

The light's at the end of the funnel!

Evaluating the effectiveness
of the transnational exchange of DNA profiles
between the Netherlands and other Prüm countries

M.D. Taverne
A.P.A. Broeders

Institute of Criminal Law and Criminology
Faculty of Law
University of Leiden
PO Box 9520
2300 RA LEIDEN
The Netherlands



Universiteit
Leiden

With the financial support of the Prevention of and Fight against Crime Programme
European Commission – Directorate-General Home Affairs



November 2015

ISBN 978-94-6251-093-7

NUR 824

© 2015 M.D. Taverne, A.P.A. Broeders and Paris Legal Publishers, The Netherlands

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, mechanical, photocopying, recording or otherwise, without prior written permission of the publisher.

While every effort has been made to trace the owners of the copyright material reproduced herein, the publishers would like to apologise for any omissions and will be pleased to incorporate any missing acknowledgements in future editions.

Acknowledgments

We would like to thank Kees van der Beek, custodian of the Dutch DNA Database, for his significant contributions to this report. Besides providing data, Kees was always ready to answer our many questions and share his wisdom on the subject. Our thanks also go to the Dutch prosecutors who freed up their time to provide information on individual criminal cases.

Contact details authors

M.D. Taverne m.d.taverne@law.leidenuniv.nl

mdt@eentweeveel.nl

A.P.A. Broeders a.p.a.broeders@law.leidenuniv.nl

apa.broeders@maastrichtuniversity.nl

Disclaimer

The reported research was part of the PIES project “*Prüm Implementation, Evaluation, and Strengthening of Forensic DNA Data Exchange.*” The project was supported by the ISEC Programme “*Prevention of and Fight against Crime*” of Directorate-General Home Affairs of the European Commission (project number: HOME/2011/ISEC/AG/PRUM/400002150, grant agreement number: 30-CE-0498536/00-03). The sole responsibility for the content of this study lies with the authors. The European Commission is not responsible for any use that may be made of the information contained therein.

Table of contents

Chapter 1	Introduction	1
1.1	Prüm	3
1.2	The implementation of the transnational exchange and comparison of DNA profiles	4
1.3	Outline of the problem and objective of the study	6
Chapter 2	The Prüm Convention, its implementation and the PIES project	9
2.1	The Prüm Convention	9
2.2	The Prüm implementation	10
2.3	The PIES project	16
2.4	Research question	17
3.1	Tactical Criteria: relevance of matches	19
3.2	Reliability Criteria: validation of matches	21
3.3	Legal Criteria: legitimacy of matches	23
3.4	Priority Criteria: relevance of matches	23
3.5	Suitability Criteria: prosecution value of matches	24
3.6	Match evaluation criteria summarized	25
Chapter 4	Research design and implementation	27
4.1	Performance of the database	27
4.2	Indicators of effectiveness	28
4.3	Sub-questions	29
4.4	Methodology	29
4.4.1	Research framework	29
4.4.2	Data and sources	30
4.4.3	Research instruments	31
4.4.4	France	33
4.4.5	Result presentation formats	34
Chapter 5	Results – Dutch matches	35
5.1	General view	35
5.2	Main findings of the 2010 transnational exchange	38
5.3	Outgoing and incoming transnational requests for further information	38
5.4	LURIS requests	40
5.5	Flowchart questionnaire	41
5.6	Dropouts	44
5.7	Follow-up ‘Selection Funnel’	47
5.8	Closer analysis	48
5.8.1	Four types of matches	48
5.8.2	The follow-up of 6/7-locus and ≥8-locus matches	49

