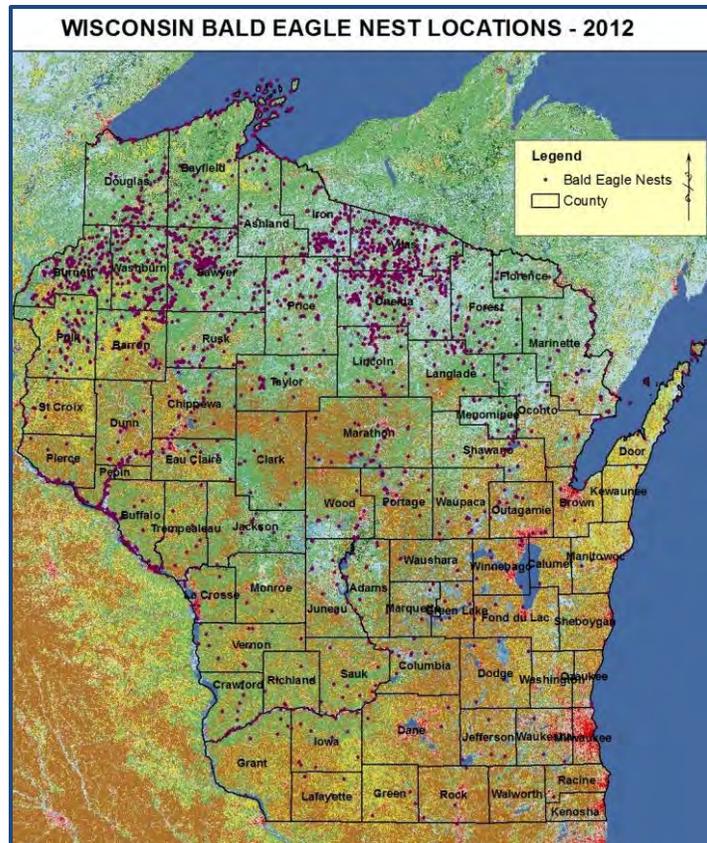


Results and Responses to Comments from the Natural Heritage Inventory Web Survey – May 2013



Bureau of Natural Heritage Conservation



Introduction

Established in 1985 by the Wisconsin legislature, Wisconsin's Natural Heritage Inventory program (NHI) is part of an international network of inventory programs. The program is responsible for maintaining data on the locations and status of rare species, natural communities, and natural features throughout the state.

The NHI map team consists of mapping specialists and data managers who work together to organize, standardize, map, and store records of rare species and communities ("element occurrence records"). These include records for both listed and non-listed species, which we term the NHI Working List. Data come from various sources, including inventory projects; data generated by NHI cooperators at universities, nonprofit organizations, federal, and state agencies, and individuals; and published literature and reports submitted to the Wisconsin Department of Natural Resources (DNR). The resulting NHI data are available to DNR staff via the NHI Portal, a web-based application on DNR's internal web system, and also available to non-DNR partners who have entered into a data license agreement.

In the spring of 2013, a team of employees (“team”) within the DNR’s Bureau of Natural Heritage Conservation (formerly the Bureau of Endangered Resources) was assigned the task of improving and streamlining mapping of NHI data into the NHI Portal. The team’s charge was to:

Improve heritage mapping timeliness, data quality, and delivery to internal and external customers by increasing mapping efficiencies, improving NHI data accuracy, and simplifying the data submission process.

Included in the team’s goals was the task of establishing a method to reduce the NHI data “backlog”, or the list of documented but unmapped data. In general the “backlog” contains data and reports that do not entirely meet NHI data standards or data from historic reports and field notes. Much of this information requires significant time from the mappers and follow-up with the original source to meet current data standards. It is likely that much of it will never be mapped in NHI and available in the portal.

In an effort to better understand the advantages and shortcomings of NHI data collection and mapping, as perceived by internal and external customers that submit or use NHI data, the team created a survey to realize common approval, recommendations, and complaints.

Methods

The NHI Survey was emailed to 4,754 individual email addresses, including all 2,562 DNR staff (“internals”) and 2,192 “externals”. External recipients included individual permit holders, bureau grant recipients, past data providers and collectors of NHI data, the Citizen Based Monitoring network, and NHI Portal users. The web survey was made available for 12 days with a reminder sent after the first 7 days to all internal and external recipients.

