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Person Tracking Dogs in European Police Services

Status quo and characteristics

As part of the KIRAS¹-funded project “PSH – Einsatz und Ausbildung von Personenspürhunden” for optimising training and deployment of person tracking dogs (PSH) in Austria and Bavaria, we examined the general conditions and forms of training within European police services. The objective was to derive recommendations for future PSH training and use. The research focused on those European countries where PSH units already exist and for what purpose the dogs are used for. Information on the (non-)existence of PSH activities in 21 countries was collected as part of a comparative study which also included eight qualitative interviews with experts in the PSH field. The process of establishing PSH training as a separate branch was highlighted, in addition to examining the current situation, already existing initiatives and interest, and those countries where PSH units have been disbanded. Similarities and differences in the use of PSH for preventive or repressive law-enforcement operations could be identified from the study. A definition of the success of such operations was developed too, including the importance of the location of evidence as key factor and not just finding the target person.



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1. INTRODUCTION

The dynamic field of police work needs to adapt continuously to societal changes and developments. Police dogs (PD) form an important part of this process and have been assisting officers in their work for decades. In general, police dogs are an operational resource for preventing and repressing criminal acts, for carrying out search and rescue operations, and for providing assistance with forensic investigations. They not only protect their handler, but they are able to detect by scent the smallest traces of substances such as drugs or explosives. With training, they can also track the individual odour of a person (person tracking dog – PSH). The importance attributed to *Canis lupus familiaris*, which

is specially trained for its public service, depends on context. They can represent protection and security, symbolise hope in the search for a missing person, and at the same time can be regarded as a threat in the eyes of a fugitive (cf. Schneider 2000; Pohlheim 2008; Smith et al. 2021).

A study on PSH practices in various European countries was conducted as part of the KIRAS PSH project, a nationally funded research project under the Austrian Security Research Programme. The objective was to optimise the training and deployment of PSH teams in the police service in Austria and Bavaria. The present study included an analysis of the general conditions and forms of training of PSH teams in different parts of Europe in



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order to derive good practice standards as recommendations for the modification of future PSH unit training.

Preliminary research showed an apparent lack of systematic investigation into PSH practice. Most available sources consist of newspaper articles or self-presentations on unit-owned web sites. Some sources (including non-European) deal with the requirements of K9 sniffing dogs in general (cf. Braverman 2013), while others focus on forensics and the evidence obtained using human-tracking/trailing dogs (cf. Wolf 2016; Goss 2021; Schoon 2022). Only few studies and articles deal specifically with the general requirements for hard-surface tracking dogs or mantrailers in police service. Schoon (cf. Schoon 2022), for example, records that volunteers in the Netherlands use mantrailing dogs for search and rescue operations. Woidtke (cf. Woidtke 2016; id. 2019) describes the specific training and operation of trailing dogs at the police in Saxony.

This paper attempts to provide (initial) insights into the development and adaptation of PSH practice in police services across Europe, to present an overview of the current situation and to point to the potential for further expanding and professionalising the field. It also sets out to give insights into characteristics and definitional aspects of the sector, derived from interviews with PSH professionals.

2. RESEARCH DESIGN

The survey on PSH practice in European police services was designed as a qualitative comparative study with an exploratory approach in order to prepare the subject of the research in a systematic and application-orientated way. The analysis can be located in the dynamic field of empirical police research by examining the field of action of the public executive body (cf. Reichertz/Schröer 2003; Mistele 2007;

Kosmützky/Wöhlert 2015; Baur/Blasius 2019).

The following research questions are central to the present paper:

- ▶ In which European countries do police forces use PSH?
- ▶ How are PSH used in European countries?
- ▶ For which purposes are PSH teams used?

The results of the study served as a basis for generating good practice recommendations for future PSH practice. For the sake of comprehensibility, the methods used will be described in the next chapter.

