

MANAGEMENT–RESEARCH PARTNERSHIPS FROM A MANAGER’S PERSPECTIVE

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Abstract—Natural resource managers have long desired to obtain user friendly, management directed answers from research results. Through partnerships with researchers, cooperative projects, and management hosted endeavors, mutually beneficial outcomes have been accomplished that provide quantifiable data and applicable direction for both research and management professionals. Often times, projects conducted by managers are further facilitated by having research associated elements, which provide support and justification through science-based monitoring and assessment to evaluate outcomes and results. This information transfer from researchers to managers has been an evolving relationship cultured through understanding by both parties of needs, limitations, feasibility, and applicability. Flexibility and compromise by managers and researchers have been an integral part of this process as well. Numerous examples of successful ventures between managers and researchers have occurred, where research has been facilitated by the managers hosting these projects, while managers have benefited by site-specific data of implemented management actions.

NC WILDLIFE RESOURCES COMMISSION MANAGEMENT

Natural resource managers have long desired to obtain user-friendly, management-directed answers to guide their efforts in pursuing goals and objectives for lands they manage. The North Carolina Wildlife Resources Commission (NCWRC) has been mandated, since its creation in 1947, to “conserve and sustain the State’s fish and wildlife resources through research, scientific management, wise use, and public input.” But the NCWRC is also a regulatory agency, and a primary part of its mission is providing opportunities for public use of these natural resources. The NCWRC manages more lands than any other State agency in North Carolina, totaling over 2 million acres in its Game Lands program, about one fourth of which is owned by the NCWRC, making it also the largest landowner agency among State agencies in North Carolina. Providing “an optimally sustainable yield of forest products where feasible and appropriate as directed by wildlife management objectives” is also a very important Game Lands program mission objective because of the importance of this revenue, along with the sale of hunting, fishing and trapping licenses, to the agencies budget and financial support. And, while the NCWRC has authority and ability to manage these lands actively, especially the State-owned areas as needed to meet agency goals and objectives, hosting and implementing research along with managing habitats and regulating game harvest and protection and conservation of wildlife resources is sometimes a challenging endeavor.

The NCWRC has long considered the sportsmen and women of North Carolina (those that buy licenses to hunt, fish, and trap) its primary constituents. So, right from the start, the agency faces the issue of conducting research in and among this primary user group and all the associated user conflict and safety issues. Add to this the numerous other public use demands on these lands such as hiking, biking, bird watching, and kayaking to name a few, and it becomes apparent that there is a lot for a manager to juggle. Also, keep in mind that \$3.3 billion in total were spent on wildlife-related recreation in North Carolina last year. It’s no wonder that NCWRC managers find that fitting in opportunities for research and filling the needs and requests to host studies and provide adequate sites, replications, and accommodating suitable spatial distribution of sampling to meet study design needs and satisfy statistical significance needs for the research and also dealing with user conflicts can be challenging, to say the least.

Routine infrastructure maintenance (such as work on roads, gates, and other access issues) along with regular habitat management operation schedules related to prescribed burning, forestry and timber harvest, creating, planting, and maintaining wildlife openings, and other land management projects, don’t always accommodate timely implementation of research projects without some flexibility, tweaking, and give and take among managers and researchers. Compromise by managers and researchers has been an integral part of this process as well. This is especially true with prescribed burning, which has seen a huge increase (nearly triple)

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in landscape-level application on NCWRC mountain region Game Lands for forest restoration, fuels reduction, maintenance of wildlife openings, site preparation, general habitat improvement over the past decade, and issues related to the limited suitable and appropriate burning days available in the mountains. Issues associated with wildland-urban interface and smoke management have certainly complicated its implementation. But often times, projects conducted by managers are further facilitated by having research associated elements, which provide support and justification through science-based monitoring and assessment to evaluate the outcomes and results. The days of using anecdotal observation as a sole source of support for implementing landscape-level habitat management projects are long gone on public lands and questions and challenges from stakeholder groups, various organizations, and the general public are more and more common, thus further emphasizing the need to justify management actions based on scientific, research-based quantifiable data and knowledge.

Providing habitat diversity across the landscape and accommodating a diversity of wildlife while managing appropriately for the rare plant and animal species and associated communities that occur on the Game Lands is also a vital part of NCWRC's management direction. An important function for research on NCWRC lands is documenting, studying, and providing information to managers on locations and needs for these natural resources. While this has often resulted in a change in how, when, and where land management projects have been conducted, it has also forged a better understanding among researchers and managers. This information transfer from researchers to managers has been an evolving relationship cultured through understanding by both parties of needs, limitations, feasibility, and applicability. However, as a result of knowledge gained through some of these research projects, beneficial changes in forest management have resulted, including modifications to timber harvest methods directed by specific wildlife habitat management goals and objectives (for example, hard and soft mast production), better identification of appropriate sites for establishing desired tree species in forest regeneration operations through tree planting and natural regeneration, defined goals for forest restoration, detection and strategies for mitigating impacts to sensitive plant and animal species, and detection and strategies for mitigating forest health issues.

