QUESTIONS OF TIME, *PLACE*, AND *MO(O)RE*: PERSONAL PROPERTY RIGHTS AND CONTINUED SEIZURE UNDER THE DNA ACT

Natalie Logan[*]

INTRODUCTION

On August 12, 2010, the United States Court of Appeals for the First Circuit upheld the constitutionality of retaining DNA profiles and samples compelled from convicted felons on supervised release under the authority of the DNA

[*] J.D. Candidate, 2012, Boston University School of Law; B.S. Business Administration, B.A. Political Science, 2009, University of Oregon. I would like to thank Professor Tracey Maclin, for his thoughtful guidance and comments, as well as my friend and colleague Zeke Davisson, whose legal research on mandatory DNA sampling inspired this Note. Many thanks as well to the editorial staff of the *Boston University Law Review*, especially Peter Shults, Brian Daluiso, and Ashley Siegel, for their efforts throughout the process.

Backlog Elimination Act[1] (DNA Act).[2] Although the First Circuit had previously ruled on the constitutionality of sample collection and analysis under the DNA Act,[3] the court's decision in *Boroian v. Mueller* was its first to address the constitutionality of sample retention. Boroian claimed that the government's indefinite retention of his DNA profile and sample, without "reasonable suspicion of criminal activity," violated his Fourth Amendment right against unreasonable search and seizure, and he requested that his profile be expunged from the Combined DNA Index System (CODIS) and that his sample be destroyed.[4] The district court granted the government's motion to dismiss, concluding that use of Boroian's profile in CODIS did not constitute a new search under the Fourth Amendment and that Boroian had not presented any evidence that additional analysis of his sample was presently or imminently occurring.[5] The First Circuit granted Boroian's appeal but came to the same conclusions.[6]

The Fourth Amendment generally protects a citizen's personal security in both his person and his effects.[7] Under the modern approach, courts assess the constitutionality of a search by considering both the subjective and objective reasonableness of the individual's expectation of privacy.[8] Using this framework, the First Circuit rejected Boroian's claim that each use of his profile in the database constituted a separate, unreasonable search; the government's retention of his DNA profile, analogous to the routine retention of fingerprints, did not violate any expectation of privacy that society recognized as reasonable.[9] While the government conceded that further use of Boroian's blood sample would constitute a search implicating the Fourth Amendment, the First Circuit concluded that until such use occurred, Boroian had no Fourth Amendment claim.[10]

Although the *Boroian* decision was the first of its kind in the First Circuit, the case's real novelty presents itself in what the court declined to address. In addition to the arguments discussed above, Boroian claimed that the retention of his blood sample beyond the term of his probation, regardless of any future analysis, constituted an unreasonable continued seizure that independently

[1] DNA Analysis Backlog Elimination Act of 2000, 42 U.S.C. § 14135 (2000).

[2] Boroian v. Mueller, 616 F.3d 60, 71 (1st Cir. 2010).

[3] *See* United States v. Weikert, 504 F.3d 1, 15 (1st Cir. 2007) (limiting its holding to the "practice of collecting and analyzing the DNA of an individual currently on supervised release").

[4] *Boroian*, 616 F.3d at 64.

[5] *Id.*

[6] *Id.* at 67-68, 70.

[7] *See* Terry v. Ohio, 392 U.S. 1, 19 (1968).

[8] *See* Katz v. United States, 389 U.S. 347, 360 (1967) (Harlan, J., concurring).

[9] *Boroian*, 616 F.3d at 67-68.

[10] *Id.* at 70.

violated his Fourth Amendment rights.[11] As seizure interferes with a person's possessory, not privacy, interests, such claims under the Fourth Amendment open an entirely independent line of inquiry and analysis.[12] Boroian failed to present the claim in district court, however, and the First Circuit deemed it waived on appeal.[13]

This Note attempts to address the unanswered question presented in *Boroian* – whether the government's continued retention of Boroian's DNA sample after he completed probation constitutes an unreasonable continued seizure in violation of the Fourth Amendment. Perhaps more importantly, this Note addresses a critical precursory issue – whether individuals subject to compulsory DNA sampling under the DNA Act retain a possessory personal property interest in their DNA samples after they are extracted. Only if such interest is retained can the retention of Boroian's sample constitute a continued seizure for Fourth Amendment purposes.

Part I presents a brief background of the current law. It provides an overview of DNA sampling and profiling in the U.S. criminal justice system, describes the relevant Fourth Amendment challenges to mandatory sampling under the DNA Act, introduces the new challenge presented in *Boroian*, and discusses the history and development of continued seizure doctrine. Part II addresses the issue of property interests in human tissue and genetic material, arguing that existing case law on the issue is easily distinguishable from – and may even support – property interests in compulsory DNA samples obtained under the DNA Act. Part III applies continued-seizure analysis to the facts in *Boroian* and to sample retention under the DNA Act more generally. It argues that although the seizure of Boroian's DNA sample was initially reasonable under current Fourth Amendment analysis, and remained reasonable throughout Boroian's probation, it likely *became* unreasonable once his probation period expired, and therefore continued retention may indeed violate his constitutional right against unreasonable search and seizure. Ultimately, this Note suggests that persons subjected to suspicionless, compulsory DNA sampling under the DNA Act retain a personal property interest in his DNA samples and that government retention of those samples post-supervised release may therefore violate their Fourth Amendment rights under the Constitution.

I. DNA SAMPLING IN THE U.S. CRIMINAL JUSTICE SYSTEM

A. *DNA Profiling: A Scientific Overview*

Inside the nucleus of every cell that makes up the human body are tiny, threadlike strands called chromosomes.[14] These threads are composed of

[11] *Id.* at 71.

[12] *See* United States v. Place, 462 U.S. 696, 716 (1983); *see also Terry*, 392 U.S. at 1.

[13] *Boroian*, 616 F.3d at 71.

[14] NAT'L COMM'N ON THE FUTURE OF DNA EVIDENCE, NAT'L INST. OF JUSTICE, THE

deoxyribonucleic acid, what we commonly refer to as DNA.[15] Each DNA molecule contains two threads woven together into a double helix, which are connected by pairs of nucleotide bases referred to as A, T, G, and C.[16] The unique ordering of these base pairs in certain regions determines the genetic individuality of each person.[17]

Roughly three percent of DNA is composed of genes, which consist of pairs of inherited chromosomes from an individual's biological mother and father.[18] The sequence of bases along regions of a gene "codes" to produce inherited characteristics such as eye and hair color.[19] These coding regions of DNA are almost identical between individuals.[20] The non-coding regions, however, though lacking the familial information present in genes, present significant differences that distinguish one individual from the next.[21] Commonly referred to as "junk DNA," the sequence patterns of bases in these regions are used by forensic scientists to create DNA profiles, which can later be matched to – and thus identify the source of – unknown samples.[22] DNA exists in the nucleus of every cell in the human body. Accordingly, it is often easily obtainable evidence at a crime scene, from biological material such as blood, saliva, semen, and hair follicles.[23]

The most common method of DNA profile creation in the United States is the polymerase chain reaction (PCR) technique.[24] Using this method, forensic scientists take a small amount of tissue, such as a blood sample, and use it to produce generous copies of the owner's DNA.[25] Scientists then analyze the DNA at thirteen specific locations, called "loci," using short tandem repeat

FUTURE OF FORENSIC DNA TESTING: PREDICTIONS OF THE RESEARCH AND DEVELOPMENT WORKING GROUP 8 (2000) [hereinafter FUTURE OF FORENSIC DNA], *available at* http://www.ncjrs.gov/pdffiles1/nij/183697.pdf.

[15] *Id.* at 10.

[16] *Id.*

[17] *Id.*

[18] LISA R. KREEGER & DANIELLE M. WEISS, AM. PROSECUTORS RESEARCH INST., FORENSIC DNA FUNDAMENTALS FOR THE PROSECUTOR: BE NOT AFRAID 5 (2003), *available at* http://www.ndaa.org/pdf/forensic_dna_fundamentals.pdf.

[19] *Id.*

[20] Derek Regensburger, *DNA Databases and the Fourth Amendment: The Time Has Come to Reexamine the Special Needs Exception to the Warrant Requirement and the Primary Purpose Test*, 19 ALB. L.J. SCI. & TECH. 319, 326 (2009).

[21] *Id.*

[22] KREEGER & WEISS, *supra* note 18, at 5-6.

[23] *Id.* at 7.

[24] Tracey Maclin, *Is Obtaining an Arrestee's DNA a Valid Special Needs Search Under the Fourth Amendment? What Should (and Will) the Supreme Court Do?*, 34 J.L. MED. & ETHICS 165, 166 (2006); Lisa Schriner Lewis, Comment, *The Role Genetic Information Plays in the Criminal Justice System*, 47 ARIZ. L. REV. 519, 522 (2005).

[25] Maclin, *supra* note 24, at 166; Lewis, *supra* note 24, at 522-23.

(STR) testing.[26] STRs consist of a core sequence of bases that repeat consecutively a unique number of times at each locus.[27] These unique repetition sequences are what distinguish each profile, with the chance of any two persons (outside of identical twins) having the same number of STRs at all thirteen locations being infinitely small.[28] DNA profiles are records of these unique numbers that are saved in databases for later comparison against unknown samples.

