

# The Student Chronicles

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## Newsletter from the SDWG

June 2018

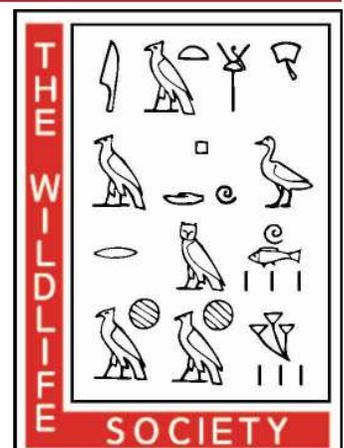
### Letter from the Chair

The spring semester is coming to a close and some of you will be heading into the wild blue yonder to start a new job and others are graduating and looking to the future. To all the returning undergraduates and graduate students, keep up the good work. You are pursuing a career path full of wonders and experiences that most only dream about. Keep those hopes and dreams alive and you will achieve your goals. To the 2018 graduates, congratulations on reaching this amazing milestone. You have gained the knowledge needed to lead the next generation of wildlife management and policy decisions, but you also have more responsibilities. You will be mentors, researchers, professors, managers, and most importantly wildlife professionals. I would like to remind you all that after graduation is the best time to apply for your Associate Wildlife Biologist Certification through The Wildlife Society. This is just another way to add a gold star to your already impressive resumes and to show your peers how highly qualified you are to get the job done. I would also encourage you all to stay involved. Your career will take many turns, but The Wildlife Society is always here for you with over 10,000 members that have been in your situation. All of the new graduates will be transitioning from our working group to the Early Career Professional Working Group, but I encourage you to explore our State Chapters, Sections, and Working Groups that are all tailored to the many fields we have in the wildlife circle. Congratulations again to everyone and have an awesome summer!

Phillip Stephenson



The Student Development Working Group wants to hear from YOU! Connect with us on Facebook and Google Groups!



## Nourishing DEI in the Wildlife Profession

By: Catherine Sun, Cornell University

Justine Josephson-Laidlaw, University of Manitoba

Dee Patriquin, University of Alberta

The conversation about Diversity, Equity, and Inclusion, or “DEI,” is growing in scientific communities, educational settings, and a wide array of employment sectors. But what do these words mean, and why are they also relevant and important to the field of wildlife conservation and management and its students? Here we provide a brief survey of DEI in the wildlife profession with respect to the role of and impact on students, and offer 2 case examples to highlight salient aspects of DEI.

Diversity refers to differences among individuals within a group or among groups, and generally has two layers. Externally, people and groups can be diverse in attributes that can be somewhat influenced, such as religion, education, geographic location, or marital status. Differences are also due to internal attributes, which individuals have less control over, including age, gender, race, ethnicity, and sexual orientation. These differences can then generate a diversity of ideas, perspectives, and values. For the benefits of diversity to emerge, the diverse voices need to be included and equitable. Inclusion refers to feeling welcome, supported, and valued. Decision-making is shared. Equity refers to the fair treatment of all individuals, so that they have access to the same resources and opportunities. Furthermore, inclusion does not automatically follow from diversity, and inclusion is a prerequisite to equity.

DEI is important to cultivate in the wildlife profession for a multitude of reasons. The natural environment arguably impacts all people, so that involving equitably diverse parties in the wildlife profession helps reflect cultural and societal values and priorities. It also helps ensure that objectives are appropriate and goals are achieved. Since many wildlife populations and natural resources are distributed across political and ownership boundaries, successful wildlife management requires the knowledge and contribution of involved and impacted parties. A diversity of collaborators provides different expertise and can generate creative ap-

proaches to address complex, interdisciplinary issues such as climate change and wildlife trade. Furthermore, it has been argued that upholding the diversity and integrity of the human dimensions of wildlife conservation is part and parcel of managing biodiversity, which is deemed worth of conservation for its inherent values as well as ecosystem functions.

Students play a critical role in increasing DEI in the wildlife profession. During their education, students are exposed to diverse perspectives as they learn about wildlife issues. They may themselves come from diverse backgrounds. Indeed, 44% of college students in the United States identify as non-white. Thus, students’ educations are synthesized from diverse perspectives. Upon graduating, they offer valuable insight and talent if they enter the wildlife workforce.

