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SUMMARY OF FINDINGS

English publications *Studies in Conservation; JAIC; IIC and ICOM-CC Congresses* 1992-2012 Total number of articles: 2396

Distribution of 1st Author Countries

- 90% 1st authors in Europe or N America;
 7% Asia & Pacific; 2% Latin America and the Caribbean;
 <1% Africa and the Arab states
- 56% 1st authors from countries for which an official language is English; German 11%;
 French 13%; Spanish 4% and Portuguese 3%.
- 46% 1st authors in either UK or USA

★ OBSERVATIONS

International publications (*Studies in Conservation; IIC and ICOM-CC Congresses*): Increase in articles from non English speaking countries in Asia & Pacific

- 1992-97: 9 articles (2%) from 3 countries; 2008-12: 21 articles (4%) from 7 countries

Distribution of 1st Author Institutions

60% articles produced by either museums or universities & colleges

★ OBSERVATIONS

Increase in articles from universities and colleges (now the largest producers):

1992-97: 24% total articles; 2008-12: 35% total articles

Content Focus (Research topics)

- 27% on issues relating to conservation treatments
- 22% on materials analysis and technical studies
- 14% on new investigation tools and methods
- 14% on deterioration studies
- 10% on preventive conservation issues

★ OBSERVATIONS

- decrease in articles on treatment issues (31% in 1992-97; 24% in 2008-12)
- decrease in deterioration studies (16% in 1992-97; 12% in 2008-12)
- increase in material and technical studies (17% in 1992-97; 23% in 2008-12)
- increase in articles on management issues (0% in 1992-97; 3% in 2008-12)

Types of Heritage

25% articles on paints & paintings;
 14% stone, wall paintings & building materials;
 12% multiple materials;
 11% paper, photographic, audiovisual;
 7% metals;
 7% textiles, fabrics, dyes

★ OBSERVATIONS

 No significant changes in material type distributions: decrease in deterioration studies on stone, wall paintings & building materials (5% in 1992-97; 1% in 2008-12)



French publications

Technè; CeROArt; Coré; Conservation-restauration des Biens culturels

2008-2012 Total number of articles: 276

Distribution of 1st Author Countries

74% from France; 12% from other countries for which an official language is French;
 14% from other European countries;

<1% from outside Europe and N America

★ OBSERVATIONS

The on-line publication, CeRoart (Belgium) is the most internationally open:

23% from France; 48% from other countries for which an official language is French;
 27% from other European countries;
 <1% from outside Europe and N America

Distribution of 1st Author Institutions

34% articles produced by either private practices;
 24% National Heritage Agencies;
 20% Museums;
 15% Universities and Colleges

★ OBSERVATIONS

Across all publications studied the distribution of institutional actors was very different to that of the English literature, with a much greater involvement of private practitioners.

Content Focus (Research topics)

- 30% on conservation treatments
- 25% on materials analysis and technical studies
- 25% on history policy ethics legislation and terminology
- 9% on preventive conservation issues
- 3% on new investigation tools and methods
- 2% on deterioration studies

★ OBSERVATIONS

A striking difference between the French and the English publications surveyed is the large number of studies on *History, policy, ethics & terminology* in the French literature, and the much lower proportion of articles presenting deterioration studies, or new investigation tools and methods.

Types of Heritage

31% articles on paints & paintings;
 14% multiple materials; 11% ceramics, glass and enamel; 10% stone, wall paintings & building materials

★ OBSERVATIONS

The type of heritage studied is very dependent on the journal – Conservation restauration des biens culturels: revue de l'ARAAFU is the most generalist; while Technè is the most specialized with 47% of its articles on paint and paintings.



German publications

Restoration of Buildings and Monuments (RBM); Restauro; Beiträge zur Erhaltung von Kunts- und Kulturgut; Zeitschrift für Kunsttechnologie und Konservierung (ZKK)

2008-2012 Total number of articles: 505

Distribution of 1st Author Countries

 61% from Germany; 13% from other countries for which an official language is German;

92% from Europe & N America; 5% Asia & Pacific; 2% Arab States <1% from Latin America & Caribbean, and Africa

★ OBSERVATIONS

RBM is the most internationally open of all the publications surveyed:

77% Europe and N America; 14% Asia & Pacific; 7% Arab States;
 1% Africa 0% Latin America & Caribbean

Distribution of 1st Author Institutions

35% articles produced by Universities and Colleges; 32% private practices;
 18% Museums; 7% National Heritage Agencies; 4% National Research Agencies

★ OBSERVATIONS

The two largest producers were universities and colleges and private practices. Significant variation between publications: for Beiträge, Restauro and ZKK the largest group is private practitioners (42%), while RBM is dominated by authors from academic institutions (71%).

Content Focus (Research topics)

Treatment 29%; materials & techniques 26%; deterioration 17%; preventive 7%; investigation tools & methods 7%; management 6%; history policy ethics legislation terminology 4%; education & training <1%

★ OBSERVATIONS

The content focus of the journals varied significantly: 36% of articles in RBM were on deterioration studies - compared with less than 10% of those appearing in the other journals. Across the board, in all language groups, the majority of deterioration studies are authored by academic institutions. Interestingly, 16% of articles appearing in *Restauro* focused on management issues.

Types of Heritage

40% articles on stone, wall painting & building materials; 14% paints & paintings 9% wood; 7% multiple materials; 6% metals; 4% textiles, fabrics & dyes

★ OBSERVATIONS

A far greater proportion of the German literature studied focused on stone wall paintings & building materials than in other language publications, but there was wide variation between the publications studied: 89% of articles in *RBM* were on stone wall paintings & building materials, while 46% of articles in *ZKK* were on paint and paintings.



