

## **Translating life science research to stories: using media channels for broader impact and increased audience reach**

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### **Abstract**

Organizations focused on life science are often challenged with sharing scientific discoveries and milestones with the broader public. The Morton Arboretum is a botanical garden with a strong interest in connecting its scientific expertise and research to its visitor base (>1 million per year) and to an external audience through diverse channels. This organization is developing a solution to meet this objective.

With the goal to communicate more impactful stories about its science and conservation work, an institutional strategic initiative was launched in 2017, starting with the establishment of a cross-departmental science communication team. Roles and responsibilities were clearly defined, followed by the identification and analysis of priority audiences and the appropriate media channels to reach them: 1) Scientists and Peers; 2) Curious or Affinitive; and the 3) General Public. Next, a systematic process was put in place to objectively evaluate research discoveries, such as those published in peer-reviewed scientific journals, and stories that align with both the Arboretum's messaging priorities and the media's interest. This process included a method to translate the raw science into language appropriate for the targeted audience.

This process, although early in its development, has already expanded the institution's reach and impact. For example, messages developed around research and conservation work with oaks and other endangered trees have reached all three targeted audiences. Metrics comparing the first nine months of 2016 and 2017 has resulted in a 104% increase in The Morton Arboretum's expertise mentioned in the media, indicating a successful trend.

The science communication team is continuously refining how their science work can be translated to the general public. Challenges remain, including interpretation of scientific

initiatives and papers, matching media's interest, and limited staff capacity. A broader professional discussion could address these challenges as we work to bring the stories of science to society.

## **Introduction**

Each year around the world, millions of people visit botanical gardens and arboreta, both in-person and online. Worldwide, there are over 3,400 botanical gardens (BGCI, 2018). Many of these plant-focused institutions, depending on their size and resources, have robust life science research and conservation programs, yet very few of these institutions communicate externally about the research they are conducting. In fact, public education and outreach from botanical gardens is a relatively new phenomenon, with the movement largely beginning in the mid-20th century (Sanders 2007). While these science centers have a direct role in research and serve as trusted sources of scientific information (Funk et al. 2016), there is often a lack of accessible information and communication to visitors and the broader public.

This disconnect between arboreta practicing and communicating research was quantified by Maloney (2018). Using a database of arboreta accredited by ArbNet, the only international accreditation program dedicated to recognizing and advancing the professionalism of arboreta (ArbNet 2018; Cavender et al. 2015), Maloney evaluated the online presence of science communication at these institutions. While there were more than 200 accredited arboreta at the time of this study, Maloney focused on 35 arboreta that achieved the highest accreditation levels, Level III and Level IV. All of the 35 arboreta specifically mentioned research in their accreditation application, but only 70% (n=25) publicized their research on their website. Further, only 54% of these 35 arboreta posted research stories on social media (Facebook, Twitter, and Instagram) in the past 6 months. As posting research on a website or on social media is a relatively low-energy process, the number of gardens publicizing their work could easily be higher.

In order to increase awareness of research and science, arboreta and botanical gardens need to be proactive. In addition to posting research on social media, learning centers need to connect with the public through media channels. This is especially true since only one in 6 Americans are actively seeking science news (Funk et al. 2016). However, the majority of scientific research (99.995 to 99.999%) that reaches the mainstream media is health-related (Suleski and Ibaraki 2010). The amount of non-health related-research that focuses on the natural world (i.e. ecology) that is featured in the mainstream media is extremely small (Baker et al. 2012). By

communicating research through media channels, arboreta and botanical gardens can potentially increase the public's scientific literacy and possibly their interest in science.

Science communication can not only help increase the public's scientific literacy, but it can help meet institutional and research objectives. Individual scientists are often encouraged to communicate their work, especially as grants often require a broader impacts section (Pace et al. 2010). In addition to individuals participating in outreach, botanical gardens and arboreta should coordinate efforts institutionally. Media outreach can help establish credibility among professional networks, increase awareness of the institution, enhance the institution's public perception, entice visitors, secure funding, recruit potential students and colleagues, and ultimately give gardens a greater voice in society.