2.1 Methods

The selection of suitable study units is of particular importance in international research. Conducting research on dogs used for tracking or trailing to help finding a missing person requires a demarcation and distinction of terminologies for different types of search dogs and the skills and training of the animals as a basis for comparison. In the KIRAS-funded person tracking dog project, three special but similar types of training are relevant, which are included in the research, and require definition. “Person tracking dogs (PSH)” (1) explicitly seek the scent of a specific person, track that person, indicate associated objects, and ignore highly volatile odours carried to them by the wind. The PSH works on a leash and with a deep nose. It can also be trained as a protection dog. The “Mantrailer” (2) follows the individual trail of a person and tries to find that person not only by the trail but also by the highly volatile odour carried to the dog by the wind. The mantrailer also works on a leash, with both low and high nose. “Hard-surface tracking dogs” (3) work in urban areas and follow a trail in the form of footprints as a scent carrier on asphalt, without ground damage and with a deep nose. In

the study, mantrailer (deep and high nose work including strong odours), hard-surface trackers (deep nose work, orientation along footprints on asphalt) in addition to PSH (deep nose work, no strong odour) were included as equivalents (cf. Schettler 2013; Woitke 2016).

To collect the data, qualitative interviews were conducted in 2021 employing a conceptualised guideline to enable open but targeted dialogue. The relevant factors and questions were formulated in a participatory process with experts from the field. The survey instrument also contained quantitative elements which served as a supplement and were intended to contribute to better comparability with regard to the key data. The interviews were documented, transcribed and subsequently analysed using qualitative content analysis (cf. Mayring 2003). For quality assurance, the scientific research team organised periodic reviews for alignment of approach, understanding and interpretation.

2.2 Recruitment and implementation

The target group for the study were police officers responsible for PSH, mantrailing and hard-surface tracking in Europe. To recruit suitable experts, a contact list was generated by the Austrian Federal Ministry of the Interior and the Bavarian Police based on in-depth research for suitable contact persons. The process of identifying and recruiting key responsible persons/organisations in European countries took several months. The interviewees in those countries where PSH practice exists were informed about the project in an official letter, with information on data processing regarding informed consent and, if desired, with the guiding questions for preparation.

In terms of limitations, in this form of qualitative survey it should be noted that the data collected also contains subjective attitudes and perceptions. With regard to

the selection of countries and corresponding practices, the survey aims to provide insights into different approaches rather than to be exhaustive. There is a gender distribution of two women to six men among the interview partners. Even though, for example, in Austria and Germany there has been an increase in the proportion of women among police officers in the recent years, the majority of those in the executive service remain male (cf. DESTATIS 2020; BMKÖS). Interviews with non-German speakers for the international study were conducted in English. For those people whose first language was different, it is necessary to take the possible language barriers into account. It is also worth mentioning socio-cultural peculiarities as well as governmental and political structures that manifest themselves more or less latently in the interviews and can only be marginally included in the study. It is possible that, for example, the establishment and shaping of PSH practice is co-determined by these circumstances.

3. RESULTS: TRAINING AND DEPLOYMENT OF PSH IN EUROPE

Within the framework of the comparative study on the system of PSH in Europe, a total of 24 responsible bodies were contacted, of which only three failed to respond. Eleven were German states, which are used as sub-units. The decisive factor for such participant selection was the fact that the practice in Germany differs depending on the federal state and the respective philosophies framing the training and practice. An additional mailing was also posted on the Kynopol network (an international network of police dog professionals in Europe), from which helpful information about five countries could be obtained. It was also possible to compile useful details about two countries by phone. This brought the available sources to 13 countries.

