

STATUS OF INTEGRATING HUMAN DIMENSIONS INTO JOINT VENTURE BIRD CONSERVATION PLANNING AND HABITAT DELIVERY

Unified Science Team and North American Waterfowl Management Plan Science Support Team,
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EXECUTIVE SUMMARY

Conservation social sciences—the *human dimensions* (HD) of conservation—encompass a variety of issues and disciplines related to how people think about natural resources and the factors influencing related human behaviors. Recent revisions of the North American Waterfowl Management Plan (NAWMP) and Partners in Flight (PIF) landbird conservation plan include an explicit emphasis on people. Traditionally focused on regional biological planning and habitat delivery, migratory bird Joint Ventures (JVs) are at various stages of using HD in their work to further the goals of continental bird plans and to increase the effectiveness of JV conservation work. The intent of this assessment was to document status and approaches to HD integration among JVs and to provide experiential insights to the bird conservation community regarding this new challenge. Specifically, we wanted to determine the extent to which JVs are engaged in HD and are integrating people-related goals and objectives into bird conservation planning and bird habitat delivery. Further, we explored HD assumptions made by JVs, as well as challenges, barriers, and needs for expanded HD integration.

During early 2021, we contacted JV coordinators regarding a 2-phased study approach to determine application and integration of HD in their regional bird habitat planning and conservation delivery. All JV coordinators responded positively to the invitation, including 22 habitat JVs and two species-focused partnerships. The first phase of the assessment was an online survey with questions related to available HD expertise, past HD use, current HD interest and barriers to use, common people-related assumptions, and the value placed on HD in JV planning efforts. The second phase of the assessment included semi-structured interviews of the JV coordinator and, in some cases, additional JV staff invited by the coordinator to participate. These 2-hour discussions covered many of the topic areas included in the online survey, allowing JV representatives the opportunity to elaborate on their HD experiences.

Our results revealed that the JV community is keenly aware of the social and environmental change occurring in North America and the importance of using social science expertise to understand humans within the landscapes where they work. Joint Ventures largely recognized that future conservation focus must include birds, habitats, and people. However, respondents cited JV traditions and culture, partnership composition, regional landscape characteristics, and especially JV staff capacity as major factors limiting their ability to manage HD integration. The level of HD engagement by JVs generally fell into one of three groups: 1) no work yet, 2) used available data and literature to better target conservation, develop models, or learn about landowner decision-making, and 3) collected HD data with existing staff or through support from outside researchers and used results in conservation decisions. JVs were at various stages of conservation planning, and some implementation plans lacked HD emphasis simply because they were outdated. Although one JV had established an explicit HD objective for waterfowl hunter abundance, most JVs viewed conservation social science primarily as a means to serve a biological goal. The idea that quantifiable HD objectives would be established alongside quantifiable bird or habitat objectives was largely absent from JV responses. Although focus on people objectives is highlighted in the 2012 and 2018 NAWMP, JVs at this point are using HD science primarily to help achieve biological goals.

Adding social science expertise may be the highest near-term priority for many JVs. This proficiency can help identify how various regional stakeholders perceive the bird conservation community while also evaluating barriers and motivations to conservation activities, all of which are important for enhancing JV programs and communications. We found that seven JVs have staff members with at least some formal training in conservation social science, with one JV recently adding a second HD specialist to their staff. Another JV, lacking HD expertise within their staff, recently recruited a social scientist to their JV Technical Committee. The 2-phased approach used for this assessment was time-consuming to develop and manage, but we believe information reported here provides valuable HD guidance and an important baseline against which to measure progress. Examples and prospects for expanding HD in JV conservation programs are provided.

INTRODUCTION

Human behaviors, cultural norms and values, economic pressures, and political and organizational structures drive wildlife habitat conservation. As such, the *conservation social sciences*—disciplines that draw on social science theories and approaches to improve conservation efforts—play a vital role in advancing the science and practice of bird habitat conservation (Dayer et al. 2020a). These *human dimensions* (HD) of conservation encompass issues related to how people think about and connect to natural resources, how they want those resources to be managed, and how they affect or are affected by those resources and related decisions. This assembly of linked concerns is addressed by social sciences including anthropology, sociology, psychology, demography, geography, political science, and economics.

Social scientists and natural resource managers are increasingly collaborating to develop more informed conservation endeavors and improved decision making (see [Human Dimensions of Natural Resources Conservation | U.S. Fish & Wildlife Services Series](#)). These efforts are complicated by the substantial and evolving differences that exist in wildlife-value orientation across geographic regions, ethnic groups, gender, age, as well as between wildlife management professionals and the public (Manfredo et al. 2018). Changing demographics and ways of participating in outdoor recreation contribute further to difficulties with HD implementation. Moreover, integrating social science into conservation organizations remains challenging due to knowledge, capacity, and ideological and institutional barriers that can slow organizational transformation (Fox et al. 2006, Bennett et al. 2017).

Migratory Bird Joint Ventures (JVs) are responsible for implementing goals of North American bird conservation plans within their regional-partnership geographies. Continental goals and associated JV-regional “step-down” efforts traditionally were biologically based and species-focused. A decade ago, the North American Waterfowl Management Plan (NAWMP) underwent a significant revision, establishing an explicit focus on people. The revised plan identified an overarching challenge to the waterfowl management community: *Be relevant to society or risk losing financial and political support* (NAWMP 2012). This social focus was reflected in new goals of the 2012 NAWMP, and these goals were unchanged in the 2018 NAWMP update:

Goal 1: *Abundant and resilient waterfowl populations to support hunting and other uses without imperiling habitat.*

Goal 2: *Wetlands and related habitats sufficient to sustain waterfowl populations at desired levels, while providing places to recreate and ecological services that benefit society.*

Goal 3: *Growing numbers of waterfowl hunters, other conservationists and citizens who enjoy and actively support waterfowl and wetlands conservation.*

Partners in Flight (PIF) revised the North American conservation plan for landbirds in 2016 (Rosenberg et al. 2016), also identifying a need for landbird habitat conservation to be relevant to a broader cross-section of society. In particular, the 2016 PIF Plan encouraged decision makers to guide policy and allocate resources to promote the value of birds as indicators of environmental health and human quality of life. The PIF Plan also relayed an urgency to these efforts through new metrics such as extinction risk models and stewardship responsibility scaled to JV regional boundaries (Rosenberg et al. 2016). Joint Ventures have become the primary nexus in North America for regional bird planning, information exchange, and bird-habitat delivery partnerships. By default, JVs must also accept the responsibility for integrating new principal priorities (e.g., social concerns and desires) into conservation programs or risk losing relevancy and support by a North American society that is increasingly disengaged from the natural world (NAWMP 2012, 2018).

The North American Bird Conservation Initiative (NABCI) created an HD subcommittee and hired a National Bird Conservation Social Science Coordinator to help the bird conservation community integrate social science and human considerations into their efforts. This hiring resulted in a general guidance document, *Incorporating Human Dimensions into Joint Venture Implementation Plans* (Dayer et al. 2019). Joint Ventures have been at the forefront of applying this broadened approach to bird conservation. However, because ecological, social, and cultural characteristics of each JV region are unique, the individual partnerships require specific HD information to integrate social and biological objectives into conservation actions that will benefit birds and people.

The intent of this assessment was to document status and approaches to HD integration among JVs and to provide experiential insights to the bird conservation community regarding this challenge. Specifically, we wanted to determine the degree JVs are engaged in conservation social science (HD) and how they are integrating people-related goals, objectives, and insights into their work. Further, we explored common HD-related assumptions, challenges, barriers, and needs for continued JV innovation and effectiveness.

METHODS

In 2020, members of the NAWMP Science Support Team (NSST) and the Unified Science Team (UST) identified a need to assess the status of JVs in using conservation social science to address HD priorities expressed in recently revised continental waterfowl (NAWMP 2012, 2018) and landbird (PIF 2016) conservation plans. At the same time, the NAWMP Human Dimensions Public Engagement Team (HDPET) identified a similar requirement to advance their work. Several scientists serving on these three teams formed a committee to complete the evaluation

of HD implementation by JVs. Two social scientists familiar with JVs also joined the assessment effort, and the assembly was labeled Theme Team 3 (TT3).

During January 2021, JV coordinators received a notification email regarding the TT3 assessment and our planned 2-phased approach to document and share techniques for HD implementation by JVs. The first phase of the assessment included an online questionnaire to help quantify the level of HD awareness, interest, and integration currently employed by JVs. The second phase included semi-structured interviews with JV staff members. The personal interview portion of this assessment provided an opportunity for more detailed discussion concerning HD implementation, with some questions building off the responses provided by JVs when completing their online surveys (Phase 1). In addition, JV coordinators were asked during Phase 1 to provide copies of relevant planning documents and HD-related evaluation materials to help inform ensuing Phase 2 interviews.

Pre-interview Online Survey

We developed an online questionnaire survey (Appendix A) to establish a foundation for the more detailed interviews. Eleven survey questions addressed HD expertise among JV staff and management board members, past support for HD evaluation projects, HD assumptions made by the JV, and HD-related objectives developed by the JV, especially regarding NAWMP's people-related objectives. The online assessment resulted in quantifiable information regarding JV adoption of HD science, making comparisons across JVs easier and providing baseline information so the exercise may be repeated in future years to measure progress. The online survey of JV staff was conducted in March and early April 2021. Data generated from respondents (primarily JV coordinators) were pooled electronically via a Google[®] survey form, and results were summarized graphically to portray general HD characteristics of the JV community.

Semi-structured Interviews

The second phase of the assessment included interviews with JV staff members. Draft interview questions developed by the TT3 were refined following a review and feedback from two JV coordinators involved in the assessment. There were ten questions used in interviews, several with multiple components (Appendix B). The TT3 scheduled and completed interviews of staff from each regional habitat JV, as well as two species-focused partnerships. Most interviews were conducted in March and April 2021, typically 1–2 weeks after JVs completed the online survey (Phase 1). Interviews principally targeted JV coordinators, but we also welcomed others at the discretion of the coordinator. Several JV coordinators invited the JV science coordinator and, in a couple instances, other staff members participated in the interview. All interviews were conducted virtually using Microsoft Teams[®] and Zoom[®].

In addition to online survey responses, TT3 interviewers examined conservation plans and HD-related documents specific to that JV before conducting the interview, helping them become familiar with this partnership's HD experiences. Each interview session began with personal introductions and a few minutes of casual conversation among participants. Joint Venture representatives were informed the process would take less than two hours, and they were then

read an overview prior to being asked the first question (see Appendix B for the entire interview script). Interviewees were allowed as much time as necessary to answer individual questions. Their responses were recorded in writing and or digitally, based on interviewer preference. Interviewers who digitally recorded their sessions always first received permission from interviewees. In most cases, within two weeks of the interview, JV staff members (interviewees) were provided a draft copy of their interview responses on a standard form and given two weeks to review the information for accuracy. Occasionally, minor additions and or adjustments were advised by interviewees following these reviews. Interviewers then entered and organized response data from their assigned questions into a Microsoft Excel® spreadsheet or Word® document.

After all interviews were completed and interview discussions summarized and checked for accuracy by JV staff, several TT3 subcommittee members were assigned one or more interview questions to analyze. We used inductive thematic analysis (see Rubin and Rubin 2012) to identify themes, concepts, and areas of emphasis for each question or sub question. Information gathered was summarized across JVs into a narrative describing status of the JV community regarding that question. Without explicitly identifying individual JVs, we included some individual answers herein that provided unique or useful examples regarding HD implementation.

RESULTS

Twenty-two habitat JVs (Table 1) and two species-focused partnerships (Sea Duck JV and Pintail Action Group) participated in the pre-interview online survey and the personal interview, Phases 1 and 2 of the assessment. One respondent answered simultaneously on behalf of two habitat JVs because of overlap in the leadership of those JV partnerships and identical approaches and progress toward incorporating HD into conservation planning.

Table 1. Habitat Joint Ventures (JVs) participating in assessment of Human Dimensions implementation within the JV community. The assessment included online surveys and semi-structured interviews conducted in 2021.