The Morton Arboretum is a botanical garden with a strong interest in connecting its scientific expertise and research to its visitor base (>1 million per year) and to an external audience through diverse channels. The Morton Arboretum, located in Lisle, Illinois, is an internationally-recognized nonprofit organization dedicated to collecting and studying trees, shrubs, and other plants from around the world. At 1,700 square acres, the arboretum has almost 200 full-time employees, over a million visitors a year, and an annual operating budget of \$33 million USD. The Science and Conservation Department has more than 65 employees, 20 of whom have doctorates. But despite the institution's size and resources, science communication has been an ongoing challenge.

In 2017, the institution launched a strategic initiative to prioritize communication of impactful stories about science and conservation and has seen early success from its efforts. A small interdepartmental team was organized to translate the organization's stories for targeted media outreach. As science communication is largely an internal process for research institutions, it was a challenge to find examples of existing protocol. An exception was a 'Publicizing Research Findings' document from University of Utah (2013). This general absence of information inspired The Morton Arboretum's team to describe the process of translating research for media channels.

## **Process for translating a scientific publication to a press release**

1. **Establish roles and responsibilities of the team.** These positions could be held by an individual or several people, depending on the capacity of the institution. The team needs the following functions filled:
  - a. Author of the paper- In addition to writing the paper, the author is required to answer questions about the paper's content. S/he must be willing to work with the rest of the team and provide feedback on documents. If the

media is interested in the story, the author should be prepared for interviews.

- b. Institutional authority- This team member provides expertise on the institution's scientific priorities and helps select papers that should receive media outreach. S/he is also responsible for assisting the Public Relations (PR) team member to determine the potential audiences as well as reviews the final press release.
  - c. Science communication expert- This team member reads the paper, interviews the author of the paper and helps translate the paper to an accessible in-depth review. This team member is responsible for contributing to editing and review.
  - d. Public Relations- This team member is responsible for determining the targeted channels and audiences for the paper and translating the in-depth summary into the press release. The PR team member needs to have experience in reaching media outlets (print, online, TV, and radio). Further, after giving the press release the final review, s/he reviews and tracks success metrics and posts the press release on social media and the website. This team member also coaches the author for any potential interviews.
2. **Evaluate the content of the research paper to determine if it should be publicized.** Not every paper is targeted to receive media attention. The author sends the paper to the team with a brief summary describing the importance of the research and their opinion on who the intended audience is (professional, general public, etc.) (see Appendix A for complete list of questions). The team then decides if the paper should be publicized based on the following:
- a. Does this paper match institutional priorities? For example, currently, The Morton Arboretum prioritizes oak research, tree conservation, and urban forestry. This is the lens that is used to determine if the research that occurs at The Morton Arboretum should be publicized.
  - b. Will the media be interested in the story? With the science communicator and the author available to answer questions about the content, the PR team evaluates the content to determine if it is newsworthy.
  - c. What is the current staff capacity and when will the paper be released? Does the staff at the institution have time to devote to translating the research, writing a release, and pitching the story? In an ideal situation, it is best to be able to publish a press release simultaneously as the paper is published in the journal. Capacity and timing are often the limiting factor in

developing a press release at an institution. The PR expert will need to consider that some journals may have an embargo.

3. **Select the targeted audience, media channels, and scale.** Successful communication requires understanding and tailoring the message to the audience (Novacek 2008). After determining if the paper should be publicized, the PR team should determine the audience, targeted media channels, and the scale of publicity appropriate for the research (Appendix B).
  - a. **Scientists and Peers-** This audience is passionate about science and the natural world. They are interested in learning about the latest research findings. To reach this audience, which is on a national scale, it is advised to focus on media targets such as EurekaAlert newswire, Science Daily, Science News, Scientific American, etc.
  - b. **Curious or Affinitive Publics-** This audience includes the Scientist and Peer group. In this group, the audience is expanded to those who may not be scientists, but are those who like to have a deeper understanding of scientific subjects. They have an interest and they care about the natural world. To reach this audience on a national scale, focus on media targets such as National Geographic, Discover Magazine, Popular Science, Wired, etc. To reach this audience on a more local scale, the PR expert can pitch the story to select environmental or community relations-focused news outlets.
  - c. **'General' Public-** This audience, which also includes the prior two audiences but is much broader, is not going to actively seek out science news, but will read it if it is available to them. Targeting the general public is helpful when a story is applicable to many. To reach this audience on a national scale, it is recommended to target media outlets such as the Associated Press, CNN, Reuters, national television/radio programs, etc. To reach a more local 'general' public, the PR team can pitch the story to local TV, radio, newspapers and magazines. This local audience includes community-oriented publications with which the institution may have an established relationship. This also includes other area media that may express an interest in scientific findings and research because the institution is well known to its readers, viewers, and listeners. Organizations can look to reach national and local media if the science news has a high probability of impacting the everyday lives of a significant portion of the population (i.e. the emerald ash borer is killing ash trees, a common tree found on private property and along parkways, thus necessitating expensive removal).

