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# CONTRIBUTIONS

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## Human Dimensions: The ESA Student Section

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### What the Student Section Means to us

It was during my first ESA meeting in New Orleans, Louisiana, USA, in the hot and humid summer of 2018, that I (Anjali Boyd) chose ESA as my professional society and decided to seek a leadership position within the society. Prior to attending ESA, I had attended numerous national and international conferences. However, two things stood out about ESA: the diversity of ecological disciplines/topics and the diversity of people at the conference. By the end of my week in New Orleans, I had (unofficially) joined two sections: the Student Section and the Black Ecologists Section. Within a few weeks of leaving ESA, I made the ambitious decision to run for Vice-Chair of the Student Section with the goal of making the section more inclusive for undergraduates and increasing participation from underrepresented minorities. Since attending my first ESA meeting in 2018 as a student in the ESA SEEDS program, I have spent two years in leadership roles within the Student Section (2018–2019 Vice-Chair and 2019–2020 Chair). My roles in the Student Section have allowed me to create programs and events, within ESA and our section, to better support undergraduates and students from diverse backgrounds (see *Diversity, Equity, and Inclusion in the Student Section*).

Furthermore, through my role in the Student Section, I have been able to serve in numerous other leadership roles within the society, such as serving on ESA committees, attending ESA Governing Board meetings, and reviewing abstract and session proposals. Lastly, being in leadership positions

within ESA has enabled me to connect with a diverse array of professionals and students within the field of ecology. This has been invaluable in allowing me to develop an interdisciplinary network of professionals, peers, mentors, and collaborators, which I can use throughout the course of my career.

I (Kelsey E. Fisher) have been a member of the Student Section since 2012, when I attended my first national meeting as an undergraduate student. From 2013–2015, I took advantage of the Student Section’s abundant opportunities. As I was finishing my MS degree in 2015, I joined the leadership team of the Student Section as the treasurer to increase my engagement with the society. Following this, I was Vice-Chair from 2016–2017 and Chair from 2017–2018. Being part of the leadership team helped expand my experience and service to national societies. Over the years, I served on various taskforces and committees to tackle student-focused initiatives, like Extending the Tent, EcoFutures, and the Career Fair committee. I have seen the impact of my work on the society and will continue to dedicate time to serve the society through my career.

Upon arriving in Portland, Oregon, USA, in 2017 for my first ESA meeting, I (Lukas Lamb-Wotton) had no idea the impact it would have on my professional growth and experiences. I travelled to Portland with the intention of presenting a poster on my undergraduate research and soaking up as much ecology as I could. I attended most of the Student Section events that year and found them so insightful and rewarding that I decided to put my name in for Secretary. To my surprise, I got elected! Having little experience in professional leadership-type positions and organizing events, it is safe to say I had a slight case of imposter syndrome, yet I still went on to lead or co-organize multiple sessions for ESA 2018. My ESA 2018 experience was richly rewarding, not only for seeing all the hard work throughout the year that went into organizing events come to fruition, but also because of all the incredible people I met. Serving on the Student Section’s leadership team gave me experience and confidence in a professional setting, while also making me feel like I was part of something bigger than just myself; I had become part of a real, working community of ecologists aiming to better the professional environment in which we learn and grow.

I (Rob Crystal-Ornelas) joined the Student Section in 2017 as the Section’s Treasurer. I was mid-way through graduate school and was excited for the opportunity to connect (over bi-monthly virtual meetings) with other student ecologists all over the country. I had never been to an ESA annual meeting before and was not entirely sure what to expect when I entered the convention center in Portland, but I was excited to have had a built-in group of friends in the other board members at my first ESA. Over the next two years, I was Vice-Chair and then served as Section Chair. I am extremely grateful for the opportunity with the Student Section because I was able to connect with students from all over the world, hear about their goals, and bond over the common challenges and joys that are all part of learning how to do science.