Source: PSH project team

Country	Information PSH
Belgium	Used to do mantrailing, discontinued
Bulgaria	Classical tracking
Czech Republic	No information: No resources for an interview due to the pandemic
Estonia	No reply to the request
Finland	Classical mantrailing marginally included in the curriculum, but no specialisation
United Kingdom	No training for mantrailing or hard surface tracking, but active interest
Holland (Netherlands)	No mantrailing/PSH-practice, sceptical attitude
Ireland	No training for mantrailing or hard surface tracking
Italy	No reply to the request
Croatia	No training for mantrailing or hard surface tracking
Germany	
– Berlin	Since 2009
– Lower Saxony	Since 2010
– Mecklenburg-Vorpommern	Since 2007
– North Rhine-Westphalia	Since 2007
– Saxony	Since 2009
– Schleswig-Holstein	Since 2008
Hungary	2 privately owned dogs trained as mantrailers as part of a pilot project, but not continued
Portugal	No training for mantrailing or hard surface tracking
Slovakia	No reply to the request
Slovenia	No training for mantrailing or hard surface tracking
Spain	No training for mantrailing or hard surface tracking

Fig. 1: Overview of PSH practice in European police services (2021)

Source: PSH project team

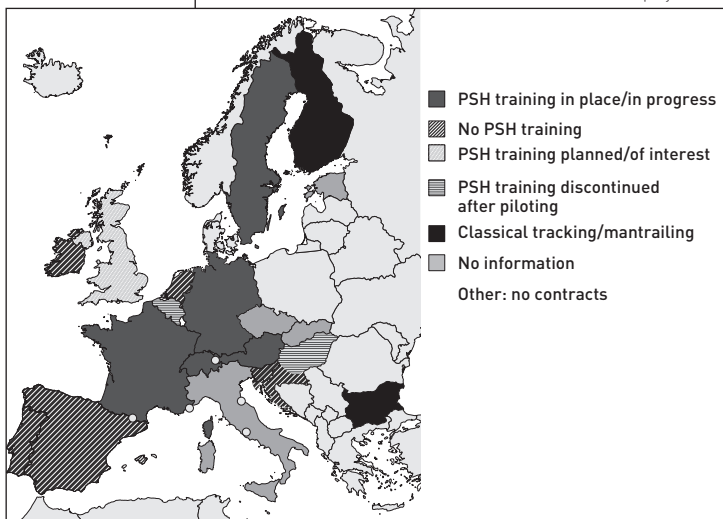


Fig. 2: Overview of status of PSH practice in police service

The interviews with PSH officers provided extensive information about the requirements and demands placed on PSH teams, as well as the structuring and processes of training and deployment in this field. A list of potential interview candidates also helped to create an overview of countries and their respective PSH status. Initial contact through interview requests helped in collecting information on countries where training of PSH, mantrailers or hard-surface trackers was already established or was still lacking, used to exist or is currently being piloted, as well as who expressed interest in introducing PSH (United Kingdom).

The map (Figure 2) is a fusion of the information in Figure 1 and those countries represented in the interview survey.

Some contacts also provided detailed information about police dog practice in their respective countries. Accordingly, even if no dedicated PSH practice exists, this still provides valuable insight into their respective practices.

3.1 Facts and figures

The core of the study is based on eight qualitative expert interviews, including managers, administrators and trainers active in this field. In addition to Sweden, Switzerland and France, PSH managers from various German federal states were included as a sub-group. Figure 3 (see page 77) gives an overview for an initial understanding of the statistics and the size of the PSH sector in the respective (federal) state as well as a reference to the total number of police dogs (PD) teams. Precise figures on PSH were not always available. Here it should be emphasised that these numbers are estimates and may vary depending on PD retirement and other departures or developments.

Additionally, across the United Kingdom there are approximately 1,000 police ser-

vice dogs. The current national standard for police dogs does not include specific requirements for mantrailing or tracking on hard surfaces, and no specific tracking dogs are trained. The focus is on training dogs for a variety of surfaces. Tracking people, discarded objects and protection are among the specialities of the general police dogs trained. Currently, there are two levels of detection dog training for police service dogs in the United Kingdom, with a testing scheme that has been in use for 10 years: a standard level and an advanced level.

