The Charleston ADVISOR

Critical Reviews of Web Products for Information Professionals

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Contact Information

Hein-On-Line
William S. Hein and Co., Inc.
1285 Main Street
Buffalo, New York 14209-1987
Phone: (800) 828-7571 x237
E-mail: <techsupport@wshein.com>
URL: <http://heinonline.org/>

the pricing itself more transparent would be welcome improvement and allay librarians' fears about overpaying vis-à-vis other institutions. Finally, although the PDFs are uniformally welcomed by academics, the uncorrected OCR is unreliable and longer-term development of this and the search features of Hein would be valuable.

Overall, HeinOnline is an excellent addition to the legal database arena, and with its forward-looking developmental attitude, it promises to be a key player in the future.

Contract Provisions

The license is fairly standard, and seems to provide for walk-in users, defined as those who are "physically present in the library." It also includes provision for providing links to individual sections or articles, but requests that William S Hein and Co. is informed of the URLs of such links, and that licensees agree to change appearance or wording if requested.

Authentication

Hein offers straightforward access methods, providing unlimited simultaneous access for all users (or just faculty, according to the contract signed). Institutions can register for IP authentication, so that no passwords are required while on campus and remote access is available with a single log on.

Author's Selected References

Sands, G. (2003) "e-product review: Hein-on-line' *Legal Information Management* 3(1) Spring 2003. p61.

Goelzer Lyons, B. (2000) 'HeinOnline brings historical legal materials to the web' *Computing at Cornell: CIT News*. Accessed at http://www.cit.cornell.edu/computer/news/featurestoc/heinonline.html on 19 June 2003.

Goelzer Lyons, B. (2000) 'Law School collaboration brings historical legal materials to the web' *Cornell Chronicle* 28 September 2002. Accessed at http://www.news.cornell.edu/Chronicle/00/9.28.00/HeinOnline.html on 19 June 2003.

About the Author

Ann-Marie Ashby received her M.A. in Librarianship from the University of Sheffield, England, in 1997. Since that time she has worked as a subject librarian at University College Northampton, Aston University, and currently, Birmingham University. In her capacity as a Liaison Librarian for Business and Law, Ann-Marie supports the teaching, learning and research of staff and students in these schools through information skills programmes and the acquisition and exploitation of effective learning materials. She has a particular interest in electronic information sources, and as such is heavily involved in e-books, e-journals and the establishment of a new e-Resources Directory. Ann-Marie is also membership secretary for BBSLG (British Business School Librarian's Group), and a member of ALLICE (Association of Law Librarians in Central England) and Aslib (Midlands). ■

▼ ADVISOR REVIEWS—STANDARD REVIEW

Science.gov

Date of Review: August 22, 2003

Composite Score: ★★★ 3/4

Reviewed by: Gerry McKiernan
Parks Library
Iowa State University
152 Parks
Ames, Iowa 50011
<gerrymck@iastate.edu>

Pricing Options

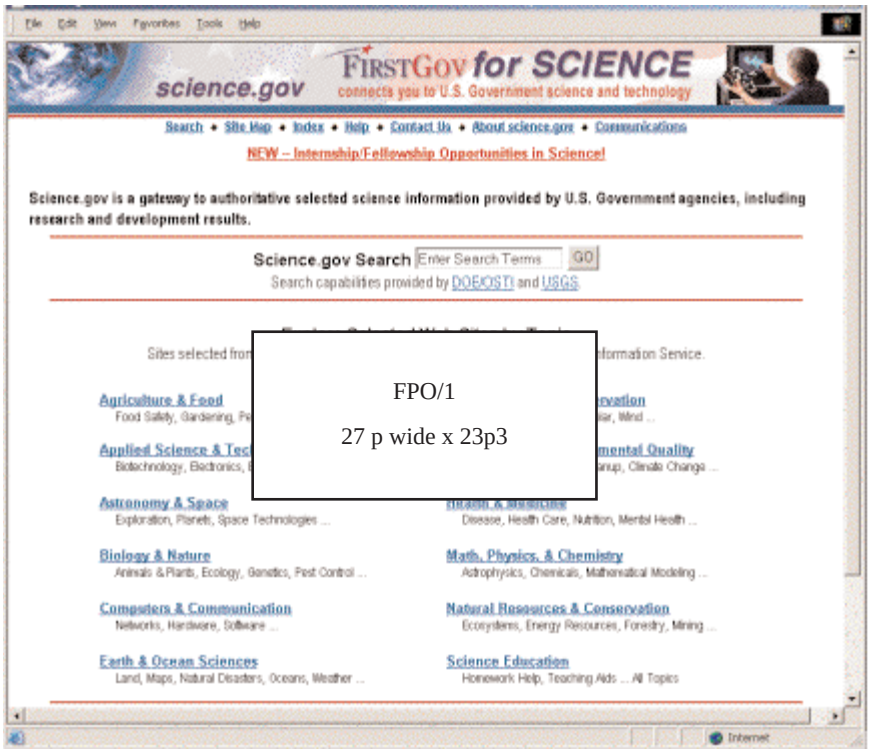
Access to science.gov is available free-of-charge.

Product Description

Science.gov is a gateway to authoritative and reliable science and technology information produced by major U.S. Government agencies selected by the representatives of the respective agencies (see Figure 1). It was developed by the science.gov Alliance, a federal interagency working group of 16 scientific and technical information organizations from 11 major science units. Members of the alliance include:

- Department of Agriculture
  - National Agricultural Library
  - United States Forest Service
- Department of Commerce
  - National Institute of Standards and Technology
  - National Technical Information Service

Figure 1 **Science.gov serves as the "FirstGov for Science."**



- Department of Defense
  - Defense Technical Information Center
- Department of Education
  - National Library of Education
- Department of Energy
  - Office of Scientific and Technical Information
- Department of Health and Human Services
  - Food and Drug Administration
  - National Institutes of Health
    - National Library of Medicine
- Department of Interior
  - United States Geological Survey
    - National Biological Information Infrastructure
- Environmental Protection Agency
  - Office of Environmental Information
  - Office of Research and Development
- National Aeronautics and Space Administration
  - Scientific and Technical Information Program
- National Science Foundation
- United States Government Printing Office