B. *CODIS and the DNA Act*

In 1987, DNA profiling was used to convict a criminal defendant for the first time in the United States.[29] Forensic scientists compared and matched a DNA sample recovered from a Florida rape victim to that of suspect-defendant, Tommie Lee Andrews.[30] The prosecutor then used the DNA match to convict Andrews at trial.[31] Andrews challenged the legitimacy of the admitted DNA evidence on appeal, but the Florida court upheld his conviction and recognized the science of DNA profiling as a legitimate evidentiary technique.[32] The science continued to progress, and in 1989, Virginia became the first state to implement routine DNA testing in criminal investigations.[33] The next year, the Virginia legislature enacted laws requiring DNA sample collection from all convicted felons, which the government used to build a state DNA database.[34] That same year, the Federal Bureau of Investigation (FBI) began using new Combined DNA Index System (CODIS) software to coordinate DNA databases at national, state, and local levels.[35] Within a decade, all fifty states had established their own DNA databases and passed laws similar to Virginia's.[36] The growth of these independent databases prompted Congress to establish a National DNA Index System (NDIS) in 1994.[37] With this new system, participating forensic laboratories were able to

[26] KREEGER & WEISS, *supra* note 18, at 9.

[27] *Id.*

[28] Regensburger, *supra* note 20, at 328.

[29] Andrews v. State, 533 So. 2d 841, 843 (Fla. Dist. Ct. App. 1988); Michelle Hibbert, *DNA Databanks: Law Enforcement's Greatest Surveillance Tool?*, 34 WAKE FOREST L. REV. 767, 773 (1999).

[30] *Andrews*, 533 So. 2d at 843.

[31] *Id.*

[32] *Id.*

[33] *See* Jerry Seper, *FBI, Eight States Share Information on DNA Evidence*, WASH. TIMES, Dec. 26, 1997, at A7.

[34] *See* VA. CODE. ANN. § 19.2-310.2 (2008).

[35] FED. BUREAU OF INVESTIGATION, U.S. DEP'T OF JUSTICE, CODIS BROCHURE (2010) [hereinafter CODIS BROCHURE], *available at* http://www.fbi.gov/about-us/lab/codis/codis_brochure.

[36] Hibbert, *supra* note 29, at 775.

[37] *See* 42 U.S.C. § 14132 (2006); CODIS BROCHURE, *supra* note 35.

exchange and compare DNA profiles on a national level to aid local investigations.[38]

The birth of CODIS and NDIS led to vast increases in DNA profiling as a law enforcement practice, and soon local laboratories became overwhelmed with samples.[39] To help alleviate the financial burden this placed on the states, Congress passed the DNA Act, which established federal grant funding to improve state resources.[40] Under the DNA Act, however, funding is only made available to states that agree to conform to federal DNA sampling and analysis standards.[41] For the purposes of this Note, the most important of these rules requires states to collect samples from convicted felons on supervised release.[42] Although the list of triggering felonies was originally limited to violent and sexual offenses, it was expanded to all felonies and violent crimes in 2004 when Congress passed the Justice for All Act.[43] Under current law, parole and probation officers are authorized to use any means "reasonably necessary" to obtain DNA samples; individuals who refuse to cooperate face up to one year in prison as well as a $100,000 fine.[44]

C. *Fourth Amendment Challenges to Mandatory DNA Sampling Under the DNA Act*

1. Compulsory DNA Sampling and the Fourth Amendment

During the 1990s, supervised releasees compelled to provide samples began challenging the constitutionality of mandatory DNA sampling authorized by the DNA Act.[45] Specifically, they alleged that compulsory sampling, without a warrant or probable cause, constituted an unreasonable search and seizure under the Fourth Amendment.[46]

The Fourth Amendment states,

> The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath

[38] CODIS BROCHURE, *supra* note 35.

[39] *How Effectively Are State and Federal Agencies Working Together to Implement the Use of New DNA Technologies?, Hearing Before the Subcomm. on Gov't Efficiency, Fin. Mgmt. and Intergovernmental Relations of the H. Comm. on Gov't Reform*, 107th Cong. 51-52 (2001) (statement of Dwight E. Adams, Deputy Assistant Director, Laboratory Division, Federal Bureau of Investigations).

[40] 42 U.S.C. § 14135(a).

[41] *Id.* § 14135(b).

[42] *See id.* § 14135a(a)(2).

[43] Justice for All Act of 2004, Pub. L. No. 108-405, § 203(b), 118 Stat. 2260.

[44] 18 U.S.C. §§ 3571(b)(5), 3581(b)(6) (2006); 42 U.S.C. § 14135a(a)(4)-(5).

[45] Mark A. Rothstein & Sandra Carnahan, *Legal and Policy Issues in Expanding the Scope of Law Enforcement DNA Data Banks*, 67 BROOK. L. REV. 127, 146-51 (2001).

[46] *Id.*

> or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.[47]

The central inquiry in Fourth Amendment challenges is "the reasonableness in all the circumstances of the particular governmental invasion of a citizen's personal security."[48] The first inquiry, however, is whether a Fourth Amendment search or seizure has occurred at all. The modern approach to this analysis for searches, introduced in *Katz v. United States*, focuses on both the subjective and objective reasonableness of an individual's expectation of privacy.[49] As Justice Harlan explained, under the "twofold requirement" a court should consider both whether a plaintiff has a genuine subjective expectation of privacy and whether society would recognize that expectation as objectively reasonable under the circumstances.[50] *Katz* examined whether electronic surveillance of telephone conversations may be considered a search in the absence of any actual "physical penetration" of the telephone booth in which Katz had placed calls.[51] The Court rejected the government's contention that physical trespass was a prerequisite of Fourth Amendment inquiry, famously stating that the Fourth Amendment "protects people, not places."[52] The Court determined that Katz, while inside the phone booth, did have a genuine expectation of privacy that society would recognize as reasonable, holding that the government's electronic surveillance violated Katz's Fourth Amendment rights.[53] *Katz* was one of the first cases to recognize the search and seizure of such intangible information, and while its explicit language has not been consistently cited by the Court, it has proven to be greatly influential in modern Fourth Amendment jurisprudence.

DNA sampling statutes implicate the Fourth Amendment in three independent stages of the process[54]: collection of the sample, analysis of the sample to create a DNA profile, and retention of the sample and profile. First, the collection of the sample constitutes a search of the person, which intrudes on an individual's personal bodily security.[55] Although collection is often as simple as swabbing the inside of a person's cheek,[56] the Supreme Court has held that such limited searches *are* severe enough to constitute invasions of

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[47] U.S. CONST. amend. IV.

[48] *See* Terry v. Ohio, 392 U.S. 1, 19 (1968).

[49] *See* Katz v. United States, 389 U.S. 347, 361 (1967) (Harlan, J., concurring).

[50] *Id.*

[51] *Id.* at 352.

[52] *Id.* at 351, 353.

[53] *Id.* at 352, 359.

[54] *See* Skinner v. Ry. Labor Execs.' Ass'n, 489 U.S. 602, 612 (1989).

[55] *Id.*

[56] This process is commonly referred to as a buccal swab: an applicator similar to a Q-Tip which is rubbed inside the mouth to collect cheek cells. *See* National Marrow Donor Program, *Questions & Answers About Buccal Swabs* (March 16, 2006), *available at* http://www.lssu. edu/campuslife/documents/buccal_swab_qa_032306.pdf.

privacy that implicate the Fourth Amendment.[57] Collection of the sample further constitutes a seizure of the person's tissue and accompanying "DNA fingerprint."[58] Once collected, the analysis of the sample constitutes a second, independent search of the seized sample.[59] Such analysis has been recognized as a new search by the Supreme Court because of the "host of private medical facts" that the samples house and may consequently reveal about the individual.[60]

After a sample has been analyzed, a DNA profile is created and entered into CODIS, where it remains indefinitely for most persons.[61] Although the blood sample itself has served its purpose to create the DNA profile, it may also be retained indefinitely.[62] These retention policies have sparked further challenges to compulsory DNA sampling and retention, most commonly that each comparison of a DNA profile in CODIS constitutes a separate search triggering new Fourth Amendment analysis.[63] Rebutting this argument, the First Circuit likened the retention of DNA profiles to that of fingerprints, concluding that there is no societal expectation of privacy with regard to the retention and use of such lawfully obtained and routinely retained identification records.[64] The government has acknowledged that any additional analysis of the sample would require an independent Fourth

[57] *See* Terry v. Ohio, 392 U.S. 1, 24-25 (1968).

[58] *See Katz*, 389 U.S. at 353 (recognizing the seizure of intangible, informational items); United States v. Kincade, 379 F.3d 813, 873 (9th Cir. 2004) (Kozinski, J., dissenting) (recognizing the Fourth Amendment intrusion in DNA sampling as not only the seizure of the blood or tissue but also of the person's "DNA fingerprint" for inclusion in a searchable database).

[59] *Skinner*, 489 U.S.at 616 ("The ensuing chemical analysis of the sample to obtain physiological data is a further invasion of . . . privacy . . . .").