The NHI Survey was intended to question recipients specifically on mapping of NHI data (rather than the NHI Portal itself, rare species reviews, etc.). The initial questions of the survey identified the recipient as internal or external and as an NHI data user, supplier, or potential supplier. For NHI data users, the intent of the survey was to determine whether current NHI data quality and quantity met the users expectations, and what changes would increase their satisfaction if NHI data was not meeting their current need. For NHI data suppliers, the intent of the survey was to determine what changes could be made to the data submission process to improve the quality of the data submitted, making it more mappable for DNR mapping specialists and data managers (“mappable” data is data that provides all attributes needed for inclusion in the NHI system). Finally, for potential NHI data suppliers (those that collect rare species information but do not submit it to the NHI Program), the intent of the survey was to understand why they have not submitted their data. Data and comments from all returned surveys were compiled and are summarized in this report.

Results

Responses were received from 1,428 of the 4,754 (30%) individuals that were invited to take the survey. Of the respondents, 62.1% were internal staff and 29.2% were external (8.6% did not respond with their affiliation). Tables 1 and 2 provide additional data about the general demographics of internal and external respondents, respectively.

Table 1. DNR Bureau representation for internal respondents ($n=839$). Respondents could choose more than one.

Bureau and/or Category	Number of Respondents	Percent of Internal Respondents
Air Management	33	4
Community Financial Assistance	41	5
Cooperative Environmental Assistance	14	2
Customer Service & Licensing	58	7
Drinking Water & Groundwater	45	5
Endangered Resources	39	4
Facilities & Land	40	5
Fisheries Management	101	11
Forest Management	94	11
Forest Protection	38	4
Forestry Business Services	2	0
Forestry District	35	4
Great Lakes Office	10	1
Law Enforcement	67	8
Office of Energy & Environmental Analysis	12	1
Parks & Recreation	36	4
Remediation & Redevelopment	48	5
Science Services	37	4
Waste & Materials Management	58	7
Watershed Management	50	6
Water Quality	69	8
Wildlife Management	99	11
I observe rare species on my own time	34	4
Other ^a	28	3
Did not respond	7	NA

^a Other responses included: Administration, Division Staff, Finance, Legal Services, Nursery, Ecosystem Management Team, Collected for the private sector prior to working with the DNR, Volunteer habitat restoration, and Waterways and wetlands permitting.

Table 2. Employment type for external respondents ($n=416$). Respondents could choose more than one category.

Sector and/or Category	Number of Respondents	Percent of External Respondents
State agency, other than DNR	16	4
Federal agency	39	10
University	54	13
Environmental consultant	48	12
Non-profit organization	58	14
WDNR consultant	11	3
I observe species on my own time	146	36
Other ^a	155	38
Did not respond	9	NA

^a Other respondents included: County or local government employee (forestry, parks, government),

Nursery, Environmental educator, Farmer, Nature photographer, Nature writer, Great Lakes Indian Fish and Wildlife Commission, Hunter safety instructor, Landowner, Media, Other state DNR (MN, IA), Private business, Raptor bander, Retired, Utility, and Volunteer.

Approximately 49.8% ($n=711$) of respondents identified themselves as NHI data users, 26.7% ($n=381$) identified themselves as collectors of element occurrence data, and 15.8% ($n=226$) identified themselves as NHI data suppliers. As such, approximately 59.3% of survey respondents that have collected element occurrence data appear to be submitting their records to the NHI program. Of those respondents that submitted NHI data, approximately 19.2% ($n=42$) submitted that data as a requirement for a license, contract, grant, or permit.

Most NHI data users were satisfied (63%) or neutral (30%) when questioned about their level of satisfaction with the quality and quantity of NHI data (Fig. 1). When questioned about specific potential improvements to NHI data quality and quantity, respondents suggested that the following would “definitely improve” their satisfaction with the NHI program: increase location data accuracy, increase the number of updated or new records, and provide additional species management guidance. Respondents suggested that the following would “probably improve” their satisfaction with the NHI program: conduct systematic inventories by location, conduct inventories for specific species and/or communities, and provide additional NHI training.