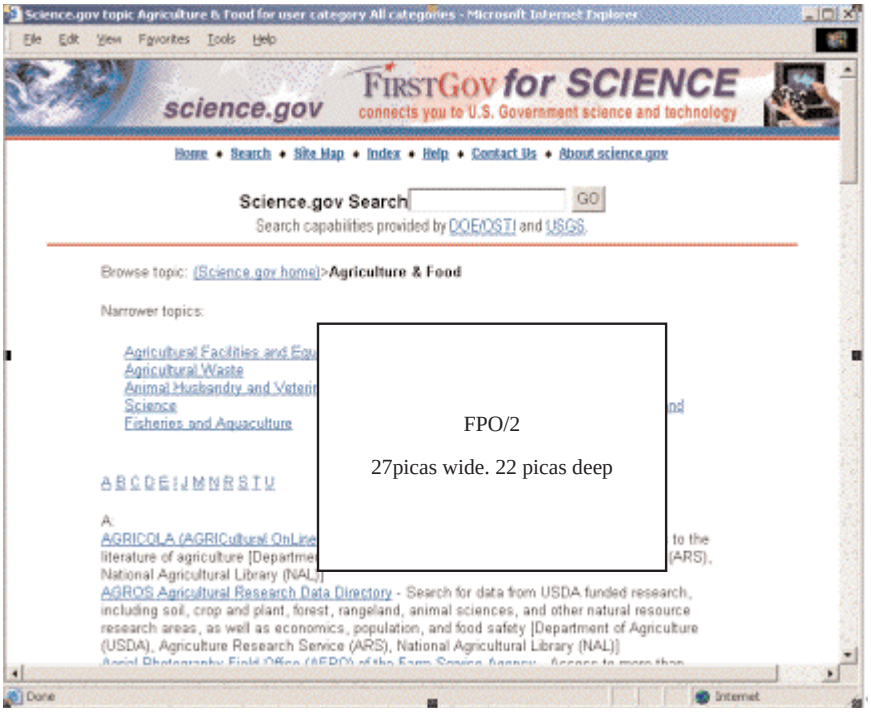
Several members of the science.gov Alliance are also members of CENDI <http://www.dtic.mil/cendi/>, an interagency working group of senior Scientific and Technical Information Managers from select U.S. federal agencies, which, among its various activities, provides administrative support and coordination for science.gov.

Science.gov serves as the "FirstGov for Science Cross-Agency Portal" and was formally launched in December 2002 after a preliminary test in the spring of that year.

GENERAL CONTENT

Science.gov provides access to two major types of information sources: authoritative federal science and technology Web sites, and specialized federal databases that index journal articles, technical reports, conference proceedings, and other conventional published materials and gray literature. The Web pages can be browsed from the science.gov home page, and the databases, as well as the Web pages, can be searched individually or simultaneously from a different search page.

Figure 2 **Directory listing of narrower topics above an alphabetical listing of resources categorized with the 'Agriculture & Food' broad topic in the science.gov Web collection.**



WEB SITES

Science.gov Web sites are selected from SciTechResources: A Catalog of Government Science and Technology Web Sites <http://www.scitechresources.gov> maintained by the National Technical Information Service (NTIS). SciTechResources.gov "provides the scientist, engineer, and technologist with easy, one-stop access to key U.S. Government web resources" that link to "government expertise, services, laboratories, information centers, and other important resources."

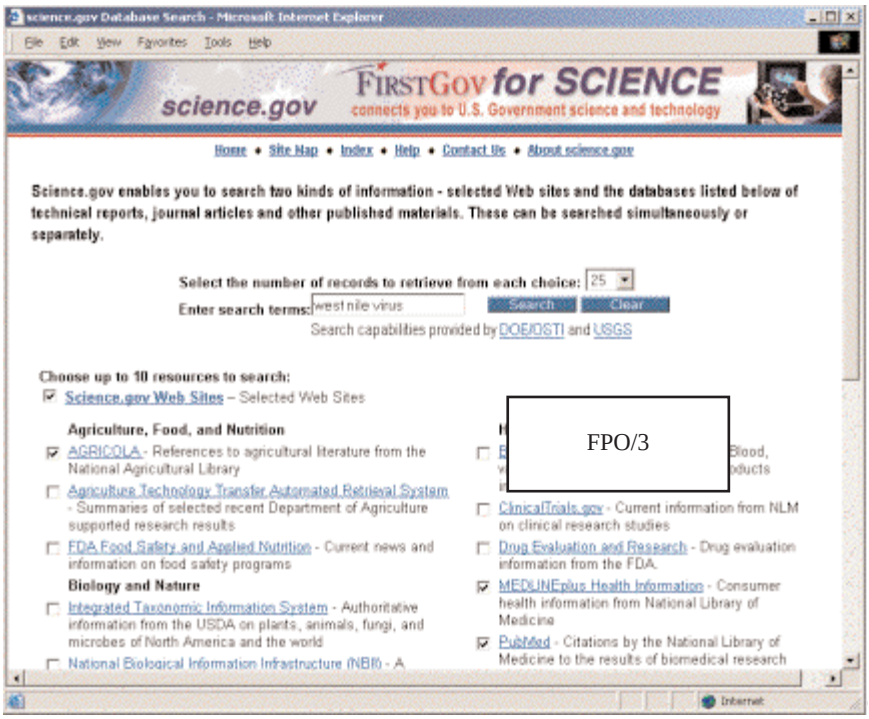


Figure 3 **Directory of science.gov database selection and search page.**

Within science.gov, selected Web sites are organized within 12 broad categories under the heading Explore Selected Web Sites by Topic (e.g., Agriculture and Food, Applied Science and Technologies, Astronomy and Space. Selected narrower categories are noted adjacent to each broad topic; for example, "Food Safety, Gardening, Pesticides, Veterinary Science…" are listed below Agriculture and Food (see Figure 1). Selecting any broad topic (for example, Agriculture and Food) brings up a more complete directory of Narrower Topics displayed above an alphabetical list of resources categorized within the selected broad topic (see Figure 2). Within each broad and narrow topic, listed resources are directly linked to their respective associated Uniform Resource Locator (URL) and not to a record that provides standardized bibliographic data about the resource (e.g., author, title, publisher, date, URL, subject coverage, etc.).