### Student Section Foundations

The Student Section formed in 2000 to “facilitate communication among all student members of ESA, enhance interactions between students and the society as a whole, and provide a more formal way for students to communicate their needs to the society.” In the 20 years since its inception, these have remained common objectives for section leadership (N. Zimmerman, R. Salguero-Gomez, *personal*

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*communication*). In the first decade of the Student Section, section leadership increased awareness that graduate students are often left out of the peer-review process, suggested a “mentor-student” reviewing system at the level of the professional society (Zimmerman et al. 2011) and facilitated discussions on student involvement in “ecoservice” through distributed surveys (Salguero-Gomez et al. 2009). In the second decade of the Student Section, section leadership again distributed surveys to student members to reflect on the careers and culture of ecology in the 21st century (Hansen et al. 2018) and brought the need for additional funding for students to register for, and travel to, the annual meeting to the attention of the ESA Governing Board. Recognizing the financial demands placed on students that want to engage with the society through the annual meeting, ESA agreed to provide \$1 to the student section for every general dues-paying member of the ESA.

As we enter the third decade of the Student Section, we continue to increase our commitment to amplifying the student voice and providing opportunities for student members. Our website and social media presence on Twitter, Instagram, and Facebook provides timely and relevant information for student members, showcases student members’ work, and broadcasts grant, scholarship, and award opportunities. Additionally, the recently established Student Section award program elevates student’s work by formally recognizing recipients at each annual meeting (see details below). This annual program has enabled our section to increase the number of students we recognize with awards and provides more funding to students to support travel costs to the annual meeting. Lastly, we continue to engage students at the annual meeting by providing student-focused workshops and offer competitions (e.g., designing a new Student Section logo), where we compensate winners with a monetary award for their efforts.

### Support for Students During the Year and at the ESA Annual Meeting

At the annual meeting, the Student Section organizes, supports, and facilitates an abundance of workshops, programs, and events for student members. For new members, we offer an orientation to help keep students focused and successful during the meeting. This provides an opportunity for new student members to meet each other and tackle the conference together. Other events that we have hosted include career fairs, workshops on networking, applying for graduate school, taking a “gap year,” finding non-academic postdocs, and learning scientific communication. We plan a student mixer for students to mingle and network and find common research interests for collaboration after the conference. This year, our section had the challenge of converting all of our section events into a virtual format, in addition to creating a sense of community among our members while online. We successfully held our orientation and networking event virtually during the 2020 ESA Annual Meeting. We had a diverse host of students attend the meeting and our section events, with a large presence from our international peers. We also convened our annual Student Section mixer virtually through Zoom. Our mixer event began with a presentation to congratulate and highlight all of our Student Section awardees and members of the 2020 graduating class. The virtual mixer allowed for a record number of attendees (over 120 students). During the event, we split into small teams (using the Zoom breakout rooms) and played trivia games as a way for students to have fun and network with peers in an informal setting. Throughout the 2020 ESA Annual Meeting, our section engaged and connected with over 400 students and encouraged dozens of them to seek leadership roles within our section for the 2020–2021 academic year.

## Student Section Initiatives

Recently, Student Section board members led initiatives that fostered collaboration between the ESA Student Section and outside organizations. As part of the EcoFutures initiative, Student Section board members and collaborators surveyed nearly 50 Student Section members in order to identify emerging challenges and opportunities for 21st century ecologists (Hansen et al. 2018). The EcoFutures initiative provided baseline information that identified challenges faced by student ecologists, including entering the job market, dissolving barriers to engagement, and improving communication skills. This analysis of student needs provides guidance for ESA, academic institutions, and mentors to prepare the next generation of ecologists.

Because the Student Section's horizon scanning effort identified major insufficiencies in support for students as they enter the job market, the ESA Student Section, along with ESA staff and the Early Career Section, organized the first ever ESA career fair at the 2018 Annual Meeting in New Orleans. The career fair showcased career opportunities in a variety of job sectors (e.g., non-governmental organizations, government, and private sector). The fair also included several workshops that facilitated honest conversations between students and ecologists at all stages of their career. The topics included imposter syndrome and finding jobs after graduation. Additionally, section leadership, with collaboration from student members, hosted a workshop called "Story-tell your Science with ComSciCon." ComSciCon was founded by students at Harvard University and is a series of national workshops that teaches graduate students skills and provides them with the opportunity to practice conveying research findings to the public, policy makers, and our colleagues.