The total number of PSH in training and operation also depends on the duration of the ongoing training programmes since the founding of this specific training branch. The following section will take a closer look at the development and establishment of PSH in the respective geographic regions in order to clarify the circumstances under which this particular form of recruiting emerged and the significance it has subsequently acquired.

3.2 Establishment of the PSH practice

The expert interviews allowed to shed light on the emergence of the PSH practice and the current status of this field of work in the represented countries. Specialised dog training for searching for people started in the 1990s in the majority of the countries surveyed. Among the participant pool, the state of Baden-Württemberg, which started PSH practice in 2014, is the most recent practitioner. Until the training/practice reached its current form(s) and formal establishment, units underwent various processes of change in terms of approach and use. Various trials were carried out, including the use of dual-purpose dogs with use of force training as opposed to atypically trained specialists, as in Saxony-Anhalt.

Source: PSH project team

State/Country	PD (with specialisation)	PSH in training	PSH certified
Baden-Württemberg (Old)	62 in training	4: 2 completed, 2 in training; 1 to start	4
Bavaria (Old: South)	400 (250 dual trained protection and detection dogs in the areas of narcotics, human remains, cash means as an addition to detection dogs for narcotics, data carrier, incendiary devices and explosives)	10	19
France	40 in training; 500 Gendarmerie-teams in total	Need based; approx. 20-25 tracking dogs/year (resume tracking training in Sept. 2021)	100-150 tracking dogs; 25 bloodhounds (Gendarmerie and police)
Hamburg (Old: North)	52 (45 protection dogs, 2 in special unit (SEK), 4/5 special detection dogs for human remains or incendiary devices, PSH)	2: 1 new PD and 1 with a second PSH	4
Saxony-Anhalt (New)	79 teams (protection, tracking, narcotics, explosives, incendiary devices, cash, cadaver and person tracking dogs)	1	5 (28 dogs with mixed training for detection of ground-level injury and individual odour, also dual trained protection dogs)
Sweden	70-90 PD per year	In total: 430-450 hard surface Tracker; Regional: 18 special tracking dogs and 30 detection dogs	
Switzerland ²	45 teams in the canton	Successive; 2 in the canton; 4 in the country	5 in the canton; 17 in the country
Thuringia (New)	74 teams (for tracking, explosives, narcotics, data carrier, incendiary devices and cadaver detection)	0	6 (Completion 2020)

Fig. 3: Estimated number of PD, PSH in training and PSH ready for operation by country (2021)

More sophisticated concepts for training and certification only emerged with time and growing experience. The commitment of individuals seems fundamental. These driven individuals, together with selected colleagues, have worked to establish the training branch. A lead or piloting time, giving attention to exchange with other countries, has proven to be useful in establishing a national/local-level PSH

system. With regard to the commitment and dedication of teams, it is interesting to note that PSH training tends to have a lower drop-out rate than do other sectors of police dog training. This may be due to the time-consuming selection process that precedes admission to PSH training. In some parts of countries such as Germany and Sweden, an expansion of the PSH sector is gradually being considered.

3.3 Specifications

When it comes to deployment, PSH teams are considered for preventative and repressive police interventions. The specialised teams are also used for the reconstruction or verification of traces. Another (passive) contribution lies in the mere presence of dog teams which may serve as a positive public image, reassuring relatives of a missing person that adequate measures are being taken. In many cases, working dog breeds are trained as tracking and protection dogs. In Scandinavia, dual-purpose dogs learn to search for people as well as to detect substances such as narcotics. Dual-purpose dogs are also used for protection in France and Hamburg, in addition to pure specialists. In Switzerland, a distinction is made between mantrailers and PSH, which are used alternately. In some places, the dogs are deployed in a sequence, after an initial search by tracking dogs and before cadaver detection dogs are deployed. Besides the training as a mono- or dual-purpose dog, the availability of PSH in a particular country also determines the time of deployment and the sequence. The main operational purposes of PSH are summarised as follows:

