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From: Graham L. Pierce, MSU Usability/Accessibility Research and Consulting
Subject: SpringerLink High-Level Accessibility Evaluation
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MSU Usability/Accessibility Research and Consulting (MSU UARC) conducted a high-level accessibility evaluation of SpringerLink to evaluate its conformance with WCAG 2.0 AA Criteria. This evaluation did not include all functionality or content of the site or all WCAG 2.0 AA Success Criteria.

During this evaluation, a number of issues were found that will make the site and its content impossible to use for many individuals with disabilities, and difficult to use for some others.

Critically, no means to pause, stop, or hide the banner ad rotators on the Home and Search Results pages is provided. Rotators that cannot be stopped create significant issues for individuals with cognitive and visual impairments, as well as for screen reader users. Issues of this type can interfere with the ability to use any part of a page for some users.

Keyboard users, including screen reader users and users with dexterity impairments, will not be able to use some site content. Most importantly, a some content cannot be reached or operated via keyboard. Focus order is also incorrect in some places, further increasing the difficulty of using the site with a keyboard. Some interactive elements lack a sufficiently visible focus indicator, making it difficult for many keyboard-only users to effectively use them, as they cannot determine when they have reached the correct element.

Individuals with visual impairments that rely on screen readers will have additional problems. Many images have missing or inappropriate alternative text and custom elements do not correctly announce themselves or provide appropriate feedback to screen readers, making them difficult to understand and use. Many form inputs are not appropriately labeled, making those inputs difficult or impossible to use for those that rely on screen readers. Some content and structural information is not appropriately conveyed to users, making it difficult to understand content organization.

While text in PDFs is provided to screen readers, PDFs have not been tagged for accessibility and no structural information is provided to assistive technologies, making them extremely difficult to use and navigate for users with disabilities. Additionally, PDFs do not have a title or language set.

Other issues were found that will make it difficult for users with a variety of disabilities to effectively use the system, including images of text used in place of styled text, insufficient color contrast, inconsistent navigation and identification, no means to bypass repeated navigation, and language changes not being properly documented in the code.

To improve access for users with disabilities, UARC recommends a full WCAG 2.0 AA evaluation and that the problems discovered be remediated.

Note: For the purposes of this high-level review, search results for "global warming" were used as an example of a Search Results page, and "I'll save the world from global warming—Tomorrow: Using procrastination management to combat global warming" was used as an example of an Article page and PDF.

High-Level Findings

Conformance

- Rotating advertisement banners on the Home and Search Results pages cannot be paused, stopped, or hidden. [[WCAG 2.0 CR 5](#), [WCAG 2.0 SC 2.2.2](#)]

Document Structure

- PDF is untagged, and provides no structural information to assistive technologies). [[WCAG 2.0 SC 1.3.1](#)]
- Home page lacks h1 to organize content. [[WCAG 2.0 SC 1.3.1](#)]
- On the Home page, "Providing researchers with access to millions of scientific documents from journals, books, series, protocols and reference works." shouldn't be tagged as a heading. [[WCAG 2.0 SC 1.3.1](#)]
- On the Article page, invisible "1273px" and "button focus catcher" are read out at the start of the page. [[WCAG 2.0 SC 1.3.2](#)]
- On the Article page, four invisible frames are read out when the banner ad is reached. [[WCAG 2.0 SC 1.3.2](#)]
- In the Article PDF, text is not read out properly (e.g., "freez-" and "er" are read out as entirely separate elements, instead of being treated as the continuation of a word in a sentence). [[WCAG 2.0 SC 1.3.2](#)]
- The language of the PDF is not defined. [[WCAG 2.0 SC 3.1.1](#)]
- Changes in language are not documented in the code (e.g., German usage on the Search Results page). [[WCAG 2.0 SC 3.1.2](#)]

Keyboard Support

- The Support lightbox cannot be closed via keyboard. [[WCAG 2.0 SC 2.1.1](#)]
- Definitions/tooltips cannot be reached via keyboard (e.g., "DOI" on Article page). [[WCAG 2.0 SC 2.1.1](#)]
- On the Home, Search Results, and Advanced Search pages, the "Support" slide-out doesn't appear on keyboard focus (only on mouse hover). [[WCAG 2.0 SC 2.1.1](#)]
- On the Home page, Featured Journal and Featured Books title tooltips don't appear on keyboard focus (only on mouse hover). [[WCAG 2.0 SC 2.1.1](#)]
- In the Support lightbox, text formatting buttons (e.g., bold, italic, etc.) cannot be reached via keyboard. [[WCAG 2.0 SC 2.1.1](#)]
- In the Support lightbox, the camera button cannot be reached via keyboard. [[WCAG 2.0 SC 2.1.1](#)]
- On the Search Results page, book covers shouldn't receive keyboard focus. [[WCAG 2.0 SC 2.4.3](#)]
- On the Home and Search Results pages, an invisible "Support" link receives focus at the start of the page. [[WCAG 2.0 SC 2.4.3](#)]
- On the Search Results page, "x New Search" incorrectly receives focus after the Search button, instead of before it. [[WCAG 2.0 SC 2.4.3](#)]
- On the Search Results page, "Date Published" should receive focus before page navigation (i.e., previous and next buttons and page number text input). [[WCAG 2.0 SC 2.4.3](#)]
- Focus doesn't immediately go to the Support lightbox when it is opened. [[WCAG 2.0 SC 2.4.3](#)]