Spanish publications

PH: boletín del Instituto Andaluz del Patrimonio Histórico; Ge-conservation; Conserva Revista del Instituto de Conservación y Restauración

2008-2012 Total number of articles: 139

Distribution of 1st Author Countries

- 68% from Spain; 8% from other European countries; 23% Latin America & Caribbean; <1% Arab States

★ OBSERVATIONS

In Conserva 95% of articles are from Latin America & Caribbean, 5% from Spain; Ge Conservation is 60% Spain, 20% Portugal, 16% Latin America, while Revista PH is 97% Spain.

Distribution of 1st Author Institutions

31% Universities & Colleges; 31% National Heritage Agencies; Museums 5%

★ OBSERVATIONS

Across all publications studied National Heritage Agencies and Universities and Colleges were the two largest author groups. By contrast to the English, French and German publications, Museums were in the minority.

Content Focus (Research topics)

 28% on treatment; 17% history policy ethics legislation terminology; 16% materials & techniques; 10% investigation tools & methods; 9% preventive; 8% management; 4% deterioration; 2% education & training

★ OBSERVATIONS

Similar to the French literature, and unlike the English and German literature, History, policy, ethics & terminology is a popular subject in the Spanish literature, while very few articles are devoted to deterioration studies.

Types of Heritage

- 25% stone, wall painting & building materials; 17% multiple materials; 14% paints & paintings; 12% paper, photographic, audiovisuals & electronics; 6% wood; 3% textiles, fabrics & dyes; 2% ceramics, glass & enamel; metals 2%; intangible 3%

★ OBSERVATIONS

Unlike the English, and French publications, overall the largest proportion of articles were on stone, wall painting and building materials. However the type of heritage studied is very dependent on the journal – Revista having the strongest focus on stone, wall painting and building materials, and Ge Conservation on paint and paintings. Unlike the English, French and German literature, a small but significant proportion of articles are focused on intangible heritage.



Introduction & Background

Between February and September 2013 a literature survey was undertaken by ICCROM, in collaboration with the Forum Consortium of Partners, as part of the preparation for the ICCROM Forum 2013 on Conservation Science. The purpose of this survey was to gain an overview of the main trends in the cultural heritage conservation literature over the past 20 years, and also to highlight the dissemination pathways for conservation science findings.

The survey focused on 15 well established generalist conservation publications in four different languages, which together could be considered a representative corpus of conservation literature. These comprised: 2 periodicals and 2 conference proceedings in English, 4 periodicals in French, 3 periodicals in German, 1 periodical in English/German, and 3 periodicals in Spanish. The English publications were selected on the basis of their international readership, and were studied over a 20 year time span (1992-2012); all others were studied over a 5 year time span (2008-2012). See Table 1

In total 3367 conservation articles were analysed and categorised.

Table 1: summary of sources for the ICCROM Forum 2013 Literature Survey

Source Publications	Number of records
English literature (1992-2012)	
ICOM-CC Congress	1079
Studies in Conservation	490
IIC Congress	475
Journal of the American Institute for Conservation	352
SUBTOTAL English	2396
French literature (2008-2012)	
Technè, la science au service de l'histoire de l'art et des civilisations	133
CeROArt: conservation exposition, restauration d'object d'art	62
Coré: Conservation et Restauration du patrimoine culturel	54
CRBC, Conservation-restauration des Biens culturels	27
SUBTOTAL French	276
German literature (2008-2012)	
Restoration of Buildings and Monuments : an international journal	170
Restauro: Zeitschrift für Kunsttechniken, restaurierung und Museumsfragen	170
Beiträge zur Erhaltung von Kunts- und Kulturgut	94
Zeitschrift für Kunsttechnologie und Konservierung	71
SUBTOTAL German	505
Spanish literature (2008-2012)	
PH: boletín del Instituto Andaluz del Patrimonio Histórico	97
Ge-conservation	50
Conserva Revista del Instituto de Conservación y Restauración	37
SUBTOTAL Spanish	184
GRAND TOTAL	3367



Objectives

The survey sought to gather data on the trends and dissemination pathways within the conservation literature, in relation to the following key questions:

1. Authors:

From which geographic locations do the authors originate, and what types of institutional actors are involved?

Material Class:

What types of cultural heritage are receiving attention in the literature?

3. Research topics:

What types of topics receive attention in the literature? To what extent are research topics influenced by: the cultural heritage types; author geographic location and institution type; and language group?

Methodology

The records were collected using the following different online indexing databases and search engines. In addition the online availability of each periodical was also checked.

- AATA (open access; conservation) http://aata.getty.edu/Home
- Web of Science (subscription; general science) http://wokinfo.com/
- Scopus (subscription; general science) http://www.scopus.com/home.url
- JSTOR (open access; general science/humanities) http://www.jstor.org/
- ICCROM library (open access; conservation) http://biblio.iccrom.org/
- Google scholar (open access; general) http://scholar.google.com/

Searches using the above listed resources provided a valuable opportunity to assess the online accessibility of conservation science literature (in terms of where it is indexed), and its potential area of influence. Moreover, it was possible to compare the relative functionalities of these indexing services.

Of all the indexing resources used, AATA was found to give the most comprehensive coverage of the selected titles. Subscription based resources such as WoS and Scopus contain more complete record information (e.g. institution address, number of citations), and also offer online analytical tools to generate statistics by author, country and institution, and to produce citation maps.



