WEST: Collections Model

Contents

WEST Goals and Principles

Libraries in the Western Region of the United States have joined together to consolidate journal back files historically published in print form. The resulting archives are intended to ensure access, when needed, to the scholarly print record while allowing the libraries to optimize space. The journal archives, once consolidated, become part of the Western Regional Storage Trust and are subject to specific terms and conditions to ensure their persistence over time.

The libraries and their storage facilities face significant space pressures which affect their ability to continue to build the collections and provide services. The libraries must deselect holdings and the Trust is intended to provide a framework for doing that responsibly and in an informed way. The size of the collective journal collections and extent of collective duplication require the libraries to focus efforts on specific types of journals and their backfiles. The Collections Model for WEST identifies the types of journals that will be retained and consolidated by WEST member libraries and their storage facilities and the level of effort that will be placed on each type of journal to ensure completeness and condition.

As of 2010, WEST member libraries and their storage facilities house more than 60,000 distinct print journal families (current and previous titles) and approximately 70% are held in duplicate, potentially representing thousands of duplicate volumes. These figures are based on initial collection analysis which focused on journals that have enough bibliographic information to facilitate comparisons[1].

The goals for WEST are to

- Preserve the scholarly print record
- Provide access, when needed, to the scholarly print record
- Facilitate space reclamation in WEST library and storage facilities

Each print title will present different opportunities for preservation and space savings, depending on overlap and other factors. The Collection Model is calibrated to focus on titles that will provide substantial opportunity for space reclamation and on preservation of the scholarly record through collaborative archive creation services.

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[1] Of more than 1 million records submitted by WEST libraries and storage facilities for analysis, about 218,000 contained ISSNs necessary to facilitate network-level comparisons. Of those about 60,000 journal families were identified. Those journal families are the subject of the collection analysis for the planning phase. Future, ongoing collection analysis may seek to improve the bases for comparisons (e.g. data match points.)

COLLECTIONS MODEL

Selection Criteria, Title Categories and Archive Types

The Selection and Validation Working Group endorsed the use of selection criteria that identify categories of journal titles with similar characteristics; each category is recommended for specific treatment to secure a print backfile(s). A Title Category is an expression of risk for the particular kind of print journal. The combination of format availability, digital preservation services, print overlap, presence of existing shared print archives and other factors form part of the risk profile for each category of titles.

The selection criteria used to define title categories for WEST are informed by

- Risk management principles. If an uncoordinated approach to deselection continues, what is the likelihood of loss of access within WEST, loss of content within WEST or a stewardship failure? Each category of titles has a different combined risk level for these three factors.
- Organizational modeling and cost estimates developed by CDL Shared Print and UC Libraries to determine the most efficient, cost effective approaches to compiling backfiles[2].
- Experimentation with issue-level validation and calibration of effort conducted by CDL Shared Print and the IEEE Print operations team at UC Berkeley, UC Davis and the Northern Regional Library Facility. Includes draft standards for issue-level of validation developed in consultation with JSTOR and UC Berkeley's preservation officer.
- Ithaka S+R's optimal copies research[3], which provides guidance about how many copies need to be assembled at a high or low-level of validation across the network of libraries to ensure that a complete copy exists over a certain preservation horizon.
- Ithaka S+R's recommendations for what to withdraw[4], which provides guidance about the conditions under which print backfiles can be responsibly withdrawn.
- Initial analysis of overlap in print journal titles held by WEST storage facilities and a subset of WEST libraries.

Additional research may be conducted in the future to

- better understand the network effects of one region's retention commitments on the retention choices of other regional efforts
- refine the optimal copies framework in the absence of a page validated archive[5]. In particular, to better understand relationship between the units of publication to be verified, the physical

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[2] UC Libraries have experimented with issue-level validation in the IEEE and CoreSTOR Shared Print Projects. Both models assume that the final archive would reside at a storage facility, but use a different organizational model for validation. Costs per volume and productivity rates were studied for each model to estimate the human resources needed at each storage facility to support a scaled backfile consolidation service.

[3] Yano, Candace, et. al. *Optimizing the Number of Copies for Print Preservation of Research Journals*. University of California, Berkeley, October, 2008.

[4] Schonfeld, Roger and Ross Housewright. *What to Withdraw: Print Collections Management in the Wake of Digitization.* Ithaka S+R, September 29, 2009.

manifestation in library collections (bound issues and volumes,) and a decision-framework for different levels of validation (issue or volume) and/or optimal copies.

- Improve match rates for data supplied by diverse partners from diverse systems and improve automated holdings level analysis.

Each title category is assigned an Archive Type that reflects the level of validation (i.e. completeness and condition check) considered appropriate for titles in that risk category. The Working Group developed the following Archive Type designations for various validation levels: Bronze (no validation), Silver (volume-level validation), and Gold (issue-level validation). A fourth designation, Platinum, is reserved for special archives warranting page-level validation (e.g. the UC-JSTOR Shared Print Repository).

The relationship between Title Category-Archive Type provides transparency and predictability about the level of effort that will be placed on a title with certain characteristics and keeps decision-making overhead low. It would allow the libraries to calibrate the level of effort placed on certain types of titles; more effort on higher risk titles, less effort on lower risk titles. It is recommended that WEST focus on titles at different risk levels in parallel to gain experience with the operational and cost requirements at different levels.

The following matrix summarizes the title categories and archive types. More detail about the categories and definitions of the archive types can be found in Appendix C: Title Categories and Appendix D: Archive Types.

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[5] Ithaka S+R and Candace Yano are planning to refine the optimal copies research conducted in 2008. UC Libraries and others will supply data about levels of validation, disclosed conditions and gaps to facilitate that research.

Table 1: Title Categories, Print Risk Level and Archive Type

Some shared print archives that pre-date WEST are contributed to the Trust (e.g. Orbis Cascade Alliance's DPR including the JSTOR Arts and Sciences 1+2 collections and ACS collection, the University of California's IEEE and CoreSTOR archives).

