

ON THE INTERNET, NOBODY KNOWS YOU'RE A JUDGE: APPELLATE COURTS' USE OF INTERNET MATERIALS

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I. INTRODUCTION

Computer-literate researchers in the last few years have found it increasingly easy to use an Internet search engine to surf the Web, turning up dozens (or thousands) of hits—web sites with content that matches key words in the researcher's search query. Sometimes the hits are right on point; other times, they are not. Readers may recall seeing a cartoon in *The New Yorker* showing two dogs beside a computer terminal. One explained to the other: "On the Internet, nobody knows you're a dog."² Although a point of the cartoon was to highlight the anonymity Internet users may enjoy, it also illustrates that those who seek information on the Internet may unwittingly be relying on the "dogs" that their research turns up.

This Article explores federal appellate judges' use of and reliance on materials found on the Internet, as evidenced by their citation and use in appellate opinions. Practitioners and scholars may be interested in learning about appellate judges' use of such materials because such data will reveal the kinds of authorities judges deem to be binding or mandatory, inform them about the

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2. Peter Steiner, 69 *New Yorker* 61 (July 5, 1993).

kinds of materials judges find persuasive, and demonstrate what sources judges find helpful or instructive.

Several questions shaped the research for this study. For example, what kinds of Internet sources are being cited in appellate opinions? What kinds of research support do the sources provide—background factual information? Footnote glosses? Or are courts using these sources as authority for legally significant facts of which they are taking judicial notice? Similarly, to what extent are courts relying upon Internet sources of law—as convenient substitutes for materials commonly found in print? As parallel citations to materials also cited in print media? As authoritative materials that are only available online? Next, are the cited sources still available on the Internet, and if so, are they identical to the way they appeared at the time they were accessed by the judicial author? Finally, if the cited sources are not presently available, why not?

To answer these questions, the author set out to collect the opinions written by Supreme Court justices and federal circuit judges that cite sources found on the Internet;³ to categorize the

3. The research for this Article considered federal appellate opinions (United States Supreme Court and Circuit Courts of Appeal) issued through December 31, 2001 (published and unpublished, if available on Westlaw). Using Westlaw, the author searched in each court's individual database for all cases using the term "http" (the acronym used in web addresses for hypertext transfer protocol). Searches using "www" (the abbreviation for World Wide Web) were found to be unreliable, both because they turned up non-Internet cases using the abbreviation for other words (e.g., Western Water Works), but more significantly, because many Internet sites do not use the "www" prefix and therefore, a search requiring "www" would have missed the cases citing them. See e.g. <<http://wipo2.wipo.int/process2/report/html/report.html>>, cited in *Sallens v. Corinthians Licenciamientos LTDA*, 273 F.3d 14, 17 n. 2 (1st Cir. 2001).

There are at least 361 distinct citations to web sites by federal appellate courts in their opinions from 1996 to 2001. This estimate is qualified because (1) it is possible, even if unlikely, that Westlaw editors could have omitted the "http" prefix for Internet addresses; (2) multiple same-case citations to a single web site and *id.* citations were not included in the count, as they would have unfairly skewed the data; and (3) the author accidentally (but happily) found one case with a typographical error in which "http" was rendered as two words: "h" and "ttp," and there may be other similar undiscovered cases.

The author then located the Internet citation or citations within each case, highlighting, copying, and pasting each citation just as it was rendered in the opinion into a new hypertext document. The reason for copying and pasting was to ensure that in subsequent confirmation of the Internet address, the author would search using exactly the citation data provided in the opinion (but eliminating false spaces created when Westlaw forced a line break for the characters in the web site address). Finally, the author went online to access and confirm each cited Internet source, checking them in late March and early April 2002 and again in late August and early September 2002.

types of Internet sources most often cited in federal appellate opinions; and to evaluate the reliability, availability, and currency of the sources cited. In collecting the opinions, the author found decided trends, not only in the increasing number of citations to Internet-based materials, but also in the increasing number of web site addresses no longer available or accessible. Appellate judges need to know that the sources they cite may not be accessible to eventual readers of the opinion. Armed with this information, they should either choose different, and more permanent and stable, sources, or they should find ways to preserve the cited Internet materials for later researchers to consult. Too many recent opinions rely upon questionable or non-available sources, and such misplaced reliance certainly cannot be what judicial authors wanted or intended.

II. LEGAL AND NONLEGAL AUTHORITY

Law professors teach their students that “authority” is something that directs or persuades a law-making entity to hold a certain way.⁴ The senior partner who directs the associate to find “good authority” wants the young lawyer to locate something recent, relevant, and mandatory, preferably in the nature of a statute or a case holding from the controlling jurisdiction. Thus legal researchers have traditionally looked for information that is more than just informative; they have looked for information that is unquestionably authoritative.

4. See e.g. J. Myron Jacobstein, Roy M. Mersky, & Donald J. Dunn, *Fundamentals of Legal Research* xix (7th ed. Found. Press 1998) (defining “authority” as “that which can bind or influence a court” and naming “[c]ase law, legislation, constitutions, administrative regulations, and writings about the law” as examples of legal authority); John C. Dernbach, Richard V. Singleton II, Cathleen S. Wharton, & Joan M. Ruhtenberg, *A Practical Guide to Legal Writing & Legal Method* 12-13 (2d ed. Fred B. Rothman & Co. 1994) (classifying “constitutions, legislation, regulations, [and] judicial decisions” as primary authority, while naming as secondary authority materials including “treatises, restatements of the law, articles in law reviews and other legal periodicals, annotations, and legal encyclopedias,” while “not sources of law,” as potentially influential on courts); but see Richard K. Neumann, Jr., *Legal Reasoning and Legal Writing: Structure, Strategy, and Style* 122-123 (4th ed., Aspen L. & Bus. 2001) (contrasting the authoritativeness and resulting influential value of various kinds of secondary materials (i.e., whether they are “worth citing”), from restatements and treatises (the “most significant”) down to legal encyclopedias, dictionaries, digests, and annotations (whose weakness is that they themselves are “not authority,” but are works that merely cite or discuss “true authority”)).

As Professor Robert Berring explains the unique mindset of legal researchers, it is premised on the special characteristics of legal authority:

The doctrines of the law are built from findable pieces of hard data that traditionally have been expressed in the form of published judicial decisions. The point of the search is to locate the nugget of authority that is out there and use it in constructing one's argument.

Because legal researchers are so accustomed to this idea, it is difficult to realize how unique this concept is in the world of information. In most fields in the humanities or social sciences, a search of the literature will reveal certain orthodoxies or prevailing views, certain points in contention with each side having its own warrior-like adherents, but there are no points of primary authority. There are no nuggets of truth or treasure. . . . Legal researchers believe that there are answers out there that are not just powerfully persuasive, but are the law itself.⁵

And yet, modern researchers, who find themselves in what Berring calls "a world of uncontrolled sources,"⁶ often find that they need more in the way of reference materials than just the classic primary and secondary authorities. Thus a court may cite to a non-traditional source that is not necessarily a citation to an acknowledged "authority," in the sense that the source represents the law as promulgated by one of the branches of government or represents a persuasive secondary source authored by a legal scholar with a particular area of expertise.⁷ In fact, modern courts often cite common nonlegal sources, such as

5. Robert C. Berring, *Collapse of the Structure of the Legal Research Universe: The Imperative of Digital Information*, 69 Wash. L. Rev. 9, 11, 14 (1994).

6. *Id.* at 32.

7. In a recent article, Professor Berring compared sources cited by the United States Supreme Court in its opinions issued in 1899 and in 1999. Robert C. Berring, *Legal Information and the Search for Cognitive Authority*, 88 Cal. L. Rev. 1673, 1683-91 (2000). The century-old cases relied almost exclusively on cases and statutes, with almost no citation of secondary materials. *Id.* at 1686-87. The representative modern case he studied, in contrast, relied on "authorities from all corners of the information galaxy." *Id.* at 1689. In fact, states Berring, "No case in 1899 used legal information as abundantly or as broadly as the [case decided by the] 1999 Court . . ." *Id.* at 1691 (discussing *Alden v. Maine*, 119 S. Ct. 2240 (1999)).

general encyclopedias or dictionaries;⁸ they have been known to cite such diverse common nonlegal sources⁹ as newspapers, songs, poems, books, and movies. As it became acceptable—or at least, not unusual—to cite and rely upon such everyday sources, no one should be surprised that many courts would begin to cite sources found on the emerging resource medium for the lay public, the Internet.

Not every jurist would agree, however, that these nontraditional sources always provide adequate support for judicial decisionmaking. In a recent case deciding that a defendant's forced wearing of a stun belt during his testimony was sufficiently prejudicial to warrant a new trial, the California Supreme Court conducted considerable research outside the record concerning the safety record and the medical and psychological effects of such belts.¹⁰ This research was severely criticized by dissenting Justice Brown, who echoed the definition of "nonlegal" authority given by Professors Schauer and Wise¹¹ when she deplored her colleagues' search results:

[C]ourtroom security is a serious business. Were this court to take it seriously, one would hope, with the resources available to us, we could find a better means of informing ourselves than by relying on such secondary sources as a student comment in a law journal . . . and a Progressive magazine article that bares its heart in its subtitle—

8. See e.g. *Tucker v. Fischbein*, 237 F.3d 275, 279 n.1 (3d Cir. 2001) (Alito, J.) (consulting the online *Encyclopedia Britannica* for a definition of "gangsta rap"); *Boroff v. Van Wert City Bd. of Educ.*, 220 F.3d 465, 466 (6th Cir. 2000) (Wellford, J.) (citing the online *Encarta World English Dictionary* for the meaning of "goth" in relation to teenage styles of music and fashion). One should not, however, draw the conclusion that online sources such as these are used mainly for references to matters of recent popular culture that might be absent from more established works of reference. See e.g. *Jones v. Vilsack*, 272 F.3d 1030 (8th Cir. 2001) (quoting the definition of "promotion" from the online *Merriam-Webster's Collegiate Dictionary*); *Dils v. Small*, 260 F.3d 984 (9th Cir. 2001) (consulting the on-line *Oxford English Dictionary* for a definition of "to spread" in a legal records sense).