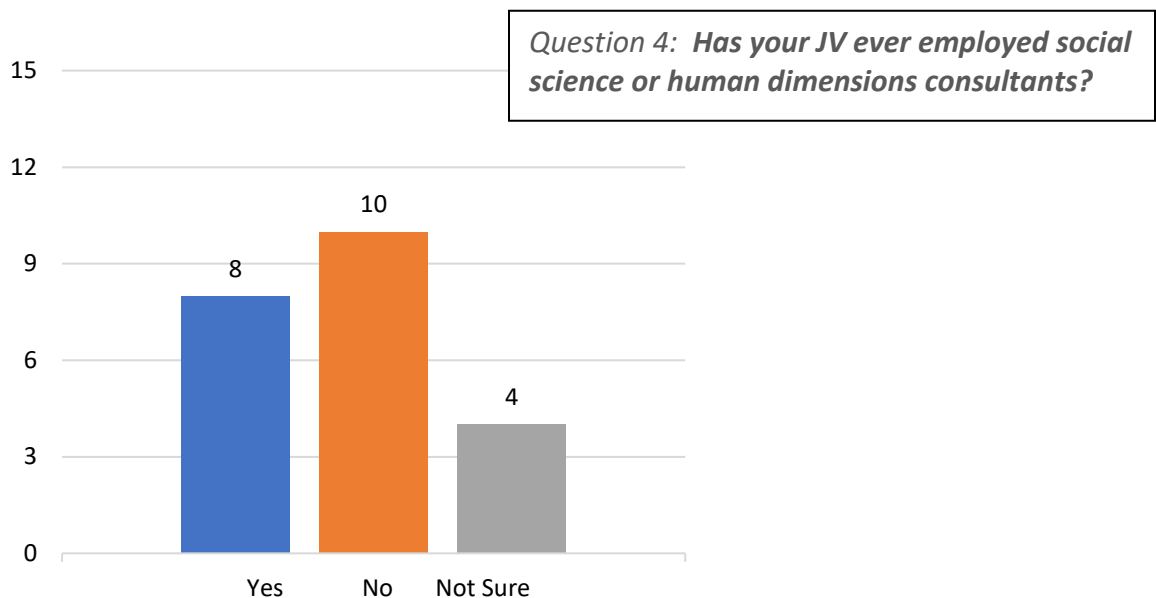
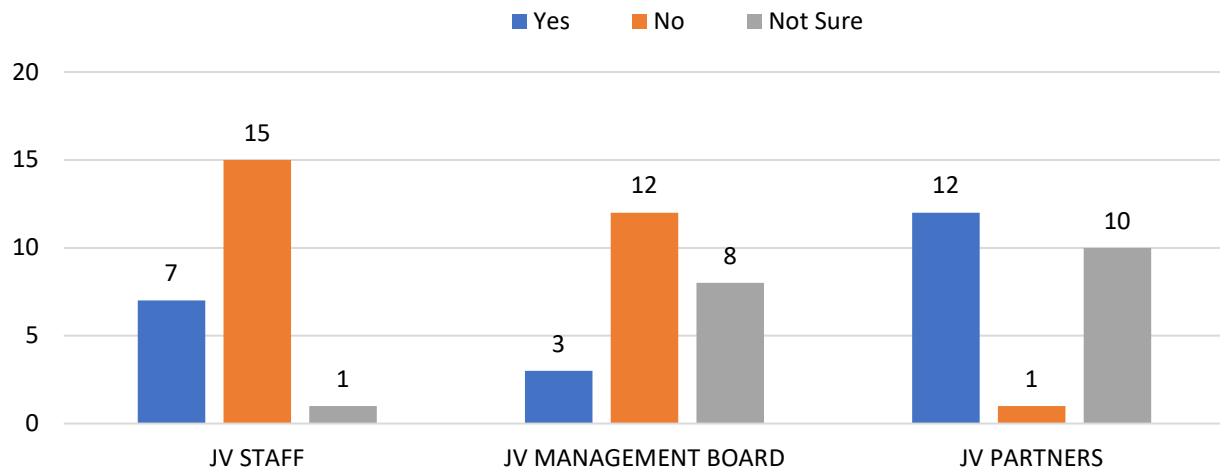
Appalachian Mountains	Northern Great Plains
Atlantic Coast	Oaks and Prairies
Canadian Intermountain	Pacific Birds Habitat
Canadian Pacific Birds Habitat	Playa Lakes
Central Hardwoods	Prairie Habitat
Central Valley	Prairie Pothole
East Gulf Coastal Plain	Rainwater Basin
Eastern Habitat	Rio Grande
Gulf Coast	San Francisco Bay
Intermountain West	Sonoran
Lower Mississippi Valley	Upper Mississippi/Great Lakes

Pre-interview Online Survey

Figures below provide a visual representation of survey results. Some figures depict summaries of multiple survey questions as indicated; wording for questions may have been condensed (see Appendix A for complete wording to each question).

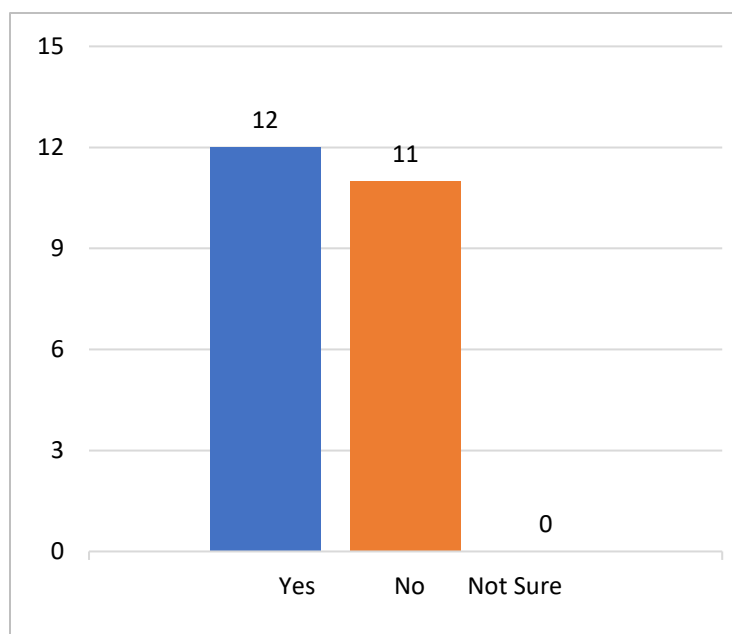
JV Human Dimensions Capacity

Questions 1–3: Do any of the following groups of people within your JV have formal training, academic or otherwise, in human dimensions or social science disciplines typically used in the study of HD?



Context: In 2016, a NAWMP-led review was conducted [and report completed] to summarize JV efforts related to recruiting and retaining waterfowl hunters and viewers, connecting waterfowl habitat to other ecological goods and services, and incorporating HD into waterfowl habitat planning and delivery.

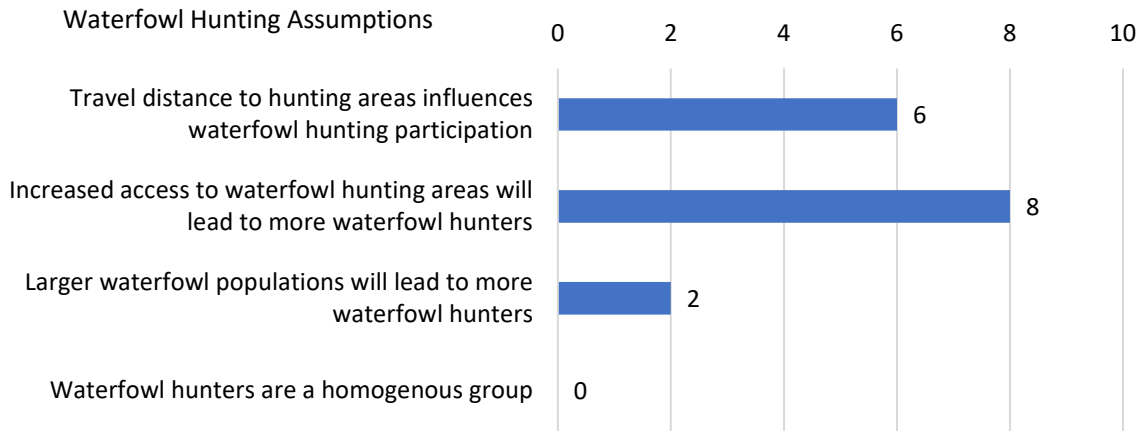
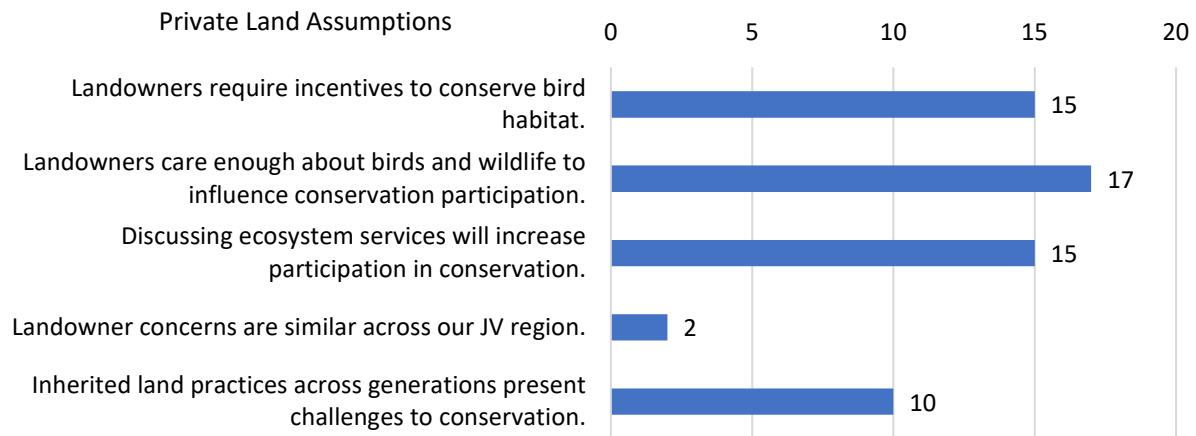
*Question 5: **Other than the projects listed in this summary document** [link provided to above mentioned report titled: *Joint Venture Pilot Projects to Address Habitat’s Role Hunters, Viewers, and Ecological Goods and Service*], **has your JV (as a collective guided by the board and managed by JV staff) funded, conducted, or used previous HD work in your planning?***



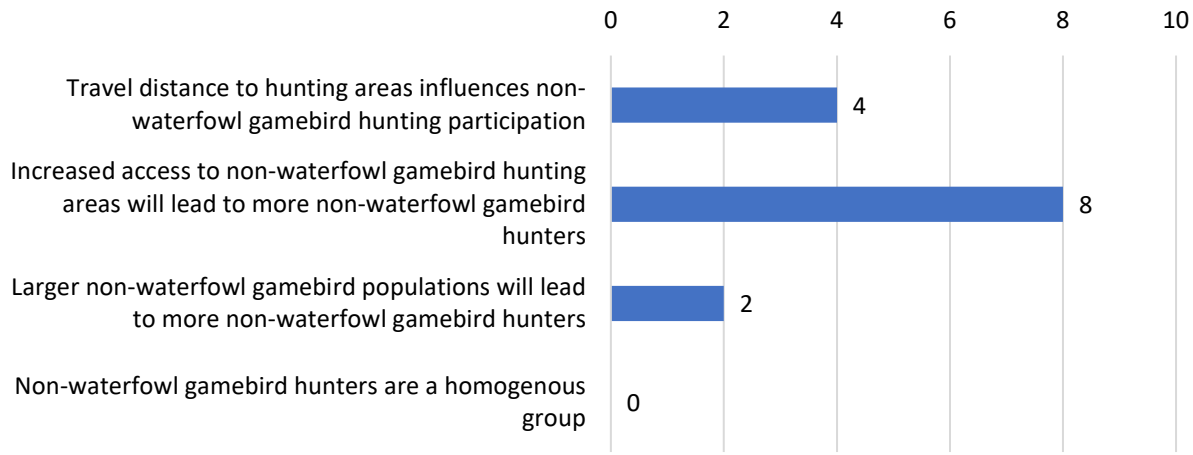
People Assumptions in Conservation Planning

Context: Wildlife planners and bird-habitat delivery partners often make assumptions regarding the importance of specific conservation actions to stakeholders or how their conservation decisions relate to goals of continental plans such as the NAWMP or PIF landbird plans. To evaluate common assumptions, we provided 21 different assumption statements regarding human behavior and asked JV staff to select the assumptions (yes or no) that impact conservation planning and delivery within their JV partnership.