	Title Category	Duplication Level within WEST sought in candidate titles	Risk Level	Archive Type	Number of Archive Copies
1	**Print and Electronic plus Digital Preservation**	**High**	**Low**	**Bronze**	**1**
	American Chemical Society Orbis Cascade Alliance DPR	N/A, Entire ACS List	Low	Silver	2 (-2002)
	IEEE, UC Shared Print	N/A	Low	Gold	1
2	**Print and Electronic, no Digital Preservation, publisher e-journal packages**	**High**	**Low**	**Bronze**	**1**
	CoreSTOR, UC Shared Print	N/A	Low	Silver/Gold	1
3	**Print only with selected full-text access through aggregator databases**	**High**	**Moderate**	**Silver**	**1**
4	**Print only with electronic abstracting and indexing**	**Moderate - High**	**High**	**Gold**	**1**
5	**Print only, no electronic access points**	**Moderate - High**	**High**	**Gold**	**1**
6	**JSTOR**				
	JSTOR UC Shared Print Collection gaps	N/A, Entire JSTOR List	High	Platinum	1
	JSTOR Orbis Cascade Alliance DPR (Arts & Sciences 1 and 2)	N/A, Entire JSTOR List AS1+2	Moderate	Silver	2 (-2002), 1 (2003-)
	JSTOR (Arts & Sciences 3+ and other journal collections)	N/A, Entire JSTOR List AS3+	Low/Moderate	Silver	1

Level of duplication sought in candidate titles for WEST

The current level of print duplication among WEST libraries is one characteristic that makes a journal a candidate for the Trust. *Titles with moderate to high print duplication among member libraries are candidates* for the Western Regional Storage Trust. Titles with low duplication are not initially candidates for the Trust. It is assumed that unique titles will be managed locally without the need for cooperative action.

After (and in addition to) the current level of print duplication, other criteria are also considered (e.g. electronic availability, scholarly/academic titles.)

The Trust is envisioned as a catalyst for space reclamation. By choosing titles that are widely held in print and agreeing to retain one copy, the members can generate the greatest opportunity for space reclamation across the network.

Collection Analysis

To determine levels of duplication, WEST members participated in an ambitious collection analysis effort. In 2010, WEST library and storage facilities supplied more than one million records of their journal holdings for a collection analysis effort. Records were ingested into a database along with enriched metadata supplied by Ulrichs. Approximately one fifth of the records (218,000) were suitable for analysis.

Based on an initial analysis of those records at the title level, WEST library and storage facilities hold approximately 60,580 journal families (current and previous titles). Further overlap analysis suggests that a high level of duplication among WEST libraries and storage facilities may be 5 copies and a moderate level may be 3-4 copies.

Table 1: Levels of Duplication within WEST Defined

Duplication Level	# Copies	# Journal Families (current and previous titles)	%
High	5 to16	17,233	28%
Moderate	3 or 4	13,381	22%
Low	1 or 2	29,966	49%
Total		**60,580**	**51%**

These figures may be significantly understated (at the title level) due to limitations in the data supplied for analysis. These figures may or may not be overstated at the holdings (volume) level. Future analysis and capabilities may be needed to improve automated holdings level analysis. The initial planning phase for WEST included analysis at the title level for all categories except category 3, and preparation of title lists with proposed archive providers/locations. Subsequent holdings analysis will occur in an implementation phase.

Validation

Validation of a journal backfile includes two components: 1) proactive compilation and verification of completeness of the backfile in a single location and 2) verification of the condition of the material.

The level of validation recommended for a title is determined by the Title Category and the designated Archive Type for that category. Some titles will not be validated at all (Bronze Archive Type) while some titles will be validated for completeness only (Silver), and some will be validated for completeness and condition (Gold).

This approach allows WEST members to scale efforts on print backfiles while calibrating the level of effort by risk level; more effort is placed on higher risk titles; less effort on lower risk titles.

Validation instills confidence in the partners to know just what reasonable efforts have been made by the Archive Provider to secure a near complete, good condition backfile.

Proposed standards for validation are outlined in the ***"Standards for Issue and Volume Level Validation"*** (Appendix E). These standards explicitly define what a reasonable effort is to ensure completeness and condition, including some aspects pertinent to the "call for holdings" process mentioned below. WEST Archive Providers are expected to adhere to these standards. Modifications to these standards are made by the governing body for collections (the Collections Council).

The Collections Council may re-calibrate aspects of the validation standards in the first three years including:

- Whether to change an archive type for a title category
- Whether to allow, disallow or modify certain conditions in Gold archives
- Whether to disclose each condition in bibliographic records or to group the conditions into some form of general vocabulary (fair, good, excellent) for Gold archives
- Whether a periodic audit of the archives is needed to ensure compliance with the validation standards. If so, develop a statistical methodology that can be reused periodically and outline desired responses in the event of a deficient audit.

Call for Holdings and Filling Gaps (Silver and Gold Archives)

Titles that fall into the Silver and Gold Archive Types will be proactively assembled by Archive Providers.

These backfiles are compiled through two processes: a proactive "call for holdings" followed by a longer term passive "gap filling" process. The call for holdings is designed to assemble the majority of the volumes in a backfile in preparation for validation.

The "call for holdings" is usually done on an annual basis for the entire list of titles that the Archive Provider is scheduled to work on that year. Contributions from member libraries are made in response to a call for holdings from an Archive Provider. Contributions are made in the same year that the call is issued by the Archive Provider to expedite the archive creation process.

To prepare the call for holdings, the Administrative Host supplies the Archive Provider with a list of journal families that the membership has agreed upon for that year. The Archive Provider reviews bibliographic records for existing holdings, identifies gaps and prepares a formal request for contributions from WEST member libraries. Templates for preparing the holdings level analysis and formal call can be supplied by the Administrative Host.

In general, the Archive Provider will call for holdings from libraries that are directly affiliated within the same library system or consortia to simplify the contribution process. If contributions cannot be secured within those groups, the Archive Provider can issue a second call for holdings in the same period to other WEST members.

Archive Providers do not call for holdings beyond WEST (in keeping with an optimal copies approach to archiving.) After a second call for holdings in the same period, the Archive Provider discloses gaps in the collection which are used later to prepare a "wish list" for future gap filling efforts.

Filling Gaps (Bronze Archives)

Lower risk titles are not validated for completeness or condition (Bronze Archives).

Archive Provider's for these titles simply disclose existing holdings (as currently recorded in bibliographic records). Archive Providers are not expected to proactively fill gaps to assemble a complete run. WEST members may work directly with Archive Providers to contribute holdings to fill in gaps, if mutually agreed upon.

Archive Providers for these titles are typically chosen based on the depth of holdings as indicated in bibliographic records for the ISSN. The Library or Storage facility in WEST with the deepest holdings is recommended to serve as the Archive Provider.

Additional Considerations

Optimal Copies

WEST Silver and Gold archives, which include some minimal level of validation, are eligible for contribution to broader efforts to secure optimal copies across the network of research libraries.

WEST Bronze archives are not considered appropriate for contribution to a network of optimal copies, as they are not validated.