9. Describing the increasing trend of appellate courts to cite sources outside the traditional mainstream of authority, two commentators provide an interesting explanation of what they deem "nonlegal" sources of information: "[T]he sources we designate as 'nonlegal' are sources that would only rarely have been available even in a well-stocked law library and would generally have been the subject of at least a raised eyebrow if included in a first-year moot court brief." Frederick Schauer & Virginia J. Wise, *Nonlegal Information and the Delegalization of Law*, 29 J. Leg. Stud. 495, 499 (2000).

10. See *People v. Mar*, 2002 WL 1929481, at ** 8, 16-18 (Cal. Aug. 22, 2002).

11. See Schauer & Wise, *supra* n. 9.

Stunning Technology: Corrections Cowboys Get a Charge Out of Their New Sci-Fi Weaponry A high school student who turned in a research paper with a bibliography like that would be unlikely to get high marks for either the distinction or balance of the authorities cited.¹²

The Supreme Court has compared the Internet, from its users' point of view, "to both a vast library including millions of readily available and indexed publications and a sprawling mall offering goods and services."¹³ The comparison is apt; using the same tools—computer, keyboard, Internet service provider, search engine—a person can study the invention and history of golf in Scotland, research climate data for the North Atlantic region in midsummer, reserve accommodations at a golf resort in St. Andrews, apply for a passport, book an airline flight to Edinburgh, and purchase new clubs to take on the journey. The tools and methodology to perform all these tasks are the same; the results of each of these searches are delivered to the searcher's own computer screen. Purchases and reservations are made with a credit card over a "secure" and trustworthy connection. Reputable institutions and commercial concerns alike promote their web addresses and encourage visitors and customers. The searcher is assured that she can use the Internet with ease, with confidence, with satisfaction. Is it any wonder, then, that so many are tempted to trust what they find there? Have they confused the ever-changing market offerings of the "sprawling mall" with the permanence of the holdings in an institutional depository of information?

III. INCREASING USE OF THE INTERNET FOR RESEARCH

The media in which legal information is published have changed greatly in the last decade and will continue to change. What was once available only in a paper-based print source may now also (or only) be found in digital format on a compact disk, in an online database such as Westlaw or LEXIS, or in hypertext markup language (HTML) on the Internet. Even if books are not yet obsolete, many researchers find it easier and faster to use an

12. *Mar*, 2002 WL 1929481 at * 21 (Brown, J., dissenting) (footnotes omitted).

13. *ACLU v. Reno*, 521 U.S. 844, 853 (1997).

Internet search engine to locate and retrieve their target materials than to physically visit a bricks-and-mortar library for a paper version of the same materials, or if they are not available locally, to wait while an interlibrary loan request is filled. As noted above, the proliferation of information on the Internet has also attracted the general public's interest, and the use of search engines makes it easier than ever before to pull up possibly relevant data.

The Internet, unlike a library with limited shelf space, can accommodate all who want to publish there, for whatever reason. The Supreme Court has observed that

[f]rom the publishers' point of view, it constitutes a vast platform from which to address and hear from a worldwide audience of millions of readers, viewers, researchers, and buyers. Any person or organization with a computer connected to the Internet can "publish" information. Publishers include government agencies, educational institutions, commercial entities, advocacy groups, and individuals.¹⁴

The simplicity and low cost of web publishing,¹⁵ coupled with the Internet's decentralized origins, populist development, and, especially, ease of access, mean that those who would like to offer information for public consumption, whether for free or for a price, have a ready-made distribution network.¹⁶ What makes the Internet particularly attractive for many users, not surprisingly, is that the vast majority of its offerings are available at no cost.

14. *ACLU*, 521 U.S. at 853.

15. *See id.* at n. 9 ("Web publishing is simple enough that thousands of individual users and small community organizations are using the Web to publish their own personal 'home pages,' the equivalent of individualized newsletters about that person or organization, which are available to everyone on the Web.")

Web publishing is not much less complicated for commercial entities, although it may be more expensive to produce and maintain, at least if those entities desire to employ more sophisticated designs and features to attract and retain customers.

16. *See* Kelly Kunsch, *Diogenes Wanders the Superhighway: A Proposal for Authentication of Publicly Disseminated Documents on the Internet*, 20 Seattle U. L. Rev. 749, 756 (1997) (observing that due to advent of the Internet, "the publisher has virtually disappeared from the equation and costs of large-scale dissemination have fallen dramatically").

Indeed, legal researchers are increasingly drawn (or invited) to the Internet for legal materials,¹⁷ whether because governmental authorities, including courts, are posting primary sources there, or because other institutions and entrepreneurs have made available vast repositories of free legal information.¹⁸ Because a researcher may access most Internet sites for free, as opposed to paying for research and download time using online database services like Westlaw or LEXIS, it is easy to understand the attraction the Internet holds. One can perform a myriad of research tasks—determining the status of pending legislation, researching drunk driving laws in the fifty states, downloading the latest slip opinions from an appellate court, fact-checking a corporation's posted financial information—easily with a few clicks of the mouse.¹⁹ Similarly, nonlegal

17. See e.g. Diana Botluk, *Researching Telecommunications Law on The Internet*, *CommLaw Conspectus* 51 (Winter 1998); Marybeth Charters, Jane Kinkus, David Nowak, Gail Peyton & Randy Rafferty, *Internet Resources for Law and Psychology: A Select List*, 20 L. & Psychol. Rev. 11 (1996); David A. Combe, *The Internet as a Legal Research Source*, 23 Intl. J. Leg. Info. 209 (1995); James P. Diwik & Marianne B. Susong, *Investigation to Research: Let the World Wide Web Be Your Resource*, 29 Brief 53 (Summer 2000) (includes web-site evaluation criteria); L. Leon Geyer, *The Agricultural Lawyers' Guide to The Internet*, *Drake J. Agric. L.* 63 (Spring 1998); Susan B. Hutches, *Understanding ERISA 2000: Using the Internet and Other Electronic Resources for Employee Benefits Research*, 471 *PLI/Tax* 277 [Practising Law Institute Tax Law and Estate Planning Course Handbook Series] (July 2000); Kenneth P. Mortensen, *Law URLs for Lawyers: Where to Find Legal Information on the Internet*, 443 *PLI/Pat* 69 [Practising Law Institute Patents, Copyrights, Trademarks, and Literary Property Course Handbook Series] (June 5, 1996); Pauline C. Reich, *Women and the Law: An Annotated Internet-based Bibliography for U.S. and International Legal Research*, 6 *Tex. J. Women & L.* 143 (1996); William F. Yancey, *Web Sites for Employment Law Research*, SB96 ALI-ABA 29 [American Law Institute-American Bar Association Continuing Legal Education ALI-ABA Course of Study] (Nov. 13, 1997); Brian Zollinger, *Finding Drafts of Uniform Commercial Acts on the Internet*, 49 *Consumer Fin. L. Q. Rep.* 104 (Winter 1995).

18. For example, Cornell Law School's Legal Information Institute makes available both the United States Code and the Code of Federal Regulations at <<http://www.law.cornell.edu>>. The University of Pittsburgh hosts a web site tailored for the Internet research interests of legal educators at <<http://jurist.law.pitt.edu>>. One of the most popular free sites providing a gateway to legal research is Findlaw, at <<http://www.findlaw.com>>. While these three are only representative of the kinds of legal resources available on the Internet, each provides hyperlinks to many, many more legal research web sites.

19. Some have gone so far as to suggest that attorneys performing legal research who do not include the Internet in their searching may invite liability for their failure to uncover certain kinds of information. See e.g. Lawrence Duncan MacLachlan, *Gandy Dancers on the Web: How the Internet Has Raised the Bar on Lawyers' Professional Responsibility to Research and Know the Law*, 13 *Geo. J. Leg. Ethics* 607 (2000) (predicting that as the general public increases its ability to access legal information on the Internet, attorneys will

materials are easily accessed by the modern legal researcher with a computer and a modem. No one's research is limited any more to the volumes sitting on the shelves of local libraries. In the case of nonlegal materials now appearing in judicial opinions, Professors Schauer and Wise attribute their proliferation precisely to their ease of retrieval via computerized means:

Bringing up such materials on a screen is easier than trekking over to another library, and purchasing computer access to such materials as part of a package is easier than engaging in separate inquiries into availability and separate contracts for such materials. Even without the Internet, which increases by several orders of magnitude the phenomenon we identify, the computer has dramatically increased the availability and ease of accessibility of nonlegal materials. Nor is there reason to believe that the speed of change is decreasing, and the growing comfort of lawyers in using such materials will likely produce further acceleration. As a consequence of all of this, it is both demonstrable and uncontroversial that nonlegal materials are now far more available to lawyers and judges, at virtually no increase in cost (defined expansively, to include time and effort as well as monetary price) than was the case even ten years ago.²⁰

Despite the abundance of materials available online, however, no one should deem them each of equal worth and value, and indeed, some courts have already shown themselves to be very cautious when it comes to using the Internet for research. Law librarian William Manz, discussing the very small number of citations to Internet sources by the New York Court of Appeals in 1999 and 2000, surmised that

[a] factor inhibiting the use of some Internet documents as authority is a lack of confidence in their reliability and accuracy. Many Web sites are transient, lack timely updates, or may have had their URLs changed. Thus, as the Bluebook states, "Many Internet sources . . . do not consistently satisfy traditional criteria for cite-worthiness."

have to be able to demonstrate high levels of Internet searching skills in order to meet professional competence standards).