Adjacent to the name of each resource is a statement that concisely describes the resource, as well as the name of the associated host federal agency (for example, "AGROS Agricultural Research Data Directory—Search for data from USDA funded research, including soil, crop and plant, forest, rangeland, animal sciences, and other natural resource research areas, as well as economics, population, and food safety [Department of Agriculture (USDA), Agriculture Research Service (ARS), National Agricultural Library (NAL)"). Resource names and their associated annotations are listed sequentially without spacing between entries (refer again to Figure 2).

Resources categorized within a broad topic are generally not included within a narrower topic, although there are appropriate exceptions (e.g., the resource Quick Species Search is included within the broad topic Biology and Nature as well as within the narrower topic Animals, Plants And Other Organisms within the broad topic. In addition, a resource may be categorized within more than one broad or narrow topic (for example, AGROS is categorized in Agriculture and Food as well as in Biology and Nature.

Users may return to the broad topic level or the science.gov home page by navigating a linear hierarchy (Browse Topic: …) located above a narrower topics directory or alphabetical resource listing for a broad topic display. In select cases, narrower topics may themselves have subtopics (e.g., Computers and Communication > Computers> Computer Security). Users may also browse broad and select subordinate topics using an alphabetical hyperlinked Index <http://www.science.gov/browse/topiclist.htm>. Broad topics are also listed and are linked within the science.gov Site Map <http://www.science.gov/sitemap.html>.

Within science.gov there are more than 1,200 Web sites, categorized within more than 175 subtopics. The Web collection includes select specialized federal databases, which, with other databases, comprises a separate searchable database collection within science.gov. Additional Web sites are added to the science.gov Web collection approximately every six weeks, and a linked entries of 'Featured Web Sites' is displayed near the bottom of the science.gov home page (for example, Children's Environmental Health and Safety, Science@NASA, and Astrogeology Research Program) and are rotated periodically.

DATABASES

Within science.gov, users may concurrently or alternatively search 29 specialized databases or information sources (e.g., AGRICOLA, DefenseLINK, DOE Information Bridge) made available free-of-charge by various government agencies. The databases are categorized within nine broad categories (e.g., Agriculture, Food, and Nutrition, Biology and Nature, Health and Nutrition). See Figure 3.

As of August 15, 2003, the nine categories and their respective contents included the following:

Agriculture, Food, and Nutrition

- AGRICOLA
- Agriculture Technology Transfer Automated Retrieval System
- FDA Food Safety and Applied Nutrition

Biology and Nature

- Integrated Taxonomic Information System
- National Biological Information Infrastructure (NBII)
- National Oceanic and Atmospheric Administration (NOAA)

Defense Science and Technology

- DefenseLINK
- STINET Report Collection

Energy and Environment

- DOE Alternative Fuels Data Center
- DOE Information Bridge
- Energy Citations Database
- EPA Environmental Information Management System (EIMS)
- EPA Office of Pesticide Programs
- EPA Reports
- USGS Water Resources Reports

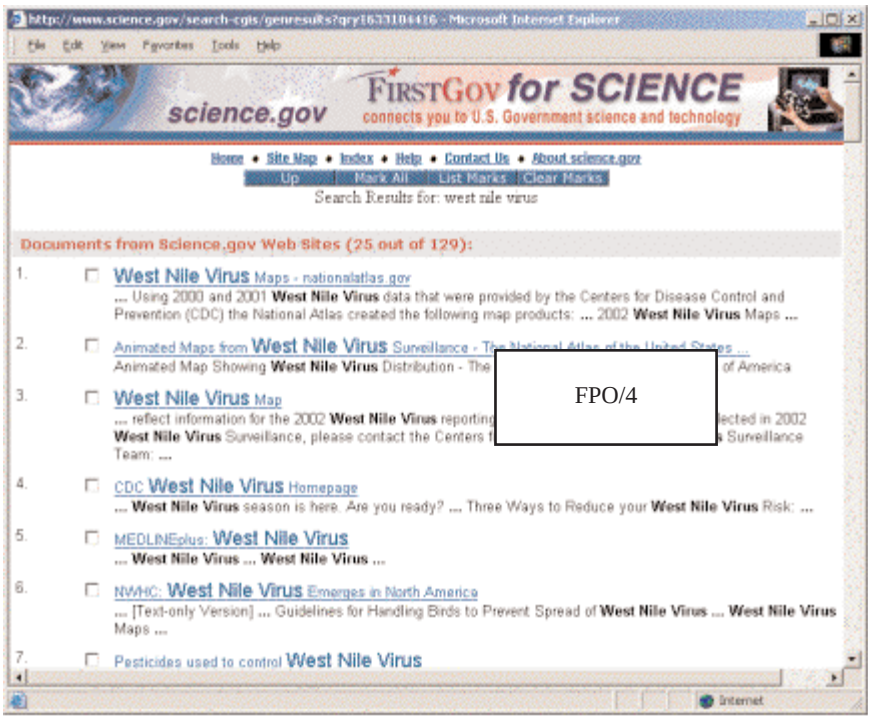


Figure 4 **Sample search results from science.gov showing select entries retrieved from its Web collection relating to the West Nile virus.**

Health and Medicine

- Biologics Evaluation and Research
- ClinicalTrials.gov
- Drug Evaluation and Research
- MEDLINEplus Health Information
- PubMed

Science Studies and Statistics

- ERIC Database
- NSF Publications

Space

- NASA Astrophysics Data System
- NASA CASI Technical Reports
- NASA Spacelink

Technology

- NIST Data Gateway
- NIST Publications
- U.S. Patent Server

General Science

- National Technical Information Service (NTIS)

Within science.gov, resources characterized as databases include not only conventional databases (e.g., AGRICOLA, Energy Citations Database, and PubMed), but also federal sites that provide appropriate program information, fact sheets, or agency publications—for example, FDA Food Safety and Applied Nutrition, National Biological Information Infrastructure (NBII), and NIST Publications. The traditional databases provide citations, and in select cases, abstracts and selected full text, for journal articles, technical reports, and other published work.

SEARCHING

Science.gov enables a user to search either its Web site collection or its incorporated databases separately or concurrently.