#### 4. Write the press release.

- a. The PR expert uses the content written by either the science communicator (if available) or the author to craft a press release.
- b. Researchers tend to write about their projects in sequential order with the results at the end of the summary, while in PR, the results are generally the news hook, thus they need to appear at the top of the release (AAAS, 2018). This can present a challenge. In the prior step, researchers should be encouraged to summarize their paper(s) with results first. Asking for a one-sentence summary highlighting the key discovery can help streamline the process for the PR expert.
- c. If the release requires more information and context than the provided summary, it also can be helpful for the PR expert to share a template of a press release with the author or science communicator, where s/he can add additional details (Appendix C). The Arboretum has implemented this for select releases; it helps researchers more clearly understand what information is vital for a successful press release.
- d. The release is then shared with all stakeholders for feedback and approval prior to distribution.
- e. Once the release is final, it is distributed to the media. Distribution can take many forms based on the resources of a given institution and the strategy for dissemination. PR may send the release to appropriate media *via* email or utilize a media software company and services provider. Such services provide PR staff with the opportunity to format a release within a platform and select recipients from an extensive database of media contacts. Recipients can number from a handful of curated contacts based on the outlet's profile and the reporter's areas of interest, to the hundreds if the information within the release has been deemed impactful to a general audience. It is also posted to the institution's "News" page on its website, distributed *via* the institution's Twitter account, and the link to the article and the document are distributed to the core group of internal stakeholders who can then share with their networks.
- f. Merchandising the results to stakeholders beyond the core team is a critical step in this process, to ensure those who need to see the media coverage for informational purposes, or those who could be persuaded by it, have access to it. A defined distribution process for internal communication is critical to reaching these stakeholders, which could

include an institution's president, members of the Board of Trustees, as well as current and potential project partners, donors, and employees.

**5. Assess pre-determined metrics to evaluate success.**

- a. Targeting outreach to the right audience through the right channels, and thorough follow up with media contacts will greatly increase the chances of story placement. To monitor and track favorable science communication outcomes to key stakeholders and institutional leadership, The Morton Arboretum utilizes Cision (<https://www.cision.com/us/>), a web-based media monitoring service that curates media mentions alongside valuable metrics. While Cision is one way to accomplish this, there are other services available depending on an institution's budget.
- b. Evaluation metrics include a media outlet's reach, which is indicative of its popularity with its readers, and prominence within the media landscape. For print media, this is quantified by the publication's circulation, broadcast is measured by the number of viewers, and online outlets by the number of unique monthly visitors (UMV). A unique visitor refers to a user who visits a site at least once within the reporting period. Circulation figures are generally publicly available, while media monitoring services like Cision can provide viewership and UMV. A combination of all three metrics –circulation, the number of viewers, and UMV–results in a given story's total potential audience reach. Another key metric is earned media value (EMV), which represents the estimated monetary value of a story. EMV is determined by measuring the coverage against the amount of money the outlet charges for advertising, taking into account the size and placement of the editorial mention. For example: A front page full-length article will have a greater monetary value attached to it than a small mention in a section farther back in a newspaper. An outlet's reach will also help determine EMV. A national broadcaster will have greater reach, thus greater EMV, than a regional television station. EMV is difficult to quantify; however most media monitoring and distribution services offer this as part of their package.
- c. Qualitative metrics include "tone" of story (positive or negative) and whether or not the story includes our key messages. Additionally, we consider responses from readers, and if positive feedback was received from the story.

**Key Observations and Recommendations**

This process requires a strong team with each member contributing. Nevertheless, small teams can be successful in translating research, and often it can help the process remain nimble. Setting clear expectations for the project and taking the time initially to determine the roles and responsibilities for the members of the team will help the project be successful.