[60] *Id.* at 617. The circuit courts have unanimously upheld the analysis of DNA samples as searches for Fourth Amendment purposes. *See* Johnson v. Quander, 440 F.3d 489, 496 (D.C. Cir. 2006); Nicholas v. Goord, 430 F.3d 652, 658 (2d Cir. 2005); United States v. Sczubelek, 402 F.3d 175, 182 (3d Cir. 2005); Padgett v. Donald, 401 F.3d 1273, 1277 (11th Cir. 2005); United States v. Kincade, 379 F.3d 813, 821 (9th Cir. 2004); Green v. Berge, 354 F.3d 675, 677 (7th Cir. 2004); Groceman v. U.S. Dep't of Justice, 354 F.3d 411, 413 (5th Cir. 2004) (per curiam); United States v. Kimler, 335 F.3d 1132, 1146 (10th Cir. 2003); Jones v. Murray, 962 F.2d 302, 306 (4th Cir. 1992).

[61] The DNA Backlog Elimination Act is silent on the issue of sample and profile retention, leaving states unrestricted in their retention policies. *See* 42 U.S.C. § 14135a (2006) (specifying collection and use policies, but silent on retention). In the event of acquittal or overturned conviction, however, there are federal procedures in place for individuals who seek to expunge their DNA records, including their samples, from CODIS. *See id.* § 14132(d)(1)(A).

[62] *See id.* § 14135a.

[63] *See* Boroian v. Mueller, 616 F.3d 60, 64 (1st Cir. 2010).

[64] *Id.* at 66-67.

Amendment analysis.[65] Until any such additional analysis actually occurs, however, courts have been unwilling to address the issue.[66] The newest challenge to the DNA Act, introduced in *Boroian*, is that retention of a sample alone triggers Fourth Amendment analysis under the theory of unreasonable continued seizure.[67] This claim marks a significant deviation from other Fourth Amendment claims, which focused primarily on privacy interests triggered by unreasonable search analysis and not the possessory interests associated with seizure. As such, this claim has the potential to alter the legal landscape of DNA databases throughout the country.

2. Judicial Analysis of Fourth Amendment Challenges to the DNA Act

Over time, two approaches for examining Fourth Amendment challenges to suspicionless search and seizure have developed as applied to compulsory DNA sampling under the DNA Act: the totality of the circumstances test and the special needs test.[68] The "correct" test is still a matter left open to Supreme Court determination, but both tests have produced the same result: Sampling and retention practices under the DNA Act are indeed constitutional.[69]

a. *The Totality of the Circumstances Test*

Generally, warrantless searches must be supported by probable cause to pass muster under the Fourth Amendment.[70] The existence of such probable cause is determined by the totality of the circumstances, an analysis most famously laid out in *Illinois v. Gates*.[71] In *Gates*, the Supreme Court replaced a rigid, two-part test for determining the existence of probable cause with the more flexible and comprehensive totality of the circumstances test.[72] The Court employed this test and found sufficient probable cause in an anonymous tip letter corroborated by law enforcement to support a search warrant.[73] Under this analysis, courts must make a "practical, common-sense decision whether, given all the circumstances . . . , there is a fair probability that contraband or evidence of a crime will be found in a particular place."[74] There are no clearly

[65] *Id.* at 70.

[66] *See id.*

[67] *See id.* at 71.

[68] *Compare* United States v. Weikert, 504 F.3d 1, 3 (1st Cir. 2007) (employing the totality of the circumstances test), *with* United States v. Amerson, 483 F.3d 73, 74 (2d Cir. 2007) (employing the special needs test).

[69] *See, e.g.*, *Weikert*, 504 F.3d at 3 (upholding compulsory sampling under the DNA Act using the totality of the circumstances test); *Amerson*, 483 F.3d at 89 (upholding compulsory sampling using the special needs test).

[70] *See* U.S. CONST. amend. IV.

[71] 462 U.S. 213 (1982).

[72] *Id.* at 238-39.

[73] *Id.* at 246.

[74] *Id.* at 238.

drawn lines under this test, giving the courts discretion to determine which factors deserve particular weight.

Similarly, the totality of the circumstances approach to compulsory DNA sampling under the DNA Act considers all the circumstances surrounding the search. Specifically, the test asks whether those circumstances suggest that the individual's expectation of privacy is sufficient to outweigh the government's interest in obtaining the sample.[75] A majority of circuits have adopted this test when analyzing Fourth Amendment challenges to the DNA Act.[76] In support of this choice, these courts have placed great weight on the recent Supreme Court's decision in *Sampson v. California*.[77] In *Sampson*, the Court used the totality of the circumstances test to uphold the constitutionality of a suspicionless search of a parolee, finding that such persons generally have a diminished expectation of privacy inherent in their status as supervised releasees.[78] The Court weighed that diminished expectation of privacy against what it characterized as a strong governmental interest in conducting suspicionless searches to prevent recidivism in parolees, who are generally likely to reoffend.[79] This decision served as a signal to most courts that the totality of the circumstances test was the correct framework to analyze suspicionless searches under the Fourth Amendment. As it dealt only with state law and was not directly related to the unique issue of DNA, however, other courts have chosen not to adopt its rationale in the context of mandatory DNA sampling under the DNA Act.

b. *The Special Needs Test*

A minority of courts have instead elected to use the special needs test to analyze suspicionless searches under the DNA Act.[80] A critical exception to the general protections of the Fourth Amendment allows for searches without warrant, probable cause, or even reasonable suspicion when the government presents "special needs, beyond the normal need for law enforcement."[81] Under this exception, the Supreme Court has upheld suspicionless searches of various persons and places, including schools, public employees, and

[75] *See* United States v. Weikert, 504 F.3d 1, 11 (1st Cir. 2007).

[76] *See* United States v. Conley, 453 F.3d 674, 676-77 (6th Cir. 2006); United States v. Kraklio, 451 F.3d 922, 924 (8th Cir. 2006); Johnson v. Quander, 440 F.3d 489, 495-96 (D.C. Cir. 2006); United States v. Sczubelek, 402 F.3d 175, 184 (3d Cir. 2005); Padgett v. Donald, 401 F.3d 1273, 1278 (11th Cir. 2005); United States v. Kincade, 379 F.3d 813, 832 (9th Cir. 2004); Groceman v. U.S. Dep't of Justice, 354 F.3d 411, 413 (5th Cir. 2004).

[77] 547 U.S. 843 (2006).

[78] *Id.* at 852.

[79] *Id.* at 853.

[80] *See, e.g.*, United States v. Amerson, 483 F.3d 73, 79 (2d Cir. 2007); United States v. Hook, 471 F.3d 766, 773 (7th Cir. 2006); United States v. Kimler, 335 F.3d 1132, 1146 (10th Cir. 2003).

[81] New Jersey v. T.L.O., 469 U.S. 325, 351 (1985).

probationers.[82] The crux of this test lies in the definition of a special need. Generally, when the primary purpose of a search is to "detect evidence of ordinary criminal wrongdoing," such searches cannot qualify as furthering a special need.[83] Further, the Court has explicitly differentiated between ultimate goals and immediate objectives. That is, while a program may be implemented to serve a broad, non-law-enforcement purpose, it will still be found unconstitutional if its immediate objective is the gathering of evidence for law enforcement uses.[84] Thus, special needs are determined in reference to the immediate objective of a statute rather than any overarching scheme of which it may be part.

Using this method to address DNA sampling, a court first determines whether there is in fact a "special need" – defined as a government objective outside those of normal law enforcement – furthered by the statute authorizing the suspicionless search.[85] If such a need exists, the court then balances the interests of the individual and the government based on the surrounding circumstances.[86] Accordingly, this test is more stringent than the totality of the circumstances test, which only requires the second step – balancing of interests.[87]

In *United States v. Amerson*, the Second Circuit distinguished the Supreme Court's use of the totality of the circumstances test in *Sampson* and applied the special needs test to uphold compulsory sampling under the DNA Act.[88] In 2004, Amerson pled guilty to bank larceny and aiding and abetting wire fraud in New York.[89] She was sentenced to three years' probation and forced to submit a DNA sample.[90] Although it used the Supreme Court's analysis in *Sampson* as a guide, the Second Circuit distinguished *Sampson*'s context from *Amerson*'s, stating that a probationer is further removed from a prisoner than is a parolee and thus has a greater expectation of privacy.[91] Accordingly, the Second Circuit determined that the more stringent special needs test should be used to determine whether the government had conducted an unreasonable search.[92] Applying that test, the court determined that the DNA Act served the

[82] *See* Griffin v. Wisconsin, 483 U.S. 868, 873-74 (1987); O'Connor v. Ortega, 480 U.S. 709, 725 (1987).

[83] City of Indianapolis v. Edmond, 531 U.S. 32, 38 (2000).

[84] City of Charleston v. Ferguson, 532 U.S. 67, 83-84 (2001).

[85] *See Amerson*, 483 F.3d at 79 n.6 (citing Nicholas v. Goord, 430 F.3d 652, 664 (2d Cir. 2005)).