20. Frederick Schauer & Virginia J. Wise, *Legal Positivism as Legal Information*, 82 Cornell L. Rev. 1080, 1107-08 (1997).

This is particularly true for secondary materials, where even the more traditional sources such as law reviews and scientific journals have been criticized for their lack of authority or susceptibility to misinterpretation.²¹

Librarians have been among the most insistent teachers that not everything on the Internet can or should be trusted.²² As law librarian Diana Botluk explains, "Publication on the Web can often bypass . . . traditional methods of filtering information for quality, thus making the end user of the information more responsible for the evaluation process."²³ Those traditional methods include determining that "an authoritative source" has written or published the information; that the information has been "authenticated by editorial review"; and that it has been "evaluated by experts, reviewers, subject specialists or librarians."²⁴ Botluk thus suggests that legal researchers

[e]valuate not only the end product and the way in which the information is retrieved, but also the context in which the research is being performed. This involves a comparison of the various research methods available to you at the time you are performing the research. For example,

21. William H. Manz, *The Citation Practices of the New York Court of Appeals: A Millenium Update*, 49 Buff. L. Rev. 1273, 1295-96 (2001) (footnotes omitted).

22. See e.g. Marie Stefanini Newman, *Evaluation Criteria and Quality Control for Legal Knowledge Systems on the Internet: A Case Study*, 91 L. Lib. J. 9 (1999) (containing quality control advice for those who publish or update legal information web sites); Genie Tyburski, *Publishers Wanted, No Experience Necessary: Information Quality on the Web* <<http://www.llrx.com/columns/quality.htm>> (posted June 24, 1997; visited Oct. 2, 2001) (law firm librarian's column decrying the poor quality of many web resources, given the Internet's "anarchistic nature" and "lack of peer review or editorial standards").

23. Diana Botluk, *Evaluating the Quality of Web Resources* <<http://www.llrx.com/columns/webquality.htm>> (published Apr. 3, 2000; visited Oct. 2, 2001).

24. *Id.* (quoting Purdue University librarian D. Scott Brandt, *Evaluating Information on the Internet*, <<http://thorplus.lib.purdue.edu/~techman/evaluate.htm>>); see also Kris Gilliland, *What Lawyers Need to Know about the Internet for Legal Research*, 655 PLI/Pat [Practising Law Institute Patents, Copyrights, Trademarks and Literary Property Court Handbook Series] 255 (2001) (cautioning that the "Web is best viewed as a supplement to, rather than a substitute for, established legal research tools"); Mirela Roznovschi, *Evaluating Foreign and International Legal Databases on the Internet* <<http://www.llrx.com/features/evaluating.htm>> (posted Feb. 1, 1999; visited Oct. 2, 2001) (advising users to investigate a site's completeness, along with its author and publisher, source of data, language, accuracy, currency, coverage, archiving, workability, stability, user interactivity, cost, and licensing in order to evaluate its quality).

Are you at home in the middle of the night, and the Web your only option?

Are you at work, with a well-equipped library full of varied print and electronic resources?

Is the Web the only place to retrieve the information conveniently?

Do you seek law from a foreign country that might not be readily available another way?

Do you seek a U.S. Government agency publication that would involve a trip to a depository library or an interlibrary loan?

...

[R]eseachers should not only ask themselves whether the information is current and from a credible source, but also whether the site providing the information is the most suitable given the particular circumstances of the research project.²⁵

As these librarians have recognized, therefore, depending on the location of the researcher, the resources available to the researcher, and the researcher's informational needs, there are many instances in which using an Internet source for legal research may be entirely appropriate, but only when the researcher carefully evaluates the information and its source. As this study discovered, however, too often the courts have not been as cautious as the New York Court of Appeals, and many who have relied upon Internet research have apparently not used such evaluation criteria on the products of their research. While a judge (or her law clerk) may have worked at home in the middle of the night, the Web was not necessarily the only—or best—option available for sources to be cited in the final draft of that opinion.

25. *Id.*

IV. FEDERAL COURTS' DISCOVERY AND USE OF THE INTERNET

A. The Numbers

Justice David Souter has the distinction of being the first member of the federal appellate judiciary to cite Internet sources in a federal appellate opinion.²⁶ It was not until the next year, 1997, that anyone joined him. That year eleven cases, including one from the Supreme Court and several from scattered circuits, included a total of thirteen citations to sources on the Internet. As Table 1 below shows, each year the numbers have significantly increased, not just in the number of cases, but even more so in the number of specific citations. In 2001, the last full year of this study, federal courts issued 109 cases containing 176 separate citations to sites on the Internet. In the five years covered by this study, the courts issued a total of 236 opinions citing 361 distinct Internet sources.²⁷ Through the end of 2001, three circuits led all the others in the sheer number of cases and citations: the Third Circuit (twenty-four cases, forty citations); the Seventh Circuit (twenty-five cases, thirty-three citations); and the undisputed champion of Internet citation, the Ninth Circuit (thirty-seven cases, fifty citations). As of the end of July 2002, the trend showed no sign of slowing: A Westlaw search for the term "http" in databases for the Supreme Court and the Circuit Courts of Appeal revealed 113 cases for the first seven months of the year 2002; twenty-four of those cases were from the Ninth Circuit.

B. The Sources

The sources cited in these cases represent a broad sampling of the Internet's offerings. The greatest number of citations

26. *Denver Area Educ. Telecomm. Consortium, Inc. v. FCC*, 518 U.S. 727, 777 n. 4 (1996) (Souter, J., concurring) (citing two sources, <<http://www.usatoday.com/life/cyber/bonus/cb006.htm>> (describing cable modem technology) and <<http://www.gw2k.com/corp/info/press/1996/destin.htm>> (describing computer with both cable TV and Internet reception capability) (second web site no longer accessible)).

27. For a year-by-year, court-by-court breakdown, see Table 1, *infra*.

referred to federal or state governmental sites,²⁸ but the courts have also visited educational sites,²⁹ commercial sites,³⁰ and in a few instances, private sites.³¹ While many of the citations referred to the Internet materials simply for background information providing context or clarification, a number relied on the Internet materials for substantive factual information. The distinctions among these sources and their usage in the opinions are important. There may be little, if any, significance to a court's citation of a parallel source that may be more conveniently accessed than the original.³² Nor may there be much significance to a dissenting judge's citation of supporting statistics for an argument against the majority's ruling, as such statistics were apparently unconvincing.³³ When, however, a court purportedly bases its understanding of the law or the law's

28. Federal and state governmental sites represented roughly forty-two per cent of the web sites cited in the appellate opinions (150 out of 361 citations). Of those government sites, none was more popular than that of the Census Bureau, whose web pages were referenced sixteen times.

29. See e.g. *Jenkins v. Missouri*, 216 F.3d 720, 730 n. 10 (8th Cir. 2000) (Heaney, J., concurring) (citing data for per-pupil expenditures in several Missouri school districts, as set out at <<http://www.oseda.missouri.edu/countypage>>) (web site no longer accessible); *Boeing Co. v. Cascade Corp.*, 207 F.3d 1177, 1184 n. 15 (9th Cir. 2000) (examining the concept of "causal overdetermination" and citing Yael Tamir, *Who Done It? Moral Responsibility for Collective Action* <<http://www.stthom.edu/cbes/zohar.htm>>) (web site no longer accessible); *U.S. v. Callarman*, 273 F.3d 1284, 1285 n. 1 (10th Cir. 2001) (defining "headshop," a drug-slang term, as set out at <<http://www.drugs.indiana.edu/slang/>>).

30. See e.g. *Project Hope v. M/V Ibn Sina*, 250 F.3d 67, 70 (2d Cir. 2001) (citing <<http://www.lillydiabetes.com/products/humulin.cfm>> for number of people worldwide who use specific medical product); *Gallagher v. Delaney*, 139 F.3d 338, 343 (2d Cir. 1998) (citing online J.C. Penney catalog as authority for sexual enhancements used by men and women) (web site no longer accessible).

31. See e.g. *Muscarello v. U.S.*, 524 U.S. 125, 144 n. 6 (1998) (Ginsburg, J., dissenting) (quoting the character Hawkeye Pierce from the television series M*A*S*H, "I will not carry a gun. . . . I'll carry your books, I'll carry a torch, I'll carry a tune, I'll carry on, carry over, carry forward, Cary Grant, cash and carry, carry me back to Old Virginia, I'll even 'hari-kari' if you show me how, but I will not carry a gun!" at <<http://www.geocities.com/Hollywood/8915/mashquotes.html>>); *U.S. v. Diaz*, 248 F.3d 1065, 1075 n. 5 (11th Cir. 2001) (describing criminal defendants as "Santeria priests" and citing an individual's personal web site for description of Santeria religion, found at <<http://www.seanet.com/~efunmoyiwa/ochanetold.html>>).

32. E.g. *U.S. v. Brown*, 250 F.3d 907, 919 n. 18 (5th Cir. 2001) (citing parallel source <<http://www.abanet.org/media/nclm>> for the *ABA Standards for Criminal Justice Fair Trial and Free Press*, Reporter's Key to ABA Standard § 8-3.2).