Categorisation

The full citation for each article was downloaded to spreadsheet software. The full citation included: author(s), title, source publication, year, volume, series, pages and abstract. Each citation was then individually reviewed (with reference to full text articles) and manually categorised according to the following criteria:

- geographic location (country) of institution of the principal author
- type of institution of the principal author
- language of publication
- material type of cultural heritage dealt with by the publication
- content focus of the publication

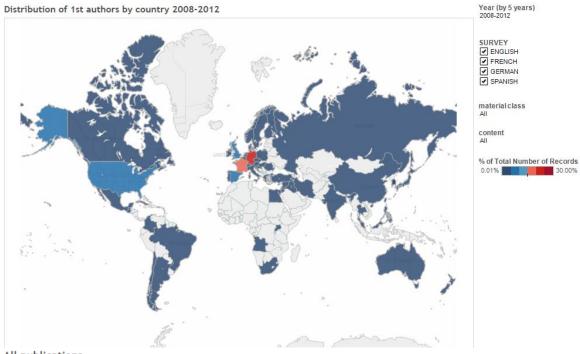
The categorized results were then graphed. See Appendix 1 for a summary of all categories, and glossary of the category terms used.



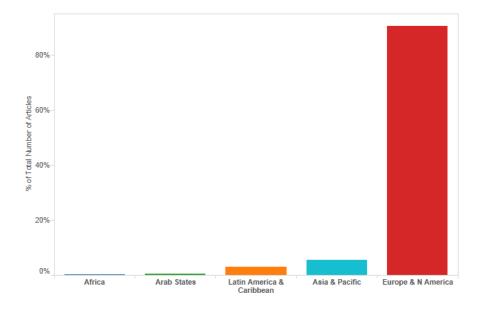
Results

ALL PUBLICATIONS 2008-2012

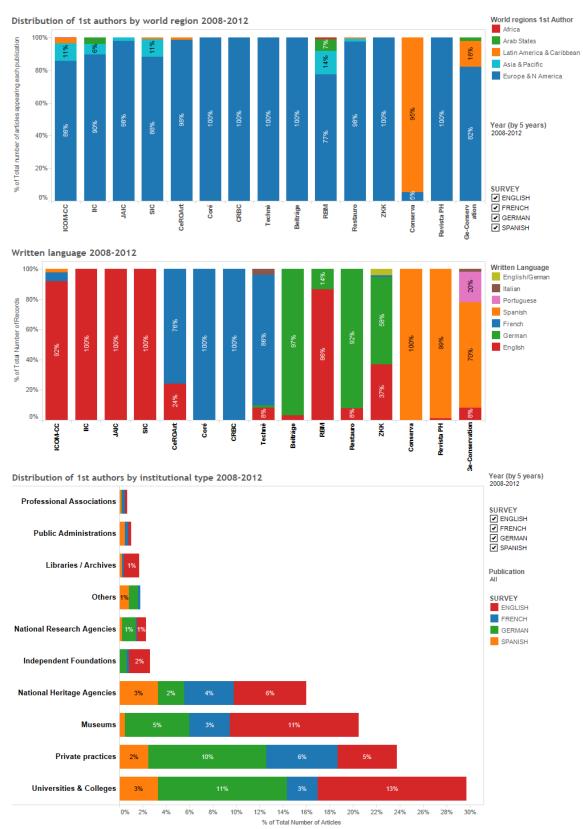
Who is producing the literature? Distribution of 1st Authors by country and institution



All publications
Distribution of 1st authors by world region 2008-2012



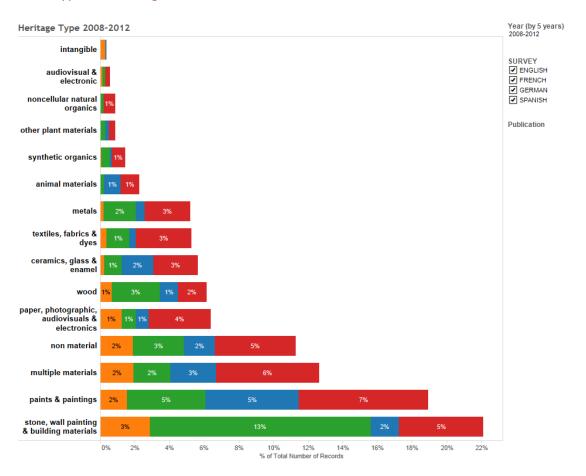


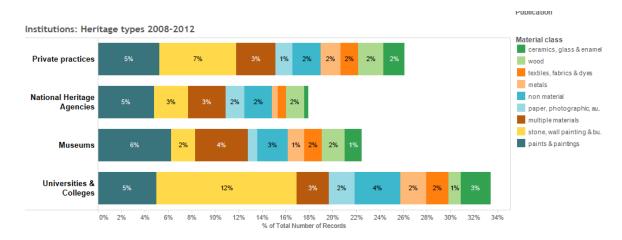






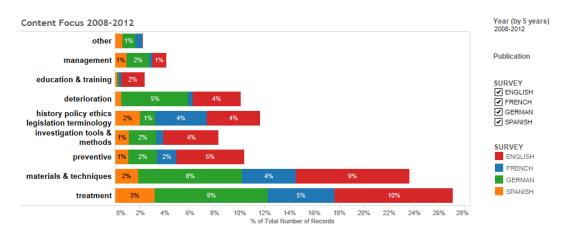
What types of Heritage receive attention in the literature?