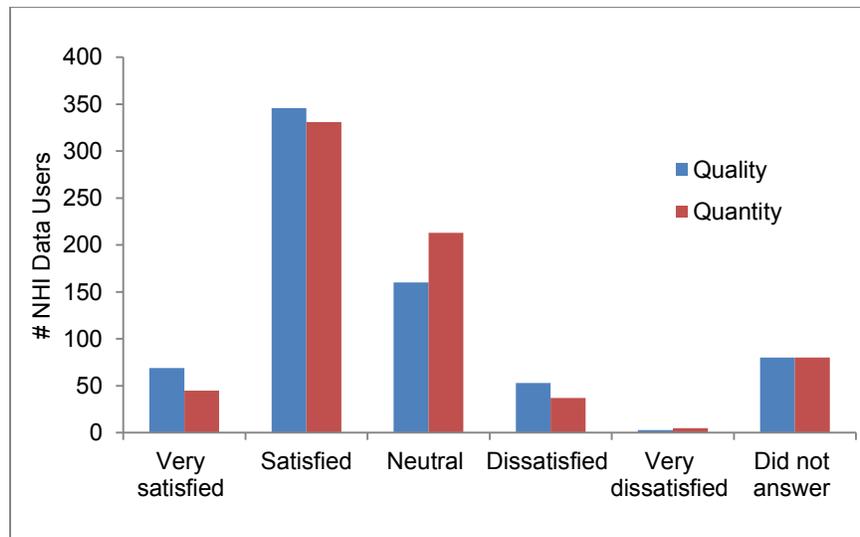


Figure 1. Level of satisfaction with NHI data quality and quantity experienced by NHI data users.

Most NHI data suppliers found the process of data submission to be very easy or easy (65.5%) or were neutral (23%; Fig. 2). When provided with specific suggestions about how to improve the data submission process, most respondents selected the following suggestions: providing a “map it” function that would allow data collectors to map their own data (66%) and standardizing the data input process (53%). Figure 3 shows all specific suggestions for improving the data submission process as well as respondents selections.

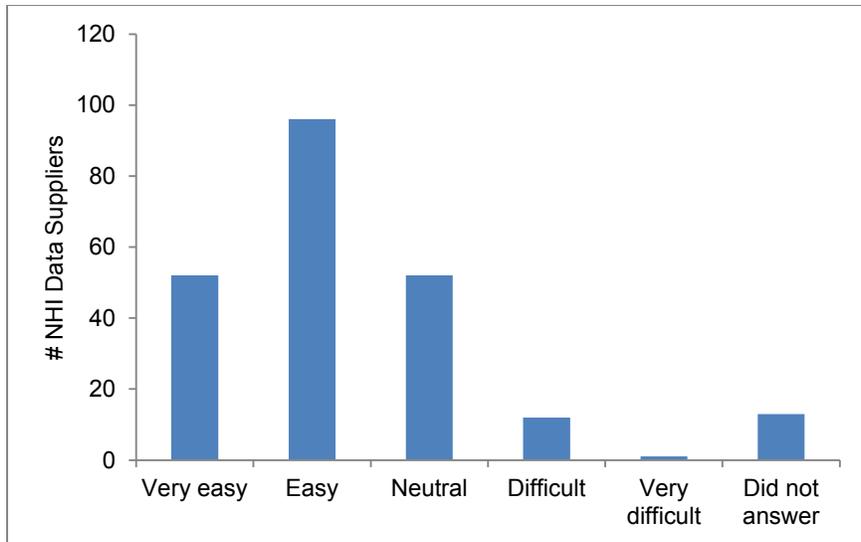


Figure 2. Level of ease of NHI data submission experienced by NHI data suppliers.

