels nearby, and some deals are made there before the show even opens. In addition, authorities have repeatedly seized animals in the surrounding hotels, where deals have taken place.¹⁰⁹ One seizure took place in March 2020, even though the Hamm show itself had been canceled due to the Coronavirus crisis—the traders had already made their online agreements with clients and met in Hamm.¹¹⁰

Extra-Legal Activities

There are currently no binding regulations for animal trade shows in Germany. In 2006, after ongoing pressure from animal welfare organizations, the Federal Ministry for Agriculture for the first time released animal welfare guidelines for animal trade shows.¹¹¹ Therein, they underlined the nonbinding character of the guidelines already in the booklet's introduction. Accordingly, while the guidelines recommended excluding the offer of wild-caught animals, in practice such sales are not sanctioned. Some animal species are not even covered by these guidelines. For example, dogs, cats, and livestock are excluded from the provisions of the guidelines. For invertebrates, the guidelines only apply in parts. Furthermore, animal trade shows are taking place on weekends, which significantly reduces the capacity of local authorities to inspect and enforce regulations. However, such inspections may not address zoonotic risks even when carried out. They are typically focused more on animal welfare and, in the case of the large international reptile trade shows, on species conservation aspects. Animals that show symptoms of stress or are visibly ill can, in theory, be removed from the trade shows, and sometimes animals are seized, but checks for zoonosis-relevant diseases are not part of these inspections.

PROSPECTIVE REFORM

Factors Driving Future Policy Solutions

Effects of COVID-19

Almost all animal markets were canceled in 2020 until mid-2021, in response to the SARS-CoV2-crisis. However, those events were canceled because of the political lockdown measures to prevent the gathering of a large number of people and to avoid super-spreading events. As long as legally binding restrictions for animal markets and trade shows are not yet passed by the Agricultural Ministry, as requested by the Bundestag in December 2020, as of the time of writing, we believe the trade shows will probably resume in their old manner as soon as vaccinations have become available at a broad level, incidence of coronavirus cases have decreased, and lockdowns have been lifted.

109. "Customs Confiscates 136 Exotic Cars in Hamm (Zoll Beschlagnahmt in Hamm 136 Exoten)," Newstral, December 15, 2015, , <https://newstral.com/de/article/de/1011805296/zoll-beschlagnahmt-in-hamm-136-exoten>.

110. Frank Osiewacz, "112 Poison Dart Frogs Confiscated in Hammer Hotel Room," Wa.de, last modified March 17, 2020, <https://www.wa.de/hamm/pfeilgiftfroesche-hamm-hotelzimmer-beschlagnahmt-zeitpunkt-terroristika-13603255.html#:~:text=Der%20Zoll%20hat%20in%20einem,Zollfahndungsamtes%20Essen%20gegen%C3%BCber%20dem%20WA>.

111. Tierschutzgesetz ("Animal Welfare Act"), enacted May 18, 2006.

Large-Scale Trends

Exotic pets have become popular, as they are praised as “cool” or “easy to keep,” and equipment for their keeping has been enhanced and is now easily available.¹¹² Europe is, alongside the USA and Japan, a main destination for exotic pets.¹¹³ The range of species available for sale has increased due to globalization and facilitated access to remote areas, such as by deforestation and increasing infrastructure.¹¹⁴ There is a clear demand among some private collectors for rare species (“something special”), although they are aware that these animals are taken from the wild and that these offtakes may drive the species to extinction.¹¹⁵ And the demand for traditional pets has also increased during the SARS CoV-2 pandemic.¹¹⁶ Whether it will continue to grow, or if people will get tired of their animals and give them to animal shelters, is not yet clear. Finally, the consumption of meat is slowly decreasing in Germany. In 2019, the amount of meat consumed per person was estimated at 59.5 kg and therefore 2.5% less than the amount of 2018.¹¹⁷ The reasons for this decrease are manifold and include health issues, animal welfare concerns, and environmental consciousness.

Proposed Reforms

Animal markets should be limited to captive-bred specimens of domesticated species. They should be run without direct contact between the animals and potential clients. Furthermore, such events need to be reduced to a local level, with a limited number of visitors and animals, and should exclude commercial traders. Wild-caught animals and exotic pets should be excluded, having in mind that reptiles, especially, are known carriers of, for example, salmonella, and that cases of reptile-associated salmonellosis have increased in Europe in recent decades. 12%–85% of turtles and tortoises are