NCWRC RESEARCH PARTNERSHIPS

Through partnerships with researchers, cooperative projects, and management-hosted ventures, mutually beneficial outcomes have been accomplished that provide quantifiable data and applicable direction for

both research and management professionals. Some examples of research projects on mountain region Game Lands in North Carolina that have directly influenced habitat management operations include studies of fire effects in table mountain-pitch pine on vegetation and wildlife habitat, fire and fire surrogate studies, regional oak regeneration studies, fire and ecosystem restoration monitoring, and regional oak savanna studies. NCWRC managers have worked with numerous research cooperators on these studies including the U.S. Forest Service Southern Research Station, Clemson University, North Carolina State University, Western Carolina University, University of Tennessee, The Nature Conservancy, North Carolina State Parks, and the Southern Blue Ridge Fire Learning Network. These researchers have provided well over 100 publications with results specific to NCWRC lands. The partnership with the Southern Blue Ridge Fire Learning Network researchers and managers in particular has also led to numerous cooperative projects and benefits to managers in the mountain region through Ecotype Modeling and Burn Project Prioritization, sharing of manpower and equipment resources through Memorandum of Understanding, partnership cooperative prescribed burning projects across landscapes on multiple land ownerships, and standardization of research monitoring plots among cooperators in mountain region landscapes for tracking forest restoration efforts. In most cases, research projects on mountain region Game Lands in North Carolina have been funded primarily by the researchers. In some cases, the NCWRC has provided relatively minor funding for these research projects; however, those costs have usually been mostly associated with implementing project treatments, which are often the same types of forestry and wildlife habitat management projects conducted routinely as part of regular Game Lands management. Additionally, many of the research projects hosted by NCWRC have included forestry treatments where timber is harvested and revenues are received by the NCWRC from these timber sales, more than covering any costs to NCWRC for their part in the research effort.

A challenge to both managers and researchers is to know what the right questions are to ask. Additionally, deciding this answer can often be complicated and involve a complexity of issues for managers hosting research, related to feasibility, logistics, costs, and revenues as well as study design, location, timing, and installation needs. On NCWRC Game Lands, there is also a Game Lands research approval process where ultimately applicability to management operations and benefits of the research to the State's natural resources are strongly considered and Memorandum of Understanding and contracts are the final step. Final research results and conclusions

often require researchers to make an interpretation and translation to management action. This is where managers truly benefit from the modifications and tweaking of operational procedures and tools used, as per those recommendations, to more efficiently and effectively direct management efforts towards desired outcomes and results and at the same time, have a better understanding of management action impacts and effects. From a wildlife manager's standpoint, the wider the research "net is cast" or more parameters are measured for wildlife species and habitat components, the larger the data base for addressing impacts and effects. From salamanders to songbirds, bats to bog turtles, all data collected by researchers on these projects provides managers a data base of occurrence and potential changes associated with treatments. As stated early on, game species are a very important resource the NCWRC manages, and any research monitoring that includes these wildlife species is very valuable as well. Measures of forest vegetation and fuels accumulation data provided from researchers also add greatly to the information base that managers use in making management decisions.

Another benefit that managers have derived from management-research partnerships is exposure to new technology that they might not otherwise have opportunity to become familiar with. Advances in computer software, handheld devices, compact measuring tools, high-tech field equipment, and access to numerous other beneficial resources are often a result of establishing these partnerships. Additionally, the opportunity for

networking with other researchers and managers, introduction to new sources of information, and even development of new contacts for sources of materials and equipment often results from the working relationships that develop among researchers and managers. The establishment of management-research partnerships provides opportunities for public information delivery, media day events, and educational outlets, especially on sites of manager-hosted research projects. This is a very beneficial and effective way to have management action results and effects explained and demonstrated through field review and on-site discussion.

CONCLUSION

In summary, management-research partnerships are a very valuable, beneficial, and important part of natural resource management and provide needed monitoring, evaluation, and quantifiable data for management actions, tools, and land management practices used. Research provides managers a measure of success for restoration efforts and results of implemented projects. Research can provide management direction for achieving State Wildlife Action Plan goals and Partners in Flight priorities more efficiently and effectively through a better understanding of wildlife habitat needs for providing and improving wildlife food resources (browse, plantings, mast, etc.), cover (for nesting, escape, etc.), and distribution (diversity on the landscape, habitat connectivity, etc.).