Maintaining transparency between the team, author and institution will increase participation and partnerships from all parties. While it is impossible to control the message once the media publicizes the research, giving the author the ability to review the press release in its final stages will assist in transparency and help the author feel comfortable. If possible, involving a team member with a strong background in both research and communication, such as a science communication specialist, can best bridge departments and make the process easier. This team member can facilitate the translation of the research, but this may not be available to all institutions. In a situation where an institution does not have a science communicator on staff, the author will need to take additional responsibilities to communicate and translate his/her work for the PR team. Science communication training for the researchers is essential to facilitate the process. If considering adding staff to accomplish this work, seeking someone with expertise in both science communication and media relations experience is optimal.

Timing is a consistent bottleneck in the process and presents capacity issue with staff. Many journals provide a very short turnaround time from acceptance to publication, so enabling the team to see a draft of a paper prior to final acceptance can help overcome this hurdle. Giving the team needed time to work through the PR strategy and release will ensure the process runs smoothly.

## **Case Studies from The Morton Arboretum**

### **Case Study #1: Evolution of oaks (Hipp et al., 2018).**

Paper Title: Sympatric parallel diversification of major oak clades in the Americas and the origins of Mexican species diversity

Authors: Andrew L. Hipp, Paul S. Manos, Antonio González-Rodríguez, Marlene Hahn, Matthew Kaproth, John D. McVay, Susana Valencia Avalos, and Jeannine Cavender-Bares

Scientific Journal: *New Phytologist*

Type of Paper: Published peer-review

Audience: Scientists and Peers



Final Press Release:

<http://www.mortonarb.org/news/american-oaks-share-common-northern-ancestor>

(The Morton Arboretum, “American Oaks...”, 2017).

This paper was extremely technical and required additional commitment from the author throughout the translation process. The author requested media outreach for this paper *via* email. The institutional authority and the science communication expert read the paper, and contacted the author with initial questions. Given that The Morton Arboretum currently has a strong research-focus on the genus *Quercus* (oaks), it was determined that the paper met the requirements of the institution’s scientific priorities. The PR expert met with the author, institutional authority, and science communicator to evaluate the potential impact, desired audience, and media’s potential interest. Given the novelty of the research and the importance of the genus, the PR expert determined that the audience was ‘Scientists and Peers,’ on a national scale. Current capacity was assessed, and it was determined that a press release should be prioritized.

The science communication expert wrote a short high-level summary (500 words) which was approved by the author. This was then given to the PR expert, who created a release using this information, working closely with the study author over the course of two weeks to ensure the details of the story were correct.

The story was highlighted in several key publications targeting the Scientist and Peers audience, including Science Magazine, Phys.org and EurekAlert newswire. This story had a potential audience reach of 10,113,453, and an earned media value of \$2,326.

**Case Study #2: Forest management on a local scale (Taylor and Midgley, 2018).**

Paper Title: Prescription side effects: Long-term, high-frequency controlled burning enhances nitrogen availability in an Illinois oak-dominated forest.

Authors: Quinn A. Taylor and Meghan G. Midgley

Type of Paper: Published peer-review

Scientific Journal: Forest Ecology and Management

Audience: Curious or Affinitive Publics; specifically land managers

Final Press Release:

<http://www.mortonarb.org/news/new-study-suggests-frequent-burning-may-hinder-not-help-future-oaks>

(The Morton Arboretum, “New study...”, 2018).

The lead author submitted this paper *via* email to the team. Given the institutional scientific research priority on understanding how to restore local *Quercus* ecosystems,

the institutional authority and the science communication expert recommended that the PR expert review the paper. When evaluating, the PR expert considered news value and audiences. The news value was bolstered by three key drivers: 1) regional *Quercus* conservation work is a focus of both the institution and many regional organizations; 2) regional conservation work has been prioritized by one of the area's top daily newspapers on a fairly regular basis; and 3) most notably, the paper's assertions challenged the *status quo*. After the PR expert determined that the paper would be interesting to local Curious or Affinitive Publics, especially land managers. After assessing staff capacity, this paper was accepted for the press release process. Given the potential controversy associated with challenging a popular method of forest management, a core team of key stakeholders involved in controlled burning was assembled and briefed on a regular basis.