5.8.3	The follow-up of Q3 and Q4 - near matches.....	50
5.8.4	The follow-up of serious and HVC-crimes	50
5.9	Match information	51
5.10	Role of matches	53
5.11	Regional differences.....	54
5.12	Differences between Prüm countries.....	57
5.13	Cross-border patterns.....	58
5.14	Extra cost.....	59
Chapter 6	Results – French matches.....	61
6.1	Matches with France	61
6.2	Follow-up of French crime scene profiles matching with a Dutch profile.....	61
6.3	Follow-up of Dutch matches with a French profile.....	62
Chapter 7	Results - Belgian matches.....	63
Chapter 8	Conclusions and recommendations.....	65
Bibliography	73
Appendix 1	Abbreviations European Member States	79
Appendix 2	The follow-up process in the Netherlands	81
Appendix 3	The DNA databases of the participating Prüm countries	87
Appendix 4	H/N-parameter and the national databases in the Prüm countries	91
Appendix 5	Summary of flow chart results.....	93
Appendix 6	Dropout conditions Stage 2.....	95

Chapter 1 Introduction

While few would still view forensic DNA analysis as the cure-all for unsolved crimes that many once believed it to be, DNA evidence now clearly ranks as one of the most powerful types of forensic evidence currently available. In addition to its unrivalled potential to eliminate the innocent and include the potentially guilty, it has proved its capacity to produce a decisive breakthrough in hitherto unsolved crimes and to resolve miscarriages of justice, thereby revealing the limitations of many traditional types of evidence, including (eye)witness evidence.¹ Although forensic DNA profiles are not unique, their frequency in the population is so vanishingly small that a match² of a full DNA profile of a crime scene trace with the reference profile of a known person may for practical purposes generally be taken to be extremely incriminating if not decisive evidence that that person is the donor of the crime scene material.³ With the increase in transnational crime, the blurring of national boundaries and the ongoing digitization of society, the exchange of DNA profiles across national borders may be welcomed as a powerful new tool in the investigative arsenal. It enables the rapid identification of donors of DNA traces whose reference profiles are stored in foreign databases. To date, there have been some obvious success stories. In press releases, several examples are described of crimes that were committed in the Netherlands and were solved after a crime scene profile in the Dutch forensic DNA database gave a match with an offender profile stored in the DNA database of another European country. Some of these cases, in which a transnational match has resulted in the clearance of a serious crime, are briefly described in the text box below. In these examples, the exchange of DNA profiles between different DNA databases in Europe was crucial in identifying suspects of crimes which might otherwise have remained unsolved. However, as spectacular as some of these cases may be, they cannot be the sole answer to the question how effective the transnational exchange of DNA data truly is.

The murder of Fieny Wouters (1994)

In 1994 Ms Wouters (72) was found dead in her home in Heerlen, the Netherlands. Fourteen years later, in 2008, a DNA match was found in the German database with the profile of a man from Kaiserslautern, who was later sentenced to nine years in prison.⁴

The murder of the 'Rose Girl' (1996)

In 1996 the dead body of a young woman, who later turned out to be a 20-year-old prostitute called Jozefa Wycka, was found near a rose nursery in Lottum in the south of the Netherlands. Fourteen years later a DNA match was found in the German database with the profile of Erich Kurt L., who was charged with her murder but acquitted by the *Landesgericht* in Cologne in 2011.⁵ The Court argued that the presence of his DNA on the victim's body could be explained by the fact that he was living with her at the time and had a sexual relationship with her. Although an-

¹ For hundreds of exonerations after post-conviction DNA testing in the USA see www.innocenceproject.org. For an analysis of the factors involved in some of these cases see Garrett (2011).

² In the literature, the terms 'match' and 'hit' are often used as synonyms. They may however also be used to refer to different types of outcomes. In the latter case, a hit is a correspondence between a crime scene profile and a reference profile, while a match is a correspondence between any two DNA profiles. We use the term match in both cases.

³ Unless the person has an identical twin brother or sister.

⁴ See *Limburgs Dagblad*, 22 January 2010: <http://www.limburger.nl/article/20100122/REGIONIEUWS01/100129858/1071>.

