

Title: Grey Literature in Veterinary Medicine: Extending the Pelzer/Wiese Study

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Introduction

Grey literature has long been recognized as an important, although often problematic, component of scholarly communication, particularly in the physical sciences. With the development of electronic networking technology, many issues that negatively affected grey literature in the past, such as discoverability, access, indexing, and dispersion have been either reduced or dramatically changed in nature, and grey literature has become increasingly visible and influential. Growing international interest in and recognition of the value of grey literature can be seen in the great increase over the past 10 years in professional and scholarly publications and resources which focus on grey literature.

Although the broad concept of grey literature as materials not distributed or easily located through commercial channels such as publishers goes back at least 50 years, a more precise and universal definition was needed. At the 1995 Second International Conference on Grey Literature (GL2), a consensus definition of grey literature was reached, which is widely accepted as the standard by researchers and scholars. The GL2 defined grey literature to include all works “not controlled by commercial publishing interests where publishing is not the primary activity of the organizations” (1). At the Sixth International Conferences on Grey Literature (GL6), this definition was slightly revised to “That which is produced on all levels of government, academics, business and industry in print and electronic formats, but which is not controlled by commercial publishers” (2).

The use of grey literature, such as technical reports, conference proceedings and preprints, by researchers has been examined through citation analysis in many fields, including physics, astronomy, geology, marine science), and the health sciences. However, the importance of grey literature to veterinary medicine remains largely unknown. To date, only one study has been published addressing this issue. In their 2003 paper, Pelzer and Wiese performed a systematic analysis of the grey literature references in journal articles for 12 core veterinary journals published during calendar year 2000 (3). Their objective was to characterize the nature and use of grey literature in veterinary medicine by examining its appearance in a critical component of research dissemination: core veterinary journals.

Although they reference the GL Conference definition in their article, Pelzer and Wiese utilized a more restrictive definition of grey literature in their analysis, which excluded monographs; websites; and materials originating from traditionally grey sources (scholarly societies, university presses, etc.) which were published and disseminated by commercial publishers. These authors described eight types of grey literature: conference

proceedings, government publications, newsletters, corporate organization literature, foreign theses and dissertations, U.S. Masters degree theses, miscellaneous and undetermined. With this definition as the basis of their analysis, they reported the incidence of grey literature references to be between 2.5-10%, depending on the journals' focus on either research or clinical practice. There has been no bibliometric re-examination of the role of grey literature in veterinary medicine since this report, and the landscape of scholarly communication has changed considerably in the intervening period.

The research presented here extends the work of Pelzer and Wiese to produce an updated estimate of the percentage of the veterinary medical literature that is grey, employing bibliometric methods and using the widely-accepted GL2 standard definition of grey literature. Using citation analysis for calendar year 2007, the authors re-examined a representative subset of one basic research and one clinical journal from the same set of 12 core journals from 2000. The expectation was that the extended definition would substantially increase the percentage of grey literature citations and more accurately capture the true contribution of grey literature to veterinary medicine, as well as serving as a foundation for even more in-depth analysis.

Methodology

Texas A&M University Medical Sciences Library (MSL) researchers (Sewell, et. al) chose to use a broad interpretation of the GL2 grey literature definition. In addition to classifying references as grey or not-grey, Sewell elected to further analyze grey and not-grey references by format and publisher type to increase the granularity of the information collected. The seven formats and five publisher types closely parallel the grey subcategories used by Pelzer (Table I). This gave each reference three designations: grey or not-grey, format, and publisher type.

Pelzer		Sewell		
Status	Grey Sub-categories	Status	Format	Publisher Type
Grey	Proceedings	Grey	Book	Association
Not Grey	Thesis/Dissertation - US	Not Grey	Journal	Government - US
	Thesis/Dissertation - Foreign		Miscellaneous	Government - Other
	Government - US		Proceedings	University
	Government - Non-US		Thesis/Dissertation - US	
	Newsletter		Thesis/Dissertation - Foreign	
	Miscellaneous		Web Site	
	Undertermined			

Table I: Comparison of Categories

Pelzer did extensive work identifying a set of 12 core titles to analyze for their study. Sewell selected two journals from this set of 12 for the preliminary analysis reported in this paper. The Journal of the American Veterinary Medical Association (JAVMA) and Theriogenology were selected because of their high article counts and the dichotomy of their focus. While JAVMA is focused more on the United States, Theriogenology has a

more international scope. Pelzer classified JAVMA as containing clinical and basic research content, while Theriogenology was classified as a basic research journal.