33. E.g. *U.S. v. Chapa-Garza*, 262 F.3d 479, 485 (5th Cir. 2001) (Barksdale, J., dissenting) (citing drunk driving statistics at <http://www.madd.org/stats/stat_gen.SHTML>) (web site no longer accessible).

application to case facts upon a source that cannot subsequently be located or confirmed, the significance of the citation to that source becomes more ominous. If present readers of the opinion cannot determine how much persuasive weight was or should be accorded to the unavailable source, they have little reason to place much confidence in the opinion's authoritativeness.

This study found many of the citations to web sites in the "facts" sections of the opinions, indicating that the Internet sources may have been integral to the controversy leading to litigation and the appeal.³⁴ Alternatively, they may have indicated sources that were cited by parties in their briefs or introduced as trial evidence,³⁵ sources that are in some way factually relevant to the underlying dispute.

In many instances, the Internet sources cited by judicial authors appear in footnotes to the opinion. This usage suggests that the sources are intended as merely judicial glosses, i.e., small explanatory notes put there to satisfy the curiosity of the reader who might want to know more,³⁶ although in other instances they seem more designed to subtly discredit a party's argument.³⁷

In some instances, however, appellate opinion writers appear to have indulged in a little fact-finding of their own, researching additional background material of a factual nature

34. Discussing a provision of the National Association of Securities Dealers' Code of Arbitration, the Eleventh Circuit quoted the pertinent language from the NASD web site as its source, adding, "The court regrets the need for the Internet citation; although the NASD Code plays a central role in this case, surprisingly none of the parties submitted the pertinent sections to be included in the record before us." *Dean Witter Reynolds, Inc. v. Fleury*, 138 F.3d 1339, 1341 n. 1 (11th Cir. 1998). Unfortunately, however, the web address cited by the court is no longer accessible.

35. *E.g. Becker v. FEC*, 230 F.3d 381, 400 (1st Cir. 2000) (Torruella, J., concurring) (on issue of political candidate's standing to challenge his exclusion from public debates due to, among other things, low public support, referring to eligibility requirements set out in Joint Appendix and citing Gallup Poll results at <<http://www.gallup.com/poll/releases/pr001023.asp>>) (web site not accessible to non-subscribers).

36. *See e.g. Cacique, Inc. v. Robert Reiser & Co.*, 169 F.3d 619, 621 n. 1 (9th Cir. 1999) (describing the U.S. market for "Hispanic cheese," and citing <<http://www.usda.gov:80/nass/PUBS/TODAYRPT/dary0199.txt>>) (web site no longer accessible).

37. *See e.g. Albertson v. Apfel*, 247 F.3d 448, 449 n. 1 (2d Cir. 2001) (rejecting argument that appellant had been married the requisite ten years to collect survivorship benefits, even though spouse died three days before their tenth anniversary, because the decade had included three leap days; the court noted that a year is actually 365¼ days and gave no extra credit for leap years, citing <<http://www.encyclopedia.com/articles/02150/MeasuresofTime.html>>) (web site no longer accessible).

by using the Internet. These latter citations are troublesome, not only because they may indicate an appellate court's reliance on material neither known to the trial court nor present in the trial court record,³⁸ but also because some of the cited sources are of questionable reliability.³⁹ Even where courts have cited Internet-available sources of traditional kinds of legal authority, many of these citations are troublesome as well, whether because the cited material has changed in content since the opinion was published, or because it has for whatever reason ceased to be accessible to present readers of the opinion.⁴⁰

C. Judicial Notice and Judicial Fact-Finding

The study for this Article also revealed that appellate courts have on occasion utilized Internet sources as authority for facts of which they are taking judicial notice. Under the Federal Rules of Evidence, a trial court can take judicial notice of an adjudicative fact⁴¹ that is "not subject to reasonable dispute in

38. See *Mar*, 2002 WL 1929481 at * 21. Justice Brown took particular issue with the court's willingness to look to its own research on the potential dangers of stun belts:

We are a court of review. The question for review here was whether the judgment of conviction must be overturned because defendant was required to wear a stun belt, and the answer is, we should have affirmed the judgment because no prejudice was shown. Full stop. The question in this case was not whether stun belts pose serious medical risks for persons with heart problems or other medical conditions, nor was it whether the current design of the stun belt could be improved upon. There is absolutely no evidence in the record bearing on these questions. In the absence of such evidence, we had two choices. We could have deferred to the Legislature, which can make law after hearing from distinguished experts on all sides of controversial issues. Or we could have waited for a case that raised these questions on an adequate record. Instead, the majority, rushing to judgment after conducting an embarrassing Google.com search for information outside the record, has tied the hands of the Legislature, to the likely peril of judges, bailiffs, and ordinary citizens called upon to do their civic duty.

Id. In a similar vein, see Judge Rymer's dissent in *Mendler v. Winterland Prod., Ltd.*, 207 F.3d 1119, 1125-26 (9th Cir. 2000), discussed *infra* at n. 55 and corresponding text.

39. See *infra* nn. 59-64 and accompanying text.

40. See Part V, *infra*.

41. Adjudicative facts are "the facts of the particular case." Fed. R. Evid. 201 Advisory Comm. Notes, 1972 Proposed Rules, Note to Subdivision (a). Legislative facts, in contrast, are "those which have relevance to legal reasoning and the lawmaking process, whether in the formulation of a legal principle or ruling by a judge or court or in the enactment of a legislative body." *Id.* Put another way, when a court finds facts that are pertinent to the case itself, i.e., "who did what, where, when, how, and with what motive or intent," such factfinding is adjudicative; a court uses legislative facts, however, "when it

that it is either (1) generally known within the territorial jurisdiction of the trial court or (2) capable of accurate and ready determination by resort to sources whose accuracy cannot reasonably be questioned.”⁴² For appellate courts taking judicial notice of facts, the reasoning is essentially the same as that articulated in the trial-level evidentiary rule. The Third Circuit, for example, has approved the taking of judicial notice at any stage of the proceedings, including appeal, “as long as it is not unfair to a party to do so and does not undermine the trial court’s factfinding authority.”⁴³ And similarly, the Second Circuit has ruled that “where adequate information is available for the taking of judicial notice, an appellate court should use such information.”⁴⁴

Certainly a number of federal appellate courts, citing web sites as their sources, have explicitly taken judicial notice of facts relevant to the factual dispute between the parties.⁴⁵ As

purports to develop a particular law or policy and thus considers material wholly unrelated to the activities of the parties.” *U.S. v. Gould*, 536 F.2d 216, 219-220 (8th Cir. 1976) (quoting 2 K. Davis, *Administrative Law Treatise* § 15.03, at 353 (1958)).

42. Fed. R. Evid. 201(b).

43. *In re Indian Palms Assoc., Ltd.*, 61 F.3d 197, 205 (3d Cir. 1995).

44. *U.S. v. Gonzalez*, 442 F.2d 698, 707 (2d Cir. 1970).

45. See *County of Suffolk v. First Am. Real Estate Solutions*, 261 F.3d 179, 190 n. 5 (2d Cir. 2001) (taking judicial notice of a pending bill before state legislature to amend state’s Freedom of Information Law, citing legislative web site); *U.S. v. Hassanzadeh*, 271 F.3d 574, 581 n. 2 (4th Cir. 2001) (taking judicial notice that change of country’s name from Persia to Iran did not indicate formation of new political state, citing U.S. Central Intelligence Agency, *World Factbook 2001* <<http://www.cia.gov/cia/publications/factbook/index.html>> and U.S. State Dept. Bureau of Public Affairs, *Background Notes: Iran* <<http://dosfan.lib.unc.edu/ERC/bgnotes/nea/iran9407.html>>); *Mendler v. Winterland Prod., Ltd.*, 207 F.3d 1119, 1121-23 & nn. 4, 12 (9th Cir. 2000) (taking judicial notice of the techniques used to render, and alter, photographic images, and citing, among other sources, Robert Leggat, *A History of Photography from its Beginnings till the 1920s* (1999), at <<http://www.kbnet.co.uk/rleggat/photo>> and *The Fake Detective* <<http://lairo.fluxlucre.com/detective/index.html>>); *Schaffer v. Clinton*, 240 F.3d 878, 885 n. 8 (10th Cir. 2001) (taking judicial notice of congressman’s margins of victory in reelection campaigns, citing *The Political Reference Almanac* (Anthony Quain, ed., 1999-2000 ed.), at <<http://www.polisci.com/almanac/legis/district/CO04.htm>> and final certified election returns from Colorado Secretary of State, at <http://www.sos.state.co.us/pubs/elections/elec_night.html>; web site no longer accessible); *Marsh v. Butler County, Ala.*, 268 F.3d 1014, 1049 n. 3 (11th Cir. 2001) (Tjoflat, J., dissenting) (arguing that court should take judicial notice of the location of hotel, citing the Internet *Mapquest* site and the print *Rand McNally Road Atlas* as authority); *U.S. v. Bervaldi*, 226 F.3d 1256, 1266 n. 9 (11th Cir. 2000) (judicial notice of the time of sunrise, as set out in web site of U.S. Naval Observatory, at <<http://aa.usno.navy.mil/AA/data/docs/RSONEYEAR.html>> (web site no longer accessible)); *Levan v. Capital Cities/ABC, Inc.*, 190 F.3d 1230, 1235 n. 12 (11th Cir. 1999)

commentator Neil Smith has argued, however, the standard enunciated in Rule 201 is not being met when the source cited in support of the judicially noticed fact can no longer be accessed or found.⁴⁶ A Colorado district court case, *Fenner v. Suthers*, demonstrates one judge's understanding of Smith's point, as the court rejected an invitation to take judicial notice of Internet content offered in support of a motion to dismiss a prison inmate's § 1983 action:⁴⁷