[86] *Id.*

[87] *See id.*

[88] *Id.* at 77.

[89] *Id.*

[90] *Id.*

[91] *Id.* at 79.

[92] *Id.*

special need of providing "identifying information."[93] Although this was still *related* to law enforcement objectives, the court distinguished it from "normal" objectives, determining that some law enforcement objectives can in fact be special needs.[94] The court further explained that the collection of DNA samples under the DNA Act, unlike normal investigation practices, "does not involve any suggestion that the individual is being suspected of having committed a crime."[95] Moving on to balancing interests, the court upheld the statute based on the probationer's diminished expectation of privacy and the minimal intrusiveness involved in the search.[96]

The Seventh Circuit also adopted the special needs test to uphold the DNA Act as applied to probationers in *United States v. Hook*, but the court chose not to address *Sampson* at all.[97] Similarly to *Amerson*, the Seventh Circuit found that the DNA Act served the special needs of providing identification of felons and deterring recidivism; thus, the Act's primary purpose was not to gather evidence of wrongdoing.[98] Based on these special needs and the diminished expectation of privacy held by persons on supervised release, the court held that the suspicionless search and seizure conducted under the DNA Act did not violate Hook's Fourth Amendment rights.[99]

D. Boroian v. Mueller*: A New Constitutional Question*

Boroian was convicted in 2004 for making a false statement under 18 U.S.C. § 1001(a)(2),[100] fined $100, and sentenced to one year of probation.[101] With only one month left before the completion of Boroian's probation, the U.S. Probation Office ordered Boroian to provide a blood sample pursuant to the DNA Act.[102] Faced with up to one year in prison and as much as $100,000 in fines if he refused,[103] Boroian complied with the order.[104] In March 2008, three years after the completion of his probation, Boroian filed a complaint in

[93] *Id.* at 82.

[94] *Id.* ("What makes the government's need . . . 'special,' despite its relationship to law enforcement, is . . . its incompatibility with the normal requirements of a warrant and probable cause . . . .").

[95] *Id.*

[96] *Id.* at 84.

[97] United States v. Hook, 471 F.3d 766, 773 (7th Cir. 2006).

[98] *Id.*

[99] *Id.* at 772-73.

[100] 18 U.S.C. § 1001(a)(2) (2006).

[101] Boroian v. Mueller, 616 F.3d 60, 64 (1st Cir. 2010).

[102] *Id.* Although the original Act covered only a handful of violent and sexual offenses, the Justice for All Act of 2004 expanded the definition of "qualifying federal offense" to include all felonies. *See* Justice for All Act of 2004, Pub. L. No. 108-405, § 203(b), 118 Stat. 2260, 2270.

[103] *See* 18 U.S.C. § 3571(b)(5); 42 U.S.C. § 14135a(a)(4)-(5) (2006).

[104] *Boroian*, 616 F.3d at 64.

federal court, alleging that retention and analysis of his DNA profile and sample, without any accompanying "reasonable suspicion of criminal activity," violated his Fourth Amendment right against unreasonable search and seizure.[105] Accordingly, he asked the court to issue an order requiring the government to expunge his DNA profile from the Combined DNA Index System (CODIS) and destroy his sample.[106]

The constitutionality of profile and sample retention was a matter of first impression for the First Circuit. In a previous case, *United States v. Weikert*, the court rejected a supervised releasee's Fourth Amendment challenge to compulsory sample collection under the DNA Act using the totality of the circumstances test.[107] Boroian, however, posed a question left unanswered by *Weikert*: whether the government's retention and use of his DNA sample *after* he had completed his term of probation violated the Fourth Amendment.[108] The court addressed the retention of his profile and his sample separately, but it upheld the lower court's decision that neither violated Boroian's Fourth Amendment rights.[109]

First, the court addressed the retention and use of Boroian's DNA profile. Emphasizing the limited information provided by a profile and the strict limitation placed on its use under the DNA Act, the court described CODIS as "function[ing] much like a traditional fingerprint database."[110] The court explained that felon identification records are "routinely retained by the government after their sentences are completed" and went on to state that the "government's matching of a lawfully obtained identification against other records in its lawful possession does not infringe on an individual's expectation of privacy."[111] Accordingly, the court held that the retention and use of Boroian's DNA profile did not violate his Fourth Amendment rights, because he had no reasonable expectation of privacy with regard to its use.[112]

Moving on to the retention of the DNA sample, the court agreed with the government's concession that any future analysis of Boroian's sample *would* constitute a search subject to Fourth Amendment analysis.[113] The court stated, however, that Boroian had not presented any evidence suggesting that further analysis of his sample was either currently occurring or about to occur.[114] In addition, the government pointed out that "the use and disclosure of stored DNA samples are subject to . . . strict limitations," with criminal penalties

[105] *Id.*

[106] *Id.*

[107] United States v. Weikert, 504 F.3d 1, 1 (1st Cir. 2007).

[108] *See Boroian*, 616 F.3d at 64.

[109] *Id.* at 67-68, 70.

[110] *Id.* at 66.

[111] *Id.* at 67.

[112] *Id.* at 67-68.

[113] *Id.* at 70.

[114] *Id.*

making any unauthorized use or analysis of the sample unlikely to occur.[115] The court held that there was no further search to which the Fourth Amendment analysis could be applied.[116]

After determining that there were no additional searches of either Boroian's profile or sample to consider, the First Circuit affirmed the district court's ruling that the sample retention did not violate Boroian's Fourth Amendment rights. Boroian presented a third argument, however, which the court declined to address: retention of his sample, regardless of any future use, constituted an unreasonable continued seizure under the Fourth Amendment.[117] Because Boroian failed to raise the argument properly before the district court, the First Circuit determined that he had waived the right to bring it forth on appeal.[118] As search and seizure are governed by independent Fourth Amendment analysis, this error on the part of Boroian and his counsel may have determined the ill fate of his appeal. Had the First Circuit addressed the argument and found that retention of Boroian's sample was a continuing seizure of his personal property, it would likely have ruled that such retention was unreasonable and therefore unconstitutional.

E. *Continued Seizure Doctrine and Personal Property*

The Fourth Amendment protects citizens against unreasonable searches and seizures.[119] The scope of this protection encompasses seizures of persons as well as personal property.[120] A person has been seized within the meaning of the Fourth Amendment when, "in view of all of the circumstances surrounding the incident, a reasonable person would have believed that he was not free to leave."[121] Incorporating a reasonableness standard, this flexible definition may encompass situations other than formal arrests, such as the mere threatening presence of officers.[122] Seizure of property occurs when a government intrusion results in a "meaningful interference with an individual's possessory interests in that property."[123] These definitions create a relatively clear understanding of when seizures begin. It is not always equally clear, however, when such seizures end. This is a critical issue, as it determines whether the Fourth Amendment reasonableness standard, rather than the less stringent due process standard, applies to government actions in a particular situation.[124]

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[115] *Id.*

[116] *Id.*

[117] *Id.* at 71.

[118] *Id.*

[119] *See* U.S. CONST. amend. IV.

[120] *Id.*

[121] United States v. Mendenhall, 446 U.S. 544, 554 (1980).

[122] *Id.*

[123] United States v. Jacobson, 466 U.S. 109, 113 (1984).

[124] *See* Mitchell W. Karsch, *Excessive Force and the Fourth Amendment: When Does Seizure End?*, 58 FORDHAM L. REV. 823, 824 (1990) (suggesting a bright-line rule to

Nearly thirty years ago, the Supreme Court recognized the concept of continued seizure in *United States v. Place*, holding that a seizure may be reasonable at its inception but nevertheless become unreasonable when it "exceed[s] the bounds of a permissible investigative detention."[125] Law enforcement officers, on suspicion that Place was involved in narcotics trafficking, seized his luggage at LaGuardia Airport in New York on a Friday afternoon.[126] When Place refused to consent to a search of his luggage, the officers took the bags to Kennedy Airport, where they subjected them to a "sniff test" narcotics detection dog.[127] The dog reacted positively to one of the two bags, indicating that it may contain narcotics.[128] At this point, ninety minutes had passed since the initial seizure, and the officers decided to retain Place's bags over the weekend until they could obtain a search warrant on Monday morning.[129] When they finally obtained a warrant and opened the bag, the officers found 1125 grams of cocaine.[130] Place was consequently indicted for narcotics possession with intent to distribute.[131] At trial, Place moved to suppress the contents of his luggage, claiming that the warrantless seizure violated his rights under the Fourth Amendment.[132] The district court denied his motion.[133]

On appeal, the Second Circuit held that the *initial* seizure was constitutional based on the two-part test laid out in *Terry v. Ohio*.[134] Under *Terry*, a court should consider whether the action was justified at inception and whether the scope of the action was reasonably related to the circumstances which justified the interference in the first place.[135] Applying this test in *Place*, the Second Circuit first analyzed whether the seizure was reasonable at its inception.[136] As the officers in Place had reasonable suspicion that he was involved in narcotics

determine when seizure ends and due process protections replace Fourth Amendment reasonableness protections).

[125] United States v. Place, 462 U.S. 696, 698 (1983).

[126] *Id.* at 698-99.

