

MAIN MESSAGES HEARD AT THE 2017 WYNDD PARTNERS MEETING. Order in which they are presented does not indicate priority or importance.

1. WYNDD MISSION, and CORE PRODUCTS AND SERVICES

Summary: There was a strong sense from partners that WYNDD could benefit from strengthening its mission statement and making it more broadly known. The mission statement should be directly linked to WYNDD core products and services, and also to the types of research projects that WYNDD performs and does not perform - i.e., the mission statement should broadly evaluate potential projects and initiatives as suitable or not suitable for WYNDD. Clearly defining the WYNDD mission such that the unit does not compete with, but rather enhances the activities of, other players in the natural resource sector is important to the program's long-term sustainability.

WYNDD nexus: **Very clearly, the quality and utility of the WYNDD mission statement is central to WYNDD!** WYNDD is about 50% of the way through a formal strategic planning process, which has similarly identified a stronger mission statement as a key need.

WYNDD action 2017-2018: WYNDD will establish a mission statement, linked to a broader vision statement, and ensure that the former provides useful context for WYNDD core products and services as well as research projects. WYNDD will distribute/ post the statements and the list of core products and services to provide a clear understanding of our work to all partners.

2. NEGATIVE DATA

Summary: Negative data is more precisely worded as “records of detection attempts for a given species or biological element that failed to detect that species or element”. Such data was mentioned several times during the Partners Meeting as an important resource for managers. Negative data can be as important – and occasionally more important – for informing decisions than positive data (i.e., records documenting the detection of a target species or element). There are important subtleties to defining and databasing negative records, many of which involve issues of sampling effort and detection probabilities. These subtleties can be parsimoniously handled by defining negative records as survey events with certain core attributes (e.g., date, sampling method, sampling effort) that can be compared to pre-established estimates of minimum adequate requirements for detecting given elements. In that sense, negative records are best “generated” from survey data entered into a database, rather than directly entered into a database in a manner analogous to positive records.

WYNDD nexus: **Negative data is a core product of WYNDD.** WYNDD has long recognized the importance of negative data, especially in the realm of rare and sensitive species management. WYNDD has developed the underlying data model and database structure in its emerging central information system to accept, maintain, and distribute negative data, and has acquired some seed funding to start operationalizing the negative data generation as described above.

WYNDD action 2017 – 2018: WYNDD will continue to operationalize the negative data concept and record generation within its new central information system.

3. COORDINATION BETWEEN PARTNERS, AND BETWEEN PARTNERS AND WYNDD

Summary: Discussions at the Partners Meeting made it clear that although partners understand that they should coordinate their natural resource priorities and field activities among themselves and with WYNDD, they are chronically precluded from doing so by the demands of daily workloads and the lack of personnel, funding, and time. There could be several benefits to such coordination.

WYNDD nexus: **WYNDD can play a role in facilitating this coordination.** Some meeting participants commented that the 2017 Partners Meeting itself was valuable in this context, because it simply brought disparate partner groups together for interaction and networking. Others suggested that more focused coordination could be facilitated by collecting information on partner priorities and planned field actions prior to the meeting, synthesizing that information in useful ways (perhaps in map form), and presenting it to the full audience at the meeting.

WYNDD action 2017-2018: WYNDD anticipates structuring future Partners Meetings to enhance the general networking found to be valuable in 2017. WYNDD will also explore ways to facilitate more focused and formal coordination between partners, using the general framework suggested above.

4. STANDARDIZING SURVEY PROTOCOLS, METRICS, AND METHODS

Summary: There is wide recognition among partners of the value of having natural resource data from multiple organizations in a common format and an accessible repository. That requires datasets to be aligned thematically – i.e., all raptor nest observations presented together; all vegetation measurements presented together – but also requires that, within a given theme, records from different datasets are standardized to some degree in their associated *metrics and measurements*. Meeting participants generally agreed that recommendations on standardized sets of metrics and measurements to be used by field teams from different organizations when collecting data on particular themes would be helpful.

Metrics and measurements contrast with the notion of a *sampling protocol*, which largely refers to the spatial arrangement of sites from which a given dataset was collected. Sampling protocols are ideally determined by the eventual analytical needs and questions of the parent study. Although it is relatively easy to envision standardizing metrics and measurements for use by separate partners pursuing independent projects, a standardized protocol assumes that independent partners will collectively commit to a common research goal and analytical outcome. Although that would be useful, especially in the context of rare species' inventories, it is more complicated and difficult to achieve.

WYNDD nexus: **Standardized metrics and methods for use in documenting a range of rare species and other biological elements are recognized as WYNDD core products.** Furthermore, the WYNDD central information system is being developed to make such information easily discoverable by and available to partners. Because standardized protocols require a deeper level of coordination across partners, **WYNDD recognizes the establishment of standardized protocols as potential research projects** specific to given species, species groups, or situations.

WYNDD action 2017-2018: WYNDD will continue formulating and organizing standardized, taxon-specific metrics and methods, and also continue developing its central information system to house and

present those products to partners. WYNDD will also assess the need for standardized sampling protocols covering all of Wyoming to apply to important taxa, and how such protocols might inform the spatial distribution of sampling conducted by partners performing more local projects. If there are situations in which such protocols could efficiently “scale-up” disparate local datasets into more robust statewide datasets useful for estimating statewide abundance, trends, or other conclusions, WYNDD will seek research project funding to operationalize those protocols. Also, WYNDD recognizes the importance of geographic scales larger than the state of Wyoming, and will consider all Wyoming-based protocols as ideally fitting into and contributing to larger, regional sampling protocols. Formulating broad-scale protocols for the sampling of biological elements clearly interfaces with the discussion of monitoring, outlined below.