[M]erely citing to a web site and inviting others to visit the site does not satisfy [Federal Rule of Evidence 201's] requirement that the fact be "capable of accurate and ready determination"—at least where the *pro se* prisoner is denied any access to the web site, much less "ready" access. Putting to one side the problem of access, I doubt that a web site can be said to provide an "accurate" reference, at least in normal circumstances where the information can be modified at will by the web master and, perhaps, others. There is, in other words, the question of whether the defendants, the magistrate judge, the district judge, and any reviewing court are literally on the same page when they visit the site on different dates.⁴⁸

It is equally important for appellate courts to be on notice that the Internet citations in their opinions may not bring up the same material that the judicial authors viewed at the time they wrote the opinions. Bad as the possibility of change in the web content may be, the situation is worse when the referenced

(judicial notice of prime interest rate, based on data posted by Federal Reserve Board, at <<http://www.bog.frb.fed.us/releases/H15/data/d/prime.txt>> (web site no longer accessible)); *Reece v. U.S.*, 119 F.3d 1462, 1468 n. 10 (11th Cir. 1997) (taking "judicial notice of what the courts of appeals, the Sentencing Commission, the DEA, and NIDA have said about methamphetamine. Their commentary on the subject is essentially indisputable," citing Drug Enforcement Admin., U.S. Dept. of Justice, *Methamphetamine: A Growing Domestic Threat* <<http://www.usdoj.gov/dea/pubs/meth/threat.htm>> and National Institute on Drug Abuse, *Facts About Methamphetamine* <http://165.112.78.61/NIDA_Notes/NNVol11N5/Tearoff.html>).

46. Neil A. Smith, *Can Courts Take Judicial Notice of Internet Content?* 669 PLI/Pat [Practising Law Institute Patents, Copyrights, Trademarks and Literary Property Court Handbook Series] 467, 471-72 (Nov. 2, 2001).

47. *Fenner v. Suthers*, 194 F. Supp. 2d 1146 (D. Colo. 2002) (denying prison officials' motion to dismiss and holding that movants' request that court take judicial notice of Internet sites concerning treatment of hepatitis C did not satisfy Federal Rule of Evidence 201).

48. *Id.* at 1148-49.

authority for judicial notice is not even accessible at all.⁴⁹ Unless and until a permanent repository of Internet web pages is created, however, no author can ever be completely assured that the site she has found on the World Wide Web today will be there, or be the same, tomorrow.⁵⁰ The problem of impermanence is therefore the same for trial and appellate courts, and appellate courts' reliance on changing web sites must be subject to the same fears and criticisms leveled by Neil Smith and by the *Fenner* court.

The *Fenner* court was also troubled by the movants' assumption that the proffered Internet evidence was sufficiently authoritative for the court's judicial notice:

[T]he court has substantial doubt, on this record, that the information constitutes admissible evidence. Although the court has certainly heard of the National Institute of Health, I am unsure what it is, what it does, and what connection, if any, it has to the federal government. Further defendants and the magistrate judge have wholly omitted to explain whether NIH sponsors, endorses, collects, or simply provides the information on the web sites. Finally, most of the information cited is expert opinion and/or hearsay, and it is simply not clear whether there is any foundation for its admission.⁵¹

When the proffered evidence is found on a governmental Internet site, however, at least one appellate court considers such a source sufficiently reliable and accessible. Taking judicial

49. *E.g. Levan v. Capital Cities/ABC, Inc.*, 190 F.3d 1230 (11th Cir. 1999) (citing Federal Reserve statistics at <<http://www.bog.frb.fed.us/releases/H15/data/d/prime.txt>>) (web site no longer accessible).

50. Efforts to create some kind of permanent archive of the Internet are presently in the works, although one must question anyone's ability to truly preserve what promises to be a Saganesque number ("billions and billions") of web pages. Nonetheless, the Internet Archive, a public nonprofit organization, describes its mission as "build[ing] an 'Internet library,' with the purpose of offering permanent access for researchers, historians, and scholars to historical collections that exist in digital format." *The Internet Archive* <<http://webdev.archive.org/about/about.php>> (visited July 1, 2002). The organization does not identify with precision what its library will encompass.

For a good discussion of the issues inherent in digital archiving, a topic that is outside the scope of this article, see Kunsch, *supra* n. 16, at 770-78. For a good discussion of the importance of digital archiving, see Deirdre K. Mulligan & Jason M. Schultz, *Neglecting the National Memory: How Copyright Term Extensions Compromise the Development of Digital Archives*, 4 J. App. Prac. & Process 451 (2002).

51. *Fenner*, 194 F. Supp. 2d at 1149.

notice of the existence of the Federal Home Loan Bank Board by reference to its web site, the Louisiana Court of Appeal opined that it saw “no reason why a government Internet site should not be considered as much an official government document as any printed pamphlet or other materials. Internet sites are available to the general public, as much or more than a document or book in a law library.”⁵² One can only surmise that the Louisiana court found what it was looking for and did not encounter any dead or erroneous links to governmental sites. Researchers following links in many federal appellate opinions will not be so lucky.⁵³

Even when cited sources remain on the Internet unchanged, however, some question whether appellate courts have overstepped their roles when they use Internet sources to bolster their understanding or interpretation of the case facts at issue. In *Mendler v. Winterland Production, Ltd.*,⁵⁴ the dissenting judge severely criticized the majority’s reliance on “two web sites, one computer software user’s guide, one book, two dictionary definitions, and six newspaper or magazine articles—none of which was referred to, introduced, validated, used or argued in the district court or to [the appellate panel].”⁵⁵ In *United States v. Brown*,⁵⁶ the dissenting judge (with no comment by the majority) indulged in some personal fact-finding when he used the Internet’s commercial map service Mapquest to take issue with record testimony about the location of the crime.⁵⁷ In another case involving some question of location, the dissenting

52. *Natl. Info. Servs., Inc. v. Gottsegen*, 737 So. 2d 909, 916 n. 1 (La. App. 5th Cir. 1999).

53. See Part V, *infra*.

54. 207 F.3d 1119 (9th Cir. 2000).

55. *Id.* at 1125 (Rymer, J., dissenting).

56. *U.S. v. Brown*, 159 F.3d 147 (3d Cir. 1998).

57. *Id.* at 150 & n. * (Rendell, J., dissenting). The dissent explained that “Mr. Brown was merely near the wrong place at the wrong time. The evidence established that, at 1:30 a.m., the defendant and four other males were spotted walking south on Belvedere and turned onto Princess Street, ‘one block over’ from the area of 700 West King Street, where the shootings were reported to have occurred.” *Id.* When this judge consulted Mapquest, however, he found “a street map of York City [that] shows the relevant portion of West King Street to be separated from Princess Street by several streets—Light Alley, West Poplar Street, and School Place,” *id.* at n. * (citing Mapquest, <[http://city.net/cgi/maps\\$](http://city.net/cgi/maps$)>), even while observing that the only evidence *in the record* was “the officer’s statement as to the geographic layout of the area,” *id.* (emphasis added).

judge found different information when she asked competing Internet map sites to find an address:

While someone consulting the Internet map source MapQuest (<http://www.mapquest.com>) would find only South Martin Luther King, Jr. Drive between South 17th Street and South 19th Street, the alternative map source MapBlast! (<http://www.mapblast.com>) shows the exact same street as 18th Street.⁵⁸

As the *Mendler* dissent observed, when an appellate court goes outside the record to determine case facts—or as in the last illustration, to create factual discrepancies—it ignores its function as a court of review, and it substitutes its own questionable research results for evidence that should have been tested in the trial court for credibility, reliability, accuracy, and trustworthiness.

Apart from whether it is appropriate for an appellate court to look outside the record in this manner, one must also question the practice of using the Internet for research of legislative facts, particularly when the sources cited are of questionable reliability.⁵⁹ For example, in an illegal gambling forfeiture case, the Eleventh Circuit cited a private individual's web site as authority for its pronouncement that the sport in question, cockfighting, is banned in most states but remains legal in Louisiana, Oklahoma, and parts of New Mexico.⁶⁰ While the information on the Geocities site *may* have been accurate, it was not authoritative; the person who posted that page could just as easily have claimed that ten states permitted cockfighting, or that it had been uniformly banned across the United States. It would likely have taken longer for the judge's law clerk to research state law using traditional means, but if it is true that cockfighting has been banned as stated, primary authority exists to prove that claim. Nothing in the opinion addresses the reliability of the nonlegal source the court elected to use,

58. *U.S. v. Harris*, 271 F.3d 690, 708 n. 1 (7th Cir. 2001) (Diane P. Wood, J., dissenting).

59. *Fenner v. Suthers*, 194 F. Supp. 2d 1146 (D. Colo. 2002) (refusing to dismiss inmate's § 1983 action, where court was asked to take judicial notice of Internet sites concerning hepatitis C as evidence of officials' appropriate medical treatment of inmate).