[127] *Id.* at 699.

[128] *Id.*

[129] *Id.*

[130] *Id.*

[131] *Id.*

[132] *Id.*

[133] *Id.* at 700.

[134] *Id.*

[135] Terry v. Ohio, 392 U.S. 1, 19-20 (1968). *Terry* involved a warrantless seizure of a man on the street. A police officer, based on the belief that Terry was about to commit robbery, stopped Terry and another man walking down the street, searched both of them, and seized two unlawfully concealed weapons. The Court held that although the officer had indeed seized Terry's person, such seizure was constitutional due to the officer's reasonable suspicion at its inception and the limited scope of the search and seizure involved. *Id.*

[136] *Place*, 462 U.S. at 700.

trafficking, the court held that the initial seizure was indeed constitutional.[137] Next, the court analyzed whether the seizure was reasonable as conducted. Despite finding the seizure initially reasonable, the court held that the "prolonged seizure" of the luggage exceeded *Terry's* limits, and thus violated Place's Fourth Amendment rights.[138]

The Supreme Court affirmed, holding, "The length of the detention of respondent's luggage alone preclude[d] the conclusion that the seizure was reasonable in the absence of probable cause."[139] The opinion explained that two factors were of particular interest in assessing the reasonableness of seizures "longer than the momentary ones": the length of the detention and the extent to which the police "diligently pursue their investigation."[140] While the Court held that the ninety-minute detention was, alone, "sufficient to render the seizure unreasonable,"[141] it also called attention to the fact that the officers knew when Place was due to arrive in New York, and they therefore had enough time to "arrange for their additional investigation at that location, and thereby . . . minimize[] the intrusion on [his] Fourth Amendment interests."[142]

Place thus puts forth the proposition that "[t]he intrusion on possessory interests occasioned by a seizure of one's personal effects can vary both in its nature and extent."[143] By defining seizure of property as an "intrusion on possessory interests,"[144] it follows that such seizure continues as long as that possessory interest remains intact.[145] *Place* further accounts for the flexibility of the Fourth Amendment's concept of reasonableness, holding that although some detentions of personal property are so minimally intrusive and backed by such strong government interests that seizure is justified based on less than probable cause, the same seizure may become unreasonable over time when the relative level of intrusion and weight of interests change.[146]

Applying this analysis to the retention of compulsory DNA samples under the DNA Act, two questions become critical. First, does a person subject to mandatory DNA sampling under the DNA Act maintain a possessory interest in his sample such that retention may be seen as a continued seizure under the

[137] *Id*.

[138] *Id.*

[139] *Id.* at 709.

[140] *Id.*

[141] *Id.* at 710.

[142] *Id.* at 709.

[143] *Id.* at 705.

[144] *Id.*

[145] *See* Graham Miller, *Right of Return:* Lee v. City of Chicago *and Continuing Seizure in the Property Context*, 55 DEPAUL L. REV 745, 773 (2006) (discussing Justice Ginsburg's "common sense" view of seizure, where seizure "continues as long as an otherwise 'unquestioned' right is subject to government's control").

[146] *See* Fox v. Van Oosterum, 176 F.3d 342, 355-56 (6th Cir. 1999) (Clay, J., concurring in part and dissenting in part).

Fourth Amendment? Second, if a continued seizure exists, is it reasonable based on the relative interests at stake? Neither question has been addressed by courts, but analysis of existing case law suggests that this may be a particular situation where courts will be willing, and moreover *should* be willing, to recognize a property interest in an individual's biological materials.[147] Should that right be recognized, analysis of the interests at stake suggest that the retention of an individual's DNA sample post-supervised release is indeed an unreasonable continued seizure in violation of the Fourth Amendment.[148]

II. THE CASE FOR PERSONAL PROPERTY INTERESTS IN COMPULSORY DNA SAMPLES

While *Place* may have resolved the question of continued seizure of personal property, the question of whether DNA samples may be considered such personal property once collected remains unsettled. The Supreme Court has declined to rule on the subject, and legislative measures have similarly failed to directly address the issue, leaving no concrete authority on which to posit an answer. State courts, however, have attempted to shed light on this common-law issue over the past few decades. The preeminent case, *Moore v. Regents of the University of California*, held that a person does *not* retain property rights in excised human tissue and biological material.[149] Other courts have followed *Moore*'s lead, using its rationales to expand its authority into other states. [150] While it remains non-binding authority at the federal level, its nature as stand-alone precedent on the issue surely demands attention. Whatever clout *Moore* may generally come to hold, however, its context – and the context of cases following its precedent – bears little resemblance to that in *Boroian*. Furthermore, its holding seems to suggest that Boroian's is precisely the situation in which persons *could*, and perhaps should, retain such property interests in their biological material.[151]

A. Moore v. Regents of the University of California

In *Moore*, the California Supreme Court held that a patient does not have a cause of action for conversion against his physician for using his cells in medical research without permission.[152] The plaintiff, John Moore, was diagnosed with hairy-cell leukemia at the UCLA Medical Center on October 5,

[147] *See infra* Part II.B-C.

[148] *See infra* Part III.

[149] Moore v. Regents of the Univ. of Cal., 793 P.2d 479, 480 (Cal. 1990).

[150] *See* Wash. Univ. v. Catalona, 490 F.3d 667, 676 (8th Cir. 2007); Greenberg v. Miami Children's Hosp. Research Inst., Inc., 264 F. Supp. 2d 1064, 1074 (S.D. Fla. 2003).

[151] *See infra* Part II.B-C.

[152] *Moore*, 793 P.2d at 480.

1976.[153] Physicians "withdrew extensive amounts of blood, bone marrow aspirate, and other bodily substances," to confirm the diagnosis.[154] Over the course of the next seven years, Moore returned to the UCLA Medical Center several times for treatment, each time having additional blood, skin, bone marrow, and sperm samples drawn.[155] Unbeknownst to Moore, his cells were being used in medical research activities by his physician.[156] On January 31, 1981, the Regents of the University of California (Regents), naming Golde as an inventor, applied for a patent on a cell line created from Moore's T-lymphocytes (T-cells).[157] After obtaining the patent, Regents negotiated various agreements for commercial development of the line and other derivative products.[158]

Based on these actions, Moore brought suit against Regents and those involved in the research for conversion of property.[159] He argued that he "continued to own his cells following their removal from his body, at least for the purpose of directing their use," and that he never consented to their use in "potentially lucrative medical research."[160] Accordingly, he argued that the use of his cells without permission constituted a conversion of his property.[161] The superior court, however, refused to apply common law property concepts to the use of Moore's cells and granted dismissal to Regents.[162] The state court of appeals reversed, holding that Moore *had* properly stated a cause of action for conversion based on the unauthorized use of his cells. [163] Appeal eventually reached the California Supreme Court.[164] The court held that, although Golde had likely breached a fiduciary duty to Moore as his patient by failing to obtain informed consent to the use of his samples, the facts of Moore's case did not justify expanding the tort of conversion to recognize a personal property interest in his biological materials.[165]

The court's discussion of Golde's fiduciary duty was relatively straightforward. The court reasoned that in cases where a preexisting research interest exists, a physician might, "consciously or unconsciously, take that into

[153] *Id.* at 481.

[154] *Id.* (internal citations omitted).

[155] *Id.*

[156] *Id.*

[157] *Id.* T-cells are a type of white blood cells that control the body's adaptive immune system. *See Beginners Guide to T Cells*, T-CELL MODULATION GROUP, CARDIFF U., http://www.tcells.org/beginners/tcells (last visited April 11, 2011).

[158] *Moore*, 793 P.2d at 482.

[159] *Id.*

[160] *Id.* at 487.

[161] *Id.*

[162] *Id.* at 486.

[163] *Id.* at 487.

[164] *Id.* at 483.

[165] *Id.* at 486, 488-89.

consideration in recommending [a medical] procedure."[166] The court found that such interests *are* "material to the patient's consent" and therefore physicians must "disclose [any] personal interests unrelated to the patient's health, whether research or economic, that may affect his medical judgment" in order to obtain informed consent for a medical procedure.[167]

Despite this likely breach, however, the court went on to hold that the tort of conversion did not recognize a personal property right in biological materials, and expanding the tort to include such right was inappropriate given the factual and policy considerations surrounding Moore's case.[168] To establish conversion under California law, a plaintiff must establish actual interference with an ownership right in his property.[169] As Moore's actions demonstrated that he "clearly did not expect to retain possession of his cells following their removal," he needed to retain some other ownership interest to sustain his claim.[170] The court, however, reasoned that no such interest existed, based primarily on the absence of any case law establishing such rights.[171]

Attempting to overcome the lack of direct authority linking biological materials to personal property, Moore relied instead on analogous cases involving privacy considerations.[172] Specifically, he argued that one's genetic material, similar to one's likeness, was the "essence of one's human uniqueness."[173] Since courts had recognized a proprietary interest in an individual's likeness, Moore argued that the court should also recognize such interest in an individual's genetic material, which was arguably far more representative of his individuality.[174] The court, however, rejected this argument. First, it pointed out that the line of cases Moore relied upon did not explicitly hold that the proprietary interest in one's likeness stemmed from common law property principles; as only property may be converted, the absence of such holding made his analogy irrelevant.[175] Notwithstanding the questionable characterization of those likeness rights, the court further explained that the genetic materials at issue in Moore's case, T-cells, were exactly the same in every human being and thus were "no more unique to Moore than the number of vertebrae in the spine."[176]

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[166] *Id.* at 484.