To improve speed and consistency, Sewell employed an automated processing method using a Perl program which would store decisions already made and prompt investigation by the researcher when it found an unknown item. Both ISI Web of Knowledge and Scopus were evaluated as sources for electronic data on the article citations. Scopus was selected as the data source because its article reference format facilitated extraction of the individual references. In this updated research, data for 2000 and 2007 was downloaded for all 12 journals designated by Pelzer as core using the “article only” limit to remove any erratum and letters to the editor in the data set.

After data extraction, JAVMA and Theriogenology 2007 references were stored in their own file to allow them to be processed separately. The reference file included fields for the source journal, an identifier for the source article, a reference identifier, and the complete reference. This provided a link back to the original citing article when ambiguity in the reference was encountered.

Using data tables for decision making allowed the data to be reprocessed after more investigation could be done on unknown publishers. This was especially important with Theriogenology which had a large number of foreign titles and publishers. Based on the assumption that most references would be journal articles, the Perl program isolated the journal abbreviation or what could potentially be a journal abbreviation and passed the abbreviation on to a series of tables that applied decisions already made or supplied additional data. The tables made processing the data faster and more consistent. If no matches were found for the abbreviation, the full reference and the isolated abbreviation were presented to the researcher to resolve. Any new decisions were added in the data tables and the decisions were collected in a file for analysis.

Results

Table II shows the differences in the number of articles in each journal found by Pelzer as compared to the Scopus data for 2000 and 2007. Some of these differences are due to the content which Scopus identifies as articles. In addition, the number of references per article was more difficult to determine than anticipated because of wide-spread punctuation and formatting inconsistencies that could not be handled automatically by the program. This made it impossible to accurately compare the Scopus data for 2000 and 2007. Comparisons of the journal articles in 2007 and the Pelzer numbers are shown in Table III.

Title	Pelzer 2000	Scopus 2000	Scopus 2007	Pelzer Type*
Am J Vet Res	274	273	190	BR/CLIN
Compend Contin Educ	136	100	54	BR/CLIN
J Am Vet Med Assoc	331	405	328	BR/CLIN
Res Vet Sci	95	95	133	BR/CLIN
Vet Med	68	44	25	BR/CLIN
Vet Rec	312	371	413	BR/CLIN
J Am Anim Hosp Assoc	73	74	54	CLIN
J Small Anim Pract	88	108	117	CLIN
Vet Clin North Am	70	71	70	CLIN
Therio	250	227	357	BR
Vet Microbiol	221	170	303	BR
Vet Parasitol	241	239	416	BR
Total	2159	2177	2460	

* BR = Basic research orientation; CLIN = Clinical orientation. (3)

Table II. Total Articles from Pelzer 2000, Scopus 2000 and Scopus 2007 Dat.

Grey and Not-Grey Totals*									
Journal	Ref	Grey	NG	Grey Journals	NG Journals	Total Journals	Grey Books	NG Books	Total Books
MSL - JAVMA	6467	3422	3045	2874	2526	5400	90	519	609
MSL - Therio	14668	6553	8115	5990	7703	13693	200	412	612
Pelzer - JAVMA	6313	458	5855						
Pelzer - Therio	8665	477	8188						

* Ref = References; NG = Not grey

Table III. Grey and Not-Grey Totals for JAVMA and Theriogenology

As expected, there was a substantial increase in the number of references identified as grey literature by Sewell. Table III shows a breakdown of the grey and not-grey references found in both studies including totals with categories of books and journals which were not examined by Pelzer. It is interesting to note that the total number of references has almost doubled for Theriogenology between the Pelzer and Sewell studies. Differences between the two journals in the amounts of grey books and journals cited may be due to JAVMA's clinical focus versus the basic research focus of Theriogenology. The total percentages of grey literature by journal title are given in Figure 1.