60. *U.S. v. Land, Winston County*, 221 F.3d 1194, 1196 n. 4 (11th Cir. 2000) (citing <<http://www.geocities.com/Wellesley/Atrium/2224/CockfightingQA.html>>; web site no longer accessible).

however, and the Geocities web site is no longer accessible for researchers to determine what sources, if any, it names for its pronouncements on cockfighting. Fortunately for this case, it only mattered that cockfighting was illegal in Alabama, and the court did cite the Alabama Code provision that outlawed it.⁶¹

Another dubious reliance on web site resources is displayed in *Brindisi v. Regano*,⁶² where in addressing the appellants' first contention, that contrary to the district court's ruling, cheerleading is a sport, the Sixth Circuit not only referred to an article in an online magazine for its authority that cheerleading outranks many men's sports in its rate of injuries⁶³ but also observed that "[t]he internet portal yahoo.com lists 'cheerleading' under its category 'sports.'"⁶⁴ The *Brindisi* court ultimately decided the case without having to reach the cheerleading-as-sport issue,⁶⁵ but had that issue turned out to be necessary to the outcome, one wonders whether the court would have found or cited more authoritative sources.

The Internet sources in the foregoing cases represent only a small fraction of the federal appellate bench's use of Internet sources, yet they amply illustrate the risk that courts take when they unthinkingly rely on the products of quickie research produced by a web search engine.

61. *Id.* at 1196 n. 3 (quoting Ala. Code § 13A-12-4: "Any person who keeps a cockpit or who in any public place fights cocks shall, on conviction, be fined not less than \$20.00 nor more than \$50.00.")

62. 20 Fed. App. 508, 2001 WL 1216956 (6th Cir. Oct. 5, 2001) (affirming dismissal of Title IX gender discrimination suit by student who failed to earn a spot on the junior varsity cheerleading squad).

63. *Brindisi*, 20 Fed. App. at 510 n. 1, 2001 WL 1216956 at *2 n. 1 (citing <<http://www.americancheerleader.com>>; specific reference unavailable at web address).

64. *Brindisi*, 20 Fed. App. at 510 n. 1, 2001 WL 1216956 at *2 n. 1.

65. The court explained,

Plaintiffs sought to have cheerleading treated as a sport to benefit from those cases which have held that participation in an interscholastic sport is a property right, which would enable her to argue that the use of anonymous teacher evaluations constitute an arbitrary and capricious denial of that right and therefore violated her substantive due process rights. While there are many arguments pro and con on why cheerleading should be considered a sport, [here the court inserted its footnote references to the Internet sites] we need not decide that issue here because [the student] has neither a liberty nor a property interest in interscholastic athletics subject to due process protection.

Brindisi, 20 Fed. App. at 510, 2001 WL 1216956 at *2.

V. CONFRONTING THE IMPERMANENCE OF THE INTERNET

Many cited sources cannot be located using the URL⁶⁶ provided in the judicial opinion. Others have labeled this phenomenon of web site disappearance as “link rot.”⁶⁷ Observing that “footnote citations are a hallmark of legal scholarship,”⁶⁸ law librarian Mary Rumsey has found in Internet citations from law review articles she has sampled the same disturbing trends of impermanence and instability documented by research in other disciplines.⁶⁹ Rumsey’s study found that only 30.27 per cent of the Internet citations used in law review articles in 1997 still directly accessed the cited material, while links in articles published as recently as 2001 had only a 61.80 per cent rate of stability.⁷⁰ Particularly striking is her observation that “[i]ronically, authors who cite Web sites instead of paper sources probably think they are making their sources more available to readers, rather than less.”⁷¹

The instability of Internet citations in federal judicial opinions is just as bad as in law reviews, as this study shows. In comparison to Rumsey’s figures, this study found 84.6 per cent of the Internet citations in cases from 1997 to be inaccessible, or to use her stability indicator, just 15.4 per cent of the links still accessed the cited materials. Even more alarming, 34.0 per cent of the all the citations in 2001 were already inaccessible; again

66. “URL” stands for Uniform Resource Locator, the unique address for each internet site.

67. See Mary Rumsey, *Runaway Train: Problems of Permanence, Accessibility, and Stability in the Use of Web Sources in Law Review Citations*, 94 L. Lib. J. 27, 30 n. 21 (2002) (attributing the term “link rot”—“the problem of links that lead the reader to defunct sites”—to Howard A. Denmark, *The Death of Law Reviews Has Been Predicted: What Might Be Lost When the Last Law Review Shuts Down?* 27 Seton Hall. L. Rev. 1, 32 n. 77 (1996)); Vincent Kiernan, *Nebraska Researchers Measure the Extent of “Link Rot” in Distance Education*, available at <<http://chronicle.com/free/2002/04/2002041001u.htm>> (visited May 14, 2002) (studying the problem of bad links in undergraduate distance education web sites, Kiernan reports, “[T]he rate of link rot is similar to that of the decay of radioactive substances.”).

68. Rumsey, *supra* n. 67, at 28.

69. *Id.* at 29 nn. 15, 16 (citing Wallace Koehler, *An Analysis of Web Page and Web Site Constancy and Permanence*, 50 J. Am. Soc. Info. Science & Tech. 161, 172 (1999); Philip M. Davis & Suzanne A. Cohen, *The Effect of the Web on Undergraduate Citation Behavior 1996-1999*, 52 J. Am. Soc. Info. Science & Tech. 309, 310-11 (2001)).

70. Rumsey, *supra* n. 67, at 35, tbl. 1.

71. *Id.* at 34.

using Rumsey's stability index, just 66.0 per cent were still good. The most distressing statistics came from the Third Circuit Court of Appeals, 70.0 per cent of whose Internet citations were inaccessible, with the bulk of those citations appearing in opinions issued in 2000 and 2001.⁷² The irony is that Internet citation instability is as big a problem for recent opinions as for older ones.

If the problem is merely that an inaccessible web site's content has been updated, altered, or moved, or that the URL has been incorrectly rendered, one could argue that the reader of the opinion, using her own research skills, simply ought to conduct a little Internet research to find the misplaced site. Perhaps, but that argument ignores the basic function of a citation—to permit readers to easily locate the precise source referenced by an author. Moreover, this argument ignores a more pervasive problem with Internet sources, their instability, which has its basis in a number of possibilities. The unavailable citations to web sites identified by this study fell into several categories: (1) those in which the content had evolved into something different from that originally cited; (2) those in which the content had migrated to a new location; (3) those in which the content had vanished; (4) those requiring subscriptions or passwords for access; and (5) those whose citations contained spelling, typographical, transcription, or editing errors.

A. Evolving Content

Unless the material posted on a web site is dated (and then left unchanged), the researcher cannot be sure that what she is viewing on the web is the same thing the court looked at when it consulted the site. Many web documents are in fact displayed in such "permanent" fashion, although they may easily be taken down at any time by the site's owner. Those who would use Internet materials for reference authority should realize, however, that the commercial nature of so much of the Internet profoundly affects the rest of the medium and the rising expectations of the medium's users. To keep the customers

72. Twenty-two of twenty-eight Internet sites cited by the Third Circuit in 2001 and 2000 were not accessible at the time of the author's research and confirmation of web sites, a disturbing 78.5 per cent.

coming back, web site designers continually look for ways to improve their sites, whether by making cosmetic changes to the site's overall look, by adding new interactive features for users, or by updating the site's content. Just as the contents of store windows in a shopping mall are changed to reflect the arrival of new merchandise and to entice shoppers to step inside, so are many web sites frequently redesigned to keep the attention of those who frequent them and to improve a site's user-friendliness. Nor are the changes always merely cosmetic or utilitarian. The content of a web site can undergo dramatic revision when its authors or owners determine that it needs significant updating, revision, or correction.

The ease with which web site content can be modified or completely replaced is a feature that many Internet users may not realize. Some see what they deem advantages to this aspect of the Internet, particularly with regard to the publication of legal theory and scholarship. Arguing for members of the legal academy to self-publish their research on the Internet instead of in law reviews, one law professor advises the academy that

[i]n the wake of online publication in particular, we can conveniently revise, update, improve (and, if necessary, correct) our work without having to seek the assistance or approval of any middleman.⁷³

Unlike a supplement or follow-up article, however, which would be separately published and which could not erase the existence of the original work, such web-published scholarship need not in any way indicate it ever existed in any other form or that it has evolved since it was originally posted. The very reason for the middlemen, like law review editors and publishers, is to provide the kind of editorial oversight and review that enhance a work's authoritativeness and credibility, the kind of oversight that is too often not available for Internet resources, as described in Part III above. One may rightly fear that should more scholars self-publish, they will diminish the regard now generally reserved for such work, forgetting that traditional law reviews have for the most part been a well-regarded form of secondary authority.

73. Bernard J. Hibbitts, *Yesterday Once More: Skeptics, Scribes and the Demise of Law Reviews*, 30 Akron L. Rev. 267, 276 (1996).

While courts cannot prevent web site administrators from changing the content of a web site, they must at the very least be aware of the phenomenon and strive to cite authority in its most permanent manifestation, even if that means resorting to a book or periodical in traditional print format, using the Internet source simply as a convenient parallel citation.

B. Migrating Content

Migrating content presents a different sort of hurdle for the researcher. The cited content still exists, but it has been moved elsewhere in the web site, or in some instances, has been moved to a new web domain.⁷⁴ In the best situations, the web site administrator provides an automatic redirecting link that whisks the researcher to the new location without requiring any more clicking or typing on the researcher's part.⁷⁵ Next best is a new link for the sought-after web page, which also alerts the researcher to the fact that the desired content has migrated elsewhere. Worst are sites that offer no more than a table of contents or an internal search window, thus forcing the researcher to guess at the location where the desired materials may now reside. For example, the State Department's web site advises searchers for one URL that

74. One federal judge doubtless figured this out when he had to change his reference source for a favorite line when the case was reheard by the court en banc: "Our system of justice does not allow for the position taken by the notorious Crusader general, 'kill them all, God will know his own.'" *Devereaux v. Perez*, 263 F.3d 1070, 1083 n. 1 (9th Cir. 2001) (Kleinfeld, J., concurring in part and dissenting in part) (citing *Albigensian Crusade*, <<http://crusades.boisestate.edu/Albi/>>). The same quotation appeared in Judge Kleinfeld's dissent to the earlier panel decision, *Devereaux v. Peréz*, 218 F.3d 1045, 1063 n. 35 (9th Cir. 2000), but the cited source is no longer accessible at the address set out in the earlier opinion, <<http://crusades.idbsu.edu/Albi/>>.