- ▶ Missing person searches³
- ▶ Escape route reconstruction
- ▶ Search for escaped prisoners/prevention of danger
- ▶ Crime scene investigation (incl. search of objects)⁴

Source: PSH project team

History of the establishment of PSH

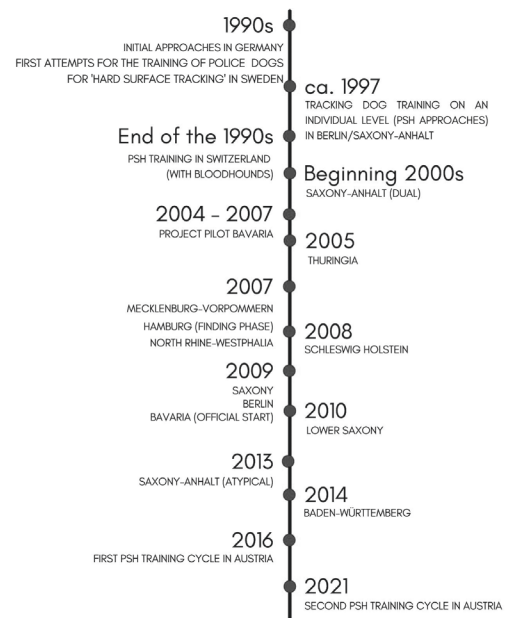


Fig. 4: Process of PSH establishment as separate training cycle

▶ Protection (in the case of dual training)
PSH follow the individual scent of a person, while other search dogs look for the “freshest” scent. PSH can also be used in both urban and rural areas, so they do not depend on the type of surface to be searched, and tracks 48 hours old or more can be followed. PSH are less suitable for tracks that are very old (e.g. four weeks). With PSH, the focus is on tracking, working out the trail or the search, and not necessarily on finding the target. Another aspect that distinguishes PSH from other tracking dogs is the complexity of the training. By comparison, there is no “learnable” scent that is 100% correct. This makes the work particularly challenging, and it is important to maintain the training continuously. The specific requirements for PSH and the implications for the practical framework are presented in Figure 5 (see page 79).

A highly relevant aspect in the PSH domain is also the question of the use of

the police dogs as mono- or dual-purpose dogs, which is accordingly associated with different qualities and requirements. Specialised PSH have a tendency to be more gentle, as they are not trained to protect. This also has the advantage that they can be trained to be more in-depth and focused on their task than can dual-purpose dogs, which in turn also work differently. From the interviews, it appears that dual training of working dog breeds for the purpose of tracking and protection is common in many places. These are usually distinguished from PSH, which is why hunting dog breeds are often used. Dogs with dual training are seen as all-rounders that are supposed to cover many different disciplines, but accordingly cannot go into any depth in individual disciplines. Here, PSH that specialise in search only are clear experts in their field. There are concrete differences in the ability to concentrate and perseverance in the search also linked to frustration tolerance, all crucial aspects in the search for people.

3.4 Definition of success

With regard to the highly relevant question of what counts as a successful operation, proof of success can be provided directly during the operation, but often also only in hindsight once a case is solved.

An operation is clearly considered successful if the target person is found and if objects are located that can be used as circumstantial evidence, or when the trail is followed to a prominent point such as a bus stop.

Despite their different evaluation systems, the experts generally agree that PSH represent an added value. In conclusion, operations can be regarded as successful if one or more of the following criteria are met.

- ▶ Direct location of the target person
 - Return of missing persons
 - Apprehension/arrest of fugitives

Source: PSH project team

PSH Specifics	
PSH Skills	Practical Framework
Following the individual scent of a person	More complex training of PSH
More diverse areas of use (urban, rural, etc.); work is not dependent on the surface type	More limited availability of PSH
Higher trace age possible (> 48h)	Stricter eligibility criteria
Operational readiness even under adverse conditions	Limited selection of suitable dogs (balanced characteristics - physical/mental criteria for suitability)

Fig. 5: Specifics of PSH according to skills and framework in practice

- ▶ Finding of evidence/indications that support the search
 - Objects on trail
 - Information, such as description of persons, by interviewing persons in the vicinity of the track indicated by PSH
 - Checking cameras on the trail
 - ▶ Following the trail to a prominent point (e.g. bus stop)
 - ▶ Further evidence for correct elaboration and reconstruction of the track afterwards
 - E.g. through testimony of target person
- In order to better illustrate the functionality of PSH teams, we present and discuss below an actual operational example.