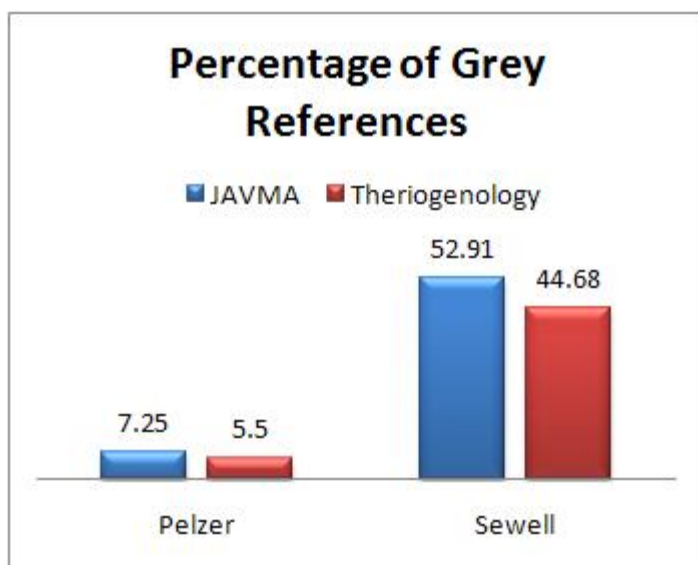


Figure 1. Percentage of Grey Literature

Conference proceedings, government publications, and foreign and US theses and dissertations were also compared (Table IV). Changes are noted in all of these categories, but are difficult to interpret due to the different methods of categorization used, since Pelzer did not assign either format or publisher categories in their analysis. Sewell reported higher numbers for government publications than Pelzer in both JAVMA and Theriogenology. Frequently, JAVMA features articles related to law and homeland security which have large numbers of references to government web sites; this could account, at least in part, for this increase in the citation of government publications.

Format and Publisher Type*									
Journal	Proc	Misc	Web Sites	TD - US	TD - F	GVT - US	GVT - O	Assoc	Univ
Sewell - JAVMA	83	189	180	0	0	213	77	2726	262
Sewell - Therio	302	45	7	0	1	34	157	5242	793
Pelzer - JAVMA	199	13		4		102		140	
Pelzer - Therio	299	19		44		43		72	

* Proc = Conference proceeding; Misc = Miscellaneous; TD - US = Thesis/Dissertation - United States; TD - F = Thesis/Dissertation - Foreign; GVT - US = Government, United States; GVT - O = Government, Other; Assoc = Association, organization, or society; Univ = University

Table IV. Format and Publisher Type for Sewell and Grey Subcategories from Pelzer

Figures 3 and 4 show a comparison between JAVMA and Theriogenology of the percentage of the formats and publisher types found in both journals. Theriogenology, with its basic research focus, has a higher number of journal articles than JAVMA and no web site references. The clinically focused JAVMA had a higher percentage of books and web sites cited