Quality of Digital Surrogates, Incorporating What to Withdraw framework

Ithaka S+R's "What to Withdraw " framework recommends that the quality of digitization and image density be considered as part of the risk profile for a print backfile. A title that has been poorly digitized might be considered for validation, while a title that has been digitized well may not require validation.

Implications for WEST: At present, the WEST title categories do not take the quality of digitization into consideration. Backfiles that are available electronically are considered low to moderate risk and consequently, they are currently aligned with a Bronze or Silver Archive Type (i.e. no validation or volume level validation). The WEST Collections Council may consider whether to refine the criteria for the relevant title categories and recommend validation (i.e., a different Archive Type) in the future.

At present, information about the quality of digitization or image density is not routinely captured for decision-support purposes. The title categories may be refined to incorporate this aspect in the future.

Replacements

If a volume in a WEST print archive should be found to be unusable, efforts will not be made to find replacements. WEST members can gain access to volumes in other built archives in North America, in keeping with the concept of optimal copies across the network.

Titles move between categories

Over time, titles may move from one category to another: a title currently available in print may become available electronically from the publisher, or a title currently available electronically may join a third party digital preservation service. It is generally assumed that a title will move from a higher risk category to a lower one. When this occurs, the nature of the WEST archive and level of effort placed on it could change from the next year forward. The Collections Council may want to review these movements periodically.

Designated End Year for an Archive (-2005), Scoping our Work

To better plan our work and scope efforts, print "backfiles" are defined as a set of holdings from volume 1 to the year 2005. The year 2005 is recommended as a pivotal year for the conversion of print to electronic for journals and for many libraries' cancelations of print subscriptions.

The designated end year also provides scope for the validation work effort. It serves as a milestone for Archive Providers. Once reached, completion of the archive can be communicated to the partnership, allowing members to make collection management decisions about remaining copies. If additional

volumes are held within WEST for more recent years, it is advisable to compile them in the same effort as the backfile consolidation effort.

Government Documents, Initially Excluded

Government documents of all types are initially excluded from WEST's selection criteria.

Value Added Services

Journal backfiles that are only available in print may be good candidates for digitization and digital curation to enhance access to these titles, secure the scholarly record and facilitate contributions. The Trust could seek to manage relationships with the publishers for these titles. Digitization might be staged in different ways:

1) One touch approach. Digitize while validating.

2) Use-based, trigger-event approach. When a volume is requested for a particular WEST backfile, digitize the entire backfile.

3) Library selection-based approach. WEST libraries periodically identify backfiles in the Trust to be digitized

Collection Decision-Making

Decisions about the collections are made by a Collections Council on an ongoing basis. The titles that will be incorporated in to the Trust are made periodically via a Collection Voting Model administered by the WEST Project Manager with support from the Administrative Host. Title sets will be routinely identified by ongoing collection analysis conducted by or under the direction of the Project Manager and referred to the Collections Council. Titles may also be nominated by WEST member institutions. Nominations are submitted to the Project Manager and considered by the Collections Council. Further description of the roles and responsibilities for the Collection Council can be found in the Governance structure for WEST.

Decisions are expected to be made on an annual basis but may be made less frequently after the Trust has been established for a few years.

Types of decisions may include:

- Prioritization of sets of titles and title nominations within each selection category
- Balancing holdings and contributions among partners
- Satisfying diverse partners' collection management needs and collection planning
- Managing contribution problems
- Consultation on collection-related issues, particularly when value added services are applied to Trust holdings

Archive Locations and Principles for Title Contributions

The Selection and Validation Working Group recommends the following definitions and principles when conducting collection analysis and identifying the institutions that might best serve as Archive Provider for a title. The Project Manager would confirm commitments from potential Archive Providers prior to a firm designation. These principles are designed to keep collection analysis costs as well as subsequent validation costs low for the partners. The Collections Council may define additional principles over time.

"Archival locations" are defined to include separate high-density library storage facilities and library locations with controlled access and appropriate environmental conditions. This hybrid model for archive locations is recommended for various reasons:

- Provides for archiving more materials since there are capacity constraints at storage facilities
- Allows more institutions to serve as archive locations; supports distributed archiving programs such as the Orbis Cascade Alliance Distributed Print Repository and GWLA (in planning).
- Supports the likely progression over time for materials to move toward more secure environments, e.g., from campus stacks to protected status to protected locations such as storage facilities.
- Could be implemented more quickly and less expensively.
- Supports different comfort levels among participants and different incentives among archive providers

The following principles would guide efforts to analyze collections to identify archive location candidates:

- When multiple backfiles for the same title exist in WEST, the most complete backfile is selected for the archive (as complete as can be discerned initially from bibliographic records.) That backfile is completed by other members' holdings on a proactive or passive basis (as described in the "call for holdings and filling gaps" section.
- WEST member libraries that have access to a storage facility will move a Silver, Gold or Platinum title's backfile to storage, if selected for the Trust.
- WEST member libraries that have access to a storage facility may choose to move Bronze backfiles to storage or retain them on site.
- Validation occurs at the final archival location for the backfile. This is the most cost-effective way to perform validation. For libraries with storage facilities, validation occurs at the storage facility; for libraries without storage facilities, validation occurs at the library.
- Members are expected to contribute holdings when called upon to complete a backfile, even if local backfiles must be broken up.
- When contributions of more recent holdings are of concern, a rolling-wall pattern can be set up.

Governing body for WEST Collections

WEST Collections Council

A WEST Collections Council, a special council within the Operations Committee, consists of one representative from each Archive Provider and two representatives appointed by the Executive Committee from among all Borrower/Contributors.   (The total number of representatives depends on the number of Archive Providers.) The terms of appointed members shall be determined by the Executive Committee.

Responsibilities of the Collections Council are to:
- Refine the Collections Model, when needed, in response to WEST partner's evolving needs.
- Refine selection criteria, Title Categories and Archive Type assignments
- Refine validation standards appropriate for different Archive Types
- Prioritize sets of titles and title nominations for continued development of the WEST archive
- Balance responsibility for holdings among Archive Providers
- Advise on diverse partners' collection management needs and collection planning
- Consult on collection-related issues
- Prepare public relations statements related to the collections

APPENDIX C: Title Categories

1. **Print and Electronic Titles with Digital Preservation Service (CLOCKSS, LOCKSS, Portico)**

Archive Type:	**BRONZE**
Number of Copies:	**1**
Risk Level:	**Low**

Titles with the following combined characteristics are candidates for the Trust:
- electronically available through publisher packages,
- an independent, trusted digital preservation service exists for the title (e.g. Portico, CLOCKSS, LOCKSS)
- high duplication within WEST

Digital Preservation and Post Cancellation Access Assumptions
WEST members assume that if a trusted digital preservation service declares a title is being archived, all of the volumes in the backfile from v.1 to the present will be archived electronically. WEST also assumes that trusted digital preservation service will, in time, secure or effectively provide post-cancellation access permissions for libraries. The current absence of post-cancellation access permissions is not part of the criteria for the Trust.

