

# NORTH AMERICAN WATERFOWL PROFESSIONAL EDUCATION PLAN 2020

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## Introduction

Waterfowl are ecologically, economically, and culturally valuable natural resources worldwide, especially in the Northern Hemisphere. Accordingly, waterfowl science and management in North America have focused on conservation of these resources since the Migratory Bird Treaty Act in 1918, with significant advancements made during the Great Drought and Depression in the 1930s. Legislation enacted to promote scientific investigations (e.g., the Pittman-Robertson Act 1937) and habitat conservation (e.g., Duck Stamp Act 1934) resulted in scientifically informed management and increased conservation of waterfowl and their habitats. Subsequently, when continental waterfowl declined dramatically again during the 1980s due to drought and landscape-scale habitat alterations, the North American Waterfowl Management Plan (NAWMP) was enacted in 1986 by the United States and Canada and later joined by Mexico to promote recovery of continental waterfowl populations and habitats. Additionally, key legislation (i.e., North American Wetlands Conservation Act 1988) was passed to support management actions of NAWMP, providing a significant source of revenue to improve habitats for waterfowl and wetland wildlife. For decades, NAWMP and other important conservation efforts (e.g., state and provincial waterfowl and habitat stamps, Farm Bill programs, Wildlife Habitat Canada) have conserved an international network of wetlands and associated habitats to sustain waterfowl and other wildlife. Indeed, in a recent assessment of status of continental bird species, waterfowl were one of few avian taxa that have not experienced significant declines during the last several decades (Rosenberg et al. 2019; *Science*). Further, these conservation efforts have provided

broad societal and natural benefits including recharging groundwater, reducing flooding, sequestering carbon, improving water quality, enabling pollination of flora and crops, as well as providing places for people to recreate.

Management and conservation neither progress effectively nor efficiently without trained professionals to study and steward natural resources. In the early 2000s, published research revealed that university-based waterfowl programs were declining in North America. By 2013, > 40% of these programs were lost after faculty retired or passed, and their positions were not filled with experts in waterfowl because of funding limitations or transition toward conservation of biodiversity rather than foci on game species (Kaminski 2013; *The Wildlife Professional*). Accordingly, the waterfowl community questioned who would educate and produce skilled waterfowl scientists and stewards to sustain waterfowl populations.

Additionally, simply encouraging university, college, and other educational partners to graduate students with skills in waterfowl and wetland science and management may not be proactive or adequate. Thus, the NAWMP community also must recognize and promote values of an inclusive workforce that reflect an increasingly multicultural and diverse North American society and welcome professionals from historically underrepresented backgrounds. Inclusion, diversity, and engagement must be an intentionally sustained mission that pervades the strategic objectives and implemented practices of conserving waterfowl. The 2012 NAWMP Revision and 2018 NAWMP Update identified the importance of championing the diverse ecosystem benefits of wetland and waterfowl conservation and to engage broader segments of society. Professionals must be aware of and consider the human-dimensional aspects related to advancing waterfowl science to guide conservation of waterfowl, other wetland wildlife, and ecosystems upon which they depend. The continued relevance of NAWMP hinges upon engagement and inclusive diversity among the professionals and recreational participants who value and support North American waterfowl conservation (USFWS Diversity and Inclusion Implementation/Action Plan 2015, Association of Fish and Wildlife Agencies [AFWA] and Wildlife Management Institute's [WMI] Fish and Wildlife Relevancy Roadmap). Thus, we strongly encourage educational institutions to recruit, train, and promote a diverse workforce in natural resources for the future. Further, efforts are needed by agencies and organizations to stimulate and encourage interest in the wildlife profession across all segments of society well before the college years to achieve diversity goals of all natural-resource specializations, including waterfowl conservation.