To search only the Web collection, a user can enter free text in a search box (Science.gov Search) on the science.gov home page (Figure 1). Such a search will search the "text of selected Web pages, linked pages, and catalog records created for the site." If search terms are located within a linked page or catalog record, they may not appear in the retrieval results. A Web collection search can also be conducted by using an identical search box located at the top of every broad or narrower topic page (for example, see Figure 2). In addition, a user can also search only the Web collection by accepting the Web collection option from a separate search page listing of incorporated databases <http://www.science.gov/search.html> (see Figure 3).

To search only databases from this general search page, a user must first deselect the Web collection option, and then select from the listed databases (e.g., AGRICOLA, MEDLINEplus Health Information, PubMed) as shown in Figure 3. Presently, a maximum of 10 separate databases can be marked for a concurrent search. Adjacent to each database (or agency site) is a concise statement about the nature or content of the resource (for example, "AGRICOLA—References to agricultural literature from the National Agricultural Library").

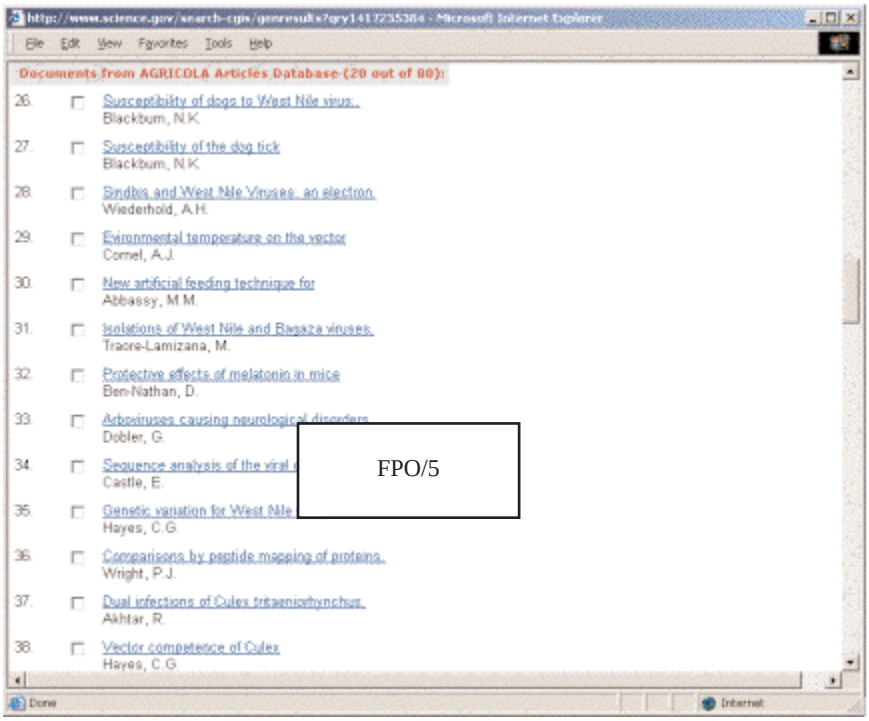


Figure 5 **Sample search results from science.gov showing select entries retrieved from the AGRICOLA Articles Database, a component of the AGRICOLA database, relating to the virus.**

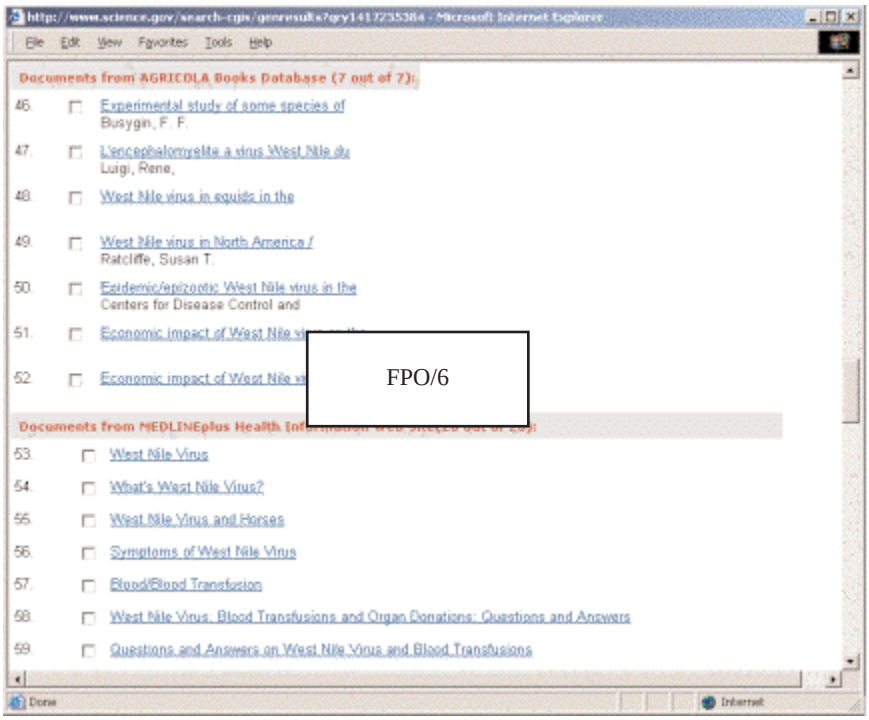


Figure 6 **Sample search results from science.gov showing select entries about the virus retrieved from the AGRICOLA Books Database, a component of the AGRICOLA database, and MEDLINEplus Health Information Web Site.**

A user can also search both the science.gov incorporated databases and Web collection concurrently by accepting the checked default option (Science.gov Web Sites) and by marking databases of interest (Figure 3). When the Web collection default is accepted, a maximum of 9 databases can be selected.

After selecting candidate resources, the user enters the search term(s) or phrase(s) of interest (e.g., "West Nile virus") in the search box for this search page (see Figure 3). As a default, a maximum of 25 items can be displayed, if available, for resources that provide matches to a search query. The user may increase the number to 50, 100, 150, 200, or 250 items, or decrease the number to a maximum of ten, using a pull-down menu located above the search box ("Select the number of records to retrieve from each choice") (see Figure 3).

Although resources that comprise science.gov may individually offer different search options, the following are generally available:

- Boolean operators (AND and OR)
- Wildcard truncation symbol ('*')
- Search terms may be in upper or lower case(s).

