



An Audubon Partnership with a Local Business for Habitat Restoration

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The Audubon's intent for restoration is not only for birds, but for entire ecosystems. The Audubon Society advocates that the quality and diversity of the environment should be their priority. The state and national organization of the Audubon Society focuses on projects of national significance. Twenty years ago, the direction of restoration projects by the Audubon Society were for a single species like the California Condor. Now restoration projects for entire ecosystems and large-scale habitats, like the Florida Everglades and the Arctic National Wildlife Refuge are the preferred conservation strategy (Don Arnosti, Director of the Minnesota Chapter, personal communication).

Administration of Audubon's restoration program is at the local chapter level. Each chapter has a conservation or restoration agenda, based on local issues, availability of funds, member experience, and volunteers. When local Audubon chapters need help from the State organization or from other chapters, they call the Minnesota State Office of the Audubon Society. Restoration programs are not a conservation priority for each chapter. When restorations are pursued, chapters may actively seek out someone to conduct their restorations, or outside individuals may come to the local program for help. For example, a member interested in restoration, Craig Andresen, asked the St. Paul, Minnesota chapter to help with a project that he had started. Craig was looking for help and assistance in not only retaining a public property as open space but also to restore that property to its natural condition.

Craig was a small business owner of four pet shops when he discovered that the Twin Cities Army Ammunition Plant (the Arsenal) was going to sell 1,500 acres of their 2,370 acres to development. This undeveloped portion of land was contained degraded prairie untouched for 50 years. Degradation occurred to this section of land over time, as invasive species, and lack of burning diminished native prairie vegetation, but patches of native prairie still persevered. In 1992, Craig persuaded the military to retain the 1,500 acres and restore it to a prairie through partnerships with the Audubon Society.

The thought of helping the environment has since turned into a different kind of business for Craig. He established a business, Natural Resources Restoration (NRR), in 1996 in response to increasing needs for ecosystem restoration. Craig has adopted 15 to 20 sites in the metro region, with a few additional sites in rural southern Minnesota. The smallest project is 7 to 8 acres and the largest is the Arsenal's 1,500 acres. All sites are publicly owned allowing for maintenance and protection from development.

NRR's intent is to restore native vegetation on public lands and to preserve remnant patches. Craig and his organization's plan are to educate and advocate for restoring and reclaiming native systems. Audubon Society members often make recommendations for lands it believes need Craig's help, volunteers for NRR workdays, and acts as a financial conduit for grants. Both the Audubon Society and NRR believe that the goal is to encourage as many native plant and animal species possible to the site. Endangered, threatened, special concern, or rare species have priority

and receive the most care. Yet, the goal is to get diverse habitats with native plants to sustain a better habitat. The NRR and the Audubon Society are good partners because their commitments and intentions towards the environment are similar.

The benefits that the Audubon Society receives from the partnership with Natural Resources Restoration are two-fold. The Audubon has an educational mission that relates well with NRR's management approaches and receives credit for participating in successful habitat restoration efforts. Craig has become one of the educators the Audubon Society enlists to train their members. NRR also seeks to educate the municipalities and governments on how best to restore lands as natural communities. Many of the restored sites attract Audubon Society members for bird watching. In addition to bird watching, members that visit the sites learn about the importance of habitat restoration. In return, NRR can work with Audubon Society when fundraising which is helpful because Audubon is a non-profit organization with strong environmental credibility. NRR also has access to volunteers to help evaluate sites, introduce NRR to new sites, and inform on restoration practices.

What Kind of Lands?

Feasibility of a project is determined by the amount of degradation, security of the land, and possibilities of funding. The lands that the Audubon Society and the NRR seek for restoration are mainly remnant patches of oak forests, oak savannah, or native prairies on public lands. Craig prefers to reclaim remnant patches of land in otherwise natural environments. Public ownership provides protection from development and a potential for continued support for maintenance. The Audubon Society teams with NRR when they discover property that has potential for restoration. The hope of both organizations is that the number of sites being improved keeps getting longer. NRR and Audubon do not reject any sites, but consider lands that will be harder to restore a lower priority. For instance, agricultural fields are low priorities.

Dr. Morley, a retired faculty member of the University of Minnesota, and Department of Natural Resources staff from Ecological Services help with the assessment of each site. The field assessment looks at the restoration potential of what is already on the site and what may naturally come in to the site. If the site is one worth pursuing, then funds are sought by writing grants. Details for the restoration process include finding volunteers and/or other contractors, planning the treatments, and the development of partnerships beyond the Audubon Society and NRR. Sometimes a need arises for lobbying governments to secure the land or to obtain additional funds.

Restoration Approaches

NRR uses holistic tactics to restore a site, generally avoiding chemicals, and other similar methods that create detrimental impacts to the environment. Likewise, Stephen Packard and Laurel Ross suggest in their book *The Tallgrass Restoration Handbook*, "particularly in the case of high-quality remnants, managers need to heed a central principle of the healing arts. 'First, do no harm'" (Packard & Ross 1996). Craig encourages natural recolonization by burning and weeding. Some sites are so degraded, however, that they require additional intervention. Craig typically selects sites that are remnant patches, which will likely respond to his approach. NRR

techniques are similar to those of Packard and Ross (1996) "Remnant restoration is the process of nursing the full biota back to good health as much as possible, restocking species as necessary, and reestablishing natural processes. The building blocks of this work are burning, controlling brush and weed, interseeding, and the interplanting of sods".