⁵ See Nederlands Forensisch Instituut, 2 July 2010 at https://www.forensischinstituut.nl/over_het_nfi/nieuws/2010/nfi-vindt-dna-match-in-onopgeloste-moord-op-rozenmeisje.aspx.

other suspect, who died in custody before the trial ended, testified that L. had asked him to kill the victim, the court was not convinced that L. was behind the killing. His acquittal was confirmed by the *Bundesgerichtshof* in 2013.⁶

Rape of a young woman in Arnhem (1998)

A young woman was raped in Arnhem, the Netherlands, in 1998. In 2010 a DNA match was found with a reference profile of a Bosnian man in the French DNA database. After a European Arrest Warrant was issued against this suspect the man was arrested in Croatia and transferred to the police in Arnhem. The court sentenced him to four years in prison.⁷

Rape of a Swedish tourist in Amsterdam (2010)

In July 2010 a Swedish woman was raped while on a visit to Amsterdam. The perpetrator's DNA profile was entered in the Dutch database but did not produce a match. Nor did it yield a match with any of the profiles in the databases of the eight countries that participated in the Prüm exchange and comparison programme at the time. However, on 11 October 2012, in one of the mass uploads with France, a match was found with a Moroccan-born Frenchman. Apparently, it took the police some time to trace the man as his profile was not entered in the Dutch database until January 2015. In August 2015 the prosecutor demanded a 30 months' prison sentence.⁸

Albanian burglar active in the Netherlands and France (2011-2012)

DNA traces from dozens of burglaries in the Netherlands committed in 2011 and 2012 matched with a reference profile of an Albanian national in the French DNA database. He was arrested at a road checkpoint in 2013.⁹

Raid on a jeweller's shop in The Hague (2012)

After a raid on a jeweller's shop DNA traces were recovered which were found to match with two 22-year-old persons in the Lithuanian DNA database. Two years later the suspects were arrested in Lithuania and the UK after a European Arrest Warrant was issued. One of the men was sentenced to two and a half years in prison, the other was acquitted for lack of evidence.¹⁰

Violent bomb raids on cash machines (2013)

In 2013 the Dutch police tracked down a Belgian man who was charged with several violent robberies of cash machines in Europe, including a robbery in the Dutch town of Houten. In the getaway car the police discovered DNA material that matched with the DNA profile of the Belgian national which was stored in the German database.¹¹

Tourist scam in the Netherlands (2013)

A Romanian man (and his companion) who scammed several tourists in the Netherlands in 2013, unwittingly donated a DNA reference profile by leaving cellular material on an envelope he had licked and given to one of the victims. The man's DNA profile was found to match with a DNA profile stored in the DNA databases in Spain, Austria and France.¹²

⁶ See Pusch, 16 January 2013 at <http://www.express.de/koeln/spektakulaerer-mordfall-rosenmaedchen--ihr-tod-wird-nie-gesuehnt,2856,21482518.html>.

⁷ See Openbaar Ministerie, 30 December 2011 at http://www.om.nl/organisatie/item_144364/arnhem/nieuwsberichten/@158047/aanhouding/ and <http://www.transport-online.nl/site/30430/vier-jaar-cel-voor-brute-verkrachting-in-1998/>.

⁸ See Het Parool, 14 August 2015 at <http://www.parool.nl/parool/nl/4041/AMSTERDAM-ZUID/article/detail/4120825/2015/08/14/30-maanden-cel-geest-voor-verkrachting-Zweedse-toeriste-in-Zuid.dhtml>.

⁹ See Omroep Brabant, 1 March 2013 at <http://www.omroepbrabant.nl/?news/1894841243/Woninginbraken+in+Oss+en+omgeving+opgelost+door+DNA+in+Franse+databank+++aspx>.

¹⁰ See Omroep West, 25 June 2014 at <http://www.omroepwest.nl/nieuws/25-06-2014/25-jaar-cel-voor-overval-op-juwelier-hobbemaplein-den-haag>.

¹¹ See *De Telegraaf*, 8 September 2013 at <http://m.telegraaf.nl/binnenland/article/21870132/belg-vast-om-brute-overvallen>.

¹² See Openbaar Ministerie, 11 September 2013 at <https://www.om.nl/vaste-onderdelen/zoeken/@32140/gevangenisstraffen/>.

