

To: Robert Van Rennes, Big Ten Academic Alliance
From: Graham L. Pierce, MSU Usability/Accessibility Research and Consulting
Subject: Readex America's Historical Newspapers High-Level Accessibility Evaluation
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MSU Usability/Accessibility Research and Consulting (MSU UARC) conducted a high-level accessibility evaluation of Readex America's Historical Newspapers 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 most others.

Critically, no text in articles (whether viewed on the website or in downloaded PDFs) is available to screen readers, making them impossible to use for individuals with visual or language impairments that rely on screen readers.

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

Individuals with visual impairments that rely on screen readers will have additional problems. Structural information (including heading and list structure) is not appropriately conveyed to users, making it difficult to understand content organization. Some form inputs are not appropriately labeled, making those inputs difficult or impossible to use for those that rely on screen readers. Many custom elements do not correctly announce themselves or provide appropriate feedback to screen readers, making them difficult or impossible to understand and use. Images have inappropriate alternative text, significantly impacting users with visual impairments, and images of text are used in place of styled text, impacting users with visual impairments and users with reading and cognitive impairments.

Other issues were found that will make it difficult for users with a variety of disabilities to effectively use the system, including insufficient color contrast, insufficient link context, and missing document titles. Usability issues were also encountered, which will impact all users, regardless of disability status.

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 "influenza" were used as an example of a Search Results page and "Detroit News (Detroit, Michigan) - January 1, 1900, Page 3" was used as an example of an Article page.

High-Level Findings

Document Structure

- Article content on Article page contains no text that can be accessed by screen readers. [[WCAG 2.0 SC 1.3.1](#)]
- PDF contains no text that can be accessed by screen readers. [[WCAG 2.0 SC 1.3.1](#)]
- Headings are not correctly used to organize content. [[WCAG 2.0 SC 1.3.1](#)]
 - "America's Historical Newspapers" in the Searching lightbox (accessed via "America's Historical Newspapers" link at top-right of page) should be tagged as a heading (h1)
 - "All America's Historical Newspapers" in the Searching lightbox should be tagged as a heading (h2)
 - On the Home page, "Available Collections" should be tagged as a heading (h2)
 - On the Home page, "Explore the nation's past in unprecedented ways" should not be tagged as a heading
 - On the Places of Publication and Article Types tabs, "Options" should be tagged as a heading
 - On the Search Results page, "See results in another Archive of Americana collection:" should be tagged as a heading
- In the Newspaper Titles tab, column headings are not tagged as programmatic column headings (th). [[WCAG 2.0 SC 1.3.1](#)]
- Lists are not correctly used to organize content. [[WCAG 2.0 SC 1.3.1](#)]
 - On the Dates and Eras tab, "Custom Date Range" input should not be coded into a programmatic list
 - On the Search Results page, results should be coded into a programmatic list
 - On the Search Results page, lists within each result (e.g., "Publication Date:", "Published as:", etc.) should be coded into programmatic lists
- The language of the PDF is not defined. [[WCAG 2.0 SC 3.1.1](#)]

Keyboard Support

- On the Home page, lightboxes for image links under "Available Collections" (lightboxes appear on mouse hover) cannot be reached via keyboard. [[WCAG 2.0 SC 2.1.1](#)]
- In the Places of Publication tab, focus cannot be advanced past the "Hide Map" link with the keyboard (unless a screen reader is in use). [[WCAG 2.0 SC 2.1.1](#)]
- On the Article page, page controls (e.g., zoom, full screen, rotate left, etc.) cannot be reached via keyboard. [[WCAG 2.0 SC 2.1.1](#)]
- Focus does not go immediately to the Searching lightbox when it is opened. [[WCAG 2.0 SC 2.4.3](#)]
- Focus incorrectly goes to page content behind the Searching lightbox. [[WCAG 2.0 SC 2.4.3](#)]
- Selecting "Advanced Search", "Clear All", or "Simple Search" incorrectly causes focus to reset to the top of the page. [[WCAG 2.0 SC 2.4.3](#)]
- On the Home page, changing tabs incorrectly causes focus to reset to the top of the page. [[WCAG 2.0 SC 2.4.3](#)]