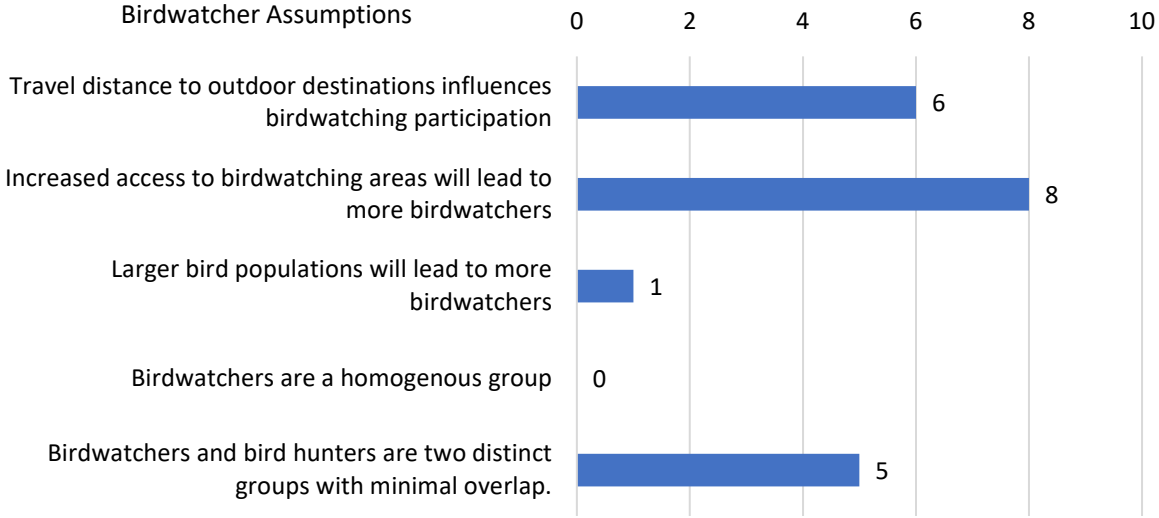
Question 6: *Please indicate which, if any, of the following statements reflect ideas that shape how your JV approaches conservation planning and delivery (please select all statements that substantially influence or have been integrated into planning and bird habitat delivery by your JV).*



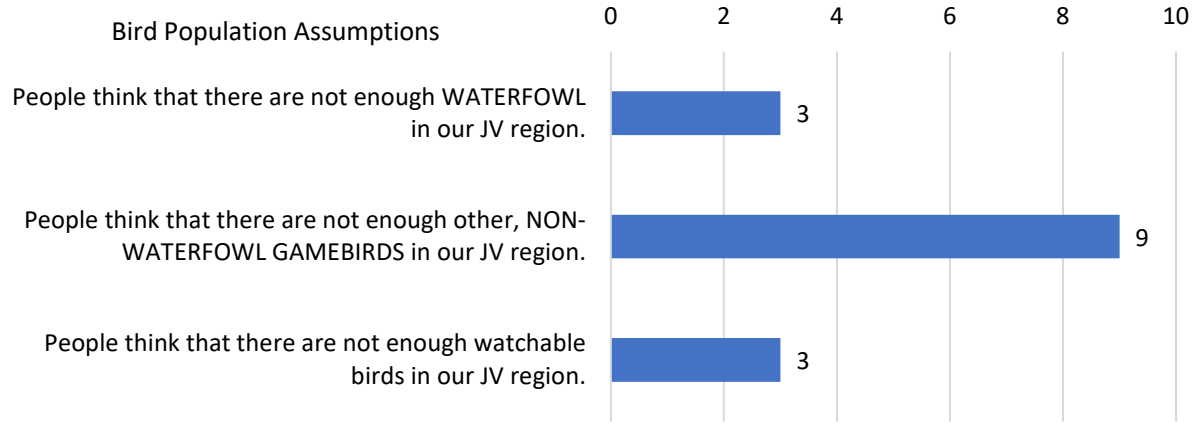
Non-Waterfowl Gamebird Hunting Assumptions

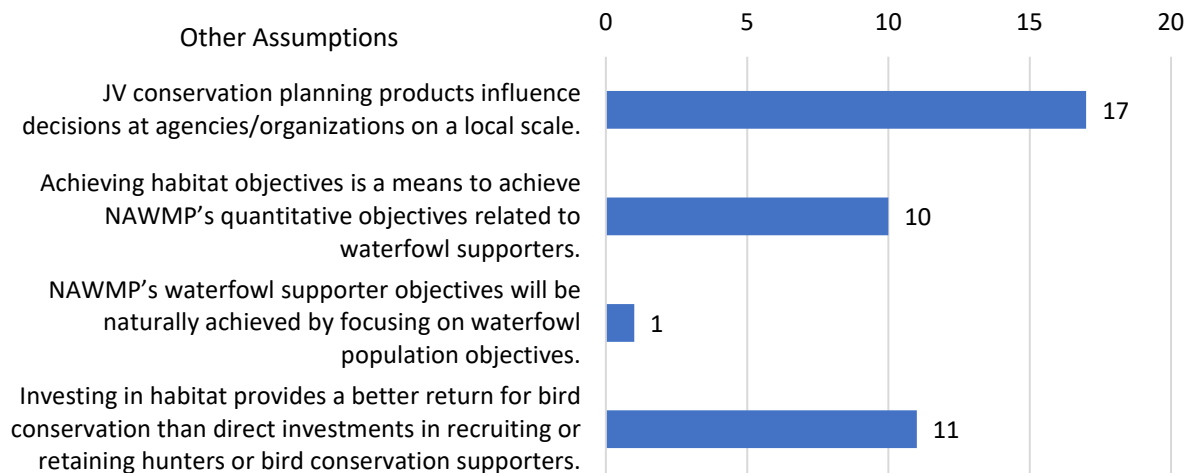


Birdwatcher Assumptions



Bird Population Assumptions

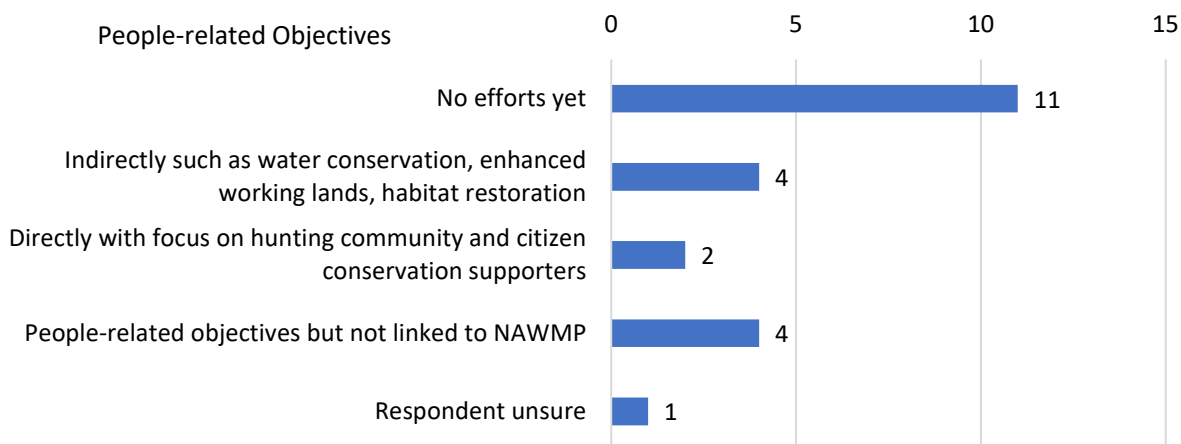


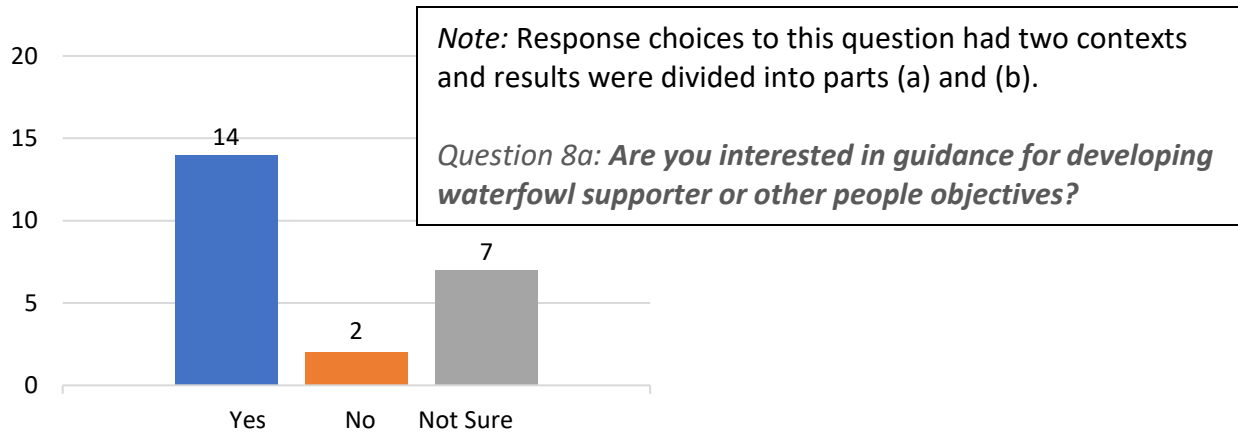


NAWMP People-Related Goals, Objectives, and Guidance

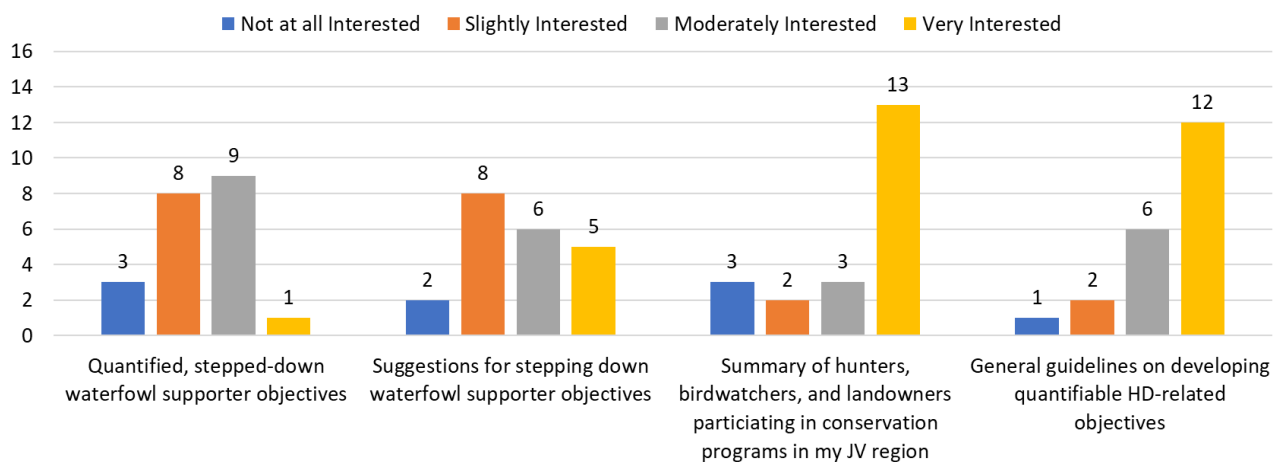
Context: The 2014 Addendum to the NAWMP included a “people” goal of *Growing numbers of waterfowl hunters, other conservationists and citizens who enjoy and actively support waterfowl and wetlands conservation, with an objective to Increase waterfowl conservation support among various constituencies to at least the levels experienced during the last two decades.* This objective included three elements: 1) Increase support for waterfowl conservation through involvement in the hunting tradition; 2) Increase support from a North American citizenry who values and understands waterfowl/wetland conservation and takes action to demonstrate active support; 3) Increase numbers of landowners participating in habitat conservation programs relevant to waterfowl landscapes. Joint Venture staff members were asked about their experience addressing these people-related objectives.

Question 7: To what extent has your JV explored or established people-related objectives at the regional scale that are directly or indirectly linked to the NAWMP objectives listed above?
Note: Responses were diverse and some detailed; responses were condensed and grouped below into general categories for comparison.