Example: Investigation after homicide **Initial situation**

On the morning of 26 June 2021, the lifeless body of a young woman was found leaning against a tree on a green strip in Vienna. The immediately alerted emergency services could only determine the death of the woman. It transpired later that the woman had been drugged, raped and suffocated.

Search

Approximately two hours after the find, a PSH was deployed to locate and save possible evidence. The shoes of the dead person were used as scent articles.

The search was started near the location of the body. The PSH immediately found a trail that crossed the location of the body to a staircase in an apartment block nearby. There the dog searched intensively between a wall and bushes, where a rolled-up carpet and a face mask were found. The dog did not indicate on these items but followed the trail again to the location of the body. From another location, the dog followed a trail to a bus stop; a further search was without result.

Result

Further investigation confirmed the search by the dog and did show that the crime scene was located in the staircase the dog indicated. Ultimately, three men were identified as the perpetrators and convicted of rape and murder.

This example shows the possibilities when deploying a person tracking dog. Additional evidence could be located and secured with the help of the dog. The results of the searches also made it possible to focus further investigations, in this case, on the staircase the dog indicated. The deployment of the dog and its handler essentially helped crime scene officers to solve the crime.

4. CONCLUSION

The comparative study to formulate good practice recommendations for PSH in the police service provided an overview of European countries and their status in terms of PSH practice. It provided insight into where training for person tracking

dogs, mantrailing or hard-surface tracking dogs is already established, where there is no such practice, where pilot projects have been conducted without further application, as in Hungary, and where there is a strong interest in introducing person tracking dogs, as in the United Kingdom.

The core of the study consists of eight qualitative expert interviews with PSH officers from Germany, Sweden, France and Switzerland. In the course of the international survey, similarities and differences in PSH practice in the represented countries could be identified. These were used to shed light on the emergence of individual PSH practices as well as the status of this branch of the police force. The results show that as specialists, PSH make up only a small fraction of a state's police service dogs. Their training and use are not without controversy, which is why the use of PSH has been discontinued in some countries. In countries where PSH are still in use, they are deployed to find missing people, reconstruct escape routes, find evidence or, when dual trained, act as protection dogs too. The skills of a PSH differ significantly from those of the other police service dogs, which shows the importance of an advanced selection process of the dog and the handler too. In very rare cases, the result of the work of a PSH team is the direct finding of a person. That is why we have also attempted to define criteria for successful searching by a PSH team as part of this survey. This definition allows the value and efficiency of a PSH to be better represented.

¹ This study was funded by the Austrian Security Research Programme KIRAS.

² The data and information from the cantons included are used to be representative of the mantrailing/hard-surface tracking system in Switzerland, although other approaches in other parts of the country are not excluded.

³ Search for missing persons, e.g. for persons with dementia, children or suicidal persons.

⁴ Searches in connection with capital crimes, including homicide and sexual offences, but also residential burglaries, vehicle fires, attempted kidnappings or the search for escaped prisoners.

Sources of information

Baur, Nina/Blasius, Jörg (2019). *Handbuch Methoden der empirischen Sozialforschung*, Wiesbaden.

BMKÖS [Bundesministerium für Kunst, Kultur, öffentlicher Dienst und Sport], *Daten und Fakten zum Bundespersonal, Frauen und Männer*, Online: https://www.oeffentlicherdienst.gv.at/fakten/bundespersonal/daten/geschlechter/maenner_frauen.html (02.12.2022).