Risk Level, Archiving and Validation Approach
Print backfiles in this category tend to be widely held among research libraries. Print backfiles in this category also tend to be held in full service libraries among WEST members (not in storage). Users can expect to gain access to the content in some form (print or electronic) quite readily through the network of research libraries, even when/if the relationship between library-publisher is disrupted and as print holdings are consolidated. This category of titles is generally considered at low risk for loss of content or access to content. A lightweight approach to archiving print is recommended.

It is recommended that a single print copy of the titles that are digitally preserved in Portico, CLOCKSS or WEST member LOCKSS boxes be archived by WEST. Journal families with the deepest holdings among WEST libraries (as indicated in existing bibliographic records) are preferred candidates and would be declared part of the Trust.

<u>Orbis Cascade Alliance's Distributed Print Repository, American Chemical Society Archive</u>

The DPR is a built archive consisting of 2 print copies of the American Chemical Society titles from volume 1 to 2002.

This DPR will be incorporated into the Trust with access guarantees for WEST members. No additional moving wall will be built.

Archive Type:	**SILVER through 2002, no additional moving wall**
Number of Copies:	*2*
Risk Level:	*Low*

<u>UC Shared Print Archive, Institute of Electrical and Electronics Engineers (IEEE)</u>

The UC IEEE Shared Print Archive consists of a single print copy of the IEEE titles from volume 1 to 2006. As of June 2010, the archive is approximately 50% complete and will be completed in the next year or two. The archive will continue to be validated at the issue-level and validation is occurring in a distributed model between UCB, UCD and NRLF. While this model is not continued in the future, completion of the project following this model will provide valuable statistics for the future.

This archive will be incorporated into the Trust with access guarantees for WEST members.

Archive Type:	**GOLD through 2006**
Number of Copies:	**1**
Risk Level:	**Low**

2. Print and Electronic, no Digital Preservation, publisher e-journal packages

Archive Type:	**BRONZE**
Number of Copies:	**1**
Risk Level:	**Low**

Titles with the following combined characteristics are candidates for the Trust:
- electronically available through publisher packages,
- the publisher does not participate in or make its content available to digital preservation services
- high duplication within WEST

The print backfiles for titles in this category may be fairly widely held among research libraries. Users can expect to gain access to the content in some form (print or electronic) through the network of research libraries.

Risk Level, Archiving and Validation Approach
The absence of a digital preservation service, and in some cases, post cancelation access rights, represents some risk as the print backfiles are consolidated. That risk can be mitigated by the presence of additional copies held beyond WEST. WEST members assume that these publishers will eventually participate in digital preservation services and offer post cancelation access permissions (if not already offered.) This category of titles is generally considered at lower risk for loss of content or access to content. A lightweight approach to archiving print is recommended.

A single print copy of the titles in specific publisher lists will be archived. Ongoing coordination among WEST Heads of Consortia is recommended to identify publishers and title lists in this category. An initial title list was created from a short list of publisher e-journal packages subscribed to by the California Digital Library on behalf of the University of California campuses and some packages readily identified in the Serials Solutions Knowledgebase. This list may be expanded in the future to include other e-journal packages with no digital preservation of interest to WEST members.

Titles that are currently stored in WEST storage facilities are preferred candidates and shall be declared part of the Trust. Storage facilities in the Trust shall coordinate to identify holdings to incorporate into the Trust.

UC Shared Print Archive, CoreSTOR

The UC CoreSTOR Shared Print Archive consists of a single print copy of a few popular science journals/magazines. The archive was validated at the issue-level without disclosure of condition (though multiple copies were reviewed to select the best) or explicit disclosure of missing issues. The archive is held at SRLF. The project has been completed.

This archive will be incorporated into the Trust with access guarantees for WEST members. No additional moving wall will be built.

Archive Type:	**SILVER/GOLD, no additional moving wall**
Number of Copies:	**1**
Risk Level:	**Low**

3. Print only with selected full-text access through aggregator databases.

Archive Type:	**SILVER**
Number of Copies:	**1**
Risk Level:	**Moderate**

Titles with the following combined characteristics are candidates for the Trust:
- some full-text is available through aggregator databases
- not offered electronically in publisher packages
- high duplication within WEST
- deep backfiles within WEST
- further refinement by these aspects, as needed
    - Publisher type (commercial, society, university press)
    - Scholarly/Refereed
    - Country/language
    - Certain subjects
    - current issues are embargoed

WEST Libraries tend to maintain print subscriptions as well as the print backfiles because the electronic version is incomplete, current issues may be embargoed and past issues are unavailable. Access is unstable and the digital version is not preserved by a third party. While the print backfiles may be needed for occasional research in the near term, the level of duplication among WEST libraries may allow for some consolidation to ensure preservation of the scholarly record while maintaining access copies for use when needed.

It is assumed that titles in this category may eventually move to another category. That is, titles in aggregator databases with selected full text and that are still widely held in print may be successful enough that another publisher will acquire and offer the complete content via subscription, thus changing the risk profile and category. A lighter-weight (SILVER) validation approach to preserve a single copy is recommended for titles in this category. A single copy is recommended with the assumption that the title will shift categories in a matter of years, obviating the need for multiple minimally validated copies in WEST.

Backfiles that are already stored are preferred. However, it is likely that print backfiles in this category are held at a library rather than in storage. In that case, two approaches are possible:

1. The library with the deepest backfile agrees to move the entire backfile to storage (if a facility is available to that library), where it is validated and incorporated into the Trust. Preferred approach.
2. The library with the deepest backfile agrees to keep the backfile on site, validating it on site and moving it, on a rolling wall schedule, to storage (if a facility is available to that library.)