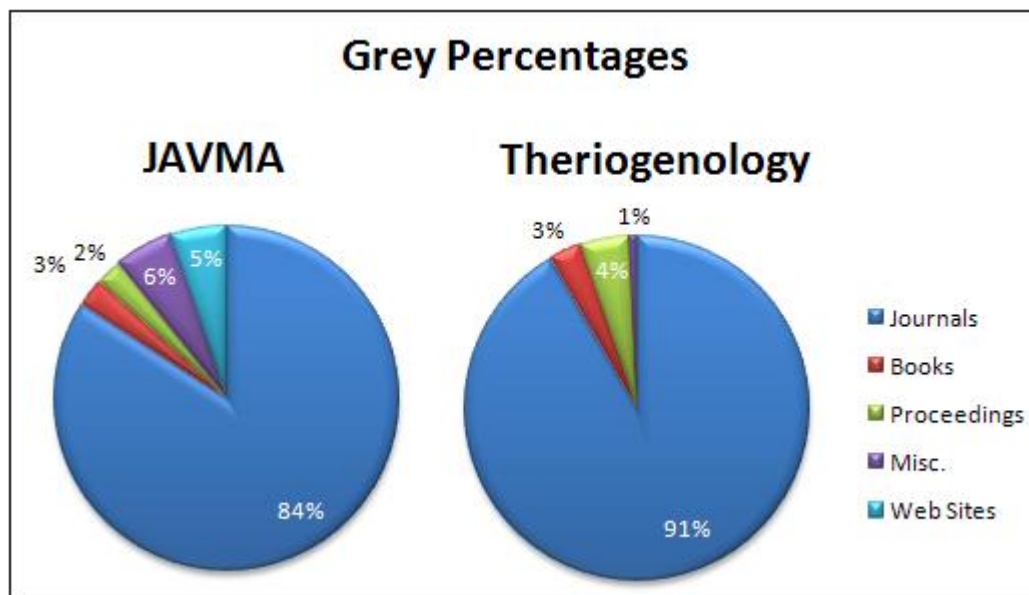


Figure 3. Percentage of Formats in JAVMA 2007 and Theriogenology 2007

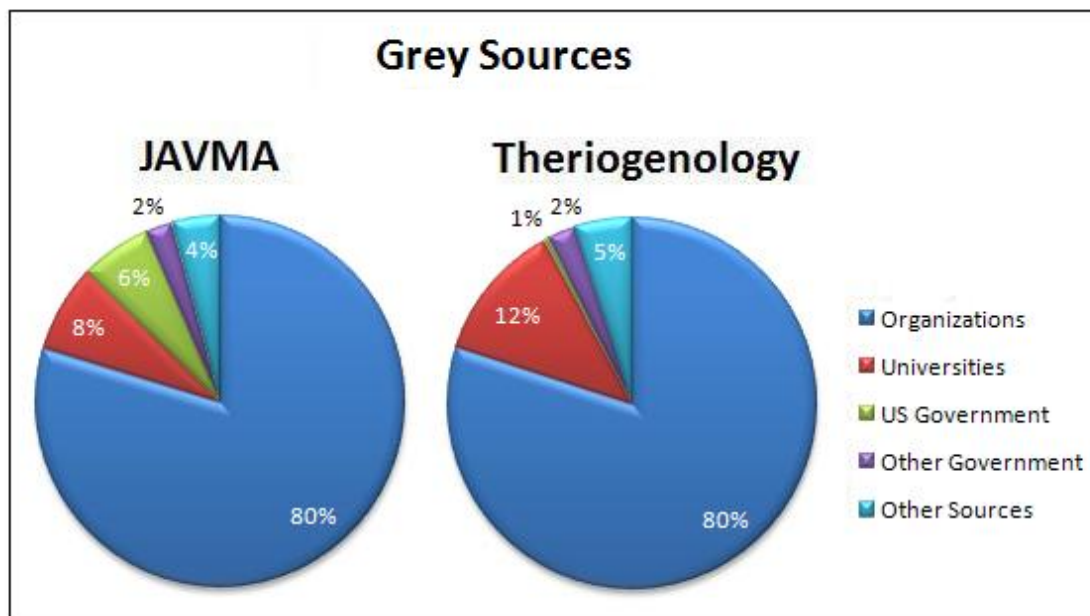


Figure 4. Percentage of Publisher Types in JAVMA 2007 and Theriogenology 2007

Conclusions

Preliminary results show the expected increase in the amount of grey literature between the Pelzer 2000 data and the Sewell 2007 data. However, because of the differences in methodology, a true comparison between the years can only be made by using the 2007 Sewell methods on the 2000 data. This comparison would clear up any ambiguity in the number of web sites, conference proceedings, and government documents used as

references for these two time periods as well as providing a count for the number of journals and books referenced. The researchers' future plans include examination of the 2000 JAVMA and Theriogenology data, and completion of the analysis of the 2007 data for the additional 10 core titles. Once the data analysis is finished a more complete picture of the changes in the use of grey literature will be evident.

References

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