[167] *Id.* at 484, 485.

[168] *Id.* at 493.

[169] *See* Del E. Webb Corp. v. Structural Materials Co., 176 Cal. Rptr. 824, 833 (Cal. Ct. App. 1981).

[170] *Moore*, 793 P.2d at 488-89.

[171] *Id.* at 489; *see also* CAL. HEALTH & SAFETY CODE §§ 1606, 7054.4, 7150, 7151, 7153 (West 2008).

[172] *Moore*, 793 P.2d. at 490.

[173] *Id.*

[174] *Id.*

[175] *Id.*

[176] *Id.*

In addition to the line of cases dealing with individual likeness, Moore offered a California case establishing the right to refuse medical treatment, which stated that "[e]very human being of adult years and sound mind has a right to determine what shall be done with his own body."[177] While acknowledging the right, the court stated that other legal theories, such as the informed-consent requirement, already existed to protect it.[178] Accordingly, extending the protection provided by common law conversion of property was unnecessary.[179]

The court explicitly stated that it was "not purport[ing] to hold that excised cells can never be property for any purpose whatsoever."[180] Rather, the court was careful to state that extending liability in Moore's case was improper in light of the context and relevant policy considerations.[181] Of particular policy importance to the court was the potential impact the decision would have on medical research.[182] According to the United States House Committee on Science and Technology, nearly half of medical researchers surveyed at the time the case was decided used human cells, and most U.S. commercial biotechnology firms derived their human therapeutic products from human tissue and cells.[183] The court stated that extending the strict liability tort of conversion to excised cells would impose liability on anyone who came into contact with Moore's cells, regardless of whether they were responsible for, or even aware of, the absence of informed consent.[184] Strict liability would also automatically subject all of these parties to civil damages payments. As a consequence, economic incentives to conduct what the court described as "important medical research" could be destroyed, undercutting the "public interest in the development and availability of these important products."[185] These considerations, as well as the availability of other, equally protective legal theories, led the court to hold that extending the strict liability tort to recognize human biological material as property was inappropriate, and Moore therefore could not present a legitimate claim of conversion.[186]

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[177] *Id.* at 491 (quoting Bouvia v. Superior Court, 225 Cal. Rptr. 297, 297 (Cal. Ct. App. 1986)).

[178] *Id.*

[179] *Id.*

[180] *Id.* at 493.

[181] *Id.*

[182] *Id.*

[183] *See* OFFICE OF TECHNOLOGY ASSESSMENT, OTA-BA-337, NEW DEVELOPMENTS IN BIOTECHNOLOGY: OWNERSHIP OF HUMAN TISSUES AND CELLS 52 (1987).

[184] *Moore*, 793 P.2d at 494.

[185] *Id.* at 495-96 (quoting Brown v. Superior Court, 751 P.2d 470, 480 (Cal. 1988)) (internal quotation marks omitted).

[186] *Id.* at 497.

B. *Compulsory DNA Sampling: Distinguishing* Boroian *and* Moore

Moore remains good law in California, and its role as persuasive authority for other states' cases involving the question of property rights in human biological materials foreshadows its eventual consideration by the federal courts.[187] As its holding explicitly states, however, *Moore* does not stand for the proposition that human biological materials can never be personal property.[188] Rather, it answers the narrow question of whether human cells and tissue, provided voluntarily by an individual and used in medical research, may be considered personal property after extraction.[189] This narrow conception of *Moore* was further reinforced by a California appellate court shortly after it was decided.[190] In *Hecht v. Superior Court of the State of California*, the California Court of Appeal addressed a related issue to that in *Moore*: whether an individual retains property rights in semen stored in sperm banks for later use.[191] Hecht had attempted to lay claim to fifteen vials of sperm that her boyfriend had bequeathed to her upon his death.[192] While the court might have attempted to use *Moore* to quash any rights that Hecht or her boyfriend claimed in the stored sperm, it instead stated that *Moore* "did not resolve the debate of the existence or extent of a property interest in one's body."[193] Rather, it governed only individuals' control over their bodies "in specific situations."[194] Thus, the existence of property rights in one's biological materials remained, and still remains, a contextual consideration. In *Hecht*, the court recognized that a sperm donor does have a property interest in semen stored for his later use, distinguishing the case from *Moore* on the grounds of both the biological materials in question and the policy implications of refusing to recognize such right.[195]

The retention of compulsorily obtained DNA samples under the DNA Act is similarly distinguishable from the facts presented in *Moore*. In particular, the nature of DNA samples, the context of their use, and the policy considerations involved in recognizing a property interest in such materials forcibly, rather than voluntarily, obtained suggest that *Moore* does not, and should not, govern

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[187] *See* Wash. Univ. v. Catalona, 437 F. Supp. 2d 985, 995 (E.D. Mo. 2006) (citing *Moore* for the proposition that "research participants retain no ownership of biological materials they contribute for medical research"), *aff'd*, 490 F.3d 667 (8th Cir. 2007); Greenberg v. Miami Children's Hosp. Research Inst., Inc., 264 F. Supp. 2d 1064, 1074 (S.D. Fla. 2003).

[188] *Moore*, 793 P.2d at 493.

[189] *Id.*

[190] *See* Hecht v. Superior Court, 20 Cal. Rptr. 2d 275, 281 (Cal. Ct. App. 1993).

[191] *Id.* at 276.

[192] *Id.* at 276-77.

[193] *Id.* at 281 (quoting Michelle Bourianoff Bray, Note, *Personalizing Personalty: Toward a Property Right in Human Bodies*, 69 TEX. L. REV. 209, 220 (1990)).

[194] *Id.* (quoting Bray, *supra* note 193, at 220) (internal quotation marks omitted).

[195] *Id.* at 281.

in situations such as that presented in *Boroian*. Unlike the T-cells in *Moore*, the samples extracted and analyzed under the DNA Act are far from generic. DNA is perhaps the single most identifying human characteristic.[196] Although the coding regions of DNA are nearly identical from person to person, the sequencing patterns in the much larger non-coding regions vary significantly between individuals.[197] Unique profiles are created by identifying those patterns at a number of regions (loci) – thirteen specifically in the United States[198] – and the chances of two people having the same DNA profile at all thirteen loci are estimated as low as one in one trillion.[199] Thus, the gaps in Moore's analogy between his extracted cells and individual likeness seem to be filled in the case of DNA samples, which are arguably even more representative of an individual than his or her "likeness."

Not only does DNA provide this uniquely identifying information about individuals, but samples collected under the DNA Act are used exactly for that identifying purpose.[200] Once collected, the samples are analyzed to create profiles, which are then entered into CODIS for the purpose of matching them to other unknown samples collected in criminal investigations.[201] Accordingly, the context in which the biological material is used bears little, if any, resemblance to that seen in *Moore*. While DNA profiling is certainly important to society in helping police to solve otherwise suspectless crimes and deterring individuals in the database from becoming repeat offenders, it serves no commercial interest analogous to that seen in the context of *Moore*. Furthermore, its involvement in the criminal justice system implicates constitutional questions and policy concerns not present in other cases.

Another major difference between the context of *Moore* and that of cases such as *Boroian* lies in the process by which the biological material is obtained. In *Moore*, the cells used in Dr. Golde's research were excised voluntarily in the course of Moore's medical treatment.[202] Although consent was deemed incomplete in that case, Moore was not forced to remove his cells from his body.[203] Under the DNA Act, however, sampling is mandatory.[204] Therefore, the concept of informed consent, which the *Moore* court cited as

[196] The only characteristic more individual to us than our DNA is our irises, which differ even between identical twins. *See* JASPER A. BOVENBERG, PROPERTY RIGHTS IN BLOOD, GENES AND DATA: NATURALLY YOURS? 18 (2006).

[197] *See* Regensburger, *supra* note 20, at 326.

[198] *See* KREEGER & WEISS, *supra* note 18, at 9, 35.

[199] *See* Regensburger, *supra* note 20, at 328.

[200] *See* 42 U.S.C. § 14135(a) (2006).

[201] *See id.*

[202] Moore v. Regents of the Univ. of Cal., 793 P.2d 479, 481 (Cal. 1990).