Exposing students to a variety of opportunities to help with their careers continued to remain a focus of the Student Section at the 2019 Annual Meeting, where we hosted a panel discussion that showcased the wide variety of postdoc options for recently graduated PhDs.

## Diversity, Equity, and Inclusion in the Student Section

The 2019–2020 Student Section leadership team had a goal of increasing participation by undergraduates and students from underrepresented backgrounds. To accomplish this, we created tiered leadership positions within our section, conducted targeted marketing, and created infrastructure within our section's awards and grants to give priority to undergraduates and students from underrepresented backgrounds. Our tiered leadership positions (e.g., the current section Vice-Chair is next year's Chair) are designed to create a pipeline of Student Section leaders and give our section an opportunity to facilitate the involvement of new ESA members into our section as early as possible. We also began conducting targeted recruitment and marketing towards undergraduates and underrepresented minorities, which consisted of joining and posting about the Student Section on various social media outlets where students are active. Additionally, we send monthly emails directly to faculty members at undergraduate programs, HBCUs, and MSIs to share with their students. These emails contain opportunities for students in the field of ecology, such as internships, job opportunities, fellowships and more. Within our Student Section awards, such as the Trailblazing Awards and our travel grants, we created infrastructure (similar to a point system) to give priority to undergraduates and underrepresented minority applicants. Furthermore, we created awards specifically for undergraduates, which has been extremely successful in attracting undergraduates into our section and the society. Lastly, the tactic we have found to be most



Photo 1: Kathryn Bloodworth cleaning a soil corer at the University of Minnesota's Cedar Creek Ecosystem Science Reserve (Minnesota, USA). Photo Credit: Kathryn Bloodworth.



Photo 2: Student Section member Sarah Rothman at a field site this past summer. In this photo, Sarah is collecting data on wildflower growth on a surface mine in Philipsburg, Pennsylvania, USA, as part of an MS at Penn State. Photo credit: Brennan Dincher, Director of Design for Penn State's Huck Institutes.

effective in recruiting and retaining undergraduates and underrepresented minorities is having students from these groups represented on our Student Section Governing Board. During 2019–2020, we not only had a record-breaking number of applications from undergraduates and students from underrepresented groups (accounted for 74% of our Trailblazing applicants and 51% of our travel grant applicants), and we also had a record number of awardees being a part of these groups (accounted for 100% of our Trailblazing awardees and 51% of our travel grant awardees). I (Anjali Boyd) believe this success is a direct result of the three strategies we employed throughout the year, in addition to having a leadership team that reflected the diversity we aspired to create within our section.

### Next Big Projects for the Student Section

Most professional societies, ESA included, present a multitude of awards to esteemed scientists in their chosen fields. The student awards (which are among the 20+ awards presented by ESA) are focused on either (1) novel student research or (2) outstanding science communication skills. At ESA, students make up a high percentage of annual meeting attendees, do high-level work within and outside of their professional society, and conduct novel research to propel their field(s) into the future. To acknowledge this, we created the Trailblazing Students at ESA Awards.



Photo 3: Morgan Frost (left) and Alyssa Young (right). Morgan and Alyssa are PhD students in Environmental Health Sciences at the University of North Carolina in Greensboro, North Carolina, USA. Photo Credit: Alyssa Young.

The goal of the Trailblazing Students at ESA Awards is to highlight the achievements of students, at the undergraduate and graduate level, in various sectors of ecology. To highlight the work that students conduct in a diversity of ecological fields and sectors of society, our awards were designed to be interdisciplinary and intersectional. Our section established seven new awards for 2019–2020:

1. Trailblazing Undergraduate Research: The Student Section seeks to acknowledge an undergraduate student's innovative and scholarly research in the field of ecology. This award highlights undergraduate research that introduces an original idea and/or uses novel methods to address ecological problems that are of particular significance to the scientific community.
2. Trailblazing Graduate Research (Master's and PhD level): The Student Section seeks to acknowledge a graduate student's innovative and scholarly research in the field of ecology. This award highlights graduate research that introduces an original idea and/or uses novel methods to address ecological problems that are of particular significance to the scientific community.