75. For example, the U.S. Census Bureau informs visitors to one of its now-unavailable pages that "[t]he page your [sic] are looking for has moved to <http://eire.census.gov.popest/archives/1990.php>. You will automatically be sent there in 15 seconds, or you may click on the link to go there immediately." Error message for web site <<http://www.census.gov/population/www/estimates/puerto-rico.html>>, cited in *De La Rosa v. U.S.*, 229 F.3d 80, 86 n. 4 (1st Cir. 2000). Lest one think that the Census Bureau is more accommodating than most, however, another failed link tells the researcher, "The requested document does not exist on this server. The link you followed is either outdated, inaccurate, or the server has been instructed not to let you have it." Error message for web site <<http://www.census.gov/statab/ranks/pr01.txt>>, cited in *U.S. v. Beck*, 140 F.3d 1129, 1137 n. 2 (8th Cir. 1998).

[t]he State Department web site below is a permanent electronic archive of information released prior to January 20, 2001. Please see <http://www.state.gov/> for material released since President George W. Bush took office on that date. This site is not updated so external links may no longer function. Contact us with any questions about finding information.⁷⁶

Less skillful (or more unlucky) researchers may conclude that the cited materials no longer exist, when in fact they are still there, just hiding. Although the solution to the migrating link lies in the hands of web site administrators, who should create redirecting links for all web content that they have taken down or moved, judicial authors can help later researchers by including full titles of the web pages and descriptive parentheticals that summarize a site's content.

C. Vanished Content

In the case of content that has truly been removed from the web site, researchers encounter several variations. Some web sites provide nothing more than a blunt message telling the searcher that "the address you are looking for does not exist."⁷⁷ Other sites acknowledge that the requested web page may have existed at that address in the past, but few provide any specific information about the site or the reason for its disappearance. For example, the author's attempt to access a web page from the Immigration and Naturalization Service produced few clues to its disappearance:

The page you requested, <http://www.ins.usdoj.gov/stats.illegalalien/>, is not on our site. The page you asked for might have been on our site before our August 1999 reorganization. Please look for related information at

76. Error message for web site <http://www.state.gov/www/policy_remarks/2000> (visited April 14, 2002), cited in *Lin v. INS*, 238 F.3d 239, 245 (3d Cir. 2001). The information referenced by this case is now even more difficult to locate, however, because now even the error-message page is unavailable.

77. The citation that elicited this error message came from *Fletcher v. Price Chopper Foods of Trumann, Inc.*, 220 F.3d 871, 878 (8th Cir. 2000) (citing the 1999 Food & Drug Administration Model Food Code ¶ 2-201.12(A), at <<http://vm.cfsan.fda.gov/dms/fc99-toc.html>>).

/graphics/aboutins/statistics/. You may also find related information by starting at the INS Home Page.⁷⁸

These examples illustrate that judicial authors should not feel comfortable about citing governmental Internet sites any more than other kinds of Internet sites, at least when it comes to permanence.⁷⁹

D. Restricted Access and Overbroad Reference

One of the most frustrating categories of inaccessible Internet citations leads the researcher to a web site, but will not let her retrieve the cited material. For example, some courts have cited Internet sources that cannot be accessed by those who neither subscribe nor possess passwords to the sites' content. Two cases cite data from Gallup polls;⁸⁰ the cited data cannot be viewed, however, unless the researcher is a subscriber to the site. Other courts have referenced specific Internet sites but have failed to include the complete URL needed to pull up the cited materials.⁸¹

It is puzzling why a court would choose to cite—or incompletely cite—such sources, particularly when its own

78. Error message posted for site *INS Statistics: Illegal Alien Resident Population* <<http://www.ins.usdoj.gov/stats/illegalalien>>, cited in *U.S. v. Nichols*, 142 F.3d 857, 861 (5th Cir. 1998).

79. In August 2001, the author met Frank Wagner, the Reporter for the United States Supreme Court. As they discussed her research for this article, Mr. Wagner told her about preparing one of the Court's opinions for official publication, including his bad luck in trying to access some vanished web pages from the Georgia State Board of Pardons and Paroles. Wielding more influence than most of us can summon, Mr. Wagner was able to prevail upon the site administrator to temporarily restore the missing web pages, at least until he could check their content. Unfortunately, the pages came down again once the opinion was published. See *Garner v. Jones*, 529 U.S. 244, 262 n. 2, 264 n. 5 (2000) (Souter, J., dissenting) (citing <http://www.pap.state.ga.us/pr_98.html>, <http://www.pap.state.ga.us/pr_99.html>, and <<http://www.pap.state.ga.us/Decisions.htm>>).

80. See *Becker v. FEC*, 230 F.3d 381, 400 (1st Cir. 2000) (Torruella, J., concurring) (citing <<http://www.gallup.com/poll/releases/pr001023.asp>>); *Neill v. Gibson*, 278 F.3d 1044, 1067 (10th Cir. 2001) (citing <<http://www.gallup.com/poll/releases/pr010604.asp>>).

81. See e.g. *Erickson v. Bd. of Governors of St. Colleges & Us. for N.E. Ill. U.*, 207 F.3d 945, 957-958 nn. 3, 4, & 5 (7th Cir. 2000) (Diane P. Wood, J., dissenting). Each of the footnotes sets out quite detailed statistical data from such governmental entities as the Department of Education, the Centers for Medicare and Medicaid Services, and the Bureau of Transportation Statistics, but the URLs are truncated and there is insufficient information about the cited studies and reports for a researcher to retrieve them using the sites' search engines.

opinion will be published and thus in the public domain. Such citations are analogous to telling a researcher that the book he wants is in the library, but that he either won't be allowed into the room where it's kept or that he is free to look on all the shelves for the book, but he can't have its call number. One explanation for these kinds of citations, although an unsatisfactory one, is that the judicial author has chosen his own convenience over the needs of later readers of the opinion. Surely such material exists in another more accessible or traditional format, although it may require more research effort on the part of the court or its clerks to cite it properly.

E. Mis-cited Content

Another inexcusable cause of web address inaccessibility stems from inaccurate or incomplete citation of the URLs. Someone's poor editing is to blame, but it is unclear whose. The judicial author's? A judicial clerk's? A West or Westlaw editor's? Could the citation have originated in an advocate's brief and then been borrowed for the opinion? Mis-cited content is primarily due to typographical errors, whether in spacing, in punctuation, or in the use (or sometimes, absence) of slashes, hyphens, and underlining. An author may wrongly assume that a web site's suffix is .com, when in fact it is .org (or another suffix). Similarly, assuming that the web address begins with www can lead to errors in rendering the address. A single misplaced character will almost always destroy the accuracy of a URL.

When the URL is wrongly rendered, the later researcher who wants to access the source may not be able to find it at all, or if he is successful, it may only be after wasting much of his own time in trial and error. In traditional citation systems, the redundancies inherent in the format help a user to locate a source, even if part of the citation contains an error. That is why case citations contain not only the volume, reporter, and page designations (which if correct are all one really needs to obtain the case), but also the case name (to let the researcher use Plaintiff/Defendant tables if necessary), the name of the issuing court, and the date of decision. Much as many of us hated

having to construct them, there remains something good to be said about parallel citations.

Regardless who made the error initially, it should have been caught and corrected in a later editing stage. Checking the citation is as easy as copying it and pasting it into a browser address window. If the intended source appears, then the citation is correct. If it does not, then the editor of the opinion should check the opinion-writer's research, even if those persons are one and the same. If the source is important enough to cite, it is important enough to be cited accurately.

VI. CONCLUSION

It is still early—if not impossible—to predict all the ways in which the legal community will use the Internet or what new resources, products, and services the Internet will inspire. As this study discovered, no federal appellate court had even cited an Internet source before 1996. The climbing rate of citation in the five years following Justice Souter's first Internet citation proves, however, that courts have found the Internet to be an increasingly useful and easy research tool. Even apart from the steep upward curve in citation that this study discovered, though, other forces are also strongly pulling courts toward the Internet. A number of courts, both state and federal, have begun to implement electronic filing.⁸² Once the kinks are worked out, it is possible that a paperless litigation system will become the norm.⁸³ Several courts already permit parties to file CD-ROM

82. One court's experience with e-filing is described in Deborah Leonard Parker, *Electronic Filing in North Carolina: Using the Internet Instead of the Interstate*, 2 J. App. Prac. & Process 351 (2000).

83. Or maybe not. Ninth Circuit Judge Alex Kozinski may have many colleagues sympathetic to his response to electronic briefing:

This will not make things any easier for us. Instead, it will make things harder—it's already begun. And I haven't even gotten into the esoteric but vexing problems posed by inconsistent font-height settings on different printers, which throws off the pagination so that your page 6 looks like my pages 8-9. If I am right that electronic documents simply are not an adequate substitute for the paper kind, what you will have is short-staffed courts having to take on the burden of printing and binding documents—a job previously done by lawyers. Or, you'll have much slower processing of cases, as judges and their staffs try to navigate through large chunks of e-documents with the speed and agility of one-legged chickens.