4. Print only titles with electronic abstracting and indexing

Archive Type: ***GOLD***
Number of Copies: ***1***
Risk Level: ***HIGH***

Titles with the following combined characteristics are candidates for the Trust:
- the title is not available electronically but is electronically indexed and abstracted
- moderate to high duplication within WEST but not nationally
- deep backfiles within WEST (publication history)
- further refinement by these aspects, as needed
    - Certain subjects of regional importance (e.g. history of the oil industry in the West, water resources)
    - Scholarly/Refereed
    - Publisher type (commercial, society, university press)
    - Country/language

Titles in this category may be at high risk for loss of content in WEST, loss of access to content within the network of research libraries, and stewardship failure if collection management decisions are not made in a coordinated fashion within WEST. Coordinated action for these titles will ensure preservation of the scholarly record while also providing some opportunity for space savings. The presence of some electronic access points (through abstracting and indexing) may suggest real opportunities for the application of value-added services, particularly digitization, relationship-management with publishers and A&I database producers, and possibly a temporary or more permanent role for the library-as-publisher in partnership with the existing publishers.

A more intensive archive approach is recommended (GOLD) to preserve a single copy of the print backfiles for titles in this category. The application of value-added services and coordination with publishers and specialized Abstracting and Indexing services are also recommended.

5. Print only titles, no electronic access points

Archive Type:	***GOLD***
Number of Copies:	***1***
Risk Level:	***HIGH***

Titles with the following combined characteristics are candidates for the Trust:
- the title is not available electronically
- moderate to high duplication within WEST but not nationally
- deep backfiles within WEST (publication history)
- further refinement by these aspects, as needed
    - Certain subjects of regional importance (e.g. history of the oil industry in the West, water resources)
    - Scholarly/Refereed
    - Publisher type (commercial, society, university press)
    - Country/language

Titles in this category may be at high risk for loss of content in WEST, loss of access to content within the network of research libraries and stewardship failure if collection management decisions are not made in a coordinated fashion within WEST. Coordinated action for these titles will ensure preservation of the scholarly record while also providing some opportunity for space savings. The absence of electronic access points may render these backfiles virtually undiscoverable and as such may suggest a real need for the application of value-added services, particularly digitization, relationship-management with publishers and new modes of automated indexing.

A more intensive archive approach is recommended (GOLD) to preserve a single copy of the print backfiles for titles in this category. The application of value-added services and coordination with publishers are also recommended.

6. JSTOR Titles

JSTOR titles are more widely held in print among research libraries than is necessary to support current and future use[6]. While JSTOR titles are carefully selected for their scholarly content and as such, represent high value content, the electronic journal backfiles are more heavily used than the print. In fact, the print copies are more likely to be used for re-digitization than for research (by users).

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[6] Housewright, Ross and Roger Schonfeld. *What to Withdraw?: Print Collections Management in the Wake of Digitization.* Ithaka S+R, September 29, 2009.

There are many shared archiving agreements in place among research libraries for JSTOR titles. Two important agreements in the western region of the United States include the UC JSTOR Shared Print Archive and the Orbis Cascade Alliance's Distributed Print Repository for the JSTOR Arts and Sciences 1 and 2 collections. The presence of these two archives in the region is sufficient to ensure access to the physical record, when needed, and to ensure stewardship of the scholarly print record. An access archive is recommended for the JSTOR collections not included in the Orbis Cascade Alliance DPR (i.e., Arts and Sciences 3+ collections) to ensure access to those physical collections in the region.

 Recommended actions include:

- *Complete the gaps in the UC JSTOR Shared Print Archive*
- *Continue to develop the moving wall for the Orbis Cascade Alliance's Distributed Print Repository for Arts and Sciences 1 and 2 (single copy).*
- *Create a SILVER level archive for the remaining JSTOR collections not included in the Orbis Cascade Alliance's Distributed Print Repository.*
- *Deselect the remaining JSTOR holdings at WEST libraries and storage facilities*

JSTOR Arts & Sciences 3 + and other journal collections (access copy)

A Silver level archive is recommended for the remaining JSTOR journal collections not archived in the Orbis Cascade Alliance's Distributed Print Repository (Arts & Sciences 3+), including moving wall. These are intended to serve as an access copy among WEST members.

Archive Type:	***SILVER***
Number of Copies:	***1***
Risk Level:	***MODERATE***

Orbis Cascade Alliance Distributed Print Repository JSTOR Archive (access copy)

The continued development of the Orbis Cascade Alliance's DPR for JSTOR Arts and Sciences 1 and 2, including moving wall, is recommended. The DPR includes two copies from volume 1 to the year 2002. For the moving wall (2002 -), a single copy is recommended. The DPR archive is intended to serve as an access copy among WEST members.

Archive Type:	***SILVER***
Number of Copies:	***2 until 2002, 1 copy for moving wall***
Risk Level:	***MODERATE***

UC JSTOR Shared Print Archive (preservation copy)

The continued development of the UC JSTOR Shared Print Archive for all JSTOR journal collections, including moving wall, is recommended and endorsed by WEST. WEST also

recommends completing the gaps in the archive from contributions from WEST members. WEST members may make contributions of print volumes to complete the archive. Contributions are made in the form of donations to UC Libraries which become subject to UC-JSTOR contractual restrictions.

Access to this collection is restricted by contractual terms between JSTOR and UC, and as such, the archive will not be formally incorporated into the Trust but is acknowledged as an archive in the Western Region of the United States that secures the scholarly print record for future re-digitization.

Archive Type: ***PLATINUM***
Number of Copies: ***1***
Risk Level: ***HIGH (for gaps)***

APPENDIX D: Archive Types

For some types of journals, archives will be actively built and contributed to the Trust. For other types of journals, existing holdings in storage facilities or at libraries will be declared part of the Western Regional Storage Trust without review. Four types of archives are possible within the Trust, each differing in the extent of effort that is placed on constructing the archive: bronze, silver, gold and platinum.

Archive types are defined as:

BRONZE

Print holdings that are subject to a retention agreement or policy, whether shelved in a storage facility or campus library. Holdings metadata is disclosed but is not verified against physical holdings for accuracy. It is assumed that holdings metadata corresponds to the physical volumes on the shelves at the item (piece) level but does not necessarily reflect an inventory of holdings from volume 1 to 2005.

No effort is placed on identifying, filling or disclosing gaps or on verifying and disclosing condition.

Minimal environmental conditions are described below.

Validation standards: None.
Risk level: Appropriate for low risk titles.
Optimal Copies Eligible: No.
Environmental condition requirements:

> Storage in a Library or Storage Facility
> Fire detection system
> Ability to maintain environment within 30-70% relative humidity and less than 80°F

SILVER

A print archive that is actively constructed from the holdings of one or more libraries. The archive is built by calling for, receiving and consolidating physical holdings, validating them for completeness at the *volume* level, and disclosing holdings and gaps. Holdings are contributed through a routine "call for holdings" process during a specific validation cycle.