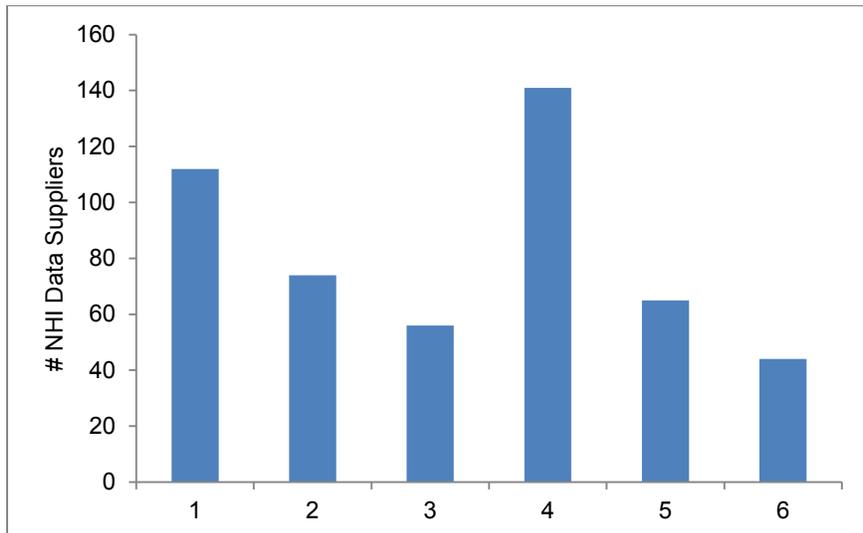


Figure 3. Potential methods for improving the data submission process, as selected by NHI data suppliers (respondents could choose more than one improvement).

1. Standardize the data input process.
2. Accept all forms of electronic data.
3. Provide training for data collectors.
4. Provide a “map it” function that allows data collectors to map their own data.
5. Provide additional outreach/education on the data we add to NHI.
6. Improve rare species forms.

Of those respondents that collected element occurrence records but did not submit those records to the NHI program ($n=155$), most responded that they did not submit their data because they were not sure where to send it (51%) or which species were wanted (49%; Fig. 4).

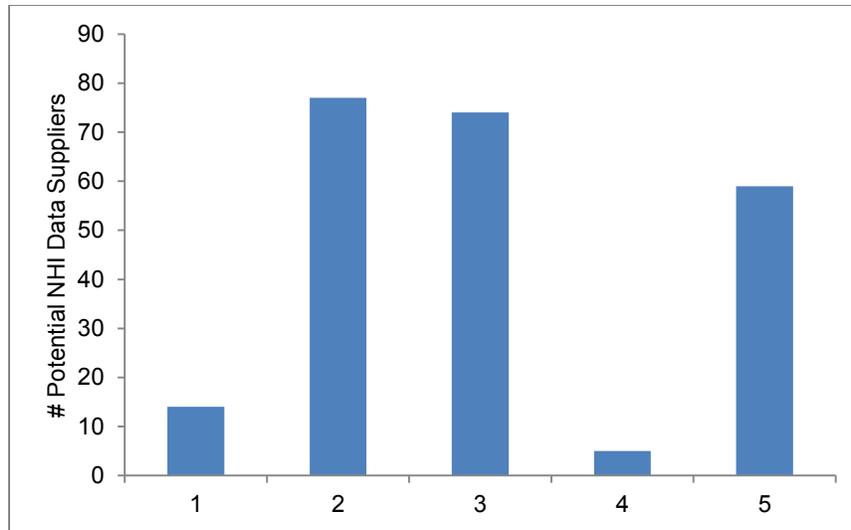


Figure 4. Reasons given for not submitting element occurrence records to the NHI program (respondents could choose more than one).

1. Too time consuming/difficult.
2. Not sure where to send my data.
3. Not sure which species are wanted.
4. It takes too long to see my data in the NHI Portal.
5. Other.

In addition to the data provided above, the NHI Survey also garnered many comments from respondents regarding their opinions, ideas, thoughts, and desires about NHI data and mapping. The team summarized the main themes in the comments relevant to NHI data and mapping to better understand the opinions of our NHI customer (i.e., data users and suppliers; Table 3).

Table 3. Summary of comments received from respondents regarding NHI data and mapping.

Number	Grouped Comment or Theme	Number of Comments Received
1	Old records of rare species and communities are not useful. They need to be updated.	80
2	NHI data should include more solicited records from internal and external suppliers.. This could be done with increased publicity about rare species and the NHI Program and what it does.	69
3	Locational data for element occurrence records is not accurate enough or at a fine enough scale to be useful. Latitude and longitude should be required for all future data submissions.	54
4	Many areas are missing data, and some species are poorly represented. Systematic inventories should be conducted to fill in data gaps. Provide data in the NHI Portal to show where inventories have been conducted.	50
5	Providing an online mapping component would make it much easier to submit data with accurate location information.	31
6	There is too much lag time between the submission of NHI data and when it appears in the NHI Portal.	30
7	Continue to allow multiple NHI data submission methods, including electronic, phone, and hard-copy.	20

Table 3. Summary of comments received from respondents regarding NHI data and mapping.