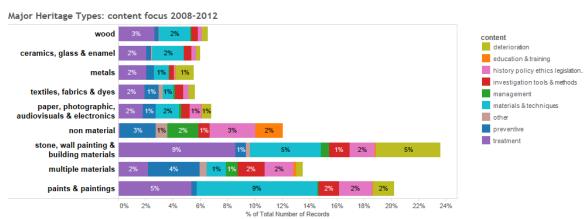


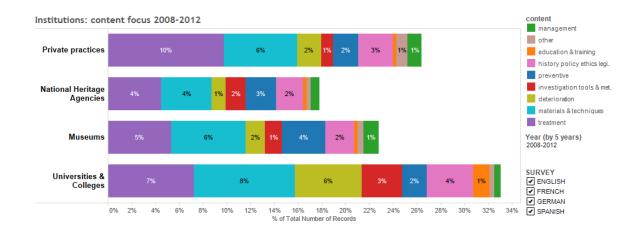




What research topics receive attention in the literature?



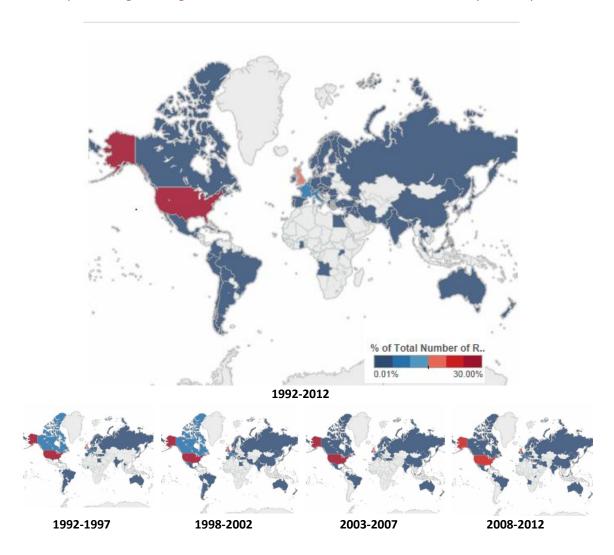






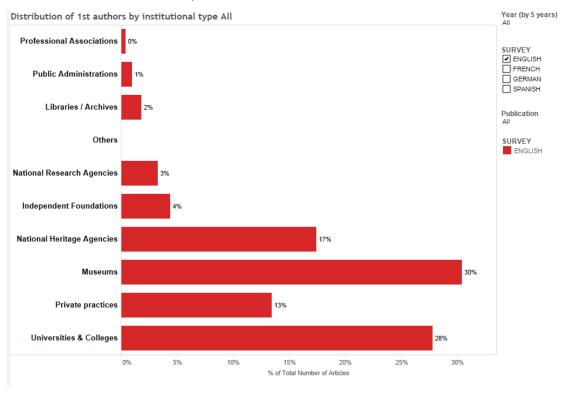
English Literature (1992-2012)

Who is producing the English literature? Distribution of 1st Authors by country



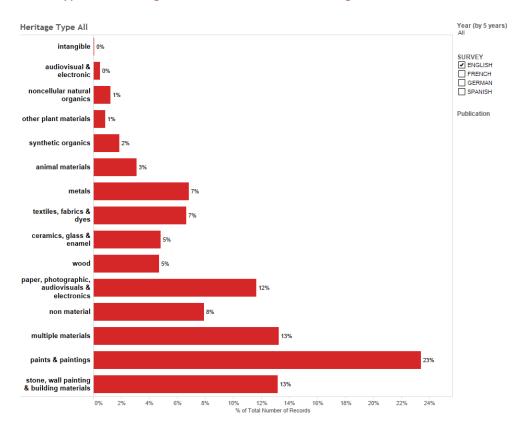


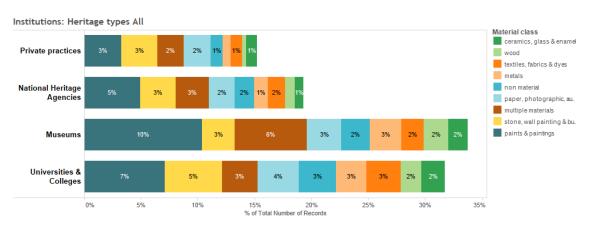
Distribution of 1st Authors by institution





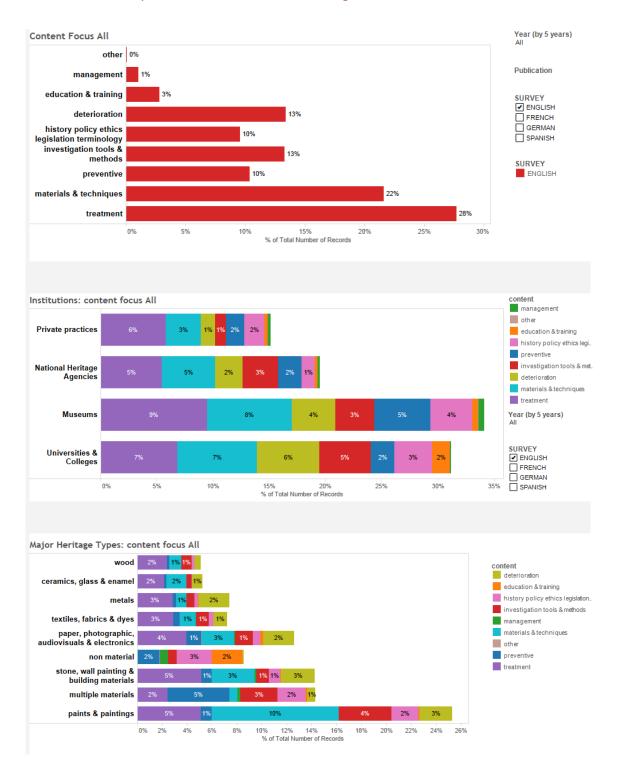
What types of Heritage receive attention in the English literature?