- Focus reaches the page behind the Support lightbox when it is open. [[WCAG 2.0 SC 2.4.3](#)]
- Focus is not sufficiently visible on some content. [[WCAG 2.0 SC 2.4.7](#)]
 - Banner ads on all pages
 - Search button on Home, Search Results, and Advanced Search pages
 - Journal and book covers on Home and Search Results pages
 - "Download PDF" button on Article page
 - "Academic Edition" dropdown on Article page

Navigation

- PDF lacks descriptive title. [[WCAG 2.0 SC 2.4.2](#)]
- On the Home, Search Results, and Advanced Search pages, the "Skip to: Menu content" link is not located at the start of the page, and therefore doesn't allow users to bypass repeated navigation. [[WCAG 2.0 SC 2.4.1](#)]
- The navigation structure on the Article page is not the same as on the Home, Search Results, or Advanced Search pages. [[WCAG 2.0 SC 3.2.3](#)]
- On the Article page, keyboard focus is not identified in a manner consistent with the Home, Search Results, or Advanced Search pages (background color is changed to orange). [[WCAG 2.0 SC 3.2.4](#)]

Forms and Data Submission

- In the Support lightbox, the "Customer / Business Partner #" and "Brand" inputs are not programmatically labeled. [[WCAG 2.0 SC 3.3.2](#)]
- On the Article page, all text inputs and the checkbox are not programmatically labeled. [[WCAG 2.0 SC 3.3.2](#)]
- On the Article page, instructions/examples are not programmatically associated with inputs (e.g., "e.g. "Cassini at Saturn" or Saturn"). [[WCAG 2.0 SC 3.3.2](#)]

Images

- Appropriate alternative text is not provided for visual content. [[WCAG 2.0 SC 1.1.1](#)]
 - Banner ads
 - Attachment button in Support lightbox
 - "Check for updates" graphic on the Article page
 - Journal cover on the Article page (decorative images should have null alternative text)
 - "Opens in new window" icon on the Article page
 - "Logo Springer" is not appropriate alternative text for the "Springer Link" graphic on the Home and Search Results pages
 - "Michigan State University" is not appropriate alternative text for the "Michigan State University Libraries" graphic on the Home, Search Results, and Advanced Search pages
 - "Download" is not appropriate alternative text for the RSS feed button on the Search Results page
- On the Home, Search Results, and Advanced Search pages, "Libraries" (under the "Michigan State University" wordmark) is an image of text, instead of styled text. [[WCAG 2.0 SC 1.4.5](#)]
- Banner ads contain images of text. [[WCAG 2.0 SC 1.4.5](#)]

Color and Visual Characteristics

- Light blue text on white, yellow, and grey backgrounds (links throughout the site), grey text on light grey (text at bottom of page footer on Home, Search Results, and Advanced Search pages), yellow icons on light yellow (lock icons on Search Results and Advanced Search pages), white text on light blue ("Download PDF" on Article page when hovered), light pink on magenta (Featured Book and Featured Journal titles that appear when covers are focused/hovered on Home page), orange text on grey (selected "Refine Your Search" filters and "Date Published" filters on Search Results page), grey text on orange ("Home" and "Springer Nature" links in footer of Article page when given keyboard focus; text in "Cite article" dropdown on Article page when given keyboard focus), and blue text on orange ("How to cite" link under "Cite article" on Article page when given keyboard focus) have insufficient contrast. [[WCAG 2.0 SC 1.4.3](#)]

Custom Elements and Dynamic Content

- On the Home and Search Results pages, the rotating advertisement banners cannot be paused, stopped, or hidden. [[WCAG 2.0 SC 2.2.2](#), [WCAG 2.0 CR 5](#)]
- On the Home and Search Results pages, roles and values (i.e., that they are dropdowns and whether they are expanded or collapsed) are not provided for "English" and "Academic edition" dropdowns, and screen readers are not notified when they are opened or closed. [[WCAG 2.0 SC 4.1.2](#)]
- On the Home, Search Results, and Advanced Search pages, role and value (i.e., that it is a dropdown and whether it is expanded or collapsed) is not provided for "Browse by Discipline" dropdown. [[WCAG 2.0 SC 4.1.2](#)]
- On the Search Results pages, role and value (i.e., that it expands and whether it is expanded or collapsed) is not provided for "Date Published" expander, and screen readers are not notified when it is opened or closed. [[WCAG 2.0 SC 4.1.2](#)]
- On the Article page, no roles or values (i.e., that they are tabs and whether they are selected) are provided for "Authors" and "Authors and affiliations" tabs, and screen reader users are not notified when the user switches tabs. [[WCAG 2.0 SC 4.1.2](#)]
- Screen reader users are not notified when the user opens or closes the Support lightbox. [[WCAG 2.0 SC 4.1.2](#)]

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