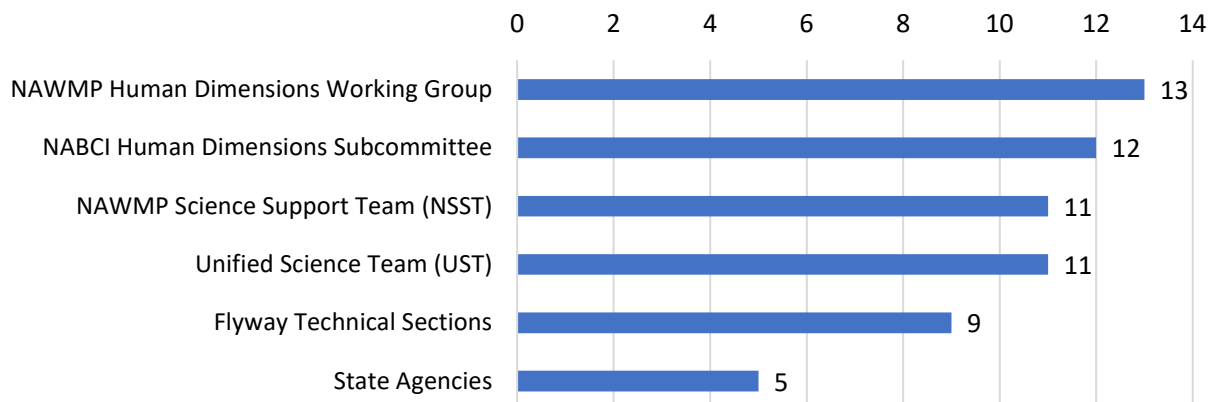




Question 8b: Please indicate how interested you would be in each of the following kinds of guidance for developing waterfowl supporter or other people objectives (please choose one response option per statement) on a scale of not at all interested (1) to very interested (4).

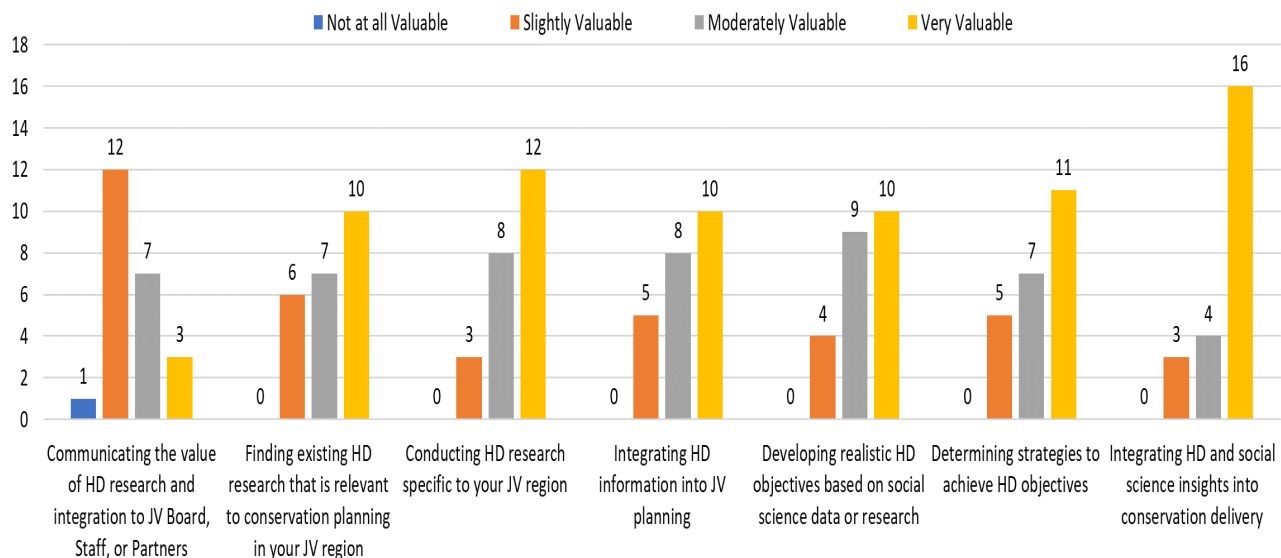


Question 9: Which conservation group(s) would you look to for guidance developing regional waterfowl supporter objectives or similar people objectives? (choose all that apply)

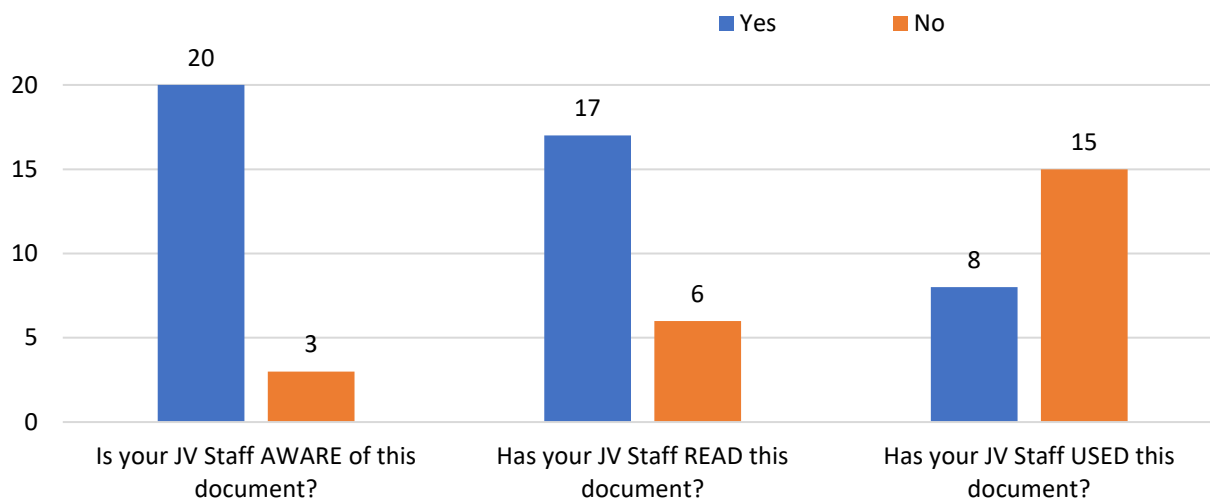


General Human Dimensions Assistance

Question 10: Please indicate how valuable you would find HD assistance or guidance on how to do each of the following things (please choose one response option per statement).



Question 11: In 2019, NABCI released a document titled *Integrating Human Dimensions into Joint Venture Implementation Plans*. Please choose one response option per statement below regarding your awareness and use of this document.



Semi-structured Interviews

Response summaries below embody interview highlights from these detailed and thoughtful discussions; JV examples related to each question were provided in text boxes. Comprehensive data collection forms and verbatim JV interview documents are available in the NSST report-document archives. Wording for some interview questions below was condensed (see Appendix B for complete wording to each question).

Conservation Concerns and HD Awareness

Question 1: *Can you briefly tell me about the habitat and bird conservation concerns that drive your JV (as a collective guided by the board and managed by JV staff)?*

The two species partnerships (Sea Duck JV, Pintail Action Group) indicated primary concerns driving their programs were questions related to waterfowl ecology, distribution, and population abundance trends. These groups concentrated on identifying and supporting research and monitoring to fill information gaps critical to planning and most useful to habitat conservation partners.

Regional habitat JVs, whose geographies now cover most of North America, were driven by a wide variety of priorities including diversity of land cover, land use, and various societal cultures. One overarching focus by most habitat JVs was that of bird species of high continental concern. Even JVs with a long history for waterfowl habitat conservation are clearly identifying and better integrating the needs of other bird groups of concern, especially landbirds (e.g., wetland-grassland complexes for breeding ducks and prairie landbirds, bottomland forests for non-breeding waterfowl and for breeding and migrating forest songbirds). These bird habitat concerns varied from coastal salt marshes to riverine and basin/playa wetlands, to deciduous forest structure, and to sagebrush and arid-land communities. Although most JVs included a robust wetland bird focus in their responses to this question, some were clearly driven by landbird conservation in a variety of terrestrial community types.

About half of JVs indicated the essential nature of working with private landowners to achieve JV bird habitat objectives. This aspect was especially obvious in JV regions dominated by private land, where ranching and row-crop agriculture were primary land uses. In JV regions with limited water resources, working with ranchers and rice farmers was essential to ensure land irrigation met the needs of birds and people (landowners with livestock and crops). In these regions, especially western JVs, the political and social climate (strong landowner-rights values) required a high level of sensitivity regarding land use, and management board representation increasingly included private landowners who can help reflect local culture. In general, coastal

JV response example.—*Grassland birds and their habitats are a priority concern. The interaction of grass, water, and people are at the core of bird habitat conservation in the JV, as we have a huge human population, water is a precious resource for people and wildlife, and grass is the habitat type most important to priority bird groups.*

JV regions of the U.S. and large areas across Canada had a stronger focus on public lands, where collaboration and addressing concerns of various levels of government was important in driving JV conservation.

Question 2: What stakeholders are especially important to the realization of your JV's habitat and bird conservation goals? How is habitat conservation within your JV impacted by the behavior or decisions of private landowners? How about other stakeholders such as wildlife recreationists (hunters, birdwatchers, and other wildlife viewers), federal agencies (FWS, FS, BLM), and agriculture or other industries (cattleman's associations, etc.)?

Most JVs considered private landowners, especially those overseeing working lands, such as ranchers and agricultural producers (e.g., row crop and rice), as well as commercial forestlands, as the stakeholders most important to realizing their bird conservation goals. In addition, nearly half of JVs considered the organizations represented on their JV management boards—largely state and federal government agencies and conservation NGOs—as among their most important stakeholders. Terminology in this survey question (i.e., "stakeholders especially important to the realization of JV ... goals") left room for interpretation, as reflected by one JV coordinator who elaborated on different roles for important stakeholders. Conservation goals in this region, dominated by large private landholdings, included two primary stakeholder

JV response example.—*Most land in this region is privately owned and nearly all JV conservation efforts occur on private land. Most important stakeholders include the agricultural community (cropland and ranching), government (land policies, all levels), regional human populations (constituency support), and the general population (HD engagement with non-traditional partners).*

JV response example.—*Private wetland owners (primarily duck clubs), working-land owners (primarily rice farmers), and public land managers (primarily state and federally owned wetland areas) constitute the regional stakeholders on whose land most of the JV's conservation objectives are likely to be met. The agencies and NGOs represented on the JV Board are obvious stakeholders as well, and their role in bringing funding and science is critical to the JV's success.*

groups: people who work with landowners, and the landowners themselves. Whereas the landowner (or public land manager) was considered the ultimate "customer" for implementing JV-supported bird habitat conservation, habitat-delivery personnel from the conservation agencies and NGOs interfacing with landowners (and land managers) were also essential stakeholders. Thus, the primary customer (stakeholder) for this JV was considered the private-land biologists and their agencies and NGOs, but the ultimate stakeholders were the owners and managers of the lands where JV-prescribed bird habitat work was completed.

In most cases, JVs reflected this two-tiered system of primary stakeholders necessary to achieve conservation goals: 1) the bird habitat planning and delivery partners, including JV staff and management board member organizations, plus their networks of conservation associates, and 2) the landowners and managers with conservation or economic interests who benefit from the JV-related products and programs to acquire, restore, and enhance bird habitat. The locations (i.e., land ownership) where most bird habitat delivery had taken place varied considerably

across JV regions. Coastal regions of North America, having larger human populations and relatively high real estate values, realized more JV-supported work on public conservation lands, conservancy lands, and lands owned and managed by private hunting clubs. Interior regions, typically with vast private ownerships of working lands, had greater JV emphasis on these private holdings, often through government conservation programs. Finally, primary stakeholders leading JV bird habitat delivery were somewhat different between the U.S. and Canada. In the U.S., bird conservation efforts supported by funds from federal and state agencies and NGOs were the dominant forces achieving JV conservation goals. Several funding opportunities associated with government programs were identified, especially through provisions of the U.S. Farm Bill (e.g., Natural Resources Conservation Service programs). In Canada, conservation NGOs, land trusts and conservancies, and local governments were identified as the primary stakeholders in JV goal achievement. Local communities also were identified as important stakeholders in Canada, as conservation initiatives benefiting birds and other wildlife are often promoted and supported by citizens, as they also deliver ecological goods and services to people. Few Canadian federal programs were linked explicitly to bird habitat conservation. With the exception of the North American Wetlands Conservation Act (NAWCA), Canadian JVs were more dependent on federal funding linked to environmental initiatives, such as water conservation and climate change mitigation.