However, the road to joining the wildlife workforce is riddled with barriers and struggles that can make it particularly difficult for students from traditionally under-represented backgrounds to traverse. Students from under-represented backgrounds may not see role models that they identify with or relate to, either historical or contemporary, and so already they are at a disadvantage when forming a supportive network of peers and mentors. When applying to internships, jobs, or even volunteer positions, students may also face subconscious biases developed over years and even generations, from both themselves as well as others. Furthermore, such employment opportunities may not be viable if students have to navigate career goals while contending with other priorities such as financial responsibilities, family ties, and geographic constraints. Well-meaning institutional programs that aim to increase initial student diversity may not successfully address the nuanced issues related to inclusion and equity.

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So before students from minority and underrepresented groups even enter the wildlife workforce, a cascade of transgenerational barriers and struggles at the individual and institutional levels can create an environment that is predisposed to discriminate against them while privileging certain other groups.

There are many programs devoted to promoting DEI in the wildlife profession through focusing on students. As a first example, we describe the Doris Duke Conservation Scholars Program (DDCSP) in the United States. It is a nation-wide program that recognizes the need to have more people from diverse backgrounds in land, water, and wildlife conservation workforces. Started in 2013, it focuses on deepening the resources and chances for success of undergraduate students from diverse and under-represented backgrounds who have an initial interest in wildlife and conservation. It is jointly administered by the Doris Duke Charitable Foundation, federal agencies including the US Geologic Survey and the US Fish and Wildlife Service, and select research universities. DDCSP provides its students 2 years of training in leadership, wildlife research, and field skills, financial support, and mentorship with graduate students, research faculty, and working professionals. DDCSP hopes the students will gain insight on career pathways and opportunities that are available once they are empowered with skills and resources, while potential employers such as NGOs and management agencies increase their awareness of the value of recruiting and employing diverse students. Vanessa Springer (DDCSP '15), who also became a graduate student mentor for the program, said of the program, "DDCSP gave us not only the job skills to succeed but also a sense of belonging and community. It provides each scholar with the opportunity to break into existing networks, and also allows you to build your own network of peers who all want to see a more inclusive and accessible conservation field."

Our second example of a program that seeks to increase DEI in wildlife management through student development is from Canada. Attempts at inclusion in resource management by Indigenous and non-Indigenous governments and

scientists have often struggled with differences in community priorities, approaches and capacities, particularly in areas such as environmental impact assessment. To incorporate diversity and respect different ways of understanding the environment so as to improve environmental management, the Mikisew Cree in Ft. MacMurray, Alberta have proposed an employment strategy program that would train students from a local college to blend Indigenous knowledge and teachings from elders with Western science disciplines, management, and monitoring approaches. Graduates of the program will be able to serve as translators who work with industry and local Indigenous communities to ensure that relevant impacts are addressed, from both perspectives. The program hopes that by building the ability and confidence of students in integrating Indigenous and non-Indigenous perspectives and ways of knowing into environmental management, industry and Indigenous partners will benefit, as well as the environment.

Resource investment into DEI programs that focus on student development enhances our ability to reach long-term objectives that encompass societal, environmental and wildlife aspects. Scientific communities and their voice become stronger through the inclusion of diverse and equitable members in the wildlife profession. To reach these goals, the wildlife profession needs to continue investing in emerging professionals and students from diverse backgrounds. Support systems for these key contributors of future conservation research are necessary. These support systems provide them with a sense of belonging and importance within their field, and help prevent future conflicts in developing and implementing conservation solutions that respect cultural perspectives, histories, and land uses. There are still structural and informational gaps to overcome, but multifaceted approaches on local, regional, and international scales help to reduce barriers to resources and opportunities for disadvantaged voices. To support programs that nourish DEI in the wildlife profession is to develop solutions that fit the cultural, social, and environmental context with diverse perspectives at the table.



The Student Development Working Group would like to congratulate Kristi Confortin, SDWG Past-Chair, for being selected as a member of the 2018 Leadership Institute! Kristi will spend the time leading up to this year's Annual Conference in October learning about effective leadership strategies through intensive activities and mentoring relationships. We're proud of you, Kristi!