In many cases these items were stored first and declared as subject to an archiving program later. A minimal level review of physical holdings at the volume level is conducted from volume 1 to 2005. Bibliographic records are verified and updated with holdings information. Gaps are also disclosed. No effort is placed on verifying or disclosing condition.

Physical holdings are reviewed piece-in-hand at the site where the archive will ultimately reside (i.e. if at a storage facility, the review is conducted at the storage facility; if at a library, at the library.)

For WEST, the goal is for a near complete archive, in readable condition, from the earliest published unit to 2005. The archive is subject to a retention agreement or policy.

Environmental conditions are described below.

Validation standards: Volume-level validation standards for completeness only.
Risk level: Appropriate for moderate risk titles.
Optimal Copies Eligible: Yes.
Environmental Condition Requirements:
Storage facility preferred; Library open stacks acceptable but secured locatio preferred
Ability to maintain environment within 30-70% relative humidity and less than 80°F
Annual Time Weighted Preservation Index of 50-75
Fire detection and suppression systems

GOLD

A print archive that is actively constructed from the holdings of one or more libraries. The archive is built by calling for, receiving and consolidating physical holdings, validating them for completeness *and condition* at the *issue* level, and disclosing holdings and gaps. Holdings are contributed through a routine "call for holdings" process during a specific validation cycle. An ongoing effort may be made to fill gaps.

A minimal level review of physical holdings at the issue level is conducted from volume 1 to 2005. Bibliographic records are verified and updated with holdings and condition information. Gaps are also disclosed.

Physical holdings are reviewed piece-in-hand at the site where the archive will ultimately reside (i.e. if at a storage facility, the review is conducted at the storage facility; if at a library, at the library.)

For WEST, the goal is for a near complete archive, in readable condition, from the earliest published unit to 2005. The archive is subject to a retention agreement or policy.

Environmental conditions are described below.

Validation standards: Issue-level validation standards for completeness and condition.
Risk level: Appropriate for moderate to higher risk titles.
Optimal Copies Eligible: Yes.
Environmental Condition Requirements:
Storage Facility preferred, or fully-enclosed and access-controlled area of Library

Ability to maintain environment within 30-70% relative humidity and less than 75°F

Annual Time Weighted Preservation Index of 70 or better, 100 preferred

Fire detection and suppression systems, with notification to responders

Light exposure limited to work hours only

PLATINUM

A print archive that is actively constructed from the holdings of one or more libraries. The archive is built by calling for, receiving and consolidating physical holdings, validating them for completeness and condition at the page level, and disclosing holdings and gaps. An ongoing effort may be made to fill gaps. The goal is for a near-complete archive, in conditions that support re-digitization, from the earliest published unit to an agreed upon year with moving wall updates. The archive is subject to a retention agreement or policy and shelved in a storage facility. Such archives also tend to include contractual relationships with third parties.

Optimal environmental conditions and storage are required for this Archive Type.

Validation standards: Page-level validation standards for completeness and condition.
Risk level: Appropriate for high risk, high quality titles.
Optimal Copies Eligible: Yes.
Environmental Condition Requirements:

Storage Facility Required

Ability to maintain environment within 30-60% relative humidity and less than 70°F

Annual Time Weighted Preservation Index of 70 or better, 100 preferred

Fire detection and suppression systems, with notification to responders

Constant light control, with lighting localized through sensors or timers

APPENDIX E: Environmental Conditions

Certain preservation standards for Archive Providers must be met to ensure the continued preservation and archiving of the WEST copies. While no standards exist on optimal environmental conditions for storage facilities or libraries, some basic requirements are established for WEST Archive Providers.

A review of the literature indicates that *storage facilities* should address the following elements for an ideal long term storage environment. These elements should also be addressed by *libraries* serving as WEST Archive Providers to the extent described for each Archive Type.

Elements of an Ideal Environment

a) Controlled relative humidity

b) Controlled temperature

c) Limited light exposure

d) Absence of organisms and pests

e) Fire suppression and/or sprinkler systems

f) Security and monitoring systems

g) Pollutant free air

Most of the research on long-term preservation of print materials has noted that the most important factors for a facility are temperature and humidity control and cleanliness. Generally speaking, consistent temperatures below 60 degrees and relative humidity of approximately 40% provide significant reductions in the rate of acid hydrolysis, the primary mechanism of decay in paper. These conditions do not exacerbate the problems of the other media commonly found in library and archival collections -- such as film, photographic prints, and magnetic media – although some of these media require dramatically colder environments to stop their chemical decay.

As research on environmental impacts and the tools for managing building systems have advanced, it has become easier to account for the effects of seasonal variance in temperature and humidity control. Although certain boundary conditions of temperature and humidity must be maintained, safe patterns of environmental fluctuation have been established through testing and experimentation. . The most common metric for this is the Time Weighted Preservation that was developed by the Index Image Permanence Institute at the Rochester Institute of Technology. TWPI benchmarks the effects of temperature and relative humidity on the life expectancy of the collection over extended periods of time. The ability to analyze the preservation environment on an extended timeline provides opportunities to manage energy costs while delivering optimal preservation results.

There are essentially two types of archive buildings amongst WEST participants and therefore two types of facilities where collections may be archived: long-term storage facilities and active libraries. We will assume that the long-term storage facilities meet relative standards for environmental control and collections access while active libraries meet some standards for short-term preservation but rarely meet the standards for long term storage. In the WEST collections model, specific requirements for environmental conditions are defined for each Archive Type.

APPENDIX F: Standards for Issue and Volume Level Validation

These standards are used to prepare a single Shared Print Journal Archive from the holdings of multiple library partners. The standards define the level of effort to place on coordinating holdings and verifying completeness and condition. The standards also set expectations about the types of conditions and gaps that can be found in the resulting archive.

These standards are used to validate print journal holdings at one of two levels depending upon the archive type (Silver or Gold).