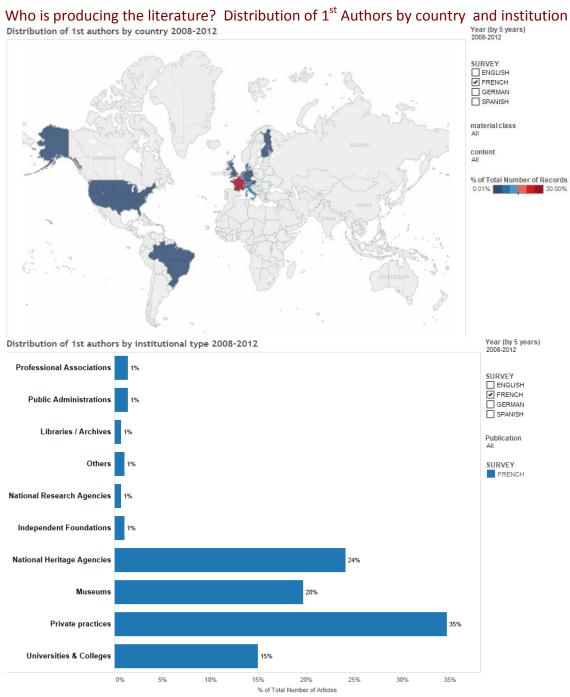


What research topics receive attention in the English literature?



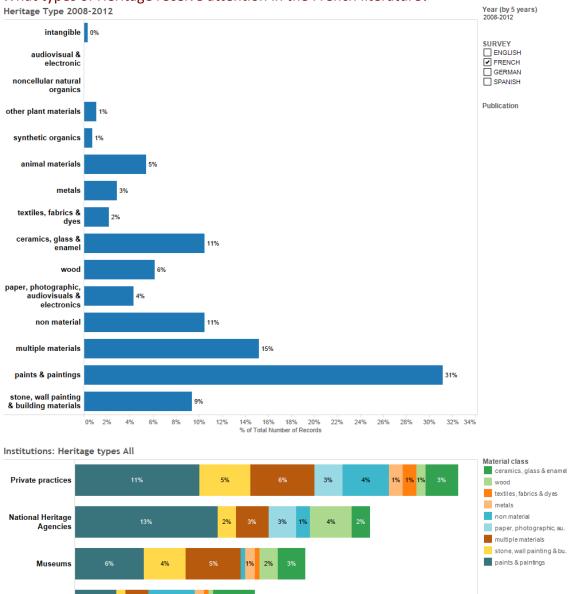


French Publications 2008-2012









15% 20% % of Total Number of Records

Universities & Colleges

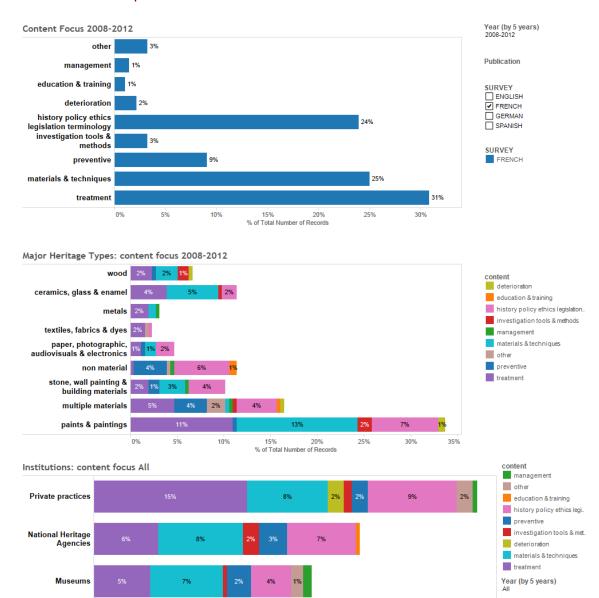


SURVEY

ENGLISH
FRENCH

GERMAN
SPANISH

What research topics receive attention in the French literature?