- In the Newspaper tab, changing table sort order incorrectly causes focus to reset to the top of the page. [[WCAG 2.0 SC 2.4.3](#)]
- Focus is not sufficiently visible for some interactive content. [[WCAG 2.0 SC 2.4.7](#)]
 - "Skip to Main Content" link (text is not visible on screen)
 - Breadcrumb links at top of page (e.g., "Home", "Readex AllSearch")
 - "Go!" (search) button
 - Current tab on Home page (e.g., "dates and eras")
 - Image links under "Available Collections" on Home page (e.g., "African American Newspapers")
 - Checkboxes on Dates and Eras, Newspaper Titles, Places of Publication, Article Types, and Languages tabs
 - Dropdowns in Advanced Search variant (e.g., "full text")
 - Checkboxes on Search Results page
 - Arrow ("Next") button on Article page
 - Article content on Article page (arrows can be used to move page view, but there is no indication that the content has focus)

Navigation

- PDF lacks descriptive title. [[WCAG 2.0 SC 2.4.2](#)]
- Navigation is not consistent across pages, with "Results" tab appearing on the Search Results page, but disappearing when changing tabs to refine results. [[WCAG 2.0 SC 3.2.3](#)]
- On the Article page, the Searching lightbox link is not available, despite being present on all other pages. [[WCAG 2.0 SC 3.2.3](#)]
- In the Dates and Eras tab, it is unclear that some links (e.g., "Eras in the History of the Caribbean") expand, rather than opening a new page. [[WCAG 2.0 SC 2.4.4](#)]
- In the Newspaper Titles tab, it is unclear that table heading links sort table content. [[WCAG 2.0 SC 2.4.4](#)]

Forms and Data Submission

- In the Places of Publication tab, the number of titles is not included in checkbox labels (e.g., "(1341 titles)"). [[WCAG 2.0 SC 3.3.2](#)]
- In the Article Types tab, "Election Returns", "Legislative Acts...", "Shipping News...", "Front Page", "Birth Notices", "Matrimony Notices", and "Death Notices" checkboxes lack programmatic labels. [[WCAG 2.0 SC 3.3.2](#)]
- In the Dates and Eras tab, Custom Date Range instructions are not programmatically associated with the input. [[WCAG 2.0 SC 3.3.2](#)]
- In the Dates and Eras tab, descriptions of checkbox content (e.g., "Plantation system takes root, Growth of slavery as trade in sugar, Tobacco and rice expands") are not programmatically associated with checkboxes. [[WCAG 2.0 SC 3.3.2](#)]

Images

- Images in PDF lack alternative text. [[WCAG 2.0 SC 1.1.1](#)]
- Appropriate alternative text is not provided for visual content. [[WCAG 2.0 SC 1.1.1](#)]
 - "x" button in Searching lightbox
 - On the Search Results page, "loading preview of article link" should not be used as alternative text

- On the Article page, article content and images in article lack alternative text
- On the Article page, clear button ("x") is read out as "times button clear highlights"
- PDF is an image of text. [[WCAG 2.0 SC 1.4.5](#)]
- On the Article page, the article is an images of text. [[WCAG 2.0 SC 1.4.5](#)]

Color and Visual Characteristics

- Light grey text on white background (e.g., "Enter a search word or term" placeholder text in search input), white text on orange (e.g., text in lightboxes under "Available Collections" on the Home page), grey text on tan (e.g., "Canada" on map in Places of Publication tab), and light grey text on yellow (e.g., "hide this alert [x]" on Search Results page) have insufficient contrast. [[WCAG 2.0 SC 1.4.3](#)]

Custom Elements and Dynamic Content

- Role (i.e., that it opens a lightbox) is not provided for "America's Historical Newspapers" link at top-right, and screen readers are not notified when the Searching lightbox is opened or closed. [[WCAG 2.0 SC 4.1.2](#)]
- "Advanced Search" has an incorrect role (it is identified as a link, rather than as an element that expands to reveal additional content). [[WCAG 2.0 SC 4.1.2](#)]
- Incorrect roles (i.e., they are identified as buttons instead of tabs) are provided and values (i.e., whether they are selected) are not provided for tabs. [[WCAG 2.0 SC 4.1.2](#)]
- In the Dates and Eras tab, roles and values (i.e., that they expand and whether they are expanded or collapsed) are not provided for expanders (e.g., "Eras in the History of the Caribbean"), and screen readers are not notified when they are opened or closed. [[WCAG 2.0 SC 4.1.2](#)]
- In the Newspaper Titles tab, roles and values (i.e., that they can be used to sort rows, whether they are being used to sort, and what direction the sort is in) are not provided for column headings in the table. [[WCAG 2.0 SC 4.1.2](#)]
- On the Article page, value (e.g., "Page 3") and name (i.e., input label) are not provided to screen readers for page number dropdown. [[WCAG 2.0 SC 4.1.2](#)]

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