Burglaries at various locations in the Netherlands (2011-2013)

A match between DNA material found at the crime scene location and a DNA profile stored in the DNA database of Austria resulted in solving 17 burglaries. The burglaries could be attributed to a group of three offenders, two living in Arnhem and one arrested in Austria.¹³

Foundlings are brother and sister (2013)

In June 2013 a new-born boy was found in Roermond, the Netherlands. A DNA profile obtained from the towel in which the child was wrapped up turned up a match with a profile in the German database of a baby girl found in 2011 in Cologne, Germany. Shortly afterwards, a 25-year-old woman came to the attention of the police, who confessed to having abandoned two children. Additional DNA tests confirmed that she was indeed the mother.¹⁴

Text box 1: Examples of Dutch success stories: Cases solved due to a transnational match

1.1 Prüm

Until 2006, cross-border exchange of DNA information between EU Member States was a time-consuming affair.¹⁵ If the law enforcement authorities of a country suspected that the perpetrator of a crime might also be active in some other European countries, a request for mutual legal assistance (MLA) had to be sent to each country separately in order for the DNA profile obtained from the crime scene material to be compared with the profiles stored in the national databases of the other countries. This exchange on an individual basis could pass through Interpol, through Europol or through liaison officers, subject to bilateral or multilateral agreements (Soletto Muñoz & Fiodorova, 2014).

In 2005 the signing of the Prüm Treaty by Austria, Belgium, France, Germany, Luxembourg, the Netherlands and Spain marked a major step forward in the fight against transnational crime.¹⁶ It resulted in 2008 in two Decisions by the Council of Europe that led to a significant reduction in the time required for transnational DNA profile comparisons.¹⁷ With these Decisions the Prüm Treaty was added to the institutional legal framework of the European Union (EU) affecting all EU countries (Prainsack & Toom, 2013).¹⁸ The chief objective of Prüm¹⁹ is the 'stepping up of cross-border cooperation, particularly in combating terrorism and cross-border crime and illegal migration'.²⁰ On the one hand, this involves the improvement of operational cooperation especially at the police level, on the other hand it means an extension and optimization of the cross-national exchange of information. This latter goal concerns not only the exchange of DNA profiles but also of fingerprints and vehicle registration data such as licence plate and chassis numbers. Our research is focused on the DNA profile exchange process, in which anonymous DNA

¹³ See *De Gelderlander*, 10 February 2015 at <http://www.gelderlander.nl/regio/arnhem-e-o/arnhem/dna-leidt-naar-3-daders-van-17-inbraken-2-arnhemmers-opgepakt-1.4756230>.

¹⁴ Netherlands Forensic Institute (NFI), *Annual Report 2013*, p. 15.

¹⁵ In 2006 Austria and Germany started the Prüm DNA exchange. The Netherlands followed only in 2008 due to the time it took to adjust the Dutch law (see http://dnadatabank.forensischinstituut.nl/Images/reinhard-schmid-prum_tcm127-478733.pdf).

¹⁶ Between 2005 and 2008 also Finland, Portugal, Italy, Greece, Slovenia, Sweden, Bulgaria, Slovakia, Romania and Hungary joined the Prüm Treaty.

¹⁷ Decision 2008/615/JHA and Decision 2008/616/JHA, the latter being the administrative and technical implementation of the first.

¹⁸ For brevity's sake, 'Prüm' will be used henceforth to refer to the Treaty and the Implementation Decisions. In a similar way, the term 'Prüm countries' will be used to refer to the Member States applying cross-border DNA exchange under the Prüm Convention.

¹⁹ In Chapter 2 more information about the Prüm Treaty is given.

²⁰ Council of the European Union (2005). *Prüm Treaty. Convention between the Kingdom of Belgium, the Federal Republic of Germany, the Kingdom of Spain, the French Republic, the Grand Duchy of Luxembourg, the Kingdom of the Netherlands and the Republic of Austria on the stepping up of cross-border cooperation, particularly in combating terrorism and cross-border crime*, p. 2.