JV response example.—*Much of our focus is offshore in Canadian and US public waters. Private industrial activities such as oil and gas extraction, wind energy development, and shipping, are active in these public waters, and agency managers can influence sea duck conservation through industry regulatory decisions, especially where non-breeding birds concentrate. Increasingly, industries (e.g., wind energy and oil / gas around the coasts) are also using our monitoring data and related information for permitting; with climate change and potential for extended shipping seasons, the shipping industry may also become more interested in information resulting from JV research projects.*

Behavior of wildlife recreationists (hunters and birders), stakeholders traditionally considered important to

JVs, had only minor influence on conservation planning for most JVs. However, a couple JVs indicated specific landowners (e.g., duck clubs and rice growers) strongly consider recreation in their management decisions, though hunting-related recreation was generally not a topic mentioned during interview discussions. Regarding industry considerations in JV planning, the one most often identified as influential was energy, especially oil and gas. In some areas, the energy industry has contributed substantially to bird habitat delivery, but often related to Natural Resource Damage and Assessment (NRDA) and the Coastal Wetland Planning Protection Restoration Act (CWPPRA), following significant environmental damage. Interviewees suggested the renewable energy industry (solar and wind) likely will have an increasing influence on JV conservation activity in the future.

Question 3: In general, how would you characterize awareness of and interest in human dimensions within your JV partnership (as a collective guided by the board and managed by JV staff)?

The awareness of and interest in HD varied substantially across JVs, though most interviewees indicated their management boards and JV staff increasingly feel “the push” to integrate social sciences in their decision making. A few JV coordinators indicated that awareness, interest, and support are high and have been for a long time. In one JV, the primary focus of its conservation strategy was understanding social factors driving relevant natural systems. This JV coordinator reflected on their efforts to understand concerns and interests of the people who live and work on the lands intended for conservation, from agency and NGO employees to private landowners to tribes. Public support and involvement were considered essential to reaching habitat goals by developing strong partnerships and identifying areas to work together.

In other JVs, HD was viewed as a luxury or peripheral concept, subordinate to more critical biological objectives. Some viewed HD activities as works accomplished primarily through communication and outreach about birds and habitats, rather than structurally integrating people-related objectives or integrating understanding of human populations into their goals. In a large majority of JVs, there was HD awareness and interest, which has been

JV response example.—*The now defunct Landscape Conservation Cooperatives (LCCs) overlapping our JV region focused heavily on large-scale environmental concerns and related HD understanding and research. JV science staff participated on two LCC technical committees, and overlap existed in the LCC steering committees and JV Management Board memberships, with regular LCC program updates at each JV Board meeting. In addition to supporting HD research, the LCCs conducted various public-engagement meetings, gathering information about stakeholder views and concerns, especially regarding the Mississippi River watershed (plus related Gulf Hypoxia) and the Great Lakes coastal zone. Loss of the LCCs resulted in loss of valuable HD guidance within these large geographies critical to birds in our JV region.*

increasing across JV management boards, partners, and staff. Most JV coordinators see a need to improve understanding of HD among one or more segments of the partnership. One coordinator indicated that it would be helpful to have examples clearly demonstrating the value to a JV of using social science to achieve conservation objectives as well as examples demonstrating how a JV sets objectives specifically for people. In JVs where conservation success depends primarily on management of private working lands, the interest and support for HD science is generally high.

Regarding the role of the 2012 NAWMP and its inclusion of people-related goals, responses that addressed this specifically were equivocal. Some JV coordinators indicated the interest and energy for HD were high before 2012. Another perspective was that interest had increased coincident to, but not because of, the focus of the 2012 NAWMP. However, some interviewees did indicate a direct connection to the 2012 NAWMP in terms of increasing JV awareness and support for HD.

HD Research and Related Work

Question 4: In what ways, if any, has your JV funded, conducted, or used HD research in your planning? The JV has conducted HD work (Q4a) or has not done HD work (Q4b).

Joint Ventures fell into one of three categories regarding use of HD research in their planning: 1) those that have not included HD, 2) those that have used social data collected by others (e.g., peer-reviewed literature), and 3) those that have funded a HD project(s) to answer a question(s) with conservation planning implications. About half of JVs have formally incorporated HD into their operations or planning, but few have supported HD research. The most common reason for lack of HD focus was the absence of capacity to take on new work. Many JVs in this category had a small staff and no one with social science training or expertise and or they felt that other staffing needs rose above the need for social science. A couple of interviewees explicitly stated they were unable to meet biological planning needs set forth by the JV and therefore cannot divert attention to social science work at this time.

JV response example.—*For the most part, we are so far from achieving our biological objectives for birds, that if we were to incorporate any other objectives that involve tradeoffs (such as an additional set of objectives to meet the needs of people), this will put us even farther from the finish line. We already wonder if our [biological] objectives are achievable, so adding another consideration is not attractive. [Our] JV has a history and culture of not giving lip service to the next shiny thing, [but when a new direction is set] we do it right ... we are not positioned well at the moment to integrate HD correctly.*

Another reason given for not including HD evaluation in their planning process was a general lack of awareness or understanding among the partnership, which resulted in unwillingness to engage. One of these interviewees indicated the culture of their JV was to approach new conservation concepts with intention, and if / when HD work is added to their operations, it will not be done as a token effort. Barriers to inclusion of HD in JV planning typically

included partnership capacity, funding, size of the JV geography, lack of expertise among staff/management board/partnership, time, and or reluctance by the JV board. Several JVs described how past HD initiatives had expanded their partnerships. One interviewee noted the HD work strengthened current partnerships but did not expand or bring in new partners.

A slight majority of JVs had included at least some HD research into their operations, and these JVs fell into one of two camps: 1) those who used readily available HD resources (e.g., peer-reviewed literature, results from the NAWMP choice experiments), and 2) those who funded their own designed studies to answer specific questions or address specific needs. Regardless of how each of the JVs engaged with HD work, most have found it useful to inform their programs. Examples typically included using available HD data to target conservation programs delivered by the JV partnership and to better communicate and engage with landowners and the public. These JVs declared the HD work achieved desired goals, but a few identified potential areas for improvement, such as investing more in learning how to use the results from a communications standpoint.

To date, much of the HD evaluation conducted by JVs has not been incorporated into their conservation planning documents. The most cited reason for this was a mismatch in timing of the HD work within the JV planning cycle (i.e., Implementation Plans not recently updated). A few JV coordinators indicated limited capacity to formally include the information or codify a process for inclusion, whereas lack of understanding or appreciation by the management board was also mentioned. Conversely, one interviewee explained the importance of HD information in their JV communications plan, which led to hiring of an additional staff member to fill a gap in conservation delivery capacity. Another JV designed a decision support tool (DST) that integrates biological and social objectives and highlights areas of their regional geography most important for conservation benefitting both waterfowl and people. A JV technical committee developed this DST using a “mixed model” with spatial data for each of six objectives (e.g., addressing breeding duck habitat, the waterfowl hunting community, degraded landscapes causing nutrient runoff). The JV management board (representing regional stakeholders) weighted objective parameters in the DST, which resulted in an output map for targeting multi-purpose conservation. In addition, the DST was designed to be easily adjusted (e.g., new objectives/weights), subject to changing bird habitat and or social goals. This JV also adapted the DST for ranking NAWCA project proposals to help assure a strong link between future project support and JV planning documents developed with integrated HD.

Explicit HD Integration

Question 5: I see that your JV has / has not developed explicit human or social objectives. The JV has developed social objectives (Q5a) or has no social objectives (Q5b)?

Most JVs have not developed specific human dimensions/people objectives. Regardless, JVs expressed an awareness of the social elements emphasized as part of the 2012 NAWMP revision. Embracing HD elements has been gradual and varied among JVs, limited to a large degree by staffing capacity and available social science expertise. Some JVs have made progress toward HD objective setting, and many of these efforts focused on engaging private landowners. Other efforts have ranged from waterfowl hunter objectives stepped down from NAWMP revised objectives (NAWMP 2014) to smaller scale pilot projects. Whereas most JVs considered application of the social sciences important to their operations, a majority of interviewees indicated JV strategic planning has yet to include HD, often due to lack of plan updates. Although specific objectives for people are not prevalent among JVs, emphasis on conservation partners, hunters, landowners, and or other stakeholders appear in many JV implementation plans, and a couple of recently updated JV plans do include explicit human objectives.

Various ideas emerged during interview discussions about how to develop objectives for people. JV coordinators indicated that starting slow and having

JV response example.— *We have established two major “people objectives,” private landowners and hunters. The JV acknowledges that the social landscape for waterfowl hunters and their expectations is changing. Motivations will change as well, and the change is accelerating. Evaluations [HD] will need to assess changing hunter motivations, as well as those driving landowner programs including level of demand.*

examples of demonstrated approaches would help them gain confidence. Some responses indicated that setting objectives that include people would best flow from exercises to identify desired specific outcomes. Establishing baseline measures of HD parameters was deemed important if progress toward people goals is to be measured and modified. A “draft template” as a possible example for how to approach setting or stepping down human objectives from continental bird plans would be useful (e.g., Andres et al. 2009, Fleming et al. 2019). Some social components (e.g., waterfowl hunter abundance) would lend themselves to broader-scale objective setting while others (e.g., number of playa landowners contributing to aquifer recharge) are more local/regional in scale. When asked about evaluating progress toward people objectives, interviewees offered various ideas, and some proposed measures would necessarily be tied to individual objectives they had not yet developed. Evaluation of people objectives, improved understanding of human communities, and establishing baseline measures related to HD priorities were considered important to several JVs.

Interviewees identified a wide variety of tradeoffs and conflicts potentially arising when pursuing people objectives. Because HD emphasis is a relatively recent addition to bird habitat planning, JV coordinators noted that tradeoffs would present challenges to traditional conservation approaches. Several respondents indicated concern that lack of a budget increase would require them to shift emphasis away from actions to achieve current JV biological objectives. Chief among these concerns was redirection from traditional bird habitat delivery to social science. Moreover, concerns were expressed regarding the tradeoff between higher-cost JV conservation actions near population centers (favoring HD goals) vs. lower cost conservation (and increased acres affected) in less populated areas. Several JV coordinators noted that staff and funding were limited and pursuing additional objectives will take resources away from existing (biological) objectives. However, one interviewee emphasized the conservation community might be well served to view social and ecological / biological outcomes as mutually beneficial (as opposed to tradeoffs).

Implicit HD Integration

Question 6: In addition to explicit social objectives, human dimensions can implicitly shape a JV's biological objectives. How have underlying assumptions or knowledge about people shaped your JV habitat goals?

Nearly all JV coordinators indicated the biological sciences informing bird habitat planning are not sufficient to inform conservation goals that include people. For example, in most JV planning and conservation delivery there is growing understanding of the importance of strong landowner connections. New people-based tools, programs, and knowledge are being used to increase this understanding, and new stakeholders and partners who reflect the social landscapes are becoming involved through conversations, planning efforts, partnerships, and management board membership (e.g., indigenous peoples/tribes, large landowners, urban communities). JV coordinators identified a number of HD assumptions embedded in their JV planning and shaping bird habitat implementation:

- We can affect declining hunter numbers with strategic placement of bird habitats (i.e., habitat actions nearer the active hunting community).
- Increasing human access to existing and restored bird habitats will increase hunter and birder activity and abundance.
- Reducing distance between bird habitats and people (i.e., targeting conservation near population centers) will increase abundance of hunters, birders, and other supporters.
- Acquiring and restoring wildlife habitat in urban centers will increase birding opportunity/activity, wildlife awareness, and conservation support.
- Communicating the value of ecological goods and services provided by bird habitats will increase support for bird conservation, including by novel support groups (e.g., people lacking interest in nature).
- Habitat quantity, quality, and location (placement) is the key to achieve integrated objectives for bird populations and people.
- JV partnerships adequately understand motivations and values of landowners, conservationists, and the agricultural community within their geographies.

JV response example.—*HD goals have superseded our biological goals, and HD assumptions made it easier to meet biological objectives. Water is important in a semi-arid landscape and serves as the connection between people and birds. Assume that people want water and if that is true then it will drive biological/bird conservation.*

JV response example.—*We [as a wildlife conservation community] assume landowners care about the same conservation values we do. In reality, there are many [concerns] out there and many ways to go about [our work]. With five landowners on the Board, we have guidance [for communicating with our key stakeholders].*

A few interview respondents identified potential pitfalls of continuing to rely on such assumptions and noted the value of applying sound HD concepts and practices to test and assess them. One JV indicated the outcome of these evaluations might help modify JV planning approaches and increase efficiency and effectiveness of conservation delivery.

