

# Smithsonian Research Online 2022 Annual Report



**Smithsonian**  
*Libraries and Archives*

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## *Program Overview*

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- Smithsonian Research Online (SRO) collects and manages information describing research conducted at the Smithsonian.
- The Program also manages [Smithsonian Profiles](#), the staff expertise locator based on the publications and other research activity of Institution scholars.
- SRO is managed by staff of the Digital Initiatives and Scholarly Communication division but relies on support from staff across the Smithsonian Libraries and Archives (SLA).
- The information collected is stored centrally and shared widely via regular and custom reporting as well as Smithsonian systems including Smithsonian Profiles.
- SLA staff rely on the researchers for notification of new additions and verification of the accuracy of existing data.

This annual report is designed to highlight Program accomplishments, notable research activity and to provide examples of possible analysis. Using SRO to highlight research impact is a key use-case for the program and one that is core to its mission.

The report is intended to be internal to the Smithsonian Institution. Feedback from stakeholders provide guidance on new service development and desired outcomes from the program.

## 2022 Program Highlights

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### During 2022 the SRO program . . .

- Ensured that the full set of research outputs is included in the Smithsonian Institution's [Enterprise Data Access Network](#)
- Began planning for migration to a significantly upgraded platform for managing publication information
- Submitted with digitization program, a modified item-of-increase request for funding and positions
- Completed a web page summarizing the current state of open access publishing with notes on activities at the Institution: [https://staff.research.si.edu/open\\_access.cfm](https://staff.research.si.edu/open_access.cfm)
- Coordinated with communications staff of the National Zoo and Conservation Biology Institute in their reuse of information from Smithsonian Profiles to fill out scientists' web pages
- Briefed SLA Information Systems division on near-term technology needs of the Program
- Continued mentoring a LEADING<sup>1</sup> fellow to identify United States National Museum (USNM) specimen citations through data science techniques using Smithsonian-authored publications
- Launched a new website theme/design on Smithsonian Profiles which is mobile friendly, meets accessibility requirements and cleans up some extraneous displayed content
- Met with STRI research administration and others to discuss registration of additional STRI instruments with persistent identifiers. Both canopy cranes were registered in 2021 and published works monitored for any mention of these instruments in supporting research
- Implemented a near real-time update of the open access status of SI-authored research publications, including links to publicly accessible digital copies
- Investigated agency-wide use of ORCID with other federal research agencies and Smithsonian participation in an ORCID federal consortium to enhance membership benefits
- Began working with OUSSR Compliance Officer to capture and store ORCID ids in compliance with White House National Security Presidential Memorandum 33 on research security

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<sup>1</sup> LIS Education And Data Science Integrated Network Group, an IMLS supported program

## 2023 Goals

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### **For 2023 the Program has the following high-level goals:**

- Perform a system upgrade and test data flow and alter workflow where needed
- Include history and humanities museums in reuse of publications and researcher profiles information on unit websites (e.g. NMAH)
- Work with the Biodiversity Heritage Library (BHL) to identify Smithsonian-published works from SRO contained in BHL, create DOIs and add links to SRO citations
- Participate in and advise Smithsonian stakeholders on the requirement of all researchers to register at ORCID.org as part of NSPM-33 including the clear Institutional definition of who is a researcher or hired to perform basic research
- Improve data flow from the Institution's FigShare data repository
- Celebrate the addition of the 100,000<sup>th</sup> research output to the database!

## Research Output at a Glance

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### Research Productivity

- Smithsonian Research Online has tracked **2,418** research outputs published in 2022.
- **1,990** (82.3%) of these outputs are journal articles, published in **565** different journals, representing a 16.2% decrease over the 2021 reported number (2,376).
- **98** are book chapters and **24** are books, which is 18.1% more and 35.1% less than 2021, respectively.
- **306** other outputs were collected including datasets, reports, exhibitions, and other formats.