As this paper was more applied in nature, it required less translation, thus the science communication expert was not critical to the translation process. The author wrote a short high-level summary (500 words) describing the findings and the importance of the work. This was then given to the PR expert, who in turn wrote a press release. Media to receive the release were specifically chosen based on their audience and a history of writing stories about local environmental issues; the *Chicago Tribune* was the primary focus due to their history of writing about controlled burning, and their wide audience (438,015 circulation). From the release, the PR expert developed a set of simplified messages for spokespeople to use during interviews. This was an especially important step due to the sensitive nature of the story. Messages were vetted and shared with all key stakeholders to ensure everyone was on the same page. Spokespeople were chosen and briefed.

The outcome was successful. A story, with quotes from two Arboretum spokespeople, appeared in the *Chicago Tribune*, while top Chicago news radio station WBBM-AM approached the Arboretum after reading the story. Stories were positive and on-message in both cases, establishing The Morton Arboretum as a thought leader. Additionally, two Arboretum spokespeople were interviewed on Chicago's top public radio station, WBEZ-FM. This story had a potential audience reach of 24,998,479, and an earned media value of \$101,192.

**Case Study #3: Conservation assessment of ash trees (Barstow et al., 2018).**

Paper Title: The Red List of *Fraxinus*

Authors: Megan Barstow, Sara Oldfield, Murphy Westwood, Diana Jerome, Emily Beech and Malin Rivers

Type of Paper: International Union for Conservation of Nature (IUCN) Red List of Threatened Species™

Publisher: Botanic Gardens Conservation International

Audience: 'General' Public

Press Release:

<http://www.mortonarb.org/news/morton-arboretum-researchers-reveal-bleak-news-american-ash-trees-5-6-species-critically>

(The Morton Arboretum, "Morton Arboretum...", 2017b).

The Arboretum's Science and Conservation team has worked for several years with the global conservation group the International Union for Conservation of Nature (IUCN). This partnership was developed to help quantify the number of threatened and endangered ash trees in the Eastern United States, for its Red List of Threatened Species™, the world's most comprehensive inventory of the global conservation status of plant and animal species. Four weeks prior to the report's completion, the core project team contacted the team in the hopes of creating a press release to announce the findings.

The Arboretum team evaluated the potential of a story. The messages aligned with the work of the institution. The PR team evaluated the idea from a news perspective, and determined that the story had news potential: As trees are dying across the country due to the Emerald Ash Borer, many Americans are passionate about the issue. The loss of ash trees is frequently in the news and is often a trending topic. The partnership with the Red List - the world's authority on endangered species - gave the story international news credibility. The science communicator was not involved in translating this story as this was fairly straightforward (report vs. paper).

About a week in to the process, the PR team was pleased to learn that the IUCN had chosen this project to mention in their "digest" of top IUCN news, a release that would be distributed to top-tier publications around the globe. This additional worldwide push from a credible institution that has long-term relationships with international media significantly bolstered the Arboretum's PR efforts. The PR team worked closely with the IUCN PR team on messaging, distribution strategy, and media targets. The last step was critical so the respective organizations did not reach out to the same contacts, thus potentially jeopardizing each organization's established relationships with the media.

During the weeks before the release was distributed, the Arboretum's PR team identified a spokesperson, the report's author, and developed a key message document

to help guide interviews. This document was shared with the author. The PR team also conducted a mock interview with the spokesperson in preparation.

Since the press release would be distributed internationally through IUCN's channels, as well as through the Arboretum's channels, the PR team made sure the spokesperson was available and ready for multiple interviews on the day of the release, understanding that media would want immediate access to an expert the day the release was distributed.

The news generated more than 350 stories and several interviews for the Arboretum spokesperson, with coverage appearing in top-tier publications reaching all three target audiences. Media outlets included Popular Science magazine, U.S. News and World Report magazine, the Associated Press (which was syndicated to hundreds of media outlets across the country), and several local outlets. This story had a potential audience reach of 622,974,312, and an earned media value of \$561,385.