Question 7: Can you describe any successes your JV has experienced because it considered human dimensions, either explicitly or implicitly, in planning?

Despite the emergence of social considerations as an overarching conservation priority, responses by interviewees to this question suggest progress toward implementing HD has been quite variable, in large part reflecting budget limitations, staffing expertise, and HD experience within JV partnerships. Hence, early progress by some JVs has been simply acceptance of HD as a priority. For others, filling staff positions with relevant expertise, inclusion of HD-related outcomes in program discussions, and embracing HD perspectives and insights shared by novel partners was viewed as success. In addition, about half of JVs indicated increasing diversity on their management boards to expand perspectives beyond bird conservation was a means to better integrate HD. Examples of new memberships included owners of large ranch lands, industry representatives, and a corporate board member representing a company that valued agriculture, community resiliency, and sustainability of ecological services.

JV response example.—*Communication and outreach related to our prescribed fire strategy was our biggest tangible success resulting from HD considerations. The product received a lot of attention in our region, has been used by other regions, and, we believe, the related communication from this effort resulted in recruitment of new JV partners, though actual measures of success are challenging to quantify.*

Examples of explicit measures of outcome success were limited, but numerous JVs indicated HD is now recognized as an integral feature to inform planning and implementation. Yet, “small and slow” characterized comments from about one-third of JVs, with “too early to tell” reflecting progress in some instances. Finally, interviewees generally recognized the social landscape is changing rapidly, and wildlife conservation and management will be affected as a result.

Future HD Work and Needs

Question 8: *How do you plan to integrate HD into conservation planning within your JV partnership in the future?*

Importantly, this question asks “how” not “if” the JV plans to integrate HD into conservation planning. The question presumes that the JV has considered or identified a course for integration and is able to describe how that process will occur or has occurred. Only one JV provided a specific example of how integration might proceed using a mixed model decision support tool (DST) that simultaneously addressed water quality and recreational objectives alongside traditional biological objectives. Most JVs offered preliminary thoughts for how HD could be integrated into conservation planning, but few provided much detail regarding how that might be accomplished. A small minority of JVs indicated little thought had been given to HD, but they expected this to soon change.

Answers to this question suggested JVs view “integration” in one of three ways; 1) HD can be presented as a “people objective” in the same manner as a biological objective (e.g., a hunter recruitment objective needed to meet abundance target), 2) HD information can be used in the service of a biological goal (e.g. understanding the motivations and priorities of private landowners crucial to meeting a biological target), or 3) HD information will provide a means to achieve both. With one possible exception, all JVs who offered their view to integration saw HD science as a means to the service of a biological goal. The idea that quantifiable people objectives would be established alongside quantifiable bird or habitat objectives was largely absent from JV responses. In summary, most JVs have engaged in preliminary thinking

JV response example.—*Although the JV could continue to refine its habitat objectives through improved population-habitat models, those efforts have an arguably limited return on investments (e.g. improved inputs for a bioenergetics model). In contrast, the JV believes return on investments in the social sciences are likely to produce large dividends in the immediate future.*

JV response example.—*Moving beyond the “mixed model” [we developed to target conservation for birds and people], the JV plans to better connect with non-traditional stakeholders. One example is the Association of Mayors along the Mississippi River and communicating how wetland conservation [and flood abatement] factors into their quality of life.*

about how HD might be integrated into the planning process, but primarily this HD effort would be used to help realize biological objectives and not as a stand-alone objective.

Question 9: What kinds of support does your JV need in order to integrate HD or social science data into your conservation planning and delivery?

The overwhelming need for better HD integration identified by JVs was capacity, and the dominant capacity-builder was funding. JVs need relevant staff within partner-support offices as well as within partner organizations. A couple JVs noted their intention to meet such staff-capacity needs solely through their partner network. A capacity- and expertise-related challenge acknowledged by one JV was that social science is multi-disciplinary, so a single social

JV response example.—*It all comes down to money and long-term capacity. We are not there yet to prioritize our [HD] needs and know what would be most helpful; we are at the beginning of planning efforts. When we prioritize HD work, it will be options [selected first] to maximize our potential to get habitat on the ground. We just do not know what questions to ask yet.*

scientist is no more likely to meet all of a JV's HD needs than is an avian ecologist with single-taxa expertise.

A second tier of needs was HD information transfer and guidance. Some JVs still desire a deeper understanding of social sciences and potential applications to JV work, with several suggestions for additional training. Some JVs also would benefit from an HD

“planning doctrine,” “planning framework,” or other guidance that differs from what is currently available (e.g., through NABCI). Somewhat related to information transfer is a category of internal support that interviewees recommended from within the JV network. Several JV coordinators indicated the value of learning from other JVs, a desire to improve communication across biological and social science communities, and or a desire for intra- and inter-JV communities of practice (e.g., standards or guidelines for HD application and integration). Some interviewees mentioned specifically seeking social science application that will “maximize delivery” toward biological objectives, whereas some are specifically seeking social science applicable to improve effectiveness of their outreach activities.

Question 10: Is there anything else you would like to discuss related to the barriers to or benefits of integrating HD into planning or developing social science objectives?

JV responses to this question were a potpourri of novel ideas that did not cluster into any dominant themes. The only items repeated (by two respondents each) were 1) a desire for more clarity in the roles and responsibilities of the various teams (in the conservation community) trying to address HD and social science integration, and 2) acknowledgment of a potential social science connection to

JV response example.—*The NABCI guidance document of HD integration was great, but it did not tell me enough. Now what? We need next steps. Part of the challenge is lack of understanding of what HD is. It seems too pie in the sky for some Board members, but to some degree, we are incorporating it without fully knowing it. We need to understand what HD is and what it entails. That is still a barrier.*

diversity, equity, and inclusion efforts. Other barriers and benefits offered by interviewees included: 1) we should consider using social science to better understand ourselves and other conservationists, 2) employing HD and social science comes with a monitoring expectation, 3) using social science to improve conservation delivery is likely more palatable to JVs than

JV response example.—*There is a perception among JVs that HD is something we have to do in addition to everything else we are doing. That is a wrong perception – it is a major missing component to how we do business. Without this information, our foundation is unstable. [JVs] may need to think creatively about how to rearrange programs and priorities (and even question the continued utility of some programs and priorities) to make room and space for HD. It is absolutely integral to successful conservation, helping you do what you do more effectively and efficiently.*

developing objectives specific to people (i.e., treating people as a new priority species), 4) the geographic scale of HD information needs to match the scale of conservation delivery, 5) people goals that also benefit wildlife is a more useful construct than the opposite, 6) the bi-nationality of some JVs will flavor their application of HD and social science, and 7) additional support for HD integration within the NAWMP leadership would be appreciated.

DISCUSSION AND CONCLUSIONS

Our primary goal for this assessment was to document status of HD awareness, use, and integration into JV conservation planning and bird habitat delivery and to identify future needs to increase HD integration. We identified JV integration examples and barriers, assumptions about people, social science interests and needs, and current social science capacity and concerns. Participants in this effort expressed appreciation for the experience. Personal and professional discussions occurring as part of the virtual interviews seemed particularly valuable. Several JV representatives (both interviewers and interviewees) indicated gratitude for time spent re-establishing relationships, as well as learning about HD activities and challenges, new partnerships, and traditional and novel conservation delivery strategies that have approached HD in different ways. Moreover, enhanced communications resulting from this ad hoc Theme Team 3 effort provided a welcome reprieve from the isolation several of us in the JV community were suffering due to the coronavirus pandemic.

The 2-phased approach used in this assessment was time-consuming to develop and manage, but we believe the wealth of information collected can provide valuable guidance and an important baseline to measure progress were this effort replicated in the future. Results from the online survey (Phase 1) and 23 semi-structured interviews (Phase 2) indicate the JV community is keenly aware of the social and environmental change occurring in North America and the importance of HD understanding and expertise to maximize partnership effectiveness. Joint Ventures largely recognized a need for paradigm shift from a conservation focus strictly on birds-and-habitats to birds-habitats-and-people as human decisions and bird habitat conservation are fundamentally linked. Several also identified a need to better connect with people-focused goals of the 2012 NAWMP and 2016 PIF Plan. However, JV traditions and historical perspective, partnership composition, regional landscapes (e.g., human cultural and land-use diversity, human density and distribution, ownership patterns), and especially JV staff capacity all influenced their ability to integrate HD into JV work.

The level of HD engagement by JVs generally fell into one of three groups: 1) no work yet, 2) used available data and literature to better target conservation, develop models, and or learn about landowners (e.g., behavioral motivations that affect bird habitat), and 3) implemented / financially supported data collection with existing staff or collaboration with outside researchers / experts. A couple JVs in the second two groups indicated they had developed specific HD goals or objectives. Whereas some JVs indicated they were in a “wait and see” mode – letting others lead, demonstrate, and evaluate HD value – a small minority were comfortable acting on the assumption “people benefit from successful bird habitat conservation.” Others indicated they were already overwhelmed attempting to achieve biological objectives, which typically were the result of substantial earlier JV investments in planning. For a few groups indicating no work yet, pursuing people objectives and HD approaches were perceived as unjustified at this time. Several JVs implied they had a growing HD awareness and interest, but they were waiting for more guidance and resources from program leaders before attempting to build HD capacity and fully commit to HD integration. Whether real or perceived, a few JVs were concerned over significant tradeoffs among biological and social objectives, and in these cases, biological objectives were the current priority. Elevated emphasis in HD evaluation and integration is a relatively recent addition to JV conservation planning, and potential tradeoffs present uncertain challenges.

Not long ago it was common to hear wildlife professionals make statements like:

- *I didn't get into wildlife conservation to manage people.*
- *If we manage habitat and wildlife, the people part will take care of itself.*
- *If it weren't for people, wildlife management would be easy.*

With few exceptions, JVs recognized the importance of acknowledging and integrating HD into planning and implementation. However, JVs are at various stages of conservation planning, and some JV implementation plans lack HD emphasis simply because they are outdated. For some of these JVs, planning and habitat delivery trajectories were established long ago, and change to better integrate HD concerns in plans will likely be gradual. Regarding the NAWMP-focused questions in the online survey and related interview discussions, only a couple JVs had developed explicit hunter objectives. Some “people objectives” were indirectly linked to NAWMP and these were typically related to water conservation or preserving “working lands.” When asked who they would look to for guidance establishing regional NAWMP supporter or similar people objectives, about half of JVs indicated the NAWMP HD Working Group, NABCI HD Committee, and or the NSST / UST.

For many JVs, change to substantially address HD will require cultural transition (i.e., progress in understanding and acceptance of the value of HD) as well as added technical understanding and expertise to JV staff or their partnership. Yet examples exist where JV technical advances in modeling and social science application have been nothing short of impressive. Using advanced spatial data analysis (while engaging and enlightening their JV management board), one JV technical committee has systematically integrated biological and social objectives. The group built a “mixed model” with two biological priorities and four social priorities using six associated

spatial data layers, with each of the six objectives weighted for importance by the management board. This technique required substantial communication between the JV's technical committee and board members as well as a talented spatial modeler. Another JV appears to have completely shifted to a human-focused approach, concentrating on wetland and associated grassland restoration and protection to maintain bird habitats, while recharging groundwater important to people and agriculture in a semi-arid region. Although this JV's staff has grown considerably in recent years, now including two social scientists, three communications staff, and two conservation delivery managers, the partnership has been unable to keep up with increasing demands of their now primary stakeholder group—landowners and local communities interested in maintaining water quality and quantity in the western Great Plains.

For some, the introduction of HD in the 2012 NAWMP imagined that people objectives might eventually have the status of biological objectives, and that the two would somehow be integrated. To date, that has not proved to be the case. Our knowledge of HD has mostly been applied in the service of biological goals, and there are few examples in the JV community of human and biological goals being equivalent. This should not surprise us. Many JVs will only achieve their bird conservation goals with the help of people, especially private landowners (e.g., ranchers), and understanding what is important to these stakeholders is paramount. In such cases, HD is not viewed through the lens of setting people objectives, but rather how we can use the social sciences to understand what motivates private landowners and then design conservation programs that appeal to those motivations. In many of these same working landscapes, the density of people for whom we might set objectives (e.g., hunters and birders) is low, and pursuing such objectives is likely to yield little return.