6 20% % of Total Number of Records

30%

35%

10%

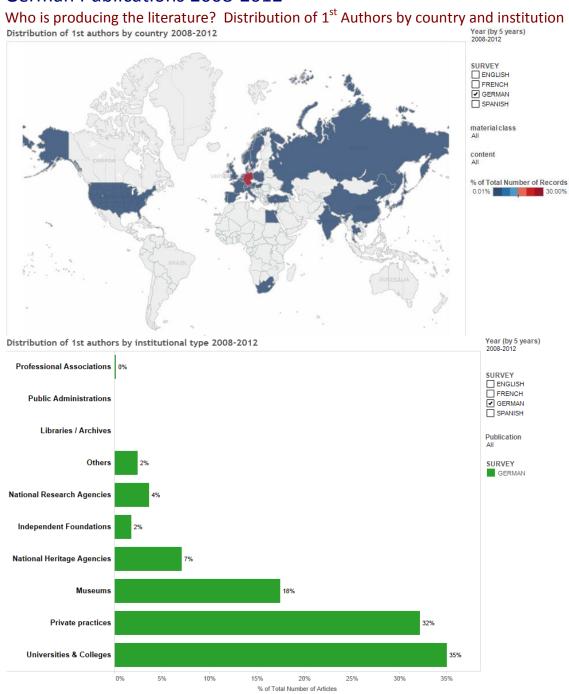
Universities &

Colleges

0%

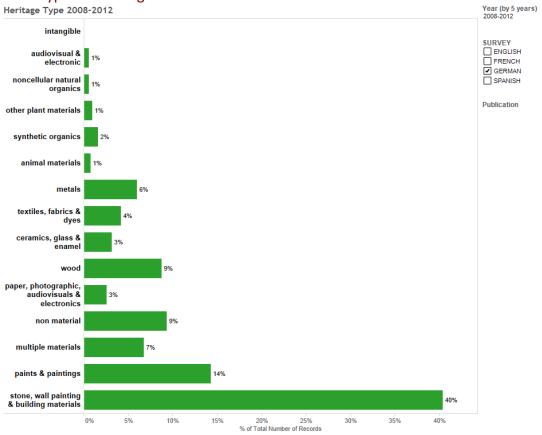


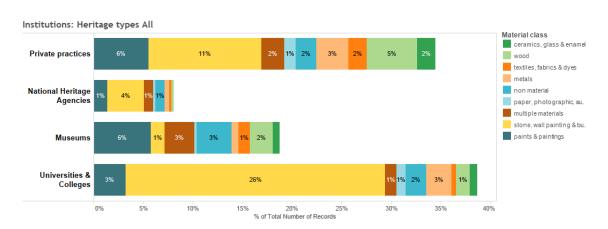
German Publications 2008-2012





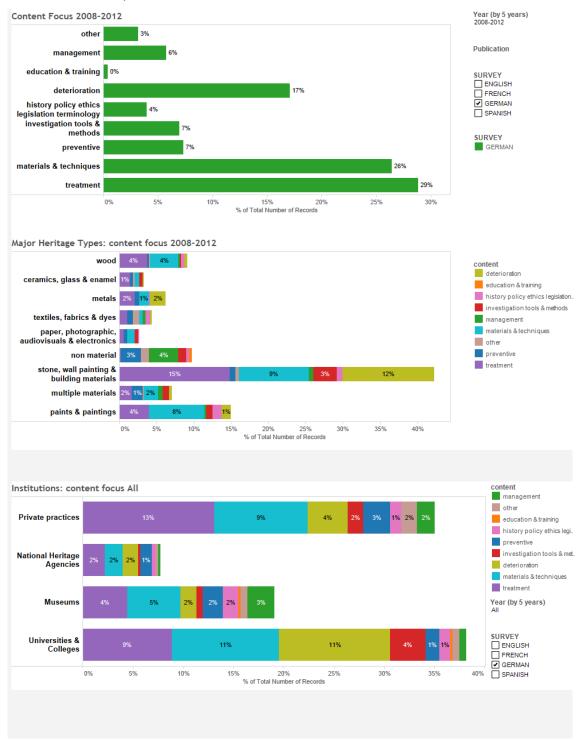
What types of Heritage receive attention in the German literature?







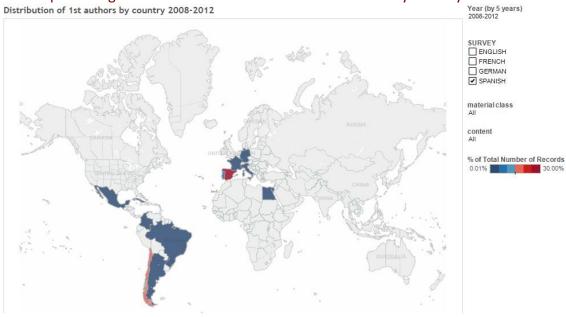
What research topics receive attention in the German literature?

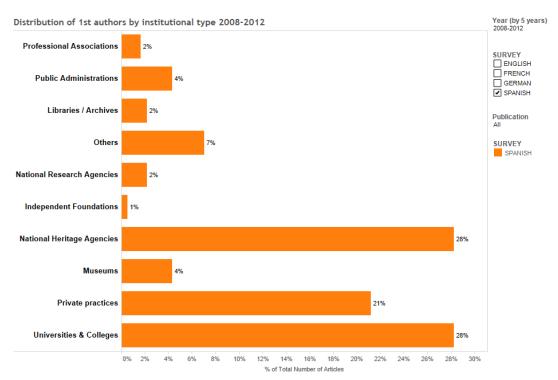




Spanish Publications 2008-2012

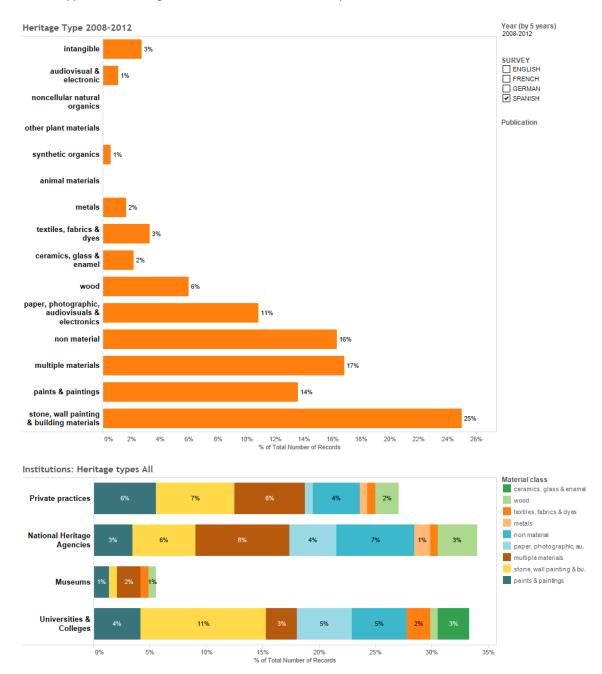
Who is producing the literature? Distribution of 1st Authors by country and institution