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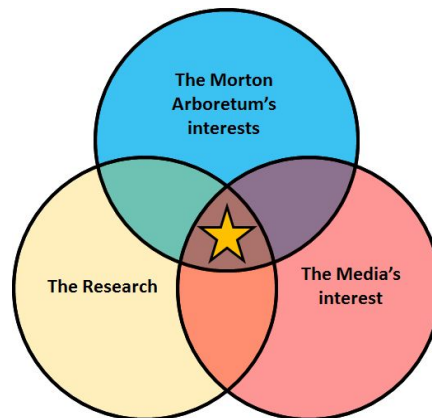
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Appendix A:

**Draft process for evaluating publication outreach, circulation, and repository (OCR)**



1. Paper is accepted by journal for publication
  - a. As soon as possible following paper acceptance, Author informs (*via* email) the Science Communicator, Science and Conservation Program Manager, Director of the Center for Tree Science, Vice President of Science and Conservation (VP of S&C) and the Senior PR Manager about publication
    - i. Author includes the following in an intake email, with the paper attached to the email:
      1. Title of article and journal
      2. Publication date (if known)
      3. What was your role in the research? (lead, partner, etc)
      4. Who is the target audience for this research?
      5. What are your general findings?
      6. How are your findings relevant to a public audience?
      7. Did an undergraduate research fellow participate in this research?
      8. What type of additional promotional support are you looking for (if possible)?
        - a. A story in an external publication or news outlet
        - b. Release posted to the Arboretum's news page
        - c. Post on social media
      9. Are the partner institutions planning on publicizing this research? If you do not know, please find out.
      10. We will need the partner institutions' public relations contacts (email) should we decide to move forward with publicity. Please provide emails.
    - b. The Science and Conservation Program Manager includes publication in board report and in metrics. For all papers, in addition to internal reporting, the Science and Conservation Program Manager will list the citation and keywords,

as well as a link to the paper, on the website once published. The Science and Conservation Program Manager will archive the publication in the library.

2. The content of the paper is evaluated to see how it matches with:
  - a. Current institutional priorities and audience goals
  - b. Timing and capacity
  
3. If the content of the paper matches institutional priorities and targeted audiences, the Science Communicator will send the paper and the rationale to the PR team (within ~36 hours).
  - a. From the intake email and conversations with Science and Conservation (S&C) team, the Senior Public Relations Manager will evaluate the paper to determine opportunity for publicity.
  - b. PR will consider the following criteria:
    - i. Timing: Is there enough lead time and/or staff bandwidth to develop, distribute and pitch a press release?
      1. Publicity should be released on the date the paper is officially published.
      2. Ideally, the PR team needs 4-5 weeks notice prior to publication to effectively develop a publicity plan and release; however we can discuss options if lead time is shorter.
    - ii. News value: What is the story? Why is it especially relevant now? How does it impact a broader community or the world beyond tree science and conservation or answer previously unanswered questions or mysteries?
    - iii. Approachability: The research must be easily communicated in layperson terms that are understandable and interesting to external audiences.
  - c. **If yes to all**, we move forward in the process.
    - i. Once received, the Science Communicator will develop the in-depth overview of the publication. This document will be circulated to the PR team.
    - ii. The Senior PR Manager will use the overview to create a target media list and publicity strategy.
      1. Every release will be posted to the [NEWS section](#) on the Arboretum's website, tweeted out, and posted to science newswire [EurekAlert](#).
      2. Additional publicity targets will be determined on a case-by-case basis.
      3. PR team is responsible for coordinating efforts with Author, VP of S&C and PR contacts for partner institutions.
      4. Author, VP of S&C, partner institution(s) and PR team will coordinate on release content, but PR team has the final say on press release wording.



- d. If it is decided that a press release and pitch is not warranted, we will consider publicizing only *via* social media/web.
- 4. Communicating to internal stakeholders
    - a. The day a press release is posted to the website, a member of the PR team will email the link to key staff stakeholders and include a note in employee briefings.
- 5. Sharing results to external networks
    - a. PR team is responsible for sharing results with staff stakeholder group. Links to stories or PDFs will be provided whenever available, for ease of sharing and viewing.
    - b. Staff stakeholder group is highly encouraged to share media stories with their own networks to further push out the news.