**Call for SDWG officer nominations:** Have you been looking for ways to get more involved with the Society? Well now is your chance! The Student Development Working Group is announcing their call for nominations for the 2019-2020 officers! Positions available include: Treasurer, Secretary, and Chair-Elect. The Treasurer and Secretary positions are one-year terms, and the Chair-Elect will serve a 3-year term (one year as Chair-Elect, Chair, and Past-Chair consecutively). If you are interested in learning more, or would like to run for a position, email Colleen Hartel at [cmhartel@gmail.com](mailto:cmhartel@gmail.com). To submit your nomination, please include a brief biography (300 word maximum) and photo. **Nominations are due by July 8, 2018 by 5:00PM EST.**

## Register now for The Wildlife Society 2018 Annual Conference!

Be sure to check out the [conference website](#) for information on field trips, workshops, symposia, plenary speakers, networking opportunities, and more!



**Travel Buddies:****A possible co-migration of purple martins and their dragonfly prey**

By: Ashley Pidwerbesky

The movement of an individual is a fundamental characteristic of its life history and impacts the structure, dynamics, and diversity from the population scale to entire ecosystems (Nathan et al. 2008). Migration is a crucial life history aspect of many organisms and has been observed in many vertebrate and invertebrate species (Rutz and Hays 2009). For example, more than 75% of Canada's

bird species are migratory and spend at least half the year outside of Canada (State of Canada's Birds 2012). Without a complete understanding about the migrations of a species, we lack essential information about their life history and how they survive outside of their breeding grounds (Bridge et al. 2011). Emerging conditions with climate change and habitat loss exert new pressures on animal movement, presenting a growing research challenge to determine whether organisms can flexibly adjust the timing of their migratory journeys when facing these new conditions (Marra et al. 2011). Investigating movement patterns and connections between distant habitats used seasonally (e.g., determining migratory connectivity), is crucial for identifying limiting factors as well as to inform policy for migratory species' conservation (Marra et al. 2011).

A major problem with tracking the migration of songbirds is that most species are quite small (<50g) but travel hundreds to thousands of kilometers per year, necessitating the use of small, lightweight tracking devices (Bridge et al. 2011). Such tracking devices either require an adequate power supply to transmit information or else must save substantial amounts of information until they can be retrieved (Bridge et al. 2011). The Motus Wildlife Tracking System ([www.motus.org](http://www.motus.org)) is a research



network program of Bird Studies Canada that implements the widespread use of automated radio telemetry arrays to study the movements of small animals. It can be used to track a wide variety of animals including birds, bats and large insects such as monarch butterflies or darner dragonflies (Taylor et al. 2017). From 2012 when Motus was launched, it has supported over 120 research projects, tracking over 9,000 individuals of 87 species (Taylor et al. 2017). Many of these projects would not have been possible with existing tracking technology, due to limitations in temporal or spatial precision, the small size of many migratory animals, and because many previous technologies required the recapture of individuals to obtain data (Taylor et al. 2017). These nanotags used with the Motus system (0.26-4.3g) have been used to study stopover duration, departure and arrival times, departure and flight orientation, flight distance, time and flight speed, and types of movement (Taylor et al. 2017). The Motus radio-tags transmit signals that can be picked up by automated radio telemetry stations at all times of the day (Taylor et al. 2017). There are currently over 350 active receiving stations across the western hemisphere.

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Retrieving signals from receiving stations is less labour intensive than actively tracking using hand-held radio receiver or trying to retrieve geolocators that are archival and need to be retrieved to obtain movement data. Data collected by Motus enables researchers to fill important gaps in knowledge about the movement, biology, and ecology of small migrants while promoting international collaborative research (Taylor et al. 2017).



Motus tag on a purple martin  
(*Progne subis*) from Kevin Fraser,  
University of Manitoba.