- **Silver archives are validated at the volume level for completeness only (not condition).**
- **Gold archives are validated at the issue level for completeness and condition.**

The standards are designed to

1. **establish a basic set of validation requirements** that are less intensive than page-level validation but meet some basic expectations
2. **provide transparency among the research library community** about the content that can be found in the shared print journal archive and the condition in which it can be found. Transparency is achieved by
   a. *explicitly defining the actions performed* (and not performed) to secure a near-complete backfile
   b. *explicitly defining conditions of the material* that are (and are not) accepted in the archive
   c. *disclosing completeness (and missing content)* in descriptive records in union catalogs
   d. *disclosing condition* information in descriptive records in union catalogs

Scope of Holdings and Contribution Expectations

It is assumed that **validation occurs within the context of the holdings of WEST member libraries.** Print journal holdings may be contributed by one or many libraries and members are expected to contribute holdings to secure the most complete backfile possible from those represented in the aggregate collections. **Efforts are not made to acquire volumes or issues beyond the holdings of the WEST membership. Gaps and condition problems are recorded in descriptive records in union catalogs.**

Standards

To be considered validated, a Silver Archive

1. must meet standards for completeness (as described in the c*ompleteness* section).
2. specific actions must be taken (as described in the *decision matrix)* when problems of completeness or contribution are identified.
3. information about completeness and actions taken must be explicitly recorded in descriptive records in union catalogs.

To be considered validated, a Gold Archive

1. must meet standards for completeness and condition (as described in the *completeness* and *condition* sections).
2. specific actions must be taken (as described in the *decision matrix)* when problems of completeness, condition or contribution are identified.
3. information about completeness, condition and actions taken must be explicitly recorded in descriptive records in union catalogs.

If any of these three steps are not met, the archive is not considered validated.

Completeness (Silver and Gold Archives)

Reasonable efforts are made to compile a complete or near complete archive of a journal in the context of the Content Partners' holdings. The holdings are compiled, duplicates removed and a single archive of all published volumes, issues and supplements available is deposited. The archive is disclosed as a shared archive and known gaps are recorded in a union catalog(s) in such a manner as to facilitate the automated preparation of gaps lists (separate from holdings lists).

> *Definition. Silver Archive.*
>
> **A complete Shared Print Journal Archive** consists of all volumes published for a particular journal and its historical title variants from volume 1 to a designated year (or until the year the publication ceased or was suspended) for which holdings exist within the Content Partners' libraries.
>
> *Definition. Gold Archive.*
>
> **A complete Shared Print Journal Archive** consists of all issues and supplements published for a particular journal and its historical title variants from volume 1 issue 1 to a designated year (or until the year the publication ceased or was suspended) for which holdings exist within the Content Partners' libraries.

Determining completeness

The level of effort placed on verifying completeness depends upon

- the publication history for a journal
- the unit of publication for verification
- libraries' physical holdings and willingness to contribute
- quality of bibliographic and holdings records, particularly in union catalogs

In most cases, there is no single verifiable list of the complete publication history of a journal[7]. Completeness can be determined by consulting various sources including local catalog records, union catalog records, inspection of physical pieces, publisher's lists of historical volumes/issues, out-of-print vendors' catalogs and advanced researchers with special knowledge about the publication. Consultation of each source implies an additional amount of effort.

Process for determining completeness

A reasonable effort to determine the publication history of a journal and secure a complete archive consists of consulting:

1. The physical piece
2. Local catalog entries
3. Union catalog entries for the Content Partners' holdings

To be considered validated, the above three sources must be consulted.

The following additional sources do not need to be consulted for the archive to be considered validated. These are acknowledged here and explicitly excluded from the validation requirements to manage the level of effort placed on verifying completeness.

4. Publisher lists. Publishers may maintain lists of the historical issues and volumes published for a journal.
5. Electronic holdings list (or lists for other formats.) Lists of historical issues and volumes published for a journal in alternate formats may be available.
6. Users, researchers. Advanced researchers may have knowledge of specific important issues, articles or other historic content published in a journal.

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[7] Research libraries tend to have a more complete understanding of a journal's publication history than the publisher. If an archive exists that *has* been validated to a higher standard (i.e. a page-validated archive), assume that that archive has the most complete list of a publication's history. The holdings for the volume or issue-validated archive should be validated against the page-validated archive's inventory check-list.

Silver Archives

Begin with an inspection of the physical pieces (typically a run of bound volumes).

1. Review the enumeration pattern for the volumes
   a. Look for obvious missing volumes
   b. Look at the binding labels, volume and date statements
2. Accession all of the volumes present into the Shared Print Journal Archive.
3. If volumes are missing or out of sync with the binding, volume and date statements, consult library bibliographic records to verify the publication history.

Gold Archives.

Begin with an inspection of the physical pieces (typically a run of bound volumes).

1. Flip through the text block of the physical volume or issue (if unbound).
   a. Look for obvious missing issues
   b. Look at the binding labels, volume, issue and date statements
2. If all of the issues are present, the volume is a likely candidate for the Shared Print Journal Archive. Review the condition of the volume (next section).
3. If issues are missing or out of sync with the binding, volume, issue and date statements, consult library bibliographic records to verify the publication history.

Condition (Gold Archives)

Reasonable efforts are made to identify the issues that are in the ***best, readable condition*** among the Content Partners' holdings and that are ***capable of sustaining an agreed upon preservation horizon.***

> ### *Definition.*
>
> **Readable condition.** A shared print journal archive is in readable condition when the entire text block can be read by the human eye. Words are not lost at the margins or on the pages due to publishing or binding errors, significant damage or markings.
>
> **Best condition[8].** When multiple readable copies are available, the copy that meets most of the acceptable conditions is selected. The *decision matrix* below describes how to make decisions when the best copy cannot be determined.
>
> **Preservation Horizon.** The time period for which the physical material is expected to last in readable condition when stored in defined environmental conditions. The horizon is formally agreed upon by the Content Partners.

Process for determining best, readable condition

- Flip through the complete text block of the physical volume or issue (if unbound).
- Look at the binding and sewing for indications of loose pages and tight bindings
- Test some pages for sufficient flexibility to sustain photocopying

Issues are accepted (or not) into the Shared Print Journal Archive based on the following criteria. In some cases, action must be taken to remedy and/or document the condition before the volumes and issues can be accepted into the archive.

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[8] The standards do not attempt to provide an exhaustive list of possible conditions that may be found in journal holdings. It is assumed that the holdings meet basic criteria for deposit in an off-site shelving facility and that the facility has specific requirements for the condition of materials that can be deposited (e.g. for mold, presence of insects, etc.).

Decision Matrix and Expected Actions (Silver and Gold Archives)

When validating journal holdings, it is likely that multiple problems may be identified including problems of completeness, condition or contribution. The following standard actions are expected and must be taken to address each problem. These actions are designed to keep validation effort to a reasonable minimum and to provide transparency across the partnership about actions taken to verify completeness and condition.