-
112. Norbert Schneeweiß et al., “Amphibien- und Reptilienhandel als Gefährdungsfaktor für heimische Populationen,” *Zeitschrift für Feldherpetologie* 21 (2014): 101–20. See also Mark Auliya et al., “Trade in Live Reptiles, Its Impact on Wild Populations, and the Role of the European Market,” *Biological Conservation* 204, Part A (2016): 103–19, <https://doi.org/10.1016/j.biocon.2016.05.017>.
113. Sandra Altherr, Katharina Lameter, and Juan Carlos Cantu, “The Trade in Nationally Protected Lizards from Australia, Cuba, and Mexico and the EU’s Role as a Main Destination,” *TRAFFIC Bulletin* 31, no. 2 (2019): 59–66, <https://www.traffic.org/site/assets/files/12507/lizards-from-australia-cuba-mexico.pdf>. See also Jordi Janssen and Anselm de Silva, “The Presence of Protected Reptiles from Sri Lanka in International Commercial Trade,” *TRAFFIC Bulletin* 31, no. 1 (2019): 9–15, <https://www.traffic.org/site/assets/files/12036/sri-lanka-reptiles.pdf>; Mark Auliya et al., “Trade in Live Reptiles, Its Impact on Wild Populations, and the Role of the European Market,” *Biological Conservation* 204, Part A (2016): 103–19, <https://doi.org/10.1016/j.biocon.2016.05.017>; Jordi Janssen and Chris R. Shepherd, “Trade in Endangered and Critically Endangered Japanese Herpetofauna Endemic to the Nansei Islands Warrants Increased Protection,” *Current Herpetology* 38, no. 1 (2019): 99–109, DOI:10.5358/hcj.38.99; Timm Juul Jensen, Snakes of Africa: Exploitation and Conservation, (Masters of Science Thesis, Aalborg University, Denmark, 2017), https://www.researchgate.net/profile/Timm-Jensen/publication/320212948_Snakes_of_Africa_-_Exploitation_and_Conservation/links/59d51d11458515140ee43d78/Snakes-of-Africa-Exploitation-and-Conservation.pdf.
114. Emma R. Bush, Sandra E. Baker, and David W. Macdonald, “Global Trade in Exotic Pets 2006–2012,” *Conservation Biology* 28, no. 3 (2014): 663–76, doi: 10.1111/cobi.12240. See also: Bruno Chomel, Albino Belotto, and François-Xavier Meslin, “Wildlife, Exotic Pets, and Emerging Zoonoses,” *Emerging Infectious Diseases* 13, no. 1 (2007): 6, doi: 10.3201/eid1301.060480.
115. Sandra Altherr and Katharina Lameter, “The Rush for the Rare: Reptiles and Amphibians in the European Pet Trade,” *Animals* 10, no. 11 (2020): 2085, doi: 10.3390/ani10112085. See also Sandra Altherr and Katharina Lameter, *Stolen Wildlife III: The EU: A Main Hub and Destination for Illegally Caught Exotic Pets* (Munich, Germany: Pro Wildlife, 2020), https://www.prowildlife.de/wp-content/uploads/2020/08/Stolen_Wildlife_III_webversion-PDF.pdf; Jessica A. Lyons and Daniel J. D. Natusch, “Effects of Consumer Preferences for Rarity on the Harvest of Wild Populations Within a Species,” *Ecological Economics* 93 (2013): 278–83, DOI:10.1016/j.ecolecon.2013.06.004; Franck Courchamp et al., “Rarity Value and Species Extinction: The Anthropogenic Allee Effect,” *PLoS Biology* 4, no. 12 (2006): e415, doi: 10.1371/journal.pbio.0040415; Mathew H. Holden and Eve McDonald-Madden, “High Prices for Rare Species Can Drive Large Populations Extinct: The Anthropogenic Allee Effect Revisited,” *Journal of Theoretical Biology* 429 (2017): 170–80, DOI: 10.1016/j.jtbi.2017.06.019.
116. Meike Hickmann, “Pet Boom in Corona Year - ‘Friend for Life, Not For the Lockdown,’” *Zdf.de*, last edited Feb. 7, 2021, available at <https://www.zdf.de/nachrichten/panorama/corona-haustiere-tierheime-welpenhandel-100.html>.
117. “Meat,” Bundesministerium für Ernährung und Landwirtschaft, accessed October 27, 2023, <https://www.bmel-statistik.de/ernaehrung-fischerei/versorgungsbilanzen/fleisch>.

carrying salmonella, as are 16%–92% of snakes, and 36–77% of lizards.¹¹⁸

Reducing the demand for exotic pets would also be an important target. However, this would be time-consuming and might only have partial success. Exotic pets are still marketed as “cool” and “trendy.” In studies on demand reduction strategies for exotic pets, information on welfare and conservation impacts did not significantly lower purchase likelihoods. On the other hand, information campaigns may reduce demand for exotic pets, particularly if focused on zoonotic disease and legal consequences, according to a 2017 study.¹¹⁹

Therefore, we see legal measures to restrict trade in wildlife and exotic pets, including animal markets, as necessary and overdue. This was also a main conclusion and recommendation in the Pro Wildlife study for the German Environmental Ministry.¹²⁰

118. Michaela Gumpenberger, “Reptilien und Salmonellen aus Veterinärmedizinischer Sicht (Reptiles and Salmonella from a Veterinary Perspective),” *Tropenmedizin und Parasitologie* 22 (2000): 55–8, https://www.zobodat.at/pdf/MOGTP_22_0055-0058.pdf.

119. Tom P. Moorhouse, Neil C. D’Cruze, and David W. Macdonald, “Information About Zoonotic Disease Risks Reduces Desire to Own Exotic Pets Among Global Consumers,” *Frontiers in Ecology and Evolution* 9 (2021): 609547, DOI:10.3389/fevo.2021.609547.

120. Sandra Altherr, Daniela Freyer, and Katharina Lameter, Strategien zur Reduktion der Nachfrage nach als Heimtiere gehaltenen Reptilien, Amphibien und kleinen Säugetieren, edited by Federal Agency for Nature Conservation BfN (Bonn: BfN-Skripten, 2020), <https://d-nb.info/1207495123/34>.

IMAGES



Handling of a chameleon, reptile trade show, Darmstadt 2011 © private



Handling of ball python, at reptile trade show Terraristika, Hamm, September 2013 © private



Petting of rabbits, Animal Market Sünching, July 2010 © Deutscher Tierschutzbund



Handling and sexing of a snake at reptile trade show Terraristika, Hamm, September 2011 © private



Buses from Italy at Taubenmarkt in Wasserburg Germany (2010), animals that were bought are being transferred into the bus © Deutscher Tierschutzbund



Petting of rabbits, Animal Market Kaunitz, May 2010 © Deutscher Tierschutzbund



Confiscated Puppy with diarrhea (Copyright: Tierheim Lübbecke)



Pigeons on top of rabbits at Pferdemarkt Burgdorf 2015 © Deutscher Tierschutzbund