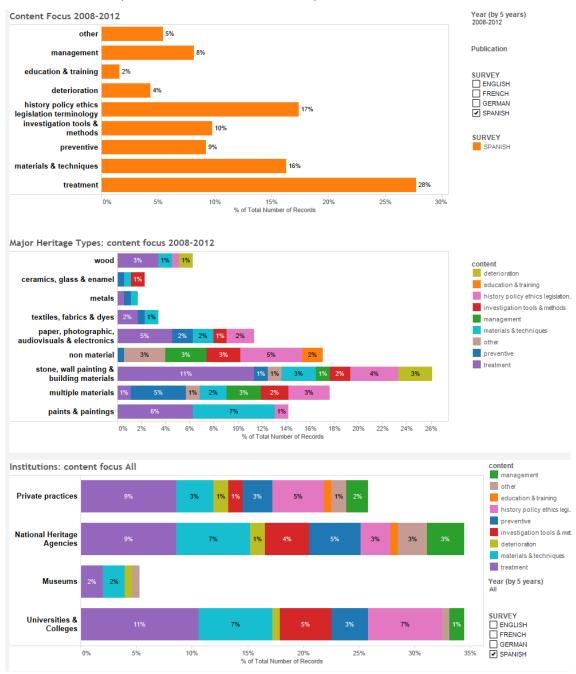


What types of Heritage receive attention in the Spanish literature?





What research topics receive attention in the Spanish literature?





Appendix 1: Categories

An overview and explanation of the manually assigned categories are given below:

Category Heritage type (by material class)	Subcategory values - animal materials - ceramics, glass & enamel - intangible - metals - multiple materials - natural organics - non material - noncellular organics materials - other plant materials - paints & paintings - paper, photographic & audiovisuals & electronics - stone, wall painting & building materials - synthetic organics - textiles, fabrics & dyes - wood
Content focus	 deterioration education & training history policy ethics legislation terminology investigation tools & methods management materials & techniques other preventive treatment
Type of Institution Author 1	Independent foundationsLibraries & ArchivesMuseumsNational Heritage Agencies

- Universities & Colleges - Other

Private Practices

- Public administrations

- National Research Agencies

Professional Membership Organizations

All languages identified in the survey Language All countries identified in the survey Country Author 1 All institutions identified in the survey Institution Name Author 1

- Missing



GLOSSARY OF TERMS

Heritage type (Material Class)

This section indicates the main material focus of the paper. The following categories and descriptive texts are mainly based on those given by AATA (http://aata.getty.edu/Browse). It was however necessary to add some additional categories: *Wall painting and rock art; Intangible; Multiple materials; Non material.*

Paper

The records in this section pertain to paper and paper-based materials such as books, manuscripts, and archival documents. Literature concerning protein materials such as vellum, parchment, and bookbinding leathers is abstracted in this section where the subject matter is primarily of interest to paper or book conservators. Records that deal with leather, parchment, or vellum in a more general or anthropological sense are found in Animal materials.

Photographic

The records in this section refer to photographs—on paper, glass, metal, cloth, ceramic, or synthetic material substrates—positives as well as negatives including microforms (e.g. microfilm, microfiche, micro opaque). Records relating to computer output prints (e.g. inkjet prints, laser prints) or images resulting from reprographic processes (e.g. photocopying) are also covered in this section.

Paint and Paintings

The records in this section pertain to paintings and the polychrome layer on stone, wood, plaster, metal, and other substrates, as well as to paintings materials such as supports, binders and varnishes. Records that are concerned with color measurement and historical techniques are also included in this section.

Note: in AATA wall paintings are found in 2.1.3. Paintings, but also in 2.1.11 Stone & building materials. Therefore they have been removed from both of these categories and assigned a separate category 2.1.15 Wall Paintings and Rock Art (see below)

Wood

The records in this section relate to objects or natural history specimens composed primarily of wood. This section therefore covers furniture, furnishings, wooden structures (particularly buildings and ships but also vehicles and aircraft), archaeological finds, musical instruments, etc. The term wood is used broadly for all lignocellulosic species including the gymnosperms (softwoods) and dicotyledonous angiosperms (hardwoods), as well as monocotyledons such as bamboo, palm wood, cane, and rattan. Also covered are structural materials produced principally from wood, such as hardboard, fiberboard, plywood, and particleboard, chemically modified wood and wood composites.

Literature covering root tissue is included here, but records on wood derived materials such as resins, dyes, leaves, bark (e.g., birch bark and cork), fibers, and fruits appear in the more appropriate sections (e.g., bark is found in Other plant material.



Textiles

The records in this section relate to textiles and dyestuffs, fabrics, fibers, and dyes (e.g. carpets, tapestries, clothes, embroidered works of art, etc.).

Other plant materials

This section includes records on plant materials other than paper, wood, and textile fibers. Materials included here are bark and barkcloth, basketry and basketry fibers, botanical specimens, cork, gourds, grasses, leaves, matting, seeds, and any plant derived product or object made from them. Many objects dealt with in this section are ethnographic, but many will also be from decorative arts, costume, history, or natural history collections.