Although it is understandable that JVs have mostly used HD in the service of bird conservation goals, there is still value in seeking ways to meet human desires as a priority. Abundance and distribution of hunters and wildlife viewers and or provision of ecological services seem like excellent HD foci for JVs to practice integrating biological and social objectives, with bird habitat needs quantified using population objectives (biological) and conservation placement targeted to locations benefitting people (social). Hence, bird abundance and related amounts of high-quality habitat serve as fundamental JV objectives whereas HD-guided placement of habitats (e.g., near hunting or birding communities, potential hunting or birding communities, and or where ecological services will benefit human communities) can be the means to achieved integrated objectives. However, such an approach has not been embarked upon or embraced by most JVs as the interviews made clear. Perhaps, as more examples emerge of JVs developing people-focused objectives and recognizing and testing people-related assumptions connected to desired conservation outcomes, the value of such an approach will become more accepted and used by partnerships. That said, our interviews revealed very diverse ecological and social landscapes among JV regions. Further, there are various ways of examining the social landscape with diverse HD sciences, suggesting there will be no "one size fits all" approach to social science integration.

Several insights gained from discussions around survey questions had HD implications. For example, we learned coastal regions of North America, having larger human populations and relatively high real-estate values, realized more JV work on public and conservancy lands. Interior regions had a greater degree of JV activity on private ownerships of working lands, thus very different stakeholders (and potential HD approaches). Moreover, primary partners leading JV bird habitat delivery were different between the U.S. and Canada. In the U.S., bird conservation efforts were supported largely by federal and state agencies and NGOs, whereas in Canada, conservation NGOs, land trusts and conservancies, and local units of government were primary stakeholders in JV goal achievement. Local communities in Canada were involved with initiatives benefiting birds but these were often promoted and citizen-supported for their ecological services benefiting people. Ecological services provided by bird habitats are a critical aspect of conservation social science, and Canadian JVs seem well positioned to provide guidance with this facet of HD integration. Few JVs mentioned hunters or other recreational users as their primary stakeholders, suggesting these financially important stakeholder groups have not been a target for most JV conservation planning, despite them being a NAWMP priority. Finally, a surprising number of JVs had not updated their implementation plans since the 2012 NAWMP “people goals” were established. Even some JVs with a strong interest in HD application had not revised plans and incorporated HD-related priorities or tested early people-related assumptions. We expect increasing incorporation of people-related goals and objectives as JV planning schedules offer such opportunities.

There were several other varied and noteworthy perspectives, insights, and potential next steps that emerged from the JV interview responses and follow-up discussions:

- Each JV is unique, and issues vary from one region to another. Social science considerations and applications necessarily differ among landscapes. Regardless, sharing experiences across JVs may significantly reduce false starts and unproductive effort via replication and learning. This, however, will require purposeful sharing of successes and perhaps more importantly, failures.
- While bird habitat objectives for most JVs are based on biology and ecology, conservation delivery remains largely driven by social considerations. The saying “culture trumps strategy every time” applies to bird conservation delivery as well.
- Many JVs implement conservation to achieve biological objectives largely on private lands, and understanding motivations of various private-land communities is where HD evaluation is most needed.
- Understanding landowner motivations and barriers is key to private-land conservation delivery. Critical evaluation of assumptions is also essential.
- Social science evaluation by JVs should include self-focus to better understand ourselves and other conservationists. Some HD-integration challenges may lie within the professional conservation community.
- JVs need guidance from an HD framework, something like the Strategic Habitat Conservation (SHC) framework that links relevant planning and delivery elements at a scale appropriate to JVs.

- Some JVs seek guidance for stepping-down people objectives in continental bird plans, summaries of key information about people, and HD research relevant to their regions (see Fleming et al. 2019 and Andres et al. 2020 for regional objective setting).
- In general, there seems to be only limited interest, awareness, or acceptance of how critical the hunter and birder supporters have been to JVs. Further, few JVs embrace the NAWMP-inspired role to serve hunter and birder interests with bird-habitat delivery programs. For hunters, this includes both waterfowl and upland gamebirds.
- Informing JVs regarding HD approaches could start with an annotated bibliography of key research and concepts applied to bird conservation planning and delivery, followed by establishing links to HD experts who can provide technical support.

Much of the bird conservation community recognizes the need to embrace and support expanding social science expertise within their organizations. Ignoring this edict will eventually result in loss of relevancy to a North American society, which includes a growing segment disconnected from nature and traditional JV foci. Addressing the HD capacity challenge for JVs has taken different paths (e.g., recruiting volunteer HD experts to JV technical committees, adding JV staff positions, establishing capacity in partner organizations and or cost-shared positions). Whereas retaining support of hunters and birders remains important to most JVs, HD expertise may be especially helpful understanding and developing other potential means of conservation support. For example, the current *Road to Recovery* effort (www.3billionbirds.org) addressing the 3-billion-bird loss is elevating science needs for numerous at-risk species and could help justify strengthening (and financially supporting) a stronger HD technical foundation across JVs. Likewise, leverage to grow HD capacity for JVs might include resources from complementary environmental programs (e.g., *America the Beautiful* [[Report: Conserving and Restoring America the Beautiful 2021](#)] and the pending *Recovering America's Wildlife Act*).

Adding social science expertise may be the highest near-term priority for many JVs, as this expertise can help identify how various stakeholders perceive actions of the bird conservation community as well as evaluate barriers and motivations that will be important when integrating ecological services into JV plans and developing JV communications and outreach. Seven JVs indicated that they have staff members with at least some formal training in conservation social science, and one JV currently employs two social scientists. Yet, lack of expertise and capacity was identified as a dominant barrier to HD integration. The reason for this disconnect would be interesting to explore further. Another JV, lacking HD expertise within their staff, recruited a social scientist to their JV technical committee. This same committee in 2022 developed a “JV roadmap report” which identifies evolving environmental and social priorities within their region and the need for expanding pertinent expertise in HD, communications, and ecological services over the next decade (Soulliere et al. 2022). There are numerous forces driving social and environmental change in North America, and JVs can play an important role in shaping the future of bird conservation by integrating the best relevant social and biological science information.

Other prospects exist for JVs seeking to expand their HD-related communication networks and or HD content in planning and habitat delivery. For example:

- Explore links with the NABCI Human Dimensions Subcommittee, particularly related to the Road to Recovery (3-billion bird) Initiative.
- Communicate with staff from other JVs that have advanced on HD issues, asking questions and sharing ideas.
- Explore opportunities to work with groups like the Road to Recovery Organizing Committee and others engaged in HD and communications.
- Use The Conservation Social Science Community Network to find expertise in a particular area.
- Connect with other key HD groups including the NAWMP HDPET, The Wildlife Society's Human Dimensions Working Group, NGO partners with HD staff, university social scientists, and agency HD specialists (e.g., the USFWS National Wildlife Refuge System's Human Dimensions Branch, state agency HD specialists).

The HDPET has specific responsibilities related to achieving NAWMP objectives and assisting with the integration of HD into waterfowl population, harvest, and habitat decision-making, and the group includes JV representatives. Consequently, the findings from this report will be directly applicable to HDPET's efforts, and maintaining strong connections between the JV community and the HDPET is critical to progress by both groups.

Moving Forward

Most JVs considered use of social science primarily as means to achieve bird habitat objectives. The future JV model may well be reframed; having biological objectives paired with explicit people objectives where such purposes are warranted. For example, two thirds of all wetlands in the Central Valley of California exist on areas managed as private duck-hunting clubs. While we should use HD to help design conservation programs that appeal to these private wetland owners, duck clubs need duck hunters (ardent membership) and having an objective specifically aimed at maintaining the hunter base within this critical geography for wintering waterfowl may be necessary. Conceptually, one way to reframe HD is to view humans as a fundamental part of the ecosystem and create a JV culture where human needs and desires are considered in tandem with bird habitat needs. Joint Ventures indicated a moderate to high level of interest in guidelines for developing quantifiable HD-related objectives. They also expressed interest in acquiring relevant stakeholder data specific to their geographies and potentially useful for integrating social and biological objectives.

Adopting more explicit and fundamental objectives for people will be an important, and perhaps urgent, next step for many JVs to achieve HD integration. However, leadership within the bird conservation community must be supportive, and dedicated financial resources will be necessary to move this concern forward. National coordination and scientific collaboration will continue shaping bird conservation, but the work ahead is different from in the past. New investments are necessary, including building professional HD capacity as well as policy-level leadership engagement and backing for HD integration. Some tradeoffs among past JV priorities will likely need to occur, informed by valuation of opportunity cost and return on

investment. Increased collaboration via expanded full-time JV social science expertise will help assure the bird conservation community remains relevant to people, our current and future source of financial, political, and inspirational support. The NSST, UST, and HDPET have a demonstrated record of technical leadership, and, with appropriate support, can continue to expand the JV community's ability to delivery conservation for birds and people.

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Appendix A. Email correspondence (i.e., framework used) to North American bird conservation Joint Venture coordinators (JVCs) regarding UST/NSST human dimensions integration survey, and questions used in online survey leading up to the personal interview (see Appendix B for interview survey).

[Hi, Name of JV Coordinator]

As Mark Petrie mentioned in his email to JVCs a few months back, the bird conservation community, through the NAWMP revision, NABCI planning, and NAWMP Human Dimension Working Group is challenged to integrate conservation planning across multiple bird groups and to integrate human dimension objectives with traditional biological objectives. The Unified Science Team (UST), consisting of JV Science Coordinators and other national/regional scientists, is tasked with cooperating on science and planning issues common to all JVs. Last year, the UST formed two separate committees to address these integration challenges. The first committee is examining how to better integrate our conservation objectives across multiple bird groups, while the second committee is tackling human dimensions.

Eventually, these committees will develop Technical Reports that document how the JV community is approaching integrated bird management and human dimensions, including the challenges they face. By capturing and sharing these individual JV experiences, we hope to advance progress on both issues. You may have already provided guidance on the topic of objective integration across multiple bird groups, but the Human Dimensions UST committee is now seeking information about social science integration into bird conservation planning and objective setting.

Sometime between now and April 29, I would like to set up a virtual interview with you. We have 10 questions to discuss (you can [preview those questions here](#) [link provided]), and based on the interviews our team has done so far, I expect it should take us about 2 hours. I will be recording the interview so that I can accurately summarize your responses after the call, but I will share my summary with you for your review and approval before sharing with others on the Team or within the report. **Please let me know when you are available for an interview between [dates].**

In advance of our interview, I have two requests for you, so that I can better prepare and we can use our time together efficiently.

First, it would be helpful to see any documents that may reflect your JV's approach to social science and human dimensions. This includes any documents that reference human assumptions or management that involves people (such as private landowners, hunters, birdwatchers, etc.). **Please send me the following documents as soon as possible:**

- Implementation Plans
- Other documents that may reflect the integration of social science, such as Board Meeting Minutes
- Reports from social science projects facilitated by the JV (such as the reports from the projects in [this document](#) [link provided])

Second, we also ask that you **fill out the following, [short survey](#)** [link provided] **at least 3 days before the interview.** The survey contains some background questions about your JV's experience with social science, and it should only take 10-15 minutes to complete.

Thank you in advance for all of the information, and I look forward to talking with you soon,

[Interviewer Name]

Online Survey Questions

JV staff will be asked to complete the online survey a week before their scheduled interview.

- 1) **Do any of your JV staff have formal training, academic or otherwise, in HD or social science disciplines typically used in the study of HD?**

Yes/No/I'm not sure

- 2) **Do any of your Management Board members have formal training, academic or otherwise, in HD or social science disciplines typically used in the study of HD?**

Yes/No/I'm not sure

- 3) **Do any other of your JV partners have formal training, academic or otherwise, in HD or social science disciplines typically used in the study of HD? For example, this might include state agency HD staff or HD scientists at local universities?**

Yes/No/I'm not sure

If yes to any of the above questions:

Please tell us a little more about the HD experts working with your JV. There is an effort to create a directory of HD professionals in wildlife conservation, and this information may help bolster the directory. We will not add any experts to the directory without their permission.

- 1) Expert name, title, and contact information
- 2) General area of HD or social science expertise of these individuals (anthropology, sociology, etc.)