Within North America, language can present a barrier to the full range of educational and work opportunities and may limit human inclusivity in the waterfowl profession. Canada has two official languages (English and French). Incomplete translation of educational materials may limit the opportunities for francophone Canadians to access resources produced at primarily anglophone educational institutions and vice versa. In Mexico, universities have excellent graduate programs in the biological sciences, but lack programs focused on wildlife management and specifically on waterfowl and wetland management. To receive this specialized training, students presently matriculate to universities in the United States. However, entrance examinations and most coursework are in English only. This dilemma presents a substantial barrier to many Spanish-speaking students who are not bilingual.

The 2018 Update of NAWMP identified the critical need to maintain and expand educational capacity to ensure existence of an appropriately skilled workforce to meet the conservation goals of the Plan. Its Recommendation 7 reads, “Bolster training programs for future waterfowl management professionals.” Thus, the waterfowl management community promoted efforts on this front, and, in February 2020, the NAWMP Committee endorsed a new initiative termed the North American Waterfowl Professional Education Plan (NAWPEP). As with NAWMP, we recognize that waterfowl populations are dependent upon conservation of wetland and upland habitats, and thus we recognize that the education programs referenced by NAWPEP must include focus on the scientific understanding of these habitat systems. Herein, we outline a strategic plan with an explicit goal and objectives to sustain and grow university- and college-based waterfowl academic and experiential programs in North America. We recommend revisiting this plan at 5-year intervals.

***Goal:*** Engage and assist universities, colleges, and all NAWMP partners with establishing, sustaining, and enhancing academic and experiential programs in waterfowl science and management, in order that sufficient numbers of professionals representing human diversity from across North America are supported, available, and employed to sustain professional capacity and excellence of future waterfowl science and management.

**Objective 1:** Obtain information on academic and practical credentials perceived necessary by waterfowl professionals for success in the profession.

#### Actions

1. Share academic and experiential skills perceived needed by waterfowl professionals with prospective employers and universities. These skills were identified in Clemson University Ph.D. candidate Lauren Senn’s survey of waterfowl professionals, who attended the 6<sup>th</sup>-8<sup>th</sup> North American Duck Symposia and responded to Senn’s survey. These results will provide initial input from which universities and public- and private-sector employers may adapt their academic and experiential needs.
2. Obtain feedback from faculty and employers to refine and focus list of skills and credentials needed for future success.
3. Communicate results of Senn’s research and Objective 1, Action #2 to the waterfowl science and management community.

**Objective 2:** Determine numbers of graduates with baccalaureate and post-graduate degrees required to fill anticipated employment needs related to waterfowl science and management in 2025. Thereafter, subsequent projections will be updated on 5-year intervals.

#### Actions

1. Develop and conduct a survey of public- and private-sector employers to assess their current and future personnel needs.
2. Survey current and former university professors to determine numbers of their graduated Master’s and Ph.D. students who obtained waterfowl-wetlands positions to estimate availability of these professionals for possible employment per Objective 2, Action #1.

3. Conduct surveys of universities and colleges to assess their current and future training capacities for waterfowl and wetlands specialists.
4. Compare needs to capacities for training and employment.
5. Communicate results to universities, agencies, and other NAWMP partners, and professional organizations (e.g., The Wildlife Society [TWS], National Association of University Fish and Wildlife Programs [NAUFWP], North American Duck Symposium).

**Objective 3:** In collaboration with universities/colleges, agencies, and other NAWMP partners, and the larger natural resources conservation profession, engage with and implement efforts to train, recruit, and hire an inclusively diverse group of North Americans working in waterfowl science and management programs in all of the administrative Flyways by 2025.