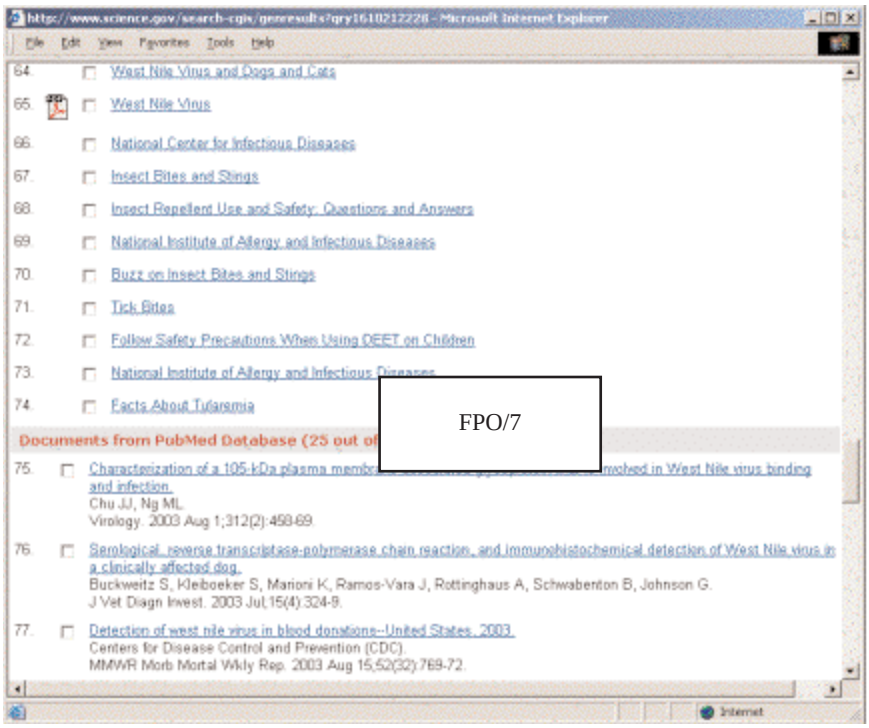
Advanced search features such as field searching (e.g., author, title, year) are currently not supported in science.gov.

SEARCH RESULTS

After the user submits the search request (e.g., "West Nile virus"), a new page displays the processing of the query search against the selected resources, indicating the number that are displayable to the immediate right of the resource name (e.g., "25") as well as the relevant number available within the selected databases to the far right of the name (e.g., "1,053") as in the following example:

Your search has been submitted to 5 resource(s):

1 of 5 PubMed Database	25/1,053
2 of 5 Science.gov Web Sites	25/129
3 of 5 Medline Plus	18/18
4 of 5 AGRICOLA Books	9/9
5 of 5 AGRICOLA Articles	20/84



After the query is processed, the results are displayed and grouped by selected resource (e.g., the science.gov Web collection, AGRICOLA Articles, MEDLINEplus Health Information Web Site, PubMed) (see Figure 4, 5, 6, and 7). The grouping and display order depend on the speed of retrieval of relevant pages or records from the selected resource, and the total number of retrieved results may be limited for a specific database by the producer. On occasion, a search within a specific database may timeout and will not be executed.

Information or bibliographic data displayed in the search results will vary from resource to resource. For the Web collection results, the title of the resource is provided, along with sample context in which the phrase or term appears, and in some cases the name or initialism of the source agency (or database) is

Figure 7 **Sample search results from science.gov showing select entries retrieved from the MEDLINEplus Health Information Web Site and the PubMed database about the West Nile virus.**

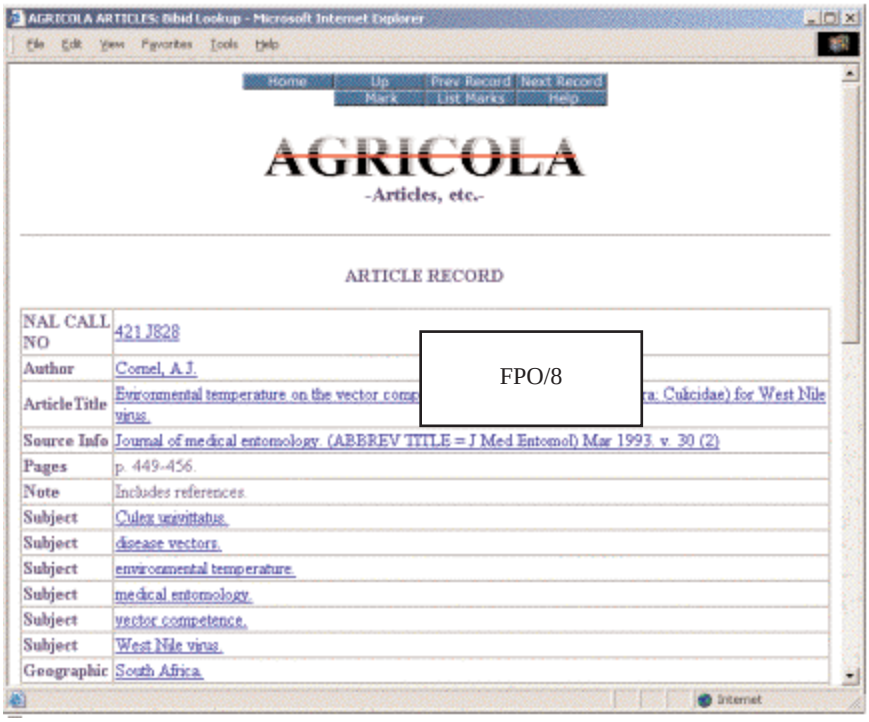


Figure 8 **Sample search result displayed in the science.gov framework showing navigation, marking, and listing options at the top of the screen.**

included. In addition, search terms are bolded (see Figure 4). In the case of retrieved results from a conventional database search (for example, AGRICOLA or PubMed), the entries may include only basic bibliographic data (title and author) as depicted in the example from the AGRICOLA Articles Database (see Figure 5); alternatively, the entries may provide full bibliographic details (title, author, source, date, volume, issue, and pagination) as shown in Figure 7. In the case of an information site (e.g., MEDLINEplus Health Information Web Site) only the title is displayed (see Figures 6 and 7).