[203] *Id.*

[204] *See* 42 U.S.C. § 14135a(a)(4) (authorizing collection by "such means as are reasonably necessary to detain, restrain, and collect a DNA sample from an individual who refuses to cooperate").

already protective of Moore's interests, is irrelevant and not effective in protecting Boroian's property interest in his sample.[205] While the language of the DNA Act may have informed Boroian of how his DNA sample would be used, he was not given the option to refuse extraction of his sample or to limit or prevent any future uses of that sample.[206] Absent the protections of informed consent or property interests in their samples, individuals like Boroian are left with no avenue through which to seek redress should their samples be misappropriated.[207]

That is not to say, however, that recognizing a property interest in DNA samples would, or should, allow individuals in Boroian's position to refuse the collection and analysis of their samples under the DNA Act altogether. While it certainly bears on the availability of other legal remedies, the mandatory nature of the DNA Act is not challenged by Boroian or this Note.[208] The DNA Act functions in the criminal arena, implicating constitutional considerations not present in *Moore*. Collection of DNA samples constitutes a Fourth Amendment search of the person as well as a Fourth Amendment seizure of the blood and tissue obtained from that search.[209] Analysis of those samples constitutes a second, separate search of the seized blood and tissue, which has further been held to invade a person's expectation of privacy by exposure of the information contained therein.[210] The constitutionality of mandatory DNA sample collection and analysis has been questioned numerous times, and while a single test has yet to be established, the practice is constitutional under both tests that courts regularly employ.[211] In each case, courts cite the diminished expectation of privacy of supervised releasees and the strong government interest in preventing recidivism among convicted felons to justify the suspicionless search and seizure as constitutional.[212] The method used to assess a suspicionless search under the Fourth Amendment does not differentiate between persons and property. Thus, absent any effect on the balance of interests, recognition of DNA samples as personal property would not make their collection under the DNA Act any less constitutional.

Such recognition would, however, provide a legal theory under which individuals could challenge the misappropriation of those materials. While the California Supreme Court rejected Moore's attempt to achieve a similar result

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[205] *Moore*, 793 P.2d at 491.

[206] *See* 42 U.S.C. § 14135a(a)(5).

[207] Although the DNA Act does impose harsh penalties on states that use DNA profiles and samples in ways not authorized by the statute, it does not provide any private cause of action through which individuals can seek redress. *See id.* §§ 14132(b)(3), 14135e(c).

[208] *See* Boroian v. Mueller, 616 F.3d 60, 62 (1st Cir. 2010).

[209] *See* Skinner v. Ry. Labor Execs.' Ass'n, 489 U.S. 602, 618 (1989).

[210] *Id.* at 616.

[211] *See, e.g.*, United States v. Weikert, 504 F.3d 1, 3 (1st Cir. 2007); United States v. Amerson, 483 F.3d 73, 89 (2d Cir. 2007).

[212] *See, e.g.*, Sampson v. California, 547 U.S. 843, 852 (2006).

by extending the tort of conversion to his excised cells, Boroian's case presents entirely different circumstances and consequences. Neither the strict liability nor the harsh economic consequences exist, greatly diminishing the policy rationales for rejection under *Boroian*'s facts.

Recognizing a personal property interest in DNA samples obtained under the DNA Act would extend Fourth Amendment protections to those samples which otherwise may not exist – namely protection against continued seizure. This protection is both legally and substantively independent from that against unreasonable search of the person – a protection already recognized with regard to actual analysis of the sample. Further, unlike conversion of property, a suspicionless seizure is not a strict liability offense. Rather, it requires further analysis by the court, which must balance the interests of the individual against those of the government to determine whether any violation has occurred.[213] The mere determination that an unreasonable search or seizure has occurred does not automatically open the government or its agents to liability for monetary damages. Although it is possible to bring civil claims for Fourth Amendment violations under § 1983,[214] the burden of proof falls on the plaintiff to prove he or she suffered actual damages as a result of that violation in order to receive monetary relief.[215] It is difficult to imagine what injuries are actually caused by the unreasonable seizure of a DNA sample outside of the constitutional violation itself. Accordingly, such civil actions would seem a fruitless and impracticable avenue for relief.

In its holding, the *Moore* court focused on the impact of extending conversion liability on medical research, which the court characterized as an important societal activity that brought about critical advances in medical science.[216] Such threats simply do not exist in the context of extending property rights in *Boroian*. Both the field in which the biological materials are used and the character of the use are substantially different. Samples collected pursuant to the DNA Act are not used commercially by private parties but instead by state and federal governments in the course of criminal investigations. Furthermore, samples collected under the DNA Act are not used for general research purposes. Such samples are collected for the narrow purpose of creating a DNA profile that can be entered into CODIS,[217] and the DNA Act provides for harsh penalties if the samples and profiles are used in

[213] *See Weikert*, 504 F.3d at 11.

[214] 42 U.S.C. § 1983 (2006).

[215] Section 1983 claims are essentially a type of tort liability. The Supreme Court has held that plaintiffs are entitled to only nominal damages, a mere one dollar, unless they can prove actual damages. *See* Carey v. Piphus, 435 U.S. 247, 248 (1978). Section 1983 plaintiffs also must prove that the alleged constitutional violation was the proximate cause of the damages suffered. *See* Arnold v. IBM Corp., 637 F.2d 1350, 1355 (9th Cir. 1981).

[216] *See* Moore v. Regents of the Univ. of Cal., 793 P.2d 479, 495 (Cal. 1990).

[217] *See* 42 U.S.C. § 14135a(b) (2006).

unauthorized ways.[218] Inarguably, the creation and use of DNA profiles to solve crimes is certainly a useful societal activity, perhaps even comparable in importance to use of biological materials in medical research. The recognition of a personal property interest in DNA samples, however, poses no threat to that activity.

Courts have consistently upheld the constitutionality of the initial search of the person and seizure of the blood and tissue associated with the collection of DNA samples under the DNA Act.[219] Under both methods of constitutional analysis currently employed by the circuit courts in this area, the result would remain unchanged in the face of a property interest in an individual's compulsory DNA sample. As supervised releasees, the diminished expectation of privacy afforded to the individuals required to provide samples under the DNA Act would continue to support the constitutionality of collection. Retention of the DNA profile would remain similarly unaffected, as courts, including that in *Boroian*, have consistently held that the retention and use of DNA profiles is similar to that of fingerprints, which are routinely retained by the government even after a person's sentence is complete.[220] As legally obtained identification records that provide minimal substantive information about an individual, profiles themselves do not violate an individual's expectation of privacy or interfere with any possessory property interest – in either their use or retention – under the Fourth Amendment.[221] Accordingly, the only issue affected by the recognition of a property interest in DNA samples obtained under the DNA Act is whether an individual's sample may be retained after he has completed his sentence and has regained his full privacy interests – the question left unanswered in *Boroian*.

C. *Proper(ty) Conclusions and Limitations*

After analyzing the circumstances in *Boroian*, mapping *Moore* to cases arising under the DNA Act is akin to comparing apples with oranges. The *Moore* court itself recognized that its holding was not the last word on the question of property interests in biological materials in every case,[222] and *Boroian* seems to fall outside of its scope. In what circumstances, then, does *Moore* hold clout, and how should property rights be extended to DNA samples without opening the floodgates to other troubling property claims and

[218] *See id.* §§ 14132(b)(3), 14135e(c).

[219] *See, e.g.*, United States v. Weikert, 504 F.3d 1, 15 (1st Cir. 2007); United States v. Amerson, 483 F.3d 73, 89 (2d Cir. 2007); United States v. Kincade, 379 F.3d 813, 839 (9th Cir. 2004).

[220] *See, e.g.*, Boroian v. Mueller, 616 F.3d 60, 66-67 (1st Cir. 2010); Banks v. United States, 490 F.3d 1178, 1192 (10th Cir. 2007); Johnson v. Quander, 440 F.3d 489, 499 (D.C. Cir. 2006).

[221] *See Boroian*, 616 F.3d at 67.

[222] *See* Moore v. Regents of the Univ. of Cal., 793 P.2d 479, 493 (Cal. 1990).

policy problems? At first glance, the question may seem quite complex. The answer, however, is surprisingly simple and easy to administer.

In order to fall under *Moore*'s precedential (or in the present federal case, persuasive) authority, cases claiming property rights in biological materials should present two characteristics. First, the biological material must be voluntarily provided. Although Moore prevailed on his claim because his physician failed to obtain informed consent to use Moore's cells, the court made it clear in its holding that, had Moore known of the research interests when he consented to the medical procedure, he would have released any ownership interest in those cells and had no cause of action.[223] This concept was further emphasized in a subsequent case citing *Moore*, *Greenberg v. Miami Children's Research Institute*,[224] where a U.S. district court in Florida held that "the property right in blood and tissue samples . . . evaporates once the sample is voluntarily given to a third party."[225] This was illustrated in even greater detail in a more recent Eighth Circuit diversity case involving a dispute between Washington University (WU) and one of its former researchers over the ownership of tissue and blood samples donated to his research studies.[226] The researcher had left WU to join Northwestern University (NU), taking a number of samples with him after he obtained signed consents from donees stating the samples should be released to NU at his request.[227] The district court, however, held that the form the donees signed at the time the samples were collected indicated that each had made an unconditional gift of his or her sample to WU, rather than any particular researcher, and thus the donees had not retained any rights in the materials to dictate their transfer to NU.[228] The court acknowledged that the donees *could* have retained such interest in their samples if the interest had been a condition present in the original consent form.[229] Accordingly, even in instances of voluntary donation, individuals may be able to avoid fully divesting themselves of all ownership rights. In the absence of such explicit conditions, however, individuals waive any rights that might otherwise exist in regard to their biological materials.