Braverman, Irus (2013). *Passing the sniff test. Police Dogs as Surveillance Technology*, SUNY Buffalo Legal Studies Research Paper Series, Paper No. 2013–009, *Buffalo Law Review*, 61 (81–168) (forthcoming), Online: <http://ssrn.com/abstract=2142530> (02.12.2022).

DESTATIS Statistisches Bundesamt (2020). *Zahl der Polizeianwärterinnen und -anwärter seit 2010 mehr als verdoppelt*, Pressemitteilung Nr. N 057 vom 18. September 2020, Online: https://www.destatis.de/DE/Presse/Pressemitteilungen/2020/09/PD20_N057_742.html (02.12.2022).

Goss, Kai-Uwe (2021). *Mantrailing as evidence in court?*, *Forensic Science International Reports* (3), Online: <https://doi.org/10.1016/j.fsir.2021.100204> (02.12.2022).

Kosmützky, Anna/Wöhlert, Romy (2015). *International vergleichende Forschung: eine interdisziplinäre Metaanalyse disziplinärer Zugänge*, *SWS-Rundschau*, 55 (4), 279–307, Online: <https://nbn-resolving.org/urn:nbn:de:0168-ssoar-59680-0> (02.12.2022).

Mayring, Philipp (2003). *Qualitative Inhaltsanalyse. Grundlagen und Techniken*, Weinheim.

Mistele, Peter (2007). *Faktoren des verlässlichen Handelns: Leistungspotenziale von Organisationen in Hochrisikoumwelten*, Wiesbaden.

Pohlheim, Katja (2008). *Zeige mir deinen Hund ich sage dir wer du bist: die Mensch-Tier-Beziehung als Spiegel der Gesellschaft*, in: Rehberg, Karl Siegbert (Ed.), *Die Natur der Gesellschaft: Verhandlungen des 33. Kongresses der Deutschen Gesellschaft für Soziologie in Kassel 2006*, Teilbd. 1 und 2, Frankfurt a.M., 5145–5150.

Reichertz, Jo/Schröer, Norbert (2003). *Hermeneutisch-wissenssoziologische Polizeiforschung*, in: Reichertz, Jo/Schroer, Norbert (Eds.), *Hermeneutische Polizeiforschung, (= Studien zur Inneren Sicherheit, Bd. 5)*, Wiesbaden, 17–36.

Schoon, Gertrud Adelheid Alice (2022). *The use of tracking/man trailing dog results as evidence in courts*, *Journal of Veterinary Behavior* 52/53, 14–20.

Schettler, Jeff (2013). *Training versus tracking: The keys to success*, *Police K-9 Magazin*, Online: <https://www.police1.com/police-products/k9/k9-training/articles/trailing-versus-tracking-the-keys-to-success-bjtllYuJ6GIHxvAS/> (02.12.2022).

Schneider, Hans (2000). *Anforderungsprofile für Polizeibeamtinnen und Polizeibeamte oder: Was erwarten Polizistinnen und Polizisten von der Soziologie?*, in: Liebl, Karlhans/Ohlemacher, Thomas (Eds.), *Empirische Polizeiforschung*, Herbolzheim, 27–43.

Smith, Harriet et al. (2021). *Becoming a police dog: Training technologies for bonding*. *Transactions of the Institute of British Geographers*, 46 (2), 478–494.

Woidtke, Leif (2016). *Mantrailing at the police of Saxony*, *Kwartalnik Policyjny*, (38) 3, 70–77.

Woidtke, Leif (2019). *Der Einsatz von Personensuchhunden*, *Deutsche Richterzeitung*, Ausgabe 7/8, 266–269.

Wolf, Angelika (2016). *Untersuchung des Einflusses der Alterung menschlicher Geruchsspuren auf die Ausarbeitung der Fährten durch Personensuchhunde*, *Dissertation (Tierärztliche Hochschule Hannover)*, Gießen.