

# Creating community: How we collectively built an adaptable postdoctoral program to develop skills and overcome isolation

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## Abstract

Postdoctoral positions provide critical opportunities for early career scientists to build skills, knowledge, and networks, but these positions often come with personal and professional challenges such as stress, isolation, and lack of agency. Here, we describe a peer-led postdoc program we created to maximize benefits and minimize challenges while preparing ourselves for a wide range of possible future careers. We also give recommendations for other postdocs and early career scientists seeking to build a similar program.

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## Abstract

Postdoctoral positions provide critical opportunities for early career scientists to build skills, knowledge, and networks, but these positions often come with personal and professional challenges such as stress, isolation, and lack of agency. Here, we describe a peer-led postdoc program we created to maximize benefits and minimize challenges while preparing ourselves for a wide range of possible future careers. We also give recommendations for other postdocs and early career scientists seeking to build a similar program.

## Introduction

Postdoctoral positions are a critical transition from student to professional: they launch careers by providing opportunities for independent research, skill development, and further professional training (Sauermann & Roach 2016). Increasingly, postdocs can expand on the academic skills and knowledge gained in graduate school to build a bridge to careers outside the academy (Powell 2014; Sauermann & Roach 2016). Despite these benefits, personal and professional isolation is common among postdocs, resulting from relocation away from support networks or from remote work (Arnold 2014; Burgio *et al.* 2020). These challenges can interfere with opportunities for development of skills and collaborations, introduce personal logistical constraints (e.g., childcare, inflexibility in job location of partners/family), and negatively affect productivity and mental health. Postdocs may also experience limited agency, for example, due to the short duration of their positions and policies that prevent postdocs from applying for grants as principal investigators. The COVID-19 crisis has only exacerbated these challenges while simultaneously reducing the availability of academic and other jobs.

We are a cohort of ~12 early career PhD-level employees at a non-profit research institution who have built a postdoc program that complements the individual training we receive from our postdoctoral advisors. Our research interests are diverse, spanning biogeochemistry, plant ecology, behavior, disease ecology, fisheries, sociology, and community ecology. We are spatially dispersed over three time zones in the U.S. We have a diverse set of professional goals that range from academia to government scientist positions to non-profit conservation and advocacy organizations.

Like many other postdocs, we share an overarching anxiety about employment and the future of our careers (Shaw *et al.* 2015). For those seeking academic careers, ongoing “adjunctification” means a shrinking number of stable positions (Jenkins 2014). The growing number of postdocs further imbalances supply and demand in the job market (Dawson 2007), reducing opportunities for early career scientists. On top of this, COVID-19 related hiring freezes and disruptions to lab, field, and in-person work exacerbate the loss of opportunities and amplify anxiety and loneliness (Duncombe 2020).

To address the typical and the current additional stresses of the postdoctoral years, we initiated a formal postdoc program that is bottom-up and peer-led. This structure has allowed us to adapt to our changing needs. Our goals are to: 1) expand and refine our visions of our future careers; 2) develop new skills and knowledge to become more well-rounded, resilient, and adaptable scientists; and 3) build and maintain a robust community with remotely-based peer colleagues. One of the biggest successes of our program has been hardiness in the face of the upheaval of the global pandemic and widespread civil unrest in the United

States. A major benefit of our program has been the development of personal and professional networks that help overcome isolation: we support one another by sharing trust, successes, and setbacks.

We outline below the structure of the program and actions we have designed and implemented, connect them to benefits for individuals, our group, and the field at large, and give recommendations to other postdocs interested in developing a similar program (Figure 1). Our goal is to encourage early career ecologists to work collaboratively with one another and their institutions to build skills, knowledge, and relationships that help them grow and thrive in the face of current and future barriers and opportunities.

### **Postdoc program structure, themes, and content**

Collaborative design and peer exchange of information are the foundation of our postdoctoral program (Figure 1). Our program is bolstered by mentorship from a committee of staff scientists who provide continuity as postdoctoral researchers cycle through the institute on relatively short-term contracts. The group is not exclusive to people in positions with “postdoctoral” titles; we include other early career scientists who contribute their perspectives and knowledge while also sharing the camaraderie of being at a similar career stage. Critically, we are able to adapt our model and content to continuously mold the program to the changing professional and social needs of individuals and the community.

We meet weekly to engage with the content of our program, which we organize under five themes (Table 1), and occasionally schedule additional activities outside of these weekly meetings. Meeting content is discussed in advance, but we retain flexibility to shift our plans to what feels important at the moment. For example, in spring 2020 we delayed scheduled content in order to spend several weeks discussing racial justice and encouraging anti-racist initiatives at our institution. Between our weekly gatherings, we have also self-organized other forms of accountability and mutual aid. For example, we maintain a shared spreadsheet where we can record daily goals, accomplishments, and struggles and receive feedback and encouragement from others. Others engage in short daily video check-ins for accountability and social contact.