Alex Kozinski, *They Call It Paper Love*, 6 e-Filing Report (June 2001).

briefs containing internal hyperlinks to all sources cited therein, whether record references, cases, statutes, rules, or other kinds of authority.⁸⁴ All the sources are downloaded to the CD-ROM, and should the judge reading the brief wish to see the cited material, it is only a click away. Will Internet-linked briefs be next? The technology probably already exists to produce them. As the appellate bench and bar make these tools part of their everyday work habits, the temptation to surf the Web for whatever is needed will be strong. Therefore, it is critical that courts, appellate advocates, their clerks, and their staffs look critically at their research habits and develop better judgment for selecting reliable Internet reference sources.

Those who use the Internet for legal and nonlegal research should apply the same evaluation criteria to the sources they select as they would apply to more traditional media. They should satisfy themselves that (1) the material has been written or published by an authoritative entity or person;⁸⁵ (2) the material has been subjected to some form of peer review or editorial oversight to ensure its accuracy and currency;⁸⁶ and (3) the material is stable and likely to remain accessible using the citation the author employed in originally visiting the site.

Citations should be carefully reproduced and then confirmed. The strings of sometimes nonsensical characters or numbers do not have to be hand-transcribed; as described above, they can be cut and pasted from a browser's address window—doing so will ensure that a later reader of the opinion will be able to get to exactly the same source the judge viewed and used. If a subsequent reader must take additional steps within a web site to access the information, those steps should be

84. For a good overview of the capabilities and limitations of the CD-ROM brief, see Marilyn Devin, *The CD-ROM Brief: Are We There Yet?* 2 J. App. Prac. & Process 377 (2000).

85. E.g. *Sourcebook of Criminal Justice Statistics 1998* [Online] <<http://www.albany.edu/sourcebook>> (Kathleen Maguire & Ann L. Pastore, eds.), cited in *U.S. v. Moody*, 206 F.3d 609 (6th Cir. 2000); American Red Cross web site, <<http://www.bloodct.org/plasma.htm>>, cited in *U.S. v. Williams*, 258 F.3d 669 (7th Cir. 2001).

86. E.g. *Oxford English Dictionary* [Online] <<http://www.oed.com>>, cited in *Dils v. Small*, 260 F.3d 984 (9th Cir. 2001); Uniform Computer Information Transactions Act, <<http://www.law.upenn.edu/bll/ulc/ucita/ucitaFinal00.pdf>>, cited in *Rhone-Poulenc Agro, S.A. v. DeKalb Genetics Corp.*, 271 F.3d 1081 (Fed. Cir. 2001), *vacated and superseded on reh'g*, 284 F.3d 1323 (Fed. Cir. 2002), *pet. for cert. filed*, 71 U.S.L.W. 3137 (Aug. 5, 2002).

described in a sentence or parenthetical accompanying the citation.

All citations should indicate the date the author accessed the Internet source.⁸⁷ That way, if a site or page is later taken down, the reader will at least know that it existed on the cited date. This information may be critical in locating the desired material, particularly if the web site has an internal search function and archives its older materials. At the very least, the author ought to keep on file a copy of the page in print.⁸⁸

Courts and appellate attorneys must recognize and remember that the Internet is by its nature and design an ever-changing, not a static, medium. We cannot stop webmasters from revising the sites they manage, even if some of us have sufficient influence to temporarily affect the content. We should ensure that not only we, but also our law clerks and staffs, learn how to evaluate and select authoritative, reliable, and stable sources.

It is one thing for law review articles to rely too heavily on questionable sources. It is quite another for courts to do so. The case law handed down by appellate courts, for the published opinions at least, is the primary authority that others will rely upon tomorrow. Even dicta and non-majority opinions can provide the inspiration for someone's good faith argument to change the law at a later date. Case law authority is built on the foundations laid down by judicial authors. Those foundations deserve to be solid and visible to those who will later learn from and add to that body of law.

87. The leading citation manuals, the ALWD Citation Manual and the Bluebook, require such information as part of a full citation to an Internet source.

88. For example, on at least one occasion, the Supreme Court has indicated that it will keep copies of now-unavailable materials at the Clerk's Office. See *e.g. Apprendi v. New Jersey*, 530 U.S. 466, 551 (2000) (O'Connor, J., dissenting) ("In 1998, for example, federal criminal prosecutions represented only about 0.4% of the total number of criminal prosecutions in federal and state courts. See National Center for State Courts, A National Perspective: Court Statistics Project (federal and state court filings, 1998), <http://www.ncsc.dni.us/divisions/research/csp/csp98-fscf.html> (showing that, in 1998, 57,691 criminal cases were filed in federal court compared to 14,623,330 in state courts) (available in Clerk of Court's case file).")

Table 1. Number of Cases, Citations, and Unavailable Sources by Court and by Year.

Court	1996	1997	1998	1999	2000	2001	Totals
U.S. Supreme	1 case 2 cites 1 n/a	1 case 1 cite 1 n/a	1 case 2 cites 1 n/a	2 cases 2 cites 1 n/a	6 cases 9 cites 5 n/a	3 cases 9 cites 0 n/a	14 cases 25 cites 9 n/a (36%)
1st Circuit	0 cases 0 cites 0 n/a	1 case 1 cite 1 n/a	1 case 1 cite 1 n/a	1 case 1 cite 0 n/a	2 cases 4 cites 2 n/a	4 cases 16 cites 2 n/a	9 cases 23 cites 6 n/a (26%)
2d Circuit	0 cases 0 cites 0 n/a	0 cases 0 cites 0 n/a	1 case 1 cite 1 n/a	2 cases 2 cites 1 n/a	3 cases 13 cites 3 n/a	12 cases 15 cites 8 n/a	18 cases 31 cites 13 n/a (42%)
3d Circuit	0 cases 0 cites 0 n/a	1 case 1 citation 1 n/a	2 cases 2 cites 2 n/a	3 cases 6 cites 3 n/a	9 cases 13 cites 7 n/a	9 cases 18 cites 15 n/a	24 cases 40 cites 28 n/a (70%)
4th Circuit	0 cases 0 cites 0 n/a	0 cases 0 cites 0 n/a	3 cases 4 cites 3 n/a	1 case 1 cite 1 n/a	1 case 3 cites 0 n/a	3 cases 5 cites 2 n/a	8 cases 13 cites 6 n/a (46%)
5th Circuit	0 cases 0 cites 0 n/a	1 case 2 cites 2 n/a	4 cases 7 cites 4 n/a	1 case 9 cites 6 n/a	2 cases 3 cites 3 n/a	6 cases 7 cites 1 n/a	14 cases 28 cites 16 n/a (57%)
6th Circuit	0 cases 0 cites 0 n/a	0 cases 0 cites 0 n/a	0 cases 0 cites 0 n/a	1 case 1 cite 0 n/a	5 cases 6 cites 2 n/a	6 cases 11 cites 2 n/a	12 cases 18 cites 4 n/a (22%)
7th Circuit	0 cases 0 cites 0 n/a	1 case 1 cite 1 n/a	0 cases 0 cites 0 n/a	5 cases 5 cites 3 n/a	8 cases 10 cites 7 n/a	11 cases 17 cites 3 n/a	25 cases 33 cites 14 n/a (42%)
8th Circuit	0 cases 0 cites 0 n/a	0 cases 0 cites 0 n/a	2 cases 2 cites 2 n/a	2 cases 4 cites 3 n/a	3 cases 4 cites 3 n/a	4 cases 5 cites 0 n/a	11 cases 15 cites 8 n/a (53%)
9th Circuit	0 cases 0 cites 0 n/a	1 case 1 cite 1 n/a	2 cases 2 cites 1 n/a	5 cases 6 cites 1 n/a	9 cases 11 cites 6 n/a	20 cases 30 cites 15 n/a	37 cases 50 cites 24 n/a (48%)

10th Circuit	0 cases 0 cites 0 n/a	0 cases 0 cites 0 n/a	2 cases 3 cites 2 n/a	1 case 1 cite 1 n/a	1 case 2 cites 0 n/a	15 cases 20 cites 9 n/a	19 cases 26 cites 12 n/a (46%)
11th Circuit	0 cases 0 cites 0 n/a	3 cases 4 cites 2 n/a	2 cases 2 cites 1 n/a	3 cases 4 cites 2 n/a	6 cases 8 cites 5 n/a	5 cases 7 cites 1 n/a	19 cases 25 cites 11 n/a (44%)
D.C. Circuit	0 cases 0 cites 0 n/a	2 cases 2 cites 2 n/a	2 cases 3 cites 2 n/a	4 cases 6 cites 5 n/a	5 cases 5 cites 3 n/a	6 cases 11 cites 2 n/a	19 cases 27 cites 14 n/a (52%)
Fed. Circuit	0 cases 0 cites 0 n/a	0 cases 0 cites 0 n/a	0 cases 0 cites 0 n/a	0 cases 0 cites 0 n/a	2 cases 2 cites 0 n/a	5 cases 5 cites 0 n/a	7 cases 7 cites 0 n/a (0%)
Totals	1 case 2 cites 1 n/a (50%)	11 cases 13 cites 11 n/a (85%)	22 cases 29 cites 20 n/a (69%)	31 cases 48 cites 27 n/a (56%)	62 cases 93 cites 46 n/a (40%)	109 cases 176 cites 60 n/a (34%)	236 cases 361 cites 165 n/a (46%)