Appendix B:  
Target Media Outlets

Audience/Arb Public	Which includes	Persona	National media targets	What would be covered NATIONALLY	Local media targets	What would be covered LOCALLY
<p><b>Scientists and Peers</b></p>	<ul style="list-style-type: none"> <li>Peers</li> <li>Potential partners and/or collaborators</li> <li>Science staff</li> </ul>	<ul style="list-style-type: none"> <li>Fellow scientists</li> <li>Passionate about science and the natural world</li> <li>Curious about what others are doing to learn from it</li> </ul>	<ul style="list-style-type: none"> <li>EurekAlert! newswire</li> <li>Science Daily</li> <li>Science News</li> <li>Scientific American</li> <li>Science</li> <li>Magazine/e-newsletter</li> <li>New Scientist (online)</li> <li>American Scientist</li> <li>Newscientist/Journals</li> </ul>	<ul style="list-style-type: none"> <li>Recently published research findings</li> </ul>	<p>N/A</p>	<p>N/A</p>
<p><b>Curious or Affinitive Publics</b></p>	<p><i>Scientists/peers, plus:</i></p> <ul style="list-style-type: none"> <li>Those who know about science/trees</li> <li>Members</li> <li>Donors</li> <li>Organizations/potential partnerships</li> <li>Potential funders/donors</li> <li>Potential visitors/members</li> </ul>	<ul style="list-style-type: none"> <li>Likes to "dig deeper," reading longer stories about the natural world</li> <li>Cares about the environment</li> <li>May be active in environmental causes</li> <li>May have disposable income</li> <li>May be rainmakers at fellow environmental organizations</li> </ul>	<ul style="list-style-type: none"> <li>National Geographic</li> <li>Discover Magazine</li> <li>Popular Science</li> <li>Wired</li> <li>Erisia magazine</li> <li>GOOD magazine</li> <li>Seed magazine (online)</li> <li>HuffPo Science</li> <li>Mental Floss magazine</li> </ul>	<ul style="list-style-type: none"> <li>Science with a national or international angle</li> <li>A groundbreaking scientific discovery, in the context of how it affects humans</li> <li>How the Arboretum is impacting the health of the planet</li> <li>Global tree conservation initiatives that are new, different, or making a significant impact on the planet</li> <li>Impact of our work in Chicago, as model for the US or world</li> <li>News can be linked to major conferences</li> </ul>	<ul style="list-style-type: none"> <li>WBEZ Radio</li> <li>Chicago Tonight</li> </ul>	<ul style="list-style-type: none"> <li>Science with a local angle</li> <li>A new scientific discovery, in the context of how it affects humans</li> <li>Global tree conservation initiatives that are new, different, or making a significant impact on the planet</li> <li>CRTI Impact; how we are succeeding in Chicago</li> <li>"Heavier" Chicago-based conservation programs and news</li> <li>News can be linked to major or local conferences</li> </ul>
<p><b>"General" public</b></p>	<p><i>Affinitive/publics, plus:</i></p> <ul style="list-style-type: none"> <li>General visitors</li> <li>Social media followers</li> </ul>	<ul style="list-style-type: none"> <li>May not know a lot about science/trees</li> <li>May know us for our events but don't know we "do science"</li> <li>Have heard of us or have seen our sign on I-88 but don't know what we do</li> <li>Have never heard of us</li> </ul>	<ul style="list-style-type: none"> <li>Associated Press</li> <li>CNN</li> <li>Reuters</li> <li>Chicago-based national network news bureaus</li> <li>National TV or radio shows about nature/science</li> <li>General interest magazines (e.g. TIME, Reader's Digest, AARP)</li> <li>Working Mother or women's mags (women in sci. angle)</li> </ul>	<ul style="list-style-type: none"> <li>A groundbreaking scientific discovery</li> <li>Non-groundbreaking "research with a national or international angle, that is also very visual"</li> <li>Impact of our work in Chicago, as model for the US or world</li> <li>Feature/human interest pieces about women in the field, STEM careers</li> </ul>	<ul style="list-style-type: none"> <li>Chicago Magazine</li> <li>Chicago Tribune</li> <li>Daily Herald</li> <li>Chicago Reader</li> <li>TV news outlets</li> <li>WBDM or WGN</li> <li>Newradio Illinois Radio Network</li> <li>Naperville Sun</li> </ul>	<ul style="list-style-type: none"> <li>Feature pieces about our work</li> <li>Global tree conservation initiatives that are new, different, or making a significant impact on the planet</li> <li>CRTI Impact; how we are succeeding</li> <li>Visual science happening on our grounds (tree dissection is an example)</li> <li>Chicago-based events (tree plantings, etc)</li> <li>Timely pieces, seasonal or based on trends</li> <li>"Did you know" type of news</li> </ul>

Appendix C:  
**Sample Press Release/Summary Document**

For science-based press releases, the entire document should be no more than 4-6 paragraphs. The summary for PR should be written at a level where a layperson could understand most of it, or at least the general point, without too much difficulty.