The collective search results are displayed with each entry individually numbered and listed in ascending numerical order (see Figures 4, 5, 6, and 7). From within the combined results, the user may preview or review an item of interest by clicking the hyperlinked title. In selecting an entry, the item is displayed within the science.gov framework (see Figure 8). Within this framework, the user can mark an individual entry for future use by clicking the appropriate button at the top of the screen (Mark, Mark All, Prev Record, or Next Record) or list marked records (List Marks). The user can return to the search results page in this context by clicking the Up button located at the top of the framework screen just above the main title. (see Figure 8).

Within the original search results listing (see Figure 4, 5, 6, and 7), the user may also mark all retrieved items by clicking the Mark All button (found at both the bottom as well as the top of the search results listing) or select only those of greatest interest by marking each individually. Within the context of the combined listing, the user may return to the main Web collection and database search page (Figure 3) by clicking the Up button located at the top and bottom of the screen.

After marking, the user can then list the selected titles by clicking List Marks; that command concatenates the titles of selected items into a title listing (see Figure 9). Within a marked list display the user is provided with an opportunity to deselect one or more entries. By clicking a Display button located at the bottom of the Marked Records page, the main Web page or record associated with each is concatenated into a combined listing for browsing and use (see Figure 10).

AVAILABILITY OF FULL TEXT

In general, the Web sites that comprise the science.gov Web collection by their nature are the HTML full text of the resource. In select cases, however, certain resources may exist as PDF files, and science.gov uses the PDF icon to indicate those resources available in this format (Figure 7, and Figure 9). In select cases, citations from a database search may contain links to a free or subscription version of the journal containing the full text of the associated article, although the science.gov display does not explicitly indicate such availability.

OTHER

Science.gov provides a form that allows a user to submit questions or comments that will be electronically directed to a user-selected agency or organization <http://www.science.gov/sciencegovfeedback.html>.

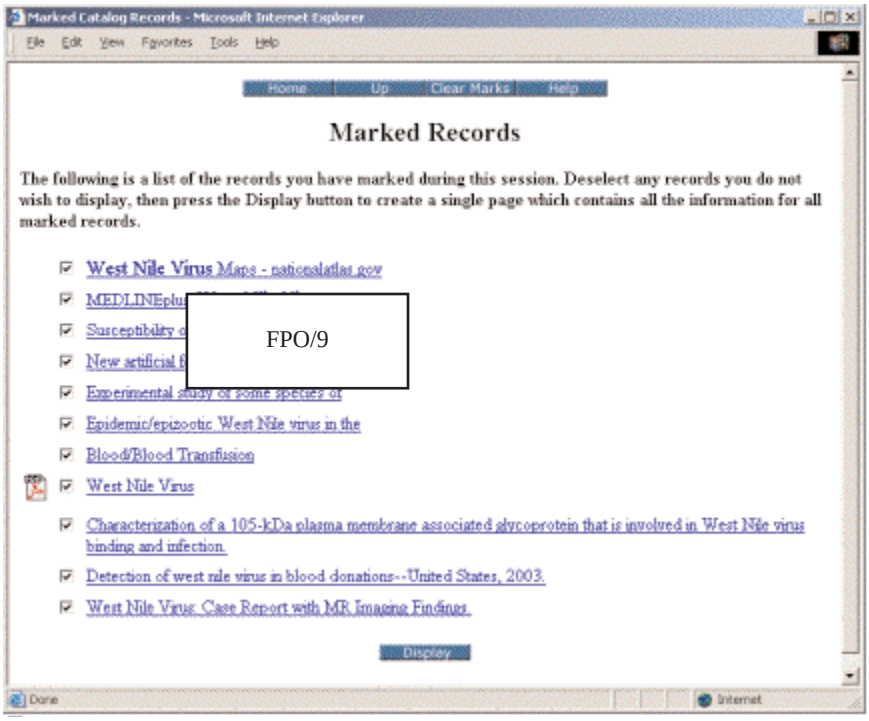


Figure 9 **List of selected records relating to West Nile virus chosen from retrieved results for potential full display.**

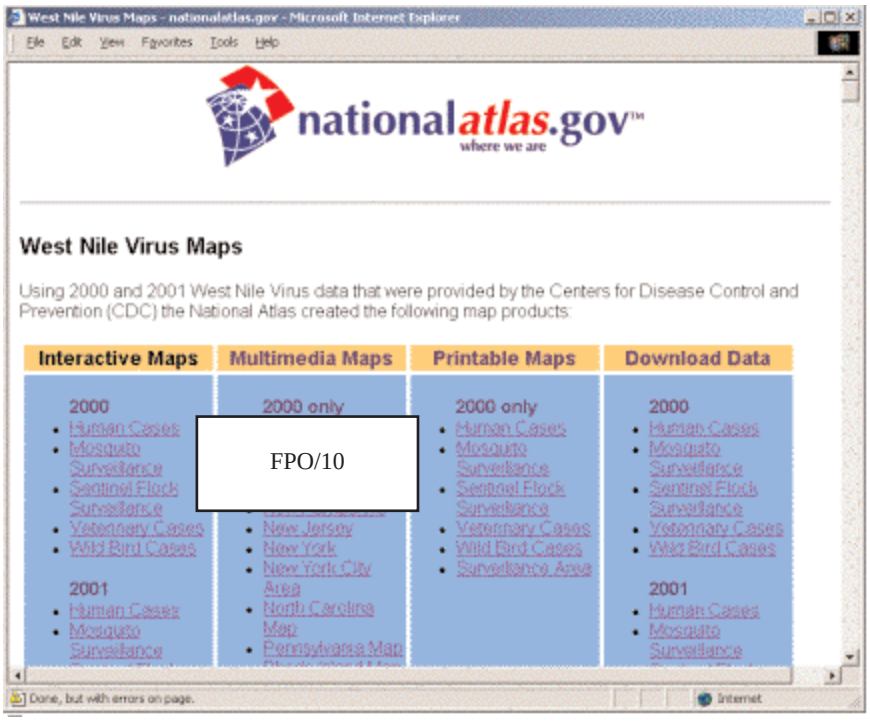


Figure 10 **Top page of a concatenated listing of search results from a combined Web collection and select database search in science.gov.**

TECHNICAL BACKGROUND

The science.gov Web site is hosted by the U.S. Department of Energy (DOE), Office of Scientific and Technical Information (OSTI), Oak Ridge, Tennessee. Its Web page search function is provided by the U.S. Geological Survey (USGS), and its deep Web search capabilities employ Distributed Explorit <http://www.deepwebtech.com/dexpl.shtml>, "a system that provides a common user interface for searching and retrieving information across heterogeneous datasets over the internet."