Animal materials

This section includes records on animal tissues, including antler, bone, feathers, fur, hair, ivory and ivory substitutes, leather, mother-of-pearl, mummies, shell, skin, teeth, zoological specimens, and any other cellular animal products. Pearls are included in Stone and building materials with gemstones. Parchment may be included here when it is the primary object of study or in Paper when it relates to an archival collection. Likewise, leather is included here except when it is considered as a bookbinding material. Many objects dealt with in this section are ethnographic, but many will also be from decorative arts, costume, history, or natural history collections.

Noncellular natural organics

This section contains records dealing with natural organic materials that are not cellular, e.g., recent and fossil resins, lacquer (urushi), pitch, tar, bitumens, waxes, fats, oils, gelatin, and collagen. Cellular materials of plant origin are covered in the sections on Paper, Wood, Textiles and Other plant materials, while those of animal origin are covered in the section on Animal materials. Note, however, that natural dyes of both plant and animal origin, although noncellular, are included in Textiles to which they are most commonly applied.

Metals

This section includes records on objects made of metal; it also covers metallurgical processes such as mining, smelting, refining, casting, forging, and minting, and associated tools and materials, such as smelters, slags, electrodes, crucibles, triphammers, and dies.

Ceramics glass enamel

This section includes records of ceramics, glass, or enamel. This section includes terracotta, tile, and fired brick, but cement, plasters, and adobe are found in Stone and building materials. Records relating to vitreous tesserae will be found in this section; stone tesserae are referred to in *Stone and building materials*.



Stone & building materials

The records in this section pertain to objects, at times including buildings, comprised partly or wholly of stone, stone-related materials such as mortars and plasters, and minerals. Records on gems and gemstones are included in this section. Literature on stone mosaics is abstracted in this section, whereas works on glass mosaics are found in Ceramics, glass, and enamels, as are works on all objects which require firing as part of their production, such as pottery, terracotta sculpture, fired brick, or other fired architectural elements.

Note: in AATA wall paintings are found in Paintings, but also in Stone & building materials. Therefore they have been removed from both of these categories and assigned a separate category Wall Paintings and Rock Art (see below)

Synthetic organics

The records in this section pertain to the objects composed of synthetic organic materials or modified natural organic materials. Materials included are organic polymers such as plastics, resins, rubbers, and cellulosics. Relevant polymer science particularly that dealing with aging, the effects of colorants, or analysis—is abstracted here. Synthetic materials used in the production of photographic and audiovisual materials and textiles are found in photographs or textiles.

Electronic

The records in this section refer to electronic media such as magnetic tape (e.g., digital audio files), optical disks (e.g., CD-ROMs, photo CDs, DVDs, laserdiscs), and computer files (e.g., web sites, files on computer hard drives, CD-ROMs). The materials covered in this section are digital, i.e., binary encoded. The data may have originally been collected in an analog manner but was produced in digital format. The section includes electronic media regardless of the type of data retained (text, sound, picture, moving image) or method of binary encoding (manual, computer, laser, scanning).

Audiovisual

The records in this section refer to audiovisual materials such as motion picture film, videotapes (e.g., open reel or cassette), and audio recordings (e.g., open reel, cassette, disk, wax, or wire).

Wall painting and rock art

Records in this section relate to paintings in which the support is part of a contiguous structure—whether a free-standing building, ceiling or natural rock etc., and are typically named according to the support or surface onto which they are applied.

Intangible

The 2003 UNESCO Convention on the Intangible defines intangible heritage as, "the practices, representations, expressions, knowledge, skills — as well as the instruments, objects, artefacts and cultural spaces associated therewith - that communities, groups and, in some cases, individuals recognize as part of their cultural heritage".



They are divided into the following domains:

- (a) oral traditions and expressions, including language as a vehicle of the intangible cultural heritage;
- (b) performing arts;
- (c) social practices, rituals and festive events;
- (d) knowledge and practices concerning nature and the universe;
- (e) traditional craftsmanship.

Multiple materials

These records cover collections without a defined material class (for instance ensembles, historic interiors, ethnographic collections, industrial collections, scientific, natural or archaeological collections) and objects made of more than two types of materials (as classified here).

Non material

This section contains records that do not focus on materials. Consequently, the main content is concerned with other non material aspects such as collection management, theory and history of conservation, communication and related topics.

Content

This section indicates the main topic of the record.

Investigation tools & methods

The category is focused on tools and methods used to document and investigate cultural heritage objects. This section covers the application of non conventional analysis and techniques and also includes documentation tools and methods.

Materials & techniques

The topic is focused on the material composition or construction technology of the object. Records within this category include studies to characterize and identify the material composition, construction technique, object history, authenticity, provenance and dating studies.

Preventive

This category contains records regarding methodologies, tools and research for preventive conservation, collections care, and risk management.

Deterioration

This category focuses on records which study the causes and manifestations of deterioration, such as deterioration mechanisms (e.g. material aging processes) and their effects (e.g. deterioration phenomena and other effects).

Treatment

The treatment category includes studies and research on treatment strategy, materials and innovative application methods for conservation practice.



History policy ethics legislation terminology

Records in this section are concerned with aspects of conservation and preservation policy, standards & guidelines, including historical, ethical, and legal factors guiding conservation practice and planning such as legislation, public awareness, and advocacy.

Education & training

The records in this section pertain to institutions, curricula, methodology, and theory for the teaching of conservation and conservation-related subjects.

Management

Management records include not only practices regarding insurance, budgeting for preservation and economic impact, but also strategy e.g. to engage community and institutions advocacy.

Other

This section refers to records with diverse topics other than those listed above.