In addition, NRR seeks to educate the municipalities and governments on how best to restore lands as natural communities. Maintenance of the site is where the partnerships and ownership of the site become very important. Weeding, fires, and exotic species control are never-ending, even if the site has already been maintained for one to two years. Sites need managing to maintain their health and diversity. Burning is a cost-effective way to maintain oak savannahs and native prairies. Projects that can be managed with fire are considered more feasible for restoration.

Where the brush is very thick, or large woody stems, and trees occur, the site needs other methods used to restore it to a native state. Chemical treatments of buckthorn (*Rhamnus cathartica.*), honeysuckle (*Lonicera tartaria.*), and box elder (*Acer negundo*) is accomplished by treating the stump with Roundup. Craig cuts most tree species skipping over only the oaks and some brush in the savannah and oak forest conditions. Cutting and weeding are the two most expensive and time consuming activities for NRR restorations.

Some sites require planting. NRR and the Audubon Society prefer to rely on natural recolonization to encourage plant community reestablishment. Burning the entire site is the first process used to trigger seedling emergence. After an evaluation of how well the burn worked, seed from native vegetation elsewhere on the site is planted. All seeding is broadcasted by hand and sometimes raked in to the soil. Because the restoration sites are remnant patches, NRR does not use a drill because they often cause soil compaction and visible row of plants. An evaluation to guide the next steps of restoration is then conducted by other professionals (i.e., DNR and Dr. Morley). Additional planting and/or seeding occurs when the evaluation indicates historical diversity has not yet been achieved.

Evaluation

NRR does visual evaluations annually to assess success of ongoing projects. Craig keeps records about work completed and notes whether the treatments have worked or not. "Success," Craig states, "is in degrees. For instance, the Arsenal is becoming a better site yearly, and has become a well-known site, but still needs a lot of work."

Like Craig, most restorationists need to answer a simple, but very important question, "Should their current management or restoration practices be continued or should they be modified?" The best way to answer this question is by monitoring the changes that happen during restoration. Monitoring data should allow the restorationist to evaluate movement toward or away from the restoration goals and thus help revise restoration priorities. However, monitoring programs take time and resources, which are usually limiting. It is important to strategically choose a few factors to measure rather than trying to monitor everything (Masters 1996).

Audubon Society members help with the initial evaluation of a site and subsequent evaluations. The Audubon Society conducted an inventory of birds at the Arsenal a year ago with the help of volunteers. Birds can be a very good monitoring tool for success and the evaluation of a site. Sample and Hoffman (1989) characterize this by stating, "Not all grasslands are equal in a bird's eyes. Birds have subtle differences in their needs and in their responses to disturbances. Different species are naturally attracted to different types of grassland, and some grassland bird species may occur in only one prairie type" (Sample & Hoffman 1989).

"Birds are perhaps the easiest animals to census. They are often brightly colored, relatively easy to see, and highly vocal. They are also very popular to study, with the result that there are high-quality field guides available and many professionals and amateurs with a high level of identification skills. Involvement of volunteers in many schemes makes bird census and monitoring an extremely cost-effective way of monitoring the overall health of the environment" (Furness & Greenwood 1993). Yet, because of the wide variety of habitat requirements and the high natural diversity and density of birds in grassland habitats, development of a complete management strategy is difficult. Byre (1996) suggest a strategy for NRR and the Audubon Society, "Most grassland managers should attempt to restore and maintain high-quality habitat for the half dozen or so true grassland birds species for which an area is well suited, not try to attract as many species as possible".

Conclusion

NRR and the Audubon Society have successfully developed a partnership to restore lands within the urban landscape. An example of the importance of this partnership was evident at the planning meetings conducted by Congressman Vento for the Arsenal, the Twin Cities Army Ammunition Plant. These meetings were held to determine long range goals on how to use the Arsenal. Eighty people attended the first meeting. The second meeting was in a room that would accommodate 200 people and still there was standing room only, with reporters attending as well. Prairie restoration is being considered as an important future element of the arsenal.

The program could be improved by more investigation into what originally existed naturally at each site, data collection on plants and animals recolonizing and establishing on each of the sites, (nesting success or wildlife use), and conducting comparisons to other restoration projects or natural habitats that exist within the region. These suggestions may be carried out by the NRR staff, Audubon Society members, or partnerships with additional research professionals. Andre Clewell and John Rieger (1997) state this point clearly, "practitioners need a much firmer ecological foundation for developing and implementing restoration programs. Ecologists, in turn, need well-conceived restoration programs to serve as laboratories for deciphering the complexities of ecological dynamics that lead to the organization of biological communities" (Clewell & Rieger 1997). Plans and tactics will evolve due to the information that evaluations and census techniques acquire.

Data collection helps with not only the sites under the care of NRR but with comparisons to other restoration sites throughout the region. Also, an accurate mapping of what originally existed on the site could help with how species diversity progresses. NRR takes notes about the work that is being done but actual field data to detect how treatments are working would be

beneficial. The benefit is not only to each monitored site but to other restorations as well. The proof of the success of a site is also gratifying.

Evaluating birds on newly created habitats will improve the restoration process and strengthen the NRR and Audubon partnership. For example, the determination of what species are and may be on the site will help to define restoration goals. In addition, members who volunteer to help with evaluations can gain a sense of ownership and accomplishment. Members who volunteer will also learn more about habitat restoration and may become part of the leadership to guide future evaluation and restoration goal setting. The Audubon Society benefits from its partnerships by participating in successful habitat restoration efforts and by improving the educational opportunities for members. As Don stated, "People like Craig are the Audubon and they are the Audubon being successful".

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