Table 3: Expected Actions

Problem Type	Problem	Action
SILVER AND GOLD ARCHIVES		
Contribution	1. **Content Partner does not wish to contribute recent volumes or issues.**	Implement a 3 or 5 year rolling wall in the Shared Print Journal Archive agreement with the Content Partner. Otherwise, seek another Content Partner.
Contribution	2. **Complete or near complete holdings are available among Content Partners, but none of the partners are willing to contribute a significant portion of the older volumes or issues (backfile issues).**	The entire journal is not a candidate for the Shared Print Archive. Remove the journal from the Shared Print program. If a portion of the Shared Print Archive has already been processed, annotate the remaining unprocessed issues as missing issues in descriptive records in union catalogs and discontinue work on the journal.
Completeness	3. **Missing volumes.**	Seek missing volumes from Content Partners. If none are available, annotate the missing volumes in descriptive records in union catalogs.
Completeness	4. **Different binding patterns for a volume.**	Add multiple volumes. Do not dis-bind volumes or correct physical bindings. Document binding differences in descriptive records in union catalogs to facilitate discovery.
GOLD ARCHIVES ONLY		
Completeness	5. **Volumes with missing issues.**	Accession multiple volumes into the Shared Print Journal Archive to complete the archive. Document any remaining missing issues in descriptive records in union catalogs.

Problem Type	Problem	Action
Completeness	**6. Missing issues. (for unbound issues)**	Seek missing issues from Content Partners. If none are available, document missing issues in descriptive records in union catalogs.
Completeness	**7. Reprints.**	Seek another Content Partner. If no holdings are available among the Content Partners, accession reprints into the Shared Print Journal Archive. Document which volumes contain reprints in descriptive records in union catalogs.
Completeness	**8. Missing advertisements, images (graphs, photographs).**	If upon a general inspection of the issues a significant number of advertisements or images appear to be missing, seek another Content Partner. If no holdings are available among the Content Partners, accession issues into the Shared Print Journal Archive. Document which issues are missing advertisements in descriptive records in union catalogs. It is not necessary to identify or enumerate all missing ads or images. Simply record the fact that some ads and images are missing. Accession multiple volumes into the Shared Print Journal Archive to complete the archive.
Completeness	**9. Missing foldouts.**	If upon a general inspection of the issues a significant number of foldouts appear to be missing, seek another Content Partner. If no holdings are available among the Content Partners, accession issues into the Shared Print Journal Archive. Document which issues are missing foldouts in descriptive records in union catalogs. It is not necessary to identify or enumerate all missing foldouts. Simply record the fact that some foldouts are missing.
Completeness	**10. Missing pages**	If upon a general inspection of the issues a significant number of pages appear to be missing, document which issues are missing pages in descriptive records in union catalogs. It is not necessary to identify or enumerate all missing pages. Simply record the fact that some pages are missing.
Condition	**11. Tight binding.**	Seek another Content Partner. If no holdings are available among the Content Partners, accession issues into the Shared Print Journal Archive. Document which volumes have tight bindings in descriptive records in union catalogs.

Problem Type	Problem	Action
Condition	**12. Loose binding**	**No action necessary. This condition is acceptable.** Accession the volume into the archive.
Condition	**13. Low quality binding/sewing**	**No action necessary. This condition is acceptable**. Accession the volume into the archive.
Condition	**14. Brittle paper**	Document which volumes have brittle paper in union catalogs and accession the volume into the archive.
Condition	**15. Yellowed/Browning pages**	**No action necessary. This condition is acceptable.** Accession the volume into the archive.
Condition	**16. Unreadable text block (e.g. glue damage, printing mistakes, shot text)**	**Not permitted in the archive.** Seek another Content Partner.
Condition	**17. Highlighting, marginalia, pencil and pen markings**	If a significant number of pages have highlighting or markings that render the text unreadable, seek another Content Partner. Otherwise, accession the issues into the Shared Print Archive and document that some pages have highlighting or markings in descriptive records in union catalogs. Do not attempt to verify this at the page level, only at a cursory level by flipping through the text block.
Condition	**18. Separated pages** **19. Loose pages**	If more than 10 pages in a volume, seek another Content Partner. If none available, then reattach the pages or tie the volume with acid free string, whichever is fastest, and accession into the Shared Print Archive. If less than 10 pages in a volume, reattach the pages or tie the volume with acid free string, whichever is fastest, and accession into the Shared Print Archive.
Condition	**20. Missing issue covers**	Document which volumes have missing issue covers in union catalogs and accession the volume into the archive.
Condition	**21. Separated issue covers**	Reattach the cover(s) or tie them with acid free string, whichever is fastest, and accession into the Shared Print Archive.

Definitions

1. **Journal.** A periodic publication in which researchers report the results of their work to their peer community. A "journal" refers to a particular publication, the name of which may change over time. For the purposes of these standards, a "journal" includes the current title and previous titles.

    a. **Current title.** The name currently used for the journal.
    b. **Previous title.** The name or names previously used for the journal.

2. **Holdings (Journal Holdings).** The physical content held by a library for a particular journal. A library's holdings for a journal may be incomplete. And the holdings may be bound differently from institution to institution; the issues represented in a physical bound volume at one institution may be different from the issues in the same volume at another institution based on historic binding practices.

3. **Issue (Journal Issue).** A unit of publication of a journal. An issue is typically published on a periodic schedule (monthly, quarterly, etc.)

4. **Volume (Journal Volume).** There are two types of volumes: the published volume and the bound volume. For purposes of validation, statistics are kept about both kinds of volumes.

    a. Published volume: a unit of publication comprised of multiple issues and distinguished by an enumeration pattern determined by the publisher.

    b. Bound volume: a physical piece comprised of multiple issues and distinguished by an enumeration pattern determined by the library. This pattern may vary from library to library based on past binding practices.

5. **Shared Print Journal Archive.** A collection of print journals that are commonly held and to which access is shared.

6. **Content Partners.** The libraries and organizations that agree to *contribute and compile substantive journal holdings* to construct a single shared archive. They enter into a *formal agreement* which establishes the terms, obligations and expectations of the partnership and archive behaviors. In the case of WEST, the Content Partners are WEST member libraries and storage facilities.

7. **Defined Environmental Conditions.** Environmental conditions that are explicitly defined to support long term preservation of print materials. For WEST, environmental condition requirements are explicitly defined for each Archive Type.

8. **Validation**. Process by which the print holdings of a journal are confirmed by physical inspection and review. The intensity and extent of inspection may vary from high (page-level validation) to low (issue-level or volume-level validation).