### Smithsonian-Affiliated Scholars

- There are **1,052** identified individuals who have Smithsonian affiliation and have authored, edited, or otherwise created outputs listed in Smithsonian Research Online in 2022.
- Among all authors in the database, **255** were marked as separated in 2022. This includes all temporary appointees and staff who have contributed to Smithsonian Research Online. By comparison the previous year (2021) there were 133 departures.
- In 2022, SI staff or appointees were listed as the **lead author 755 times** in 1,990 journal articles co-authored by Institutional scholars.
- Smithsonian Profiles added **29 awards** for individuals in 2022 including both internal (e.g. Secretary's Research Prize) and external (e.g. Fellows in AAAS, media and other society awards).
- Smithsonian Profiles continues to increase the awareness of Smithsonian scholarship. Profiles was the conduit for personal contact of more than **350** Smithsonian scholars during 2022. These researchers received a total of **1,118 requests** for information or collaboration last year. That compares with 966 times during 2021. A list of those most frequently contacted is available from SLA staff.

### Collaborations

- Over **86.5%** of scholarly outputs in SRO represent a collaboration with scholars at one of thousands of outside research organizations. **103** outputs include collaborations among Smithsonian units.
- **40** publications in 2022 included **100 or more co-authors**, while 27.4% of all 2022 publications included ten or more co-authors.
- Research Online attributes each research output to **48** different unit and departmental tags as appropriate, representing organizations across the Smithsonian Institution.

## Open Access Publishing

- **1,387** (68.6%) of journal articles in Research Online published in 2022 are openly accessible, either directly from the publisher or through a repository. This does not include currently restricted publications that will become open after embargo expiration.

## Impact

- Smithsonian-authored publications from 2022 that have DOIs and are indexed in Web of Science Core Collection have already been cited **4,957** times.
- **97.8%** of journal articles in Smithsonian Research Online for the year 2022 have a DOI, allowing for better integration with external data and tracking systems.
- Smithsonian research outputs tracked in Altmetric.com garnered **56,621** mentions in 2022, including 42,085 mentions on Twitter, 3,660 citations in Wikipedia, 8,775 news story mentions, and 139 mentions in policy documents.

*Data for analysis was collected on March 30, 2022.*

## Open Access Publishing at the Smithsonian

During 2022, the SRO program began incorporating the Open Access (OA) status to published works based on external, verifiable sources. It is now easier than ever to determine how many SI-authored works are openly accessible.

### **Notable:**

- In 2022 Smithsonian scholars were listed as author or co-author on **693** articles in open access journals which assess an article processing charge. This represents an increase of over 50% from the same time last year. (Data on whether Smithsonian authors paid none, some, or all the fees are not currently available, however the OA fees for these papers likely exceeds \$2.2 million for the year).

### Open Access Over Time

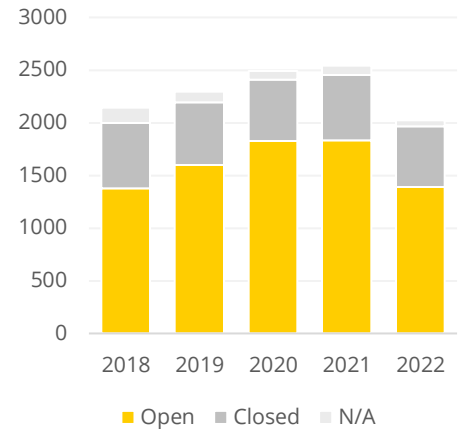


Figure 1: Open Access status of Smithsonian-authored journal articles. Data sources: Unpaywall.org and DOAJ.org. "Unknown" are either DOIs not covered by Unpaywall or were erroneous at the time of analysis.

## Altmetrics

The Institution's research publications are regularly mentioned in a variety of media platforms. Altmetrics show online attention paid to scholarly works either through social media or other digital communication channels.

During 2022, Smithsonian research was mentioned in:

- The **Twitter** feeds of nearly 16,000 individuals and groups including those with broad impact such as Science Friday, CNRS and The Leakey Foundation, each with hundreds of thousands of followers
- 349 **Wikipedia** articles including those on timely subjects such as the Anthropocene and Extinction Risk from Climate Change
- **Policy** documents from UNICEF, The Natural Resources Defense Council and the U.N. Food and Agriculture Organization
- **Global news** sources, such as Aljazeera, BBC News, Canadian Broadcasting Corporation, and Channel News Asia
- Publications that drew the most Altmetric attention among the humanities during 2022 were the articles, "[Overflowing tables: Changes in the energy intake and the social context of Thanksgiving in the United States](#)" (Amanda Moniz, NMAH) and "[Being present and bearing witness: talking about cultural revitalization programming in museums](#)" (Judith Andrews, NMAAHC and Gwyn Isaac, NMNH).