*Lead paragraph (1-2 sentences max). Should cover WHAT happened. What is news? What's new, what's novel, what do we want people to know, what is attention grabbing to others, how does this impact your audience – in other words, why are we writing anything about this? Remember to make it accessible.*

**Example:**

A new assessment of North American ash trees for the International Union for Conservation of Nature (IUCN) Red List of Threatened Species™ has found that five of six of the United States' most prominent ash species are under threat of extinction, listed as Critically Endangered – only one step away from going extinct.

*Body paragraphs (1-3 sentences each). Offer supporting details and answer Who, What, Where, Why, When and How. What details would your audience need to know? What details are essential for the audience to understand the story?*

**Example:**

Researchers at The Morton Arboretum, in collaboration with the IUCN Global Tree Specialist Group and the University of Notre Dame, conducted the assessments for the IUCN Red List, examining six prominent ash trees native to the eastern United States: white ash (*Fraxinus americana*), Carolina ash (*Fraxinus caroliniana*), black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), pumpkin ash (*Fraxinus profunda*), and blue ash (*Fraxinus quadrangulata*). All of these once-plentiful American ash species have been severely impacted by the invasive emerald ash borer beetle (EAB), putting them on the threatened species list.

Out of the five Critically Endangered ash species, three (*Fraxinus pennsylvanica*, *F. americana*, and *F. nigra*) have been the most dominant species of ash in the U.S. according to data from the U.S. Forest Service.

*Quote (1-2 sentences, generally one consistent thought). Offers insight on the facts, a point of view establishing the spokesperson as the expert. Some releases do not need a quote, others do. The PR team will weigh in on this with each release.*

**Example:**

“Ash trees have been essential to plant communities of the United States and have been a vastly popular horticultural species, planted by the millions along our streets and in gardens. The likelihood that we are losing more than 80 percent of these trees has, and will continue to, dramatically change the composition of both wild and urban forests,” said project lead Murphy Westwood, director of global tree conservation at The Morton Arboretum. “Now, our challenge is to figure out what will fill those gaps and how the community dynamics of those forests will

change.”

*Further background on the issue (not always included in summaries/releases but nice to have when talking about a deeper issue. May be one-three short paragraphs). Offers more information, a deeper dive, and more information about the Arboretum’s role.*

**Example:**

**An Ongoing Threat**

All of the native ash species in the eastern U.S. are being decimated by EAB, which arrived in Michigan from Asia in the late 1990s *via* infested shipping pallets. Fast-moving and devastating to susceptible host trees, EAB has already destroyed tens of millions of trees throughout 30 states and Canada, and is continuing to move across the country, with the potential to decimate over 8 billion ash trees. As the beetles feed on their host trees and spread rapidly, they can kill nearly an entire forest stand of ash within six years of infestation.

Recent ecological risk assessments have found that it’s impossible to know how far north, south, and west EAB could spread. Furthermore, whatever peripheral regions of ash’s range that may currently be too cold for EAB to thrive may become more suitable for EAB as the global climate warms and EAB is able to migrate northward at a faster rate than its long-lived ash hosts. Southern U.S. populations of ash may be safe from EAB, due to the need for a cold period in the beetle’s life cycle; however, this portion of the overall ash population is very small.

**Moving Forward**

Due to the great ecological and economic value of ash trees and the cost of removing dead ash trees from urban areas, much research and management effort has been underway in multiple sectors, including government agencies, local municipalities, universities, horticulture, and botanical gardens including The Morton Arboretum. The disappearing ash trees provide a valuable case study from which government agencies, land managers, researchers, botanic gardens, and the general public can learn.

The final Red List report is available on the IUCN’s website, at [iucnredlist.org](http://iucnredlist.org).