- 4) **Has your JV ever employed any social science consultants?**

Yes/No/I'm not sure

- 5) **In 2016, a NAWMP-led review was conducted to summarize JV efforts related to recruiting and retaining waterfowl hunters and viewers; connecting waterfowl habitat to other ecological goods and services; and incorporating HD into waterfowl habitat planning and delivery. Other than the projects listed in this summary [document](#) [link provided], has your JV (as a collective guided by the board and managed by JV staff) funded, conducted, or used previous HD work in your planning?**

Yes/No

If yes: Please briefly describe these projects below.

So that our upcoming interview time will be as efficient and productive as possible, we ask that you send any reports or other documents related to these projects to the person who will be interviewing you. Your interviewer will ask you further questions about these projects (see emailed interview script for questions).

- 6) **We are also interested in the ways in which assumptions about people impact conservation planning and delivery within your JV. Please indicate which, if any, of the following statements reflect ideas that shape how your JV approaches conservation planning and delivery (*please select all statements that substantially influence or have been integrated into planning and bird habitat delivery by your JV*).**

- A. Private landowners must be provided with financial incentives to conserve or establish bird habitat within our JV boundary.
- B. Landowners care enough about birds and other wildlife that it influences their participation in conservation programs.

- C. Discussing ecosystem goods and services of birds, other wildlife, and their habitats (e.g., wetland, grassland, and forest communities) will increase participation in conservation programs.
- D. Landowner concerns are pretty similar across our JV region.
- E. Land management practices inherited across family generations present challenges to habitat conservation on private lands.
- F. Travel distance to outdoor destinations influence individuals' decisions on whether to go bird hunting (e.g., waterfowl hunting).
- G. Travel distance to outdoor destinations influence individuals' decisions on whether to go birdwatching.
- H. Increased access to areas for hunting will equate to more hunters.
- I. Increased access to areas for birdwatching will equate to more birdwatchers.
- J. Larger bird populations will equate to more bird hunters.
- K. Larger bird populations will equate to more birdwatchers.
- L. Bird hunters are a homogeneous group (i.e., most hunters think similarly).
- M. Birdwatchers are a homogeneous group (i.e., most birders think similarly).
- N. Bird hunters and birdwatchers are two distinct groups with minimal overlap.
- O. People think that there are not enough waterfowl in our JV region.
- P. People think that there are not enough other, non-waterfowl game birds in our JV region.
- Q. People think that there are not enough watchable birds in our JV region.
- R. JV conservation planning products influence decisions at other agencies/organizations on a local scale.
- S. Achieving habitat objectives is a means to achieve NAWMP's quantitative objectives related to waterfowl supporters.
- T. NAWMP's waterfowl supporter objectives will be naturally achieved by focusing on waterfowl population objectives.
- U. Investing in habitat provides a better return for bird conservation than direct investments in recruiting or retaining hunters or bird conservation supporters.

Questions 7 – 9 relate specifically to the people-related goals and objectives of the 2014 NAWMP Addendum.

7) The 2014 Addendum to the NAWMP included a “people” goal of *“Growing numbers of waterfowl hunters, other conservationists and citizens who enjoy and actively support waterfowl and wetlands conservation,”* with an objective to *“Increase waterfowl conservation support among various constituencies to at least the levels experienced during the last two decades.”*

This objective included 3 elements:

1. Increase support for waterfowl conservation through involvement in the hunting tradition
2. Increase support from a North American citizenry who values and understands waterfowl/wetland conservation and takes action to demonstrate active support.
3. Increase numbers of landowners participating in habitat conservation programs relevant to waterfowl landscapes

To what extent has your JV explored or established people-related objectives at the regional scale that are directly or indirectly linked to the NAWMP objectives listed above? (please use the space below to answer in as much detail as you feel appropriate)

8) Please indicate how interested you would be in each of the following kinds of guidance for developing waterfowl supporter or other people objectives (please choose one response option per statement) on a scale of not at all interested (1) to very interested (4):

- 1) Quantified waterfowl supporter objectives stepped down from continental objectives akin to what Fleming et al. did for waterfowl population goals
- 2) Suggestions for how to step down continental waterfowl supporter objectives
- 3) A summary of current information about the numbers of hunters, birdwatchers, and/or landowners participating in habitat conservation programs in my JV region
- 4) General guidelines on developing quantifiable objectives related to human dimensions
- 5) I am not interested in external guidance on developing people objectives
- 6) *Other (Fill-in)*

9) Which conservation group(s) would you look to for guidance on developing regional waterfowl supporter objectives or similar people objectives? (choose all that apply)

- Unified Science Team (UST)
- NAWMP Science Support Team (NSST)
- NABCI Human Dimensions Subcommittee
- NAWMP Human Dimensions Working Group (HDWG)
- Flyway Technical Sections
- State Agencies
- Other (Fill-in)

10) Please indicate how valuable HD assistance or guidance on each of the following topics would be for your JV. on a scale of not at all valuable (1) to very valuable (4):

- 1) Communicating the value of HD research and integration to JV Board, Staff, or Partners
- 2) Finding existing HD research that is relevant to conservation planning in your JV region
- 3) Conducting HD research specific to your JV region
- 4) Integrating HD information into JV planning
- 5) Developing realistic HD objectives based on social science data or research
- 6) Determining strategies to achieve HD objectives
- 7) Integrating HD and social science insights into conservation delivery
- 8) *Other (fill-in)*

11) In 2019, NABCI released a document titled *Integrating Human Dimensions into Joint Venture Implementation Plans*. Please indicate yes, no for each of the following statements:

- a. Is your JV Staff **aware** of this document?
- b. Has your JV Staff **read** this document?
- c. Has your JV Staff **used** this document? *If so, how* (briefly)?

Appendix B. Opening remarks and questions (plus follow-up sub-questions) used by UST/NSST Theme Team 3 for personal interviews of staff members from North American bird conservation Joint Ventures. Interview targets were JV Coordinators (JVCs) but other JV staff were also invited to participate.

Interviewed JV: Interviewer:
Date: Interview time:

Interviewer, read the following introduction:

The main goal of this interview is to understand the status of social science integration across the JVs and what capacity JVs have for social science integration.

As a reminder, for the purpose of this interview, we define Human Dimensions as: *a suite of issues related to how people value natural resources, how they want those resources to be managed, and how they affect or are affected by those resources and related decisions. It is an umbrella of people/natural-resource issues that can be addressed by the social sciences - including the disciplines of anthropology, sociology, psychology, demography, geography, political science, and economics - and their integration with biological science.*

During this interview, I will ask you ten broad questions regarding integrating social science and people objectives into conservation planning for your Joint Venture. A couple questions have multiple parts. Please provide as much information as you like, and feel free to ask me to clarify questions if needed. Based on the interviews we've done so far, I expect this interview should take about 2 hours to complete. Your responses will be combined with those from other Joint Ventures and developed into a Unified Science Team report. We realize that each JV partnership has unique political, cultural, historical, and biological features that affect its operations, and we hope to capture the full range of experiences across JVs. Our intent is to produce a report that includes the status of social science integration across JVs, examples of integration, and recommendations for future social science integration.

As I mentioned in an earlier email, I plan to record this interview (with your permission) to ensure that I properly summarize our conversation. A summary of the interview will be provided to you for review before being incorporated into the report. Do you have any questions before we start?

Intro/General JV information

1. **To begin, briefly tell me about the habitat and bird conservation concerns that drive your JV partnership (as a collective guided by the board and managed by JV staff)?**
2. **What stakeholders are especially important to the realization of your JV's habitat and bird conservation goals?**
 - a. How is habitat conservation within your JV impacted by the behavior or decisions of private landowners?
 - i. Wildlife recreationists, including hunters, birdwatchers, and other wildlife viewers?
 - ii. Federal agencies (FWS, FS, BLM)?
 - iii. Other industries (agriculture, cattleman's associations, etc.)

Attitudes towards HD

3. **In general, how would you characterize awareness of and interest in human dimensions within your JV partnership (as a collective guided by the board and managed by JV staff)?**

- a. To what extent are your partners supportive of or interested in conducting HD research or integrating existing HD research into JV strategies?
- b. Are there differences in HD support, attitudes, or awareness between your Board, Staff, and partners? If so, can you tell me more about these differences?
- c. What, if any, changes in awareness and attitudes towards HD have you seen within your JV partnership since the inclusion of People goals in the 2012 NAWMP?
- d. Is your partnership where you (JVC) want it to be with regard to HD integration?
- e. Is your partnership where your Board wants it to be with regard to HD integration?

Previous HD research

4. In what ways, if any, has your JV funded, conducted, or used HD research in your planning?

If the JV has done HD work:

- a. You said that your JV has done [*blank; information from JV planning documents*]... Tell me more about this/these projects?
 - i. What was the purpose of this research? What did you hope to learn from this work?
 - ii. How did the project go? Did the research fulfill its purpose?
 - iii. If you were to do research related to HD again, is there anything you would do differently?
- b. Tell me more about the ways, if any, that the information from this research was integrated into the work of your JV or partnership?
 - i. Did it help inform communication?
 - ii. Did this project or data help support habitat acquisition/allocation?
 - iii. Did conducting this work help identify new partners (in the process of obtaining funding, collaboration, finding match)?
- c. Were there any challenges related to integrating this information into JV planning?
 - i. *If so*, how did you address those challenges?
 - ii. *If not*, why do you think this integration went so smoothly?

If the JV has not done HD work:

- a. You said that your JV has not directly funded, conducted, or used HD research in your planning. Why do you think that is?
- b. What barriers keep your JV from integrating new or existing HD information in planning?

Explicit integration of HD into JV objectives

5. I see that your JV has/hasn't developed [*blank; see answers in question below*] **explicit people/social objectives.**

If the JV has developed people/social objectives:

- a. How were these objectives developed?
 - i. What are their underlying assumptions?
 - ii. How, if at all, do they reflect data or insights from social science?
- b. How, if at all, have you measured progress towards these objectives?
 - i. *If the JV has evaluated their people/social objectives:* How does the evaluation of your social objectives differ from the evaluation of your biological objectives?
 - ii. *If the JV has not evaluated their people/social objectives:* How might they be evaluated? How would the evaluation of social objectives differ from the evaluation of biological objectives?
- c. Please describe any trade-offs or conflicts that your JV encountered in setting people/social objectives versus setting biological objectives?

If the JV has not developed people/social objectives:

- a. Do you have any plans to develop objectives related to people in the future?
- b. Can you describe any ideas you have about how your JV might go about developing people/social objectives?
- c. How do you imagine you might evaluate progress on people/social objectives, especially compared to how you evaluate biological objectives?
- d. Do you anticipate any conflicts or potential trade-offs you might encounter in setting people/social objectives versus setting biological objectives?

Implicit integration of HD into JV objectives

6. In addition to explicit social objectives, HD assumptions can implicitly shape a JV's biological objectives. How have underlying assumptions or knowledge about people shaped your JV habitat goals?

- a. Consider your JV's habitat objectives. What would you say is the relative influence of bird biology versus people/social considerations in creation of your habitat objectives?
- b. How, if at all, have you changed your management or planning based on what you know about people - including human behaviors, attitudes, interests, and culture - in your region?
- c. In your planning documents, you [do or don't] explicitly mention HD or include information about the social landscape (i.e. what types of people live within your boundaries). Please tell me more about how these parts of your plan were developed?

INTERVIEWERS: Link back to assumptions you noticed in planning documents or refer back to answers from the online pre-survey. If they are having trouble, remind them of the assumptions listed in the online survey or mention some of those assumptions you think are relevant.

- d. Has the JV ever made any assumptions about people that were faulty or led to challenges?

7. Please describe any successes your JV has experienced because it considered HD, either explicitly or implicitly, in planning?

Future HD work and needs

8. How do you plan to integrate HD into conservation planning within your JV partnership in the future?

9. What kind of support does your JV need in order to integrate HD or social science information into your conservation planning and delivery?

- a. In the pre-interview survey, you indicated that [*there may be some*] were issues that your JV could use assistance with related to HD. Please tell us more about the constraints you face in those areas?
- b. You indicated in the pre-interview survey that [*...blank you were somewhat or slightly interested in HD resources ... for planning*] would be valuable. Please share any additional information regarding the type of HD resources that would be of greatest need and how they would be most helpful to your JV.

10. Is there anything else you would like to discuss related to the barriers to or benefits of integrating HD into planning or developing social science objectives?