## Selected Analysis

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Data from Smithsonian Research Online provides many opportunities for analysis, such as the ones below. Custom reporting is available for research managers, and they are invited to discuss of specific needs for analysis with program staff.

### Percentage of Open Access Journal Articles, 2017-2022

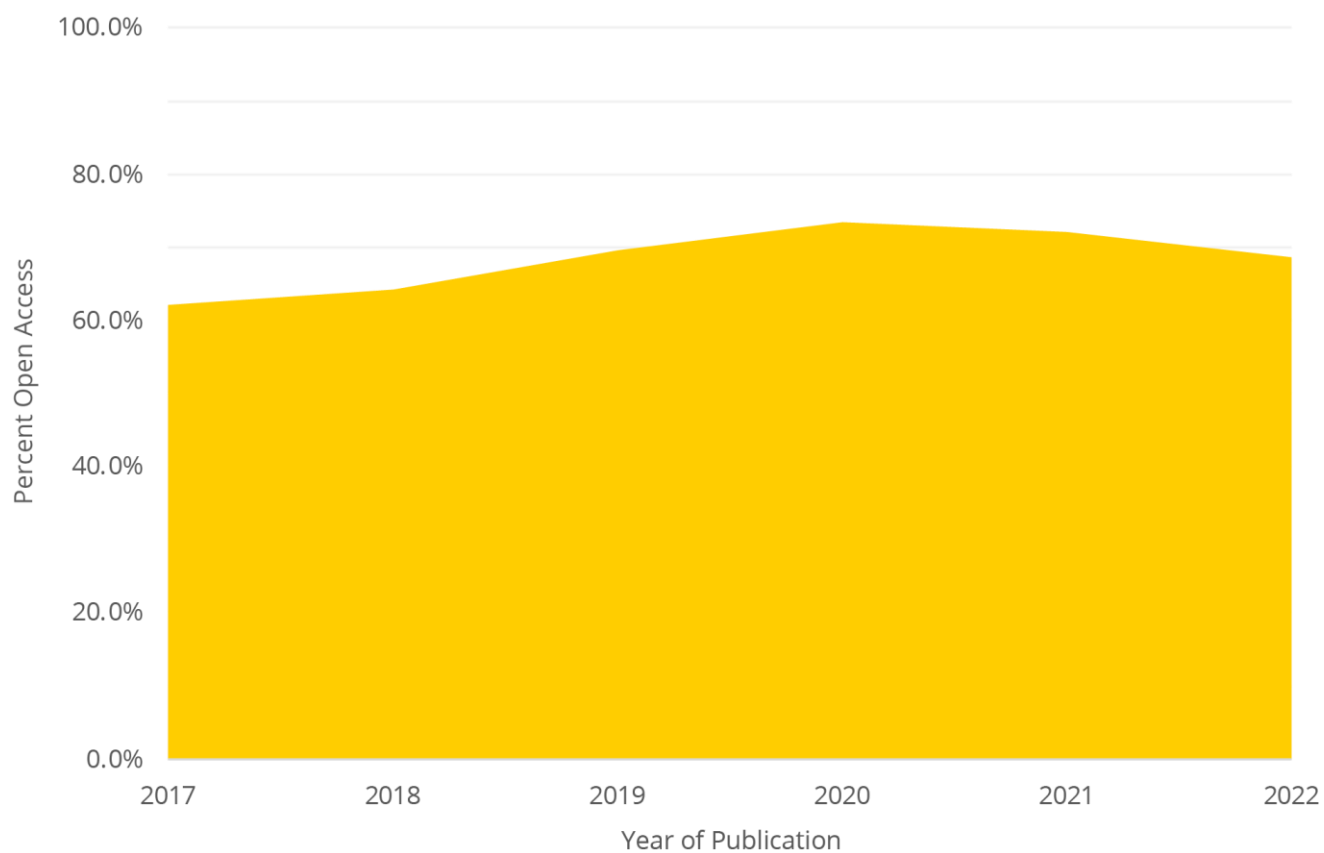


Figure 1: Percentage of journal articles in Smithsonian Research Online that are open access. The Smithsonian Libraries and Archives incorporates data from Unpaywall.org in determining open access status of journal articles, limited to those that are assigned a Crossref DOI.