The themes and content of our weekly meetings primarily serve the goals that gave rise to this program. Preparation for the future of our careers is an explicit focus of some meetings. Activities that address this include: building a broad knowledge base by describing current questions and grand challenges in our respective sub-fields (“State of the Science”); sharing and developing specific skills; and navigating potential career paths through workshops and group informational interviews with contacts in alternative-to-academia careers such as start-ups, NGOs, private industry, and government (Table 1). Every year, our institute allocates funding for postdoc professional development. Some of the uses we had planned for this budget (and postponed due to COVID-19) included funding a writing retreat and visiting Washington DC to meet with National Science Foundation program officers and Congressional staffers.

Including a blend of social, scientific, and professional activities as part of the program provides multiple “entry points” and co-benefits. Different types of meetings, with varied personal or professional activities, incentivize attendance for those with different needs and goals. During each weekly meeting, we often spend a few minutes checking in with one another, admiring each other’s children and pets, and brainstorming activities for future meetings. We occasionally schedule purely social events, such as crafting, games, and happy hours, which not only improve inclusivity with remote members, but also blunt the isolation of working through a pandemic. Every few months, we revisit our mutual and individual goals so that we can make course corrections to more effectively move forward as a group (Table 1).

### **Benefits of a postdoc program**

At many institutions, postdocs are isolated because of insular, hierarchical lab structure and lack of coordination or community among the department or institution postdoc community. The benefits of creating a postdoctoral group that cuts across this structure are multi-layered, addressing overlapping individual, group, and field-wide needs (Figure 1). Benefits are cross-cutting and include minimizing the challenges associated with the temporary nature of the position and uncertainty in the world, addressing the contraction of the contemporary job market, and creating a collective that enhances networking and identification of

opportunities.

As individuals, we benefit from having a formalized postdoc group through a sense of community, well-being, and support that mitigates the social and psychological challenges associated with this type of position (Shaw *et al.* 2015). Meeting regularly, facilitated by technology that enables virtual participation, has increased interactions and peer mentorship among the postdocs at our institution, and helps to curtail the effects of social isolation and work-life imbalances. Building this program has also expanded our network of collaborators and peer-mentors as we discuss and connect ideas.

Our program also provides benefits that address the unfavorable job market. Given the mismatch between training and the diverse set of trajectories taken by PhD holders in ecology (Ålund *et al.* 2020), we set up a structure to facilitate learning and sharing of transferable skills useful across a wide range of potential careers (Table 1). Second, we pool information (e.g., where to find online training, how to prepare and format an application) gained in conversations with members of our individual networks working in alternative-to-academic careers to increase our awareness of career pathways and opportunities. Together, these provide us with the flexibility to pursue and be competitive for a variety of career opportunities.

As a group, we benefit in our current roles and positions through streamlined communication and agency within our institution. Through official recognition of the postdoc group, communication with the broader institution is more structured, efficient, and transparent, which is advantageous to both the institution and individual postdocs. Within the group, by sharing experiences, we can provide coherent institutional memory through time to new members. This institutional memory facilitates improved communication, which increases our leverage and agency within the institution (Stephan 2013). We are able to share information about funding policies and communicating our group’s consensus opinions and suggestions about topics like racial equity through formal and informal channels. In addition, we are more aware of, and involved in, issues and opportunities at our institution, which provides us with validation, voice, and confidence in discussing institutional progress and policies with leadership.

Expanding our academic network has further exposed us to cultural shifts that are occurring within the field of ecology, such as increasing recognition and partnerships that emphasize Indigenous and local ways of knowing (Kimmerer 2015). This, coupled with our group’s breadth of experience and expertise, allows us to consider career and research trajectories that align with current scientific and societal trends. By discussing such cultural shifts in ecological science, we remain aware and informed about the contextual needs of the field as a whole, thereby improving our ability to communicate effectively across disciplinary boundaries and do innovative disciplinary research. This reflection on science, both outwards towards the field, and inwards towards our own work, makes us more effective and adaptable scientists.

## Recommendations for developing a peer-led postdoc program

Others have provided thoughtful and useful suggestions for what universities, professional societies, and academia as a whole can do to support early career researchers in this vulnerable and often lonely career stage (e.g., Stephan 2013; Powell 2015; Shaw *et al.* 2015; Burgio *et al.* 2020). Here, we complement these suggestions with our recommendations for how postdocs can create their own peer-led community. While we have benefitted from the investment and support of our institution, we believe these recommendations can be useful for building and investing in a peer-network regardless of external support.