The Avian Behavior and Conservation Lab (ABC Lab) led by Dr. Kevin Fraser at the University of Manitoba and partnering organizations assess when, where, and under what conditions birds adjust their migration timing or routes in response to such environmental conditions as climate change and light pollution. These data can inform and support conservation initiatives by identifying at-risk populations and determining habitats used by migrants around the annual cycle. Such conservation measures are increasingly necessary considering current population declines in many migratory species, including steep declines in aerial insectivores (State of Canada's Birds 2012) for reasons that remain poorly understood. The ABC Lab studies purple martins (*Progne subis*) as a model system to investigate the decline of aerial insectivorous birds and gain insight into their migratory behaviour, threats, and to inform effective conservation strategies. Purple martins are an ideal model organism because they are accessible due to their close relationship with humans. The Hemisphere to Hemisphere Project (H2H) tracks purple martins across their journey of thousands of kilometers between their breeding grounds in North America and overwintering grounds in South America. The research integrates academic research with

collaborating government organizations, NGOs, and Citizen Scientists to understand the migration and conserve populations across their entire range.

For my honours research, I will be investigating the migration of two international migrants: purple martins and their prey, the common green darner (*Anax junius*). As aerial insectivores, purple martins feed primarily on flying insects such as dragonflies and the common green darner dragonfly has been found to be a major portion of

their diet (Johnston 1967). Common green darners are also thought to migrate seasonally between Canada to the Yucatan, Mexico, though very little is currently known about their migration. Considering both these species migrate south at the same time of the year, purple martins could be exploiting the co-migration with their prey to have a constant food source throughout their long journey. Comparing the departure dates of the two species can give us insight into whether the purple martins and green darners co-migrate. I will put Motus nanotags on purple martins as well as their dragonfly prey to compare the timing of their departure and use these data to determine if these species follow similar migration patterns. For this project, five Motus receivers will be put up in southern Manitoba to determine departure dates for both species. By conducting this research, I will be able to gain novel insight into the migration timing of dragonflies to then compare with the migration of their avian predators. By understanding the complex predator-prey relationships between the species, we can better understand the limiting factors that are constraining purple martins and causing them to decline.

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- Bridge, E.S., Thorup, K., Bowlin, M.S., Chilson, P.B., Diehl, R.H., Fléron, R.W., Hartl, P., Kays, R., Kelly, J.F., Robinson, W.D., and Wikelski, M. 2011. Technology on the Move: Recent and Forthcoming Innovations for Tracking Migratory Birds. *Bioscience* 61(9): 689–698.
- Johnston, R. F. 1967. Seasonal variation in the food of the Purple Martin *Progne subis* in Kansas. *Ibis*. 109(1): 8-13.
- Marra, P.P., Hunter, D., and Perrault, A.M. 2011. Migratory connectivity and the conservation of migratory animals. *Environ. Law* 41(2): 317–354.
- Nathan, R., Getz, W.M., Revilla, E., Holyoak, M., Kadmon, R., Saltz, D., and Smouse, P.E. 2008. A movement ecology paradigm for unifying organismal movement research. *Proc. Natl. Acad. Sci.* 105(49): 19052–19059.
- North American Bird Conservation Initiative Canada. 2012. The State of Canada’s Birds. In Environment Canada.
- Rutz, C., and Hays, G.C. 2009. New frontiers in biologging science. *Biol. Lett.* 5(3): 289–292.
- Taylor, P.D., Crewe, T.L., Mackenzie, S.A., Lepage, D., Aubry, Y., Crysler, Z., Finney, G., Francis, C.M., Guglielmo, C.G., Hamilton, D.J., Holberton, R.L., Loring, P.H., Mitchell, G.W., Norris, D.R., Paquet, J., Ronconi, R.A., Smetzer, J.R., Smith, P.A., Welch, L.J., and Woodworth, B.K. 2017. The Motus Wildlife Tracking System: a collaborative research network to enhance the understanding of wildlife movement. *Avian Conserv. Ecol.* 12 (1): 8.



Author Ashley Pidwerbesky is an honours student at the University of Manitoba, Department of Biological Sciences. She is working in the ABC Lab with Dr. Kevin Fraser this summer on her honours research where she will be investigating purple martin migration in relation to a major prey source: the common green darner. This research will give insight into the lesser-known migration of dragonflies as well as give understanding into the predator-prey interactions of purple martins.