Number	Grouped Comment or Theme	Number of Comments Received
8	Element occurrence records should be available for free to those that submit NHI data.	18
9	Specific locational data for element occurrence records should not be required.	18
10	Make the rare species forms easier to find, standardized, and more user-friendly so it is easier to submit NHI data. Make it possible to add photos/shapefiles/maps/GPS points right to the form.	18
11	Provide feedback to NHI data suppliers updating them on the status of their data, including when it is received, complete, and mapped on the NHI Portal.	18
12	The DNR should provide instructions and/or a tutorial for submitting NHI data to both internal and external data suppliers. This training should include instructions on how to collect precise locational data.	13
13	The NHI Portal should be combined with other online data submission forums (i.e. eBird, SWIMS, WisconsinPlants) so that data suppliers can submit all of their data to one place.	12
14	Create a mobile (i.e. smartphone) application to allow NHI data suppliers to submit data directly from the field.	9
15	The NHI Program should accept NHI data in the form of large datasets with multiple occurrence records.	8
16	The link to submit NHI data is too hard to find. Provide a link on the Bureau of Natural Heritage Conservation's webpage to the NHI data submission webpage.	8
17	The NHI data should include incidental or reported but unverified rare species observations, perhaps as a different quality category.	4
18	Element occurrence records should be available to the public.	4
19	The DNR should provide a database where DNR staff can enter their own element occurrence records.	1

Planned Improvements to the NHI Data Submission and Mapping Process

Based on the results from the survey, the team was able to focus its NHI mapping improvement efforts on factors that were most important to our customers. The following is a list of solutions that will address a majority of the comments received through the NHI survey. These are some of the areas where upcoming improvements to the NHI mapping system will be focused.

1. Solution: Increase awareness of NHI mapping through outreach and education. Solicit NHI data by broadcasting phenology-based reminders via email and online. Include information about the types of data needed and the attributes required to make data more mappable. Encourage NHI data suppliers to prepare and examine their own datasets for completion prior to submitting.
Comments addressed in Table 3: 2, 3, 12, 15, 16
2. Solution: Make available NHI standards for data submission that will increase the rate of mappable data. This includes simplifying and reducing the number of NHI data submission forms, providing smartphone data submission capabilities,

allowing digital pictures to be uploaded, and providing a “map-it” feature so that data suppliers can easily specify the location(s) of element occurrence records.
Comments addressed in Table 3: 3, 5, 7, 10, 12, 14, 15, 19

3. Solution: Create an automated database system that will track submitted NHI data from initial receipt to final mapping in the NHI Portal. This database should also be capable of providing notices to the NHI data supplier that the data has been received, confirmed, and mapped.

Comments addressed in Table 3: 11

4. Solution: Increase the staff time within the Bureau of Natural Heritage Conservation dedicated to NHI mapping.

Comments addressed in Table 3: 6

5. Solution: Add an element occurrence record update button or form to the NHI Portal so that users can quickly and easily update old records.

Comments addressed in Table 3: 1

Although the NHI survey provided valuable input from NHI customers, its value should not be extrapolated beyond the respondents and cannot be construed as representative of the opinions of everyone that uses and submits NHI data. In addition, there were a few comments and/or themes (in Table 3) brought forth in the survey that were not addressed by the solutions described above because they were beyond the scope of our project (comments 4, 13), are statutorily required (comments 8, 18), or would severely degrade the quality of existing NHI data (comments 9, 17).

Acknowledgements

Report authored by Carly Lapin. The project’s team included the following Bureau of Natural Heritage Conservation staff: Director Erin Crain, Owen Boyle, Terrell Hyde, Carly Lapin, Jill Rosenberg, Stacy Rowe, Rich Staffen, Mia Van Horn, and Jim Woodford. We are very grateful to everyone who took the time to complete our project’s survey. In addition, we thank Jordan Petchenik (SS) for reviewing and approving drafts of our survey and Kristy Rogers (CES) for overall Lean 6 Σ coordination.