## Top Ten Articles by Altmetric Score in 2022

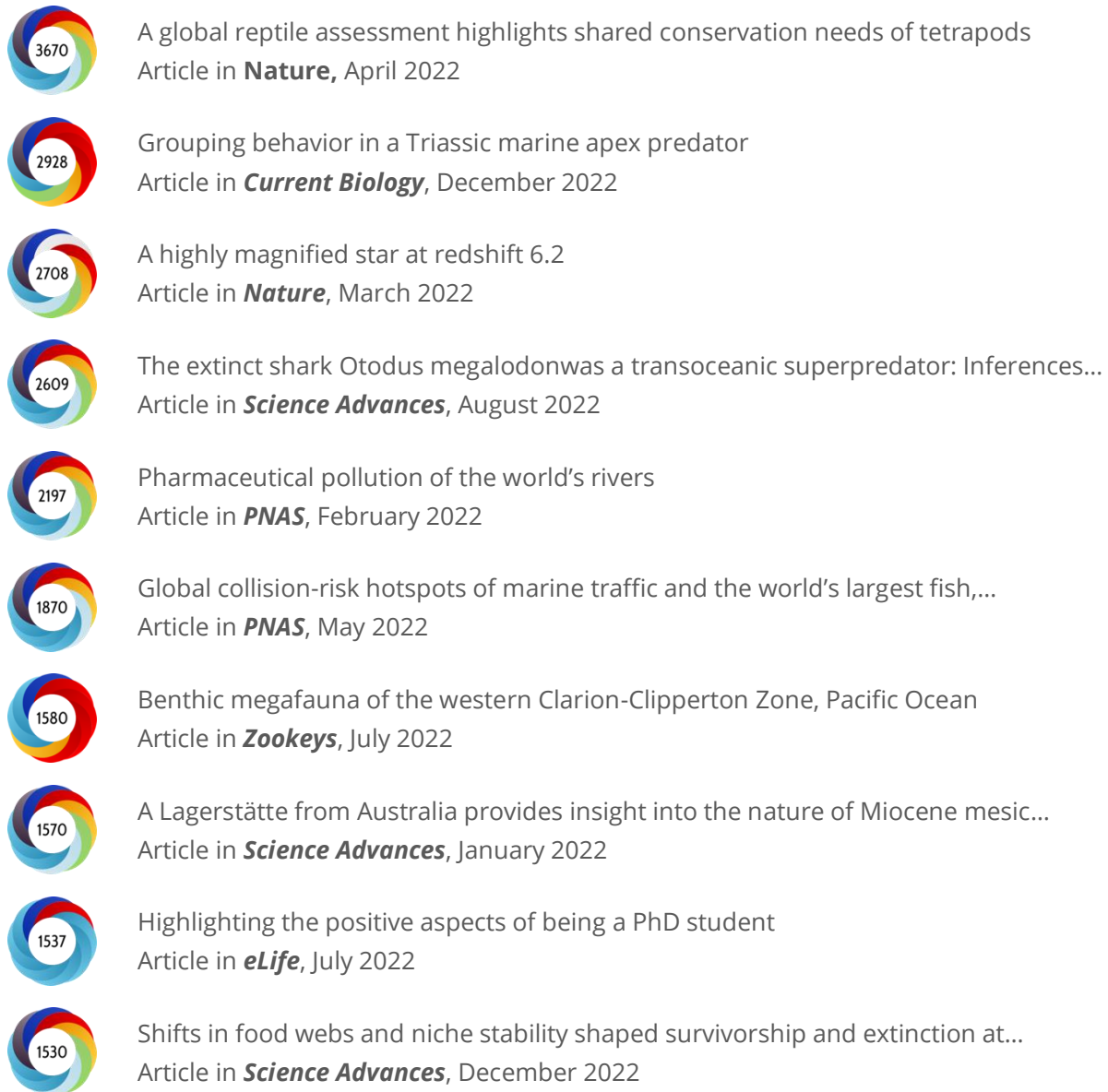


Figure 2: Top ten articles from Smithsonian Research Online by Altmetric Score for 2022. Each score is a weighted indicator based on the number of mentions in various attention sources including social media, Wikipedia, news media, Mendeley, policy documents, and more.