5. MONITORING THE TRENDS, STATUSES, AND VIABILITIES OF IMPORTANT BIOLOGICAL ELEMENTS IN WYOMING

Summary: Discussions at the Partners Meeting made it clear that “monitoring” often means different things to different people. It can refer to *implementation monitoring* (was a planned action actually carried out on the ground?), *project monitoring* (did an implemented action accomplish its intended effect?), and similar notions addressing specific actions or management programs. This type of monitoring is not performed by WYNDD, even when it refers to measuring how a species or other biological element was affected by a particular action at a particular site. All types of monitoring mentioned above, and others like them, are performed by a range of other partners.

Monitoring pursued by WYNDD is always biological in nature, and always at a statewide, regional, or population scale. I.e., WYNDD would not monitor the population of a widespread species in one narrow area, but it would monitor the population of that species across a mountain range or ecoregional province. Likewise, WYNDD would not monitor the condition of a particular wetland, but it would monitor the conditions of a set of wetlands of a given type across the entire state. This type of monitoring yields data that can be analyzed into higher-level information that provides important context for more local and action-specific monitoring conducted by other partners.

WYNDD nexus: **Broad-scale biological monitoring is performed by WYNDD as research projects.** WYNDD has in the past, and continues to now, perform regular monitoring of populations and large population segments of several rare plants and animals in the state. It also continues to monitor the condition of wetlands and other landcover types at broad scales.

WYNDD action 2017-2018: WYNDD will continue to assess the need for broad-scale biological monitoring of particular biological elements in Wyoming, and work with partners to secure funding for priority projects. Also, WYNDD recognizes the importance of geographic scales larger than the state of Wyoming, and will consider all Wyoming-based monitoring efforts as generating data subsets that can nest into larger, regional monitoring efforts. Formulating broad-scale monitoring projects clearly interfaces with the discussion of statewide standardized sampling protocols outlined above.

6. STATE-OF-SCIENCE SUMMARIES / STRUCTURED LITERATURE REVIEWS

Summary: Many ecological issues of direct relevance to natural resource practitioners have already been investigated and, to a large degree, answered by scientists. However, that information is commonly inaccessible to, or in formats not applicable by, those practitioners. State-of-science summaries, wherein existing management-relevant science is collected, summarized, and presented directly to end-users, facilitates science-based management. Furthermore, it is often cheaper, faster and more informative to summarize existing science than to produce novel research. WYNDD partners suggested that practitioners usually do not have the resources necessary to produce these summaries themselves, and thus it is a niche that WYNDD could fill to the advantage of all partners. WYNDD partners also recognized that summaries of existing science are useful even when the component research was not conducted in Wyoming, and that the use of distant research results highlights the need for an adaptive management framework where initial conclusions are revised over time, initial management actions are monitored for effects, and future conclusions and actions are modified in light of new research and monitoring results. Good state-of-science summaries go beyond narrative summation of research results - they also consider formats in which summarized research results can be efficiently used by practitioners.

WYNDD nexus: **Some state-of-science summaries are a WYNDD core product, others are research projects.** Species Accounts and Ecological Systems Accounts are considered WYNDD core products, and they seek to succinctly summarize existing scientific papers and reports with most relevance to Wyoming examples of target species and systems. Recently, WYNDD zoologists have begun cooperating with the WGFD to produce and update the “library” of Species Accounts for Wyoming vertebrates. More focused summaries, perhaps focusing on particular threats or ecological processes, usually require external project funding.

WYNDD action 2017-2018: WYNDD will continue to produce and update Species Accounts for taxa of management concern, and Ecological Systems Accounts for priority system types. WYNDD will also continue to assess the need for more focused summaries for particular biological elements and topics in Wyoming, and work with partners to secure funding for priority projects in that arena.

7. CHARACTERIZING WYOMING LANDCOVER TYPES AND ECOLOGICAL FEATURES TO INFORM QUESTIONS OF MITIGATION, RECLAMATION, AND CONSERVATION

Summary: WYNDD has a history of identifying, mapping, and describing landcover types in Wyoming, with the goal of providing objective assessments of the range of variation in meaningful characteristics of particular types. Usually these projects are supported by resource management agencies interested in the existing and potential quality of particular landcover types within their purview. Recently, organizations involved in ecological mitigation, reclamation, and conservation have shown an interest in similar data for landcover types and other ecological features of interest to them and their clients.

WYNDD nexus: **WYNDD investigates the variety, distributions, and qualities of vegetation types and ecological features in Wyoming as research projects.** Similar to the monitoring discussion presented above, WYNDD does not perform this work at the scale of individual management actions, but rather does so across large areas to provide important context for local actions. All research projects of this

type require initial consultation with the supporting partner to ensure that the sampling protocol captures the area and types of interest, and that the set of metrics and measurements include variables of interest and meaning to the partner. However, beyond those basic considerations, the ultimate intended use of the information generated by this type of project has no bearing on how the project is conducted – the end goal is to always produce the most robust and objective assessment possible. WYNDD will cooperate on this type of work with any organization that understands and supports that goal.

WYNDD action 2017-2018: WYNDD will establish new partners in the realms of ecological mitigation, reclamation, and conservation who are interested in supporting objective assessments of the ranges of variation within and among Wyoming landcover types.