In reflecting on the process of creating and implementing our postdoc program, we have generated a series of recommendations for groups of postdoctoral scholars who wish to develop robust, supportive programs (Figure 1). These recommendations fall into two broad categories: 1) program structure and management and 2) institutional interactions. Regardless of scale and funding, these recommendations emphasize the importance of building a democratic and accessible venue for postdoctoral colleagues to work together to grow their abilities and relationships.

We do not intend our recommendations to be prescriptive. Rather, they can serve as guidelines to develop specific actions that best meet the needs of your group. Looking inwards, we found that the creation of

multiple “entry points”, collaborative design and management, and a structured format with built-in flexibility resulted in an effective program that met the needs of postdocs at our institution (Figure 1). Looking outwards, building institutional memory and speaking as a collective built bridges between the institution and postdocs, thereby fostering communication and helping us advocate for ourselves and for institutional progress in other areas, including racial justice.

Given the transitional nature of a postdoc, it is important that incoming postdocs need not reinvent programs when a new cohort begins their positions. Elements of the structure and management we have implemented in our program contribute to its consistency, and sharing and adapting our goals, progress, and successes with our group of colleagues serves to sustain the program over time. We hope that other groups will be empowered to use the lessons and strategies we offer here to alleviate some of the known obstacles facing postdocs and further grow professionally through the development of a peer-led postdoc community.

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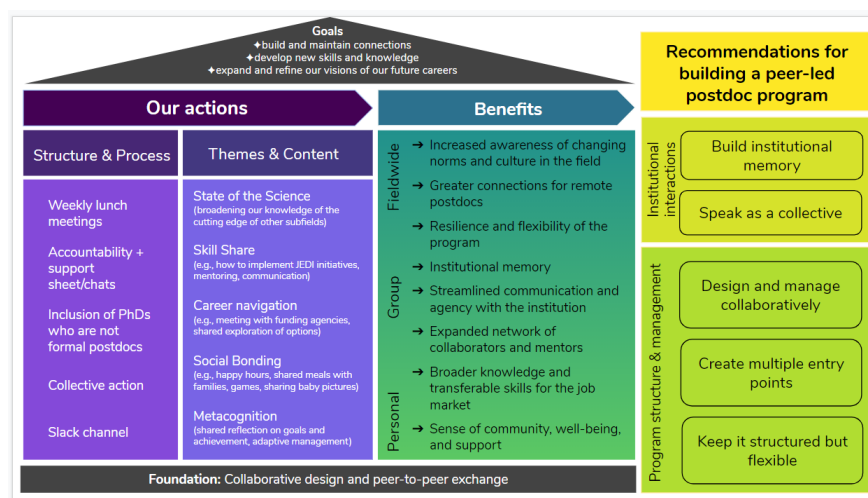
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**Table 1.** Themes addressed in weekly meetings of our postdoc program and examples of thematic content.

Theme	Description	Examples
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State of the Science	Individual postdocs give a brief talk and lead a discussion about the current state of their field, with the goal that it stimulates intelligent, thoughtful conversations outside our specialty.	“Carbon in inland waters” “Quantifying and measuring controls on the terrestrial carbon sink” “Urban plant communities”
Skill share	We identify areas in which we are interested in building skills and someone (within or outside the group) who can lead us in building those skills	Science communication with non-scientists How to implement meaningful justice, diversity, equity, and inclusion (JEDI) initiatives
Career navigation	We explore potential careers, their skill requirements, and what work-life balance would look like through formal and informal conversations and activities	Built a shared list of potential options based on members of our networks and passing on resources from our individual searches Identified our values and strengths Developed alternative 5 year plans (based on a template from (Burnett & Evans 2016))
Social bonding	We set aside a few minutes at the start of each weekly meeting and occasional whole lunches or ad hoc evening hours (virtual or in-person) to socialize	Sharing pictures and stories from our childhoods Craft nights Recounting a personal achievement from the week Game nights
Metacognition	Every few months, we revisit our goals, assess how well we are meeting them, and make a plan to adaptively manage our program accordingly.	Writing this paper Periodically revisiting schedule and balance of weekly activities



**Figure 1.** Schematic of the structure, process and content of our postdoc program (“Our Actions”), the cross-scale benefits we have identified as resulting from our program (“Benefits”), and our suggestions for

to other postdocs looking to build a similar program (“Recommendations for building a peer-led postdoc program”). The acronym “JEDI” refers to justice, equity, diversity, and inclusion.