## Average Annual Citation Rate by Year of Publication

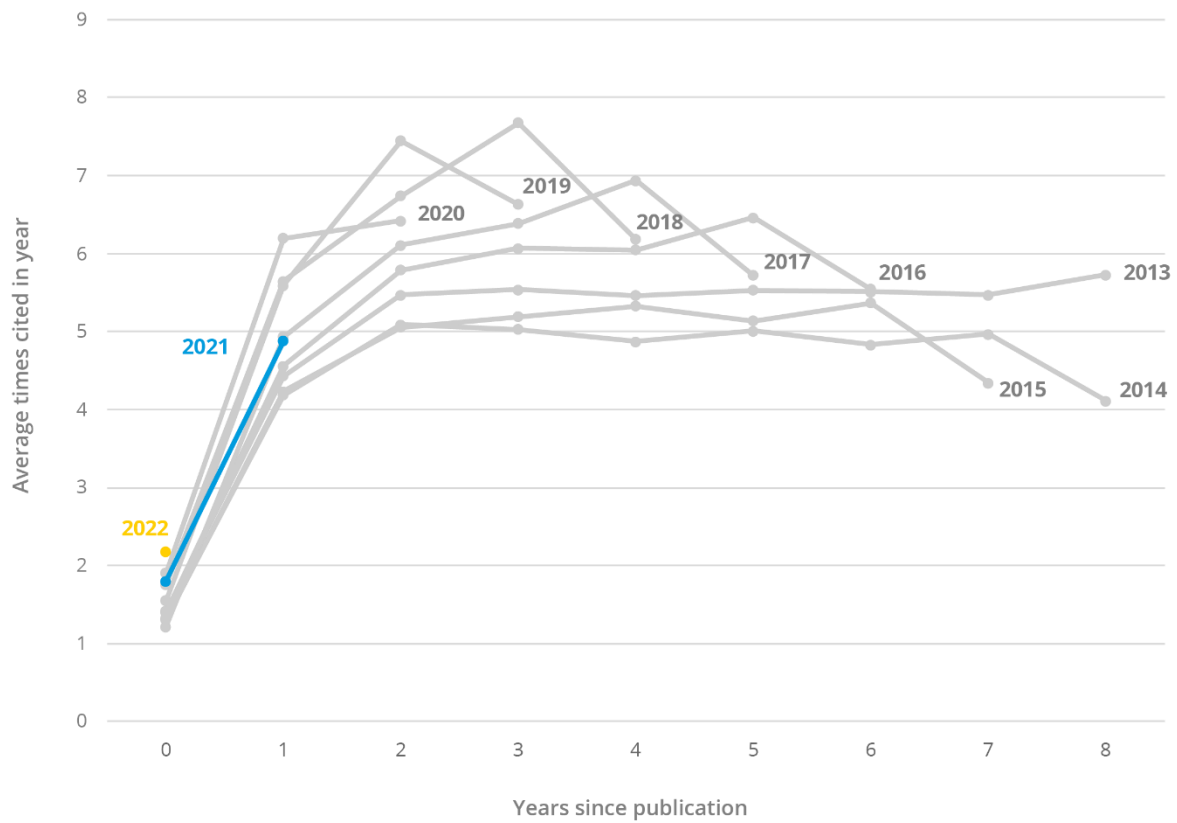


Figure 3: The average number of citations received by publications from a given year across the number of years since publication. The specific dataset for this analysis includes Smithsonian-authored publications present in the Web of Science Core Collection.

## About this Report

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The Smithsonian Research Online annual report was created by staff of the Smithsonian Libraries and Archives and released on May 19, 2023. This report uses data captured on March 30, 2023, from Smithsonian Research Online, Clarivate's Web of Science, Altmetric.com, Unpaywall.org, and The Directory of Open Access Journals. Data are available upon request.

Past annual reports are available at: <https://research.si.edu/annual-reports/>

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