While the presence of consent, and therefore a waiver of potential property rights, may be enough to invoke *Moore*'s authority in the future, each of the cases that have to date chosen to do so involved biological material used exclusively in medical research. The crux of the court's decision not to extend conversion in *Moore* was that the recognition of a property interest in voluntarily provided biological materials would cripple the medical research

[223] *See id.* at 497.

[224] 264 F. Supp. 2d 1064 (S.D. Fla. 2003).

[225] *Id.* at 1075.

[226] Wash. Univ. v. Catalona, 490 F.3d 667, 670 (8th Cir. 2007).

[227] *Id.* at 672.

[228] *Id.* at 674.

[229] *Id.* at 675.

industry to the severe detriment of society.[230] Thus, it follows that *Moore*'s full authority should be felt only in situations that also threaten the medical (or another related) research field.

While these particular characteristics seem to greatly limit *Moore*'s reach, not every non-research scenario involving biological materials warrants the recognition of property rights. Nor is that what this Note sets out to propose or advocate, as it would likely result in a flood of claims that would heavily burden the courts and result in unfavorable policy consequences. Rather, the analysis here suggests a very particular circumstance under which property rights might be appropriately recognized in DNA samples. The extension proposed here is only to individuals who are compelled to provide DNA samples for use in the criminal justice system without the otherwise constitutionally required probable cause or suspicion. Under this limited proposition, individuals like Boroian, who are forced to provide DNA samples without warrant or probable cause, would retain a proprietary interest in their samples to challenge any later misappropriation should the balance of interests shift in their favor. This conception of DNA property interests presents a bright-line rule by which the courts can distinguish those who do and do not retain ownership rights in their DNA samples. It raises only two questions, which require minimal effort to answer: first, whether the individual was compelled to provide the sample; second, whether such compulsion was without probable cause or reasonable suspicion. Whether individuals who are compelled to provide samples in the course of normal criminal investigations – such that the police have reason to suspect them of particular wrongdoing and have procured the appropriate authority – should retain a similar property interest is not addressed by this narrow extension of rights. Nor is the circumstance in which DNA is obtained by means other than consensual or compelled sampling.[231] These questions, along with many others, are left to future analyses and fall outside the scope of this Note.

III. *BOROIAN*'S UNANSWERED QUESTION: APPLYING CONTINUED SEIZURE DOCTRINE TO THE DNA ACT

While recognizing a property interest in Boroian's DNA sample supplies a legal theory under which he could challenge its misappropriation, the question still remaining in Boroian's case is whether any misappropriation actually occurred. The initial seizure of the sample was reasonable based on Boroian's status as a supervised releasee, which sufficiently diminished his expectation of privacy to allow the government to search his person and obtain the sample.[232] Although the reasonableness of that initial seizure remains unchallenged, the theory of continued seizure posits that a once reasonable

[230] *See* Moore v. Regents of the Univ. of Cal., 793 P.2d 479, 495-96 (Cal. 1990).

[231] DNA is found in nearly every cell of the body and is therefore discarded on a daily basis on everyday items like disposable cups, cigarette butts, and tissues.

[232] *See* United States v. Weikert, 504 F.3d 1, 14 (1st Cir. 2007).

seizure may become unreasonable over time.[233] Under *Place*, a seizure of one's property continues as long as the possessory interest in that property remains intact.[234] Thus, the first step is identifying whether such possessory interest does, in fact, still exist. Assuming, in accordance with the analysis above, that Boroian did retain such an interest in his DNA sample and therefore retention *is* a continued seizure of his property, the next inquiry is into the reasonableness of that continued seizure.[235] Although a friction still exists among the circuit courts regarding the correct choice between the totality of the circumstances and the special needs tests, this analysis does not require distinguishing between the two. Only the balancing of interests is at issue, which both tests hold to be the measure of reasonableness that justifies finding in favor of the government.

Looking to Boroian's case, two distinct stages of the continued seizure are important – the period after the sample was analyzed, but before Boroian had completed his term of supervised release, and the period after the expiration of such supervision. As Boroian's status as a supervised releasee was the factor that allowed the government to compel his sample without probable cause to begin with, it follows that such authority would continue to exist throughout the term of his supervision. This makes sense from a broader policy perspective as well. Once a sample has been analyzed and a profile created, the sample has served its purpose under the statute.[236] However, if samples obtained under the DNA Act were destroyed immediately after analysis, and the profile created from Boroian's sample had later been lost or become otherwise unusable during this period, the government could, and likely would, have compelled another sample. This would not only result in another, albeit constitutional, intrusion of Boroian's bodily integrity but would also result in additional sample collection and analysis costs to the government. If, instead, the government retains samples throughout the period of supervised release, such costs and additional intrusions are avoided. Therefore, the retention of Boroian's DNA sample during his term of probation was reasonable.

When Boroian's term of supervised release expired, however, his status – and consequently the relative balance of interests – changed. Although the First Circuit left the question of post-supervised release sample retention unanswered in *Weikert*, it did discuss and agree with the notion that the "balancing of the relevant interests would change after an individual completes the term of conditional release."[237] More specifically, the court stated that it found persuasive the ideas expressed by Judges Goulde and Kozinski in *United States v. Kincade* – a Ninth Circuit case upholding the constitutionality of

[233] *See* United States v. Place, 462 U.S. 696, 698 (1983).

[234] *See* Miller, *supra* note 145, at 772-73.

[235] *See* Fox v. Van Oosterum, 176 F.3d 342, 355-56 (6th Cir. 1999) (Clay, J., concurring in part and dissenting in part).

[236] *See* 42 U.S.C. § 14135a(b) (2006).

[237] *See Weikert*, 504 F.3d at 15.

mandatory sample collection under the DNA Act.[238] Although the two disagreed as to the case's outcome, they did agree that once an individual completes his term of supervised release, he regains his full privacy interests.[239] Such "increased expectation of privacy [accordingly] warrants a separate balancing" under the Fourth Amendment.[240]

Boroian, at such point regaining his status as an "ordinary citizen just like everyone else,"[241] no longer had the diminished expectation of privacy courts consistently cited to uphold the constitutionality of sample collection and analysis under the DNA Act. Absent a warrant or any form of probable cause, this shift in Boroian's privacy interests leads to the conclusion that the continued seizure of his DNA sample became unreasonable.[242] In addition, the government's interest in retaining the sample became less persuasive than its previous interest in obtaining it. As dictated by the requirements of the DNA Act, a DNA sample's value to the government is its use in creating a profile to be entered into CODIS, and nothing else. Thus, once a sample is analyzed, it has served its purpose and generally exhausted its usefulness under the statute. While the government may arguably maintain an interest in retaining the sample to guard against the chance that the profile or housing database is later damaged, it is difficult to imagine a court finding that considerations of possible government error or unforeseen damage outweigh an individual's undiminished Fourth Amendment rights against unreasonable search and seizure. Without some additional government interest, then, the proper conclusion is that retention of Boroian's – and any similarly situated individual's – DNA sample after his term of supervised release expired was and continues to be an unreasonable, continued seizure of his personal property in violation of the Fourth Amendment.

CONCLUSION

This Note addresses two questions regarding the DNA Act: whether the compulsory DNA samples obtained from persons on supervised release should be recognized as the personal property of the individuals, and whether the retention of those samples after the term of supervised release expires

[238] *Id.* at 15-16.

[239] *See* United States v. Kincade, 379 F.3d 813, 842 (9th Cir. 2004) (Gould, J., concurring) (emphasizing that the majority expressed no view on whether lawfully obtained DNA samples "may properly be retained by the government after the felon has finished his or her term and has paid his or her debt to society"); *id.* at 871-72 (Kozinski, J., dissenting) ("Once Kincade completes his period of supervised release, he becomes an ordinary citizen just like everybody else. Having paid his debt to society, he recovers his full Fourth Amendment rights, and police have no greater authority to invade his private sphere than anyone else's.").

[240] *See Weikert*, 504 F.3d at 16.

[241] *Kincade*, 379 F.3d at 871-72 (Kozinski, J., dissenting).

[242] *See* U.S. CONST. amend. IV.

constitutes an unreasonable, continued seizure in violation of the Fourth Amendment. While both remain unanswered by the courts, *Boroian*'s introduction of these questions will inevitably be a catalyst for challenges by others, whose counsel will properly assert the argument in the trial court. The concept of personal property rights in human biological materials is both controversial and difficult to discern given the little federal authority on point. *Moore*, though not binding, seems to be the only source of instruction. Yet, as the analysis of this Note suggests, mapping *Moore* and its rationales onto cases like *Boroian* proves difficult, if not entirely inappropriate. Recognition of a personal property right in compulsory DNA samples under the DNA Act not only presents very different factual and policy questions from those presented in *Moore* but, if accepted by the courts, also facilitates the protection of a constitutional right that would otherwise be left open to continued violation. *Moore*'s weight may remain uncertain, but the analysis presented in this Note, along with the undertones present in current case law regarding the shift in an individual's privacy interests at the conclusion of supervised release, suggests that courts may find the constitutionality of DNA sample retention under the DNA Act hard to justify.