Critical Evaluation

GENERAL

Overall, the science.gov Web collection and databases are authoritative and well chosen, providing access to quality conventional and specialized information resources of potential interest and value to specialists, nonspecialists, and an educated public. While the service was tested for usability during development and prior to its formal release, there are a variety of features and functionalities that should be reconsidered or newly implemented.

WEB SITES

In the list of Web resources for both the broad and narrower topics categories, alphabetized groups of more than a few entries appear as a solid block of text (Figure 2). The lack of adequate line spacing between entries makes it difficult to isolate and identify individual entries and their corresponding annotations easily. Science.gov designers should consider bulleting, bolding, and/or highlighting individual entries to help the user scanning and select items of interest. In addition, the choice of font (Helvetica) and its size should also be reconsidered. Although the font size can be increased by the user within a browser (View>Text Size), some users may find the default size difficult to read. The spacing between words is too narrow and the font too thin, which may produce eyestrain for some users. The individual letters of the alphabet that are the heading for the alphabetized resource groupings should also be bolded and the font size increased to facilitate visual scanning of the groups.

Although self-evident in most cases, the content and scope of general topics and narrower topics for the Web collection are not explicitly defined within science.gov. The service also lacks an explicit statement that articulates the philosophy and theory of resource categorization. For example, while is appropriate that the resources EnergyFiles and Energy Citations Database are categorized in the broad and/or narrow topics with the "Applied Science and Technologies" and "Energy and Energy Conservation" topics, the reason for their inclusion in the "Computers and Communication" topic is not obvious. With the completion of an announced formal review of the science.gov taxonomy, one can expect clarification of the rationale underlying such practices.

Currently, narrower topics within a broad category are listed alphabetically. Science.gov designers may wish to explore the usefulness of grouping conceptually related subtopics to facilitate identification of related subtopics. Designers should also give consideration to hyperlinking all entries in the science.gov Site Map, most notably the select narrower topics listed under the Topic Page groups <http://www.science.gov/sitemap.html>. Such linking would provide users with an additional pathway to directly access science.gov resources.

To facilitate use, science.gov designers should enable users to mark subtopics of highest interest from a narrower topics directory, and then retrieve an alphabetical listing of distinct resource titles with their respective annotations. Such functionality would significantly improve the efficiency of reviewing and using potentially relevant resources. Currently, users must select, retrieve, and review subtopics and their contents individually, and in some cases that results in duplicate resource entries.

A complete title index of all incorporated resources that allows users to mark Web collection titles of interest would also be beneficial, notably for individuals who prefer to search known resources.

DATABASES

While information about the general nature of incorporated databases is noted, the specific nature, scope, and contents are not described within science.gov itself. For such details, the user is required to access an individual resource directly. Although the science.gov Help page <http://www.science.gov/help.html> states, "Use hyperlinks on Database Descriptions for more information on searching individual databases," such a feature is not currently provided within science.gov.

There is a range of inconsistencies for names of identical resources listed and categorized within the database group and the Web collection. For example, the DOE Information Bridge is listed as such in the science.gov database collection, but listed as Information Bridge in the Applied Science and Technologies broad category of the Web collection; likewise, the NOAA Photo Library is listed as such under the

Science.gov Review Scores Composite: ★★★ 3/4

The maximum number of stars in each category is 5.

Content: ★★★★★

Overall, the science.gov Web collection and databases are authoritative and well chosen, providing access to quality conventional and specialized information resources of potential interest and value to specialists, nonspecialists, and an educated public.

Searchability: ★★ 1/2

While science.gov is a convenient gateway for identifying authoritative sources from its Web collection, users who seek the most relevant database search results for a topic can best use science.gov to identify resources that should be directly searched, and not as a source for comprehensive results.

Users should also be aware that most of the advanced search, sort, and display features and functionalities common in traditional databases are not available in science.gov.

Pricing Options: N/A

Science.gov is free-of-charge and open to the public.

Contract Options: N/A

A contract is not required to use science.gov.

subtopic Earth and Ocean Sciences > Oceans and Oceanography in the Web collection, but listed as National Oceanic and Atmospheric Administration in the database group.

While some databases are incorporated in the Web collection (for example, MEDLINEplus Health Information), this fact is not explicitly stated. In addition to noting that the "text of selected Web pages, linked pages, and catalog records created for the site" are searched in a Web collection search, it should also be explicitly mentioned that it is the respective pages of incorporated databases that are searched and not their content per se.

Designers should give consideration to allowing users to mark a group of databases (e.g., Defense Science and Technology), instead of requiring users to mark each database individually (DefenseLINK and STINET Report Collection).

SEARCHING

It appears that search terms are combined in an implied Boolean combination (AND) in science.gov, but this search default is not explicitly noted, nor is there a statement on the limit on the number of search terms that may be concurrently searched. In addition, there is no indication if phrase searching is permitted.

SEARCH RESULTS

There is no discernable order to the display of the Web collection search results (see Figure 4). It would be preferred to have the search results displayed in relevancy order, if this is not currently the case, with an indication of the relative relevancy of search result.

To readily determine the timeliness of retrieved Web collection results, it would be beneficial to include the publication or copyright date for the listed resources. The inclusion of the Uniform Resource Locator (URL) would enable users to determine the organizational source of the result, although ideally, the inclusion of the full name (or initialism) of the originating agency in all entries would be more useful.

As noted, the entries for retrieved results are grouped by resource (see Figures 4, 5, 6, and 7). However, the information and data provided for the retrieved results are either insufficient or inconsistent from resource to resource. For example, a search in the Agricola Articles Database, a component of the Agricola resource, will provide the title and author (see Figure 5), while the concurrent search in the Agricola Books Database will provide only the title of each entry (see Figure 6). In the case of the Energy Citations Database, the author, title, and date are provided, with an indication of the availability of electronic full text for the item. Search results in the PubMed include not only include title, author(s), date, but also abbreviated journal title, volume, issue, and pagination (see Figure 7). While the ability to readily access an item from its title entry within science.gov search results may eliminate the need to provide full bibliographic details, the inclusion of basic bibliographic details (e.g., author, title, source, date) for all entries for all databases would significantly facilitate preliminary review of search results.