Photo 4: Here we show a photo from Joseph Gazing Wolf's field site at Standing Rock Reservation (North Dakota, USA). Joseph Gazing Wolf is a PhD Student and a Graduate Student Liaison between the Student Section and the Rangeland Ecology Section of the ESA. Photo credit: Joseph Gazing Wolf.

3. Trailblazing Ecology Publication: The Student Section's Trailblazing Ecology Publication award honors a student that publishes a paper of particular significance to the scientific community. Broadly, we select winners based on the citability, credibility, and relevance of published research.
4. Trailblazing Work in Diversity and Inclusion: This award seeks to highlight significant work done with underrepresented groups to enhance their understanding of the natural and environmental sciences, and/or to better equip individuals from underrepresented backgrounds for careers in the field of ecology. It can include but is not limited to serving as a mentor, creating internship opportunities for underrepresented students, organizing professional development workshops, or conducting outreach events/programs for underrepresented individuals.
5. Trailblazing Work in Community Outreach and Scientific Communication: This award aims to highlight outstanding work done to promote and enhance public understanding of scientific concepts pertaining to the field of ecology or the natural and environmental sciences. The work must have been done on a consistent basis over a period of time, with some evidence of its effective-

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ness. It can be in-person activities or social media-based outreach. This includes but is not limited to, afterschool programs that work with grade school students, community engagement activities like environmental fairs, or workshops with teachers on how to better convey the appeal of environmental science to their students.

6. **Trailblazing Work in Science Policy:** This award seeks to recognize and highlight outstanding individuals who have done commendable work in science policy related to ecology. Judging criteria include, but are not limited to, research done in science policy, projects/initiatives undertaken related to science policy and the impact they will have in the field of ecology. We are seeking individuals who put both effort and passion into their work with the goal of inspiring future change in the field of science policy.
7. **Trailblazing Work in Education:** We seek leaders passionate about improving various aspects of ecology education, from teaching to hands-on field experiences. We aim to highlight student excellence in the realm of ecology education. Have you designed your own inquiry-based course? Revised a laboratory handbook based on teaching best practices? Advocated for new teaching initiatives? If this sounds like you, apply for the Ecology Education Award!

All Trailblazing Award recipients receive the following: a Student Section travel grant, a cash prize, an award plaque, a free one-year ESA and Student Section membership, and recognition at the ESA Annual Meeting. These awards not only highlight outstanding work and/or research being done by students at ESA, they also encourage students to get involved with intersectional ecology, including human dimensions. Award recipients are recognized in front of a large audience of diverse ecologists, which gives them a unique opportunity to showcase their work to individuals outside their discipline. This could assist Trailblazing Awardees in finding potential collaborators, funding sources, employers, and/or advisors. The Trailblazing Awards can also attract new students to ESA and retain members as they transition to careers, especially those who pursue non-academic paths. Our section would like ESA to include the Trailblazing Awards presentation in the opening plenary event, where all other ESA Awards are presented. Ultimately, we hope to make ESA and the Student Section the leaders in student recruitment, retention, and recognition. The addition of the Trailblazing Awards highlights the Student Section's future goals: increasing diversity, equity and inclusion in the section, expanding undergraduate participation, and highlighting student research and accomplishments.

### Looking Back and Looking Ahead

The founding philosophy of the ESA Student Section still provides a strong base for the section over 20 years later. The Student Section remains an important conduit for student voices to ESA leadership, advocating for the critical role that student members play in the society. We also foster connections between current undergraduate and graduate students, which can provide essential professional networks as students move onto their next career stage. Over the next decade, we hope to grow the section, not only in terms of providing support for new student members, but also in our efforts to ensure that ESA is a home for diversity, equity, and inclusion.

For more information regarding the Student Section, please visit our website (<https://www.esa.org/students/>) and follow us on Twitter (@esa\_students).

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