#### Actions

1. Work with the NAWMP Committee, NAWMP Human Dimensions Working Group -- Public Engagement Team, AFWA Human Dimensions and Social Science Subcommittee, universities/colleges, and other partners to:
  - a) evaluate the baseline of human diversity within the waterfowl management professional community and university/college faculty and student populations, and
  - b) understand barriers and solutions for recruiting and retaining underrepresented people in the waterfowl management community (AFWA and WMI Fish and Wildlife Relevancy Roadmap).
2. Align with and encourage efforts by agencies and organizations to engage inclusively diverse young people before the college years by offering experiences and developing interests in wildlife and waterfowl science and management.
3. Engage and encourage partnerships with minority- and majority-serving institutions (e.g., Historically Black Colleges and Universities, Tribal Colleges and Universities, Hispanic Association of Colleges and Universities) with programs (including pre-college experiences) allied in wildlife conservation to foster and establish participation in waterfowl-related classes, field trips, workshops, internships, and mentoring so as to establish a committed and sustained relationship for building equity, diversity, and inclusion in the profession.
4. Work to achieve commitments from universities, agencies, conservation organizations, philanthropists, and other NAWMP partners to sponsor engagement, inclusion, and diversity initiatives (e.g., scholarships, internships, training workshops).
5. Encourage university and other NAWMP partners to leverage existing recruitment, training, and scholarship programs (e.g., Gates Millennium Scholars, endowed university scholarships/fellowships, Minorities in Agriculture and Natural Resources Sciences [MANRS] and Minorities in Natural Resources Conservation [MINRC]) within the broader wildlife community to expedite progress toward increasing diversity in the waterfowl community.
6. Promote a professional culture that is inclusive, actively welcoming of all individuals, and values diverse perspectives on waterfowl science and management by encouraging efforts such as professional development programs, leadership training, and workshops on diversity topics.

7. Promote establishment of awards for outstanding contributions to diversity and inclusion within the NAWMP community.
8. Consult regularly with other agency, NGO, and professional committees, task forces and working groups to further develop, expand and update principles and actions to support diversity, equity, and inclusion initiatives (e.g. The USFWS' Office of Diversity and Inclusive Workforce Management; TWS Inclusion, Diversity, Equity and Awareness Working Group; AFWA and regional associations' inclusion and diversity initiatives; MANRS; MINRC; NAUFWP; and university programs that monitor inclusion and diversity).
9. Develop appropriate measures to assess progress over time (e.g., TWS membership demographic data; state, federal, and NGO employee demographic data).
10. Communicate progress, findings, and recommendations to the waterfowl science and management community.

**Objective 4:** Promote and facilitate institutional educational and skills capacity to meet projected needs per Objectives 2 and 3.

#### Actions

1. Work with educational institutions to support, maintain, and seek opportunities to expand faculty, endowed chairs/professorships, and undergraduate and graduate-level assistantships/fellowships/scholarships focused on waterfowl, based on data derived from actions of Objectives 2 and 3.
2. Work with educational institutions to support, maintain, and seek opportunities to expand associate and baccalaureate degree programs to promote availability of technicians and managers with skills important to waterfowl science and management.
3. Explore ways to offer or facilitate online courses and degrees in wildlife ecology and management offered in Spanish and French.
4. Broaden opportunities to develop hands-on field skills and experience for students and working professionals through paid internships, seasonal jobs, sabbaticals, etc. with agencies, NGOs, landowners/land managers, hunt clubs, and others.
5. Broadly reemphasize the avocations of waterfowl hunting and wetland-related recreation through university education and training and partnering with the outdoor recreation industry to promote inclusive diversity in these activities.
6. Endorse and help solicit additional financial support for graduate programs, fellowships, assistantships, etc. from NAWMP stakeholders, partners and supporters (e.g., state duck stamp funds, waterfowl associations, waterfowl industry, NGOs, philanthropists, professional athletes who are avid waterfowl hunters, personal estate or other donations).
7. Recommend to university leadership formation of a task force of faculty members, advisory councils, waterfowl professionals from public and private sectors, and other stakeholders to guide possible changes in university curricula (including history and contributions of underrepresented groups) and practical experiences deemed useful to the waterfowl, other wildlife, and outreach/service/extension professions.
8. Seek endorsement of NAWPEP goal and objectives from TWS, NAUFWP, and other appropriate professional societies to facilitate fulfillment of Objective 4, Action #6.

9. Communicate findings, recommendations, and progress to the waterfowl and wetland management community.