In addition, title entries for database results are inexplicitly and inconsistently truncated (for example, see Figures 5, 6, and 7). Entry data is also truncated in the Marked Records list (see Figure 9) for all items, although partial or full bibliographic data is provided in the original search results (for example, see item 75 in Figure 7 and entry in Figure 9). A full title (with at least a partial subtitle, if available) would

enhance the user's ability to better judge the relevancy of an item before preliminary or final selection.

SORTING

Sorting is not currently supported in science.gov.

FULL TEXT ACCESS

As previously noted, citations from a database search may contain links to a free or subscription version of the journal containing the full text of an associated article. Science.gov designers should investigate the possibility of indicating the availability from these sources, either through a standard icon or initialism.

In the future, after science.gov has matured and the necessary technologies further developed, consideration should also be given to noting which sources are available to users affiliated with a subscribing institution, or available as an open access document.

GENERAL RECOMMENDATIONS

As with many portal implementations, search results from disparate resources are not necessarily the most relevant for a particular query. While science.gov is a convenient gateway for identifying authoritative sources from its Web collection, users who seek the most relevant database search results for a topic should use science.gov to identify resources that should be directly searched and not as a source for comprehensive results. Users should also be aware that most of the advanced search, sort, and display features and functionalities common in traditional databases are not available in science.gov.

Contract Provisions N/A

A contract is not required to use science.gov.

Authentication

The science.gov Web site does not collect personal information about visitor use, unless a user explicitly provides this data. However, certain site-access information is automatically captured and stored, and includes the:

- internet Protocol (IP) address of the domain from which science.gov is accessed
- type of browser and operating system used
- date and time of access
- accessed Web pages
- referring Web site, if science.gov was accessed from a linked site

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About the Author

Gerry McKiernan currently serves as a Science and Technology Librarian and Bibliographer at Iowa States University (ISU) with specialization in selected fields of Engineering. Before assuming his present position, Gerry served as the Coordinator of the Science and Technology Section of the ISU Reference and Instructional Services

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Department at Iowa State and as an Information Services Librarian and Reference Librarian with specialization in the life and physical sciences. Before joining ISU in April 1987, Gerry served as the Museum Librarian of the Carnegie Museum of Natural History in Pittsburgh, Pennsylvania, and as an Assistant Librarian with the Library of the New York Botanical Garden in the Bronx, New York, his hometown.

Gerry is a member of the editorial board of *Science and Technology Libraries*, for which he writes an original column titled "SCI-5," and is also a contributing editor for *Library Hi Tech News*, for which he writes an original column titled "eProfiles." He has been the contributing editor for the "News from the Field" column for the *Journal of Internet Cataloging* since 1997, and a member of the editorial board of *The Serials Librarian* since Fall 2002. He is the curator of *CyberStacks*, a virtual science and technology reference collection, and compiler of several Web registries and clearinghouses. Among his more recent projects are *All That JAS: Journal Abbreviation Sources; Ideals: A Registry of Emerging Innovative Augmented Digital Library Services; and LiveRef: A Registry of Real-Time Digital Reference Services.* His current interests include scholar-based innovations in publishing <http://www.public.iastate.edu/~gerrymck/ScholarBased.ppt> and alternative peer review practices and philosophies <http://www.public.iastate.edu/~gerrymck/APR-1.ppt>. ■

▼ ADVISOR REVIEWS—STANDARD REVIEW

The Tree of Life Web Project

Date of Review: August 17, 2001

Composite Score: ★★★ 1/2

Reviewed by: Michael A. Somers
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Pricing Options

Access to this site is free of charge. However, such a wide-ranging project is supported by a number of foundations and institutions. The University of Arizona has contributed grant monies for scanning projects and salary monies for the project's managing editor. Among those organizations providing additional financial assistance are: the David and Lucille Packard Foundation and the National Science Foundation (for project DBI#0078294 in the amount of $557,773.00).

Product Description

Simply put, the Tree of Life Web Project (ToL) is "a collaborative Internet project containing information about phylogeny and biodiversity." It is an attempt to create a "life-wide database and searching system about [the] characteristics of organisms." It is a map, in the form of an evolutionary tree, which attempts to connect all organisms together into a unitary whole, with pages branching off from a group's page to subgroups. This virtual representation illustrates, "by the connectedness of its own pages," the tree of life itself. This resource is, then, more than a utilitarian product, it is more than data, text, images and a search engine. It is a metasite, a nexus of scrupulously researched information, images, and links. This product is as much philosophy as it is output.

To fully appreciate and understand this site's complexity, the supporting architecture deserves description. From 1995 until early 2002, contributors used a modified version of MacClade (ToL-MacClade) to store information in text files using the Nexus file format. (MacClade is a computer program for phylogenetic analysis written by David Maddison and Wayne Maddison.) The Nexus files were compiled by ToL-MacClade into static HTML pages, which were then loaded onto a Web server.

The current architecture employs a MySQL database. The page information is "acquired from Nexus files generated with ToL-MacClade." The tables are populated using perl scripting to massage the data; whenever data is added, the entire database needs to be refreshed. All pages are now created dynamically; they are created at runtime by perl script. Trees are no longer built with ASCI characters—they are GIF image maps also created at runtime.

The next phase will rely less on Web pages and more on nodes and objects. Objects, which are bits of information, will be stored with mapping rules specifying the node or nodes to which they are attached. Most objects will share common properties such as title, creator, copyright owner, and copyright date. Also, there will be many kinds or classes of objects—they may be names, images, sounds, or text. The purpose of this design is to allow the ToL database to interact and share information with other data sources. This design is also quite scalable, it should ensure the ToL database's stability, and it relies on open-source conventions. In many ways, this Tree of Life is evolving.

Critical Evaluation

This Web Project is a fundamentally sound science-based product. It utilizes the internet as a platform, as a means of organizing an interesting and vast amount of scholarly information, and disseminates the combined efforts of the contributors willingly, without cost to the site's