

# Using a Community Support Network to Preserve Native Orchid Habitat

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Photographs by Nancy Aten

## Abstract

A case study is presented, focusing on the community support network aspects of native orchid habitat preservation in Door County, Wisconsin. The functional roles of individuals and parties that are involved in preservation are varied. The roles and actions that are important to successfully securing and preserving native orchid habitat are identified.

## Introduction

Native orchid habitats have been depleted and continue to be destroyed (Lukes, 1976). The location of native orchid habitats are ever moving away from the pressures imposed by housing, recreation and transportation. Loss of native orchid species and their habitat is a significant environmental problem, which cannot be solved by any one individual, organization or government. (Ames, et al 2005)

The observations presented herein are those of an amateur engaged in the preservation of a habitat located in Door County, Wisconsin within the Bay Shore Blufflands State Natural Area. Orchids known to occur within this State Natural Area include; *Corallorhiza maculata* (Spotted Coral-Root), *Corallorhiza striata* (Striped Coral Root), *Corallorhiza trifida* (Early Coral-Root), *Cypripedium arietinum* (Ram's Head Lady Slipper) threatened in Wisconsin, *Cypripedium parviflorum* var. *makasin* (Northern Yellow Lady Slipper), *Cypripedium pubescens* (Yellow lady slipper), *Platanthera hookeri* (Hookers orchid) and *Platanthera hyperborea* (Tall Northern Bog-Orchid). (Standish, unpublished)

It would seem that the simplest way to preserve habitat is to find one party to buy and hold the necessary land parcel. Given the breadth, scope and complexity of threatened orchid habitat, and the financial burden involved in preservation a single party solution is typically not feasible. Beyond securing habitat, the issue of protecting habitat must be considered. Without active management and protection, the habitat can be rendered pointless with the addition of one garlic mustard seed.

Native orchid habitats that are viable and sustainable can effectively be secured, restored and preserved through the coordinated efforts of many individuals taking on different functional roles in a social network. The individual acting within or separate from an official entity doing their part to achieve the overall outcome of habitat preservation is both powerful and necessary. In sustaining habitat the ongoing actions of individuals matters greatly.

## **A narrative history of a social network employed in the conservation of orchid habitat for *Cypripedium arietinum* in Door County:**

One of many stories of orchid habitat preservation within Door County is presented here as an example of the type of collaborations that can exist. This history illustrates the benefits of using a social network for preservation of an orchid habitat.

Preservation of a threatened habitat often begins with a champion, having both knowledge and a willingness to act. In this case study the champion is a neighbor of the habitat, Mary Standish. She and her husband Mike Standish were interested in buying some land adjacent to their home on the Green Bay side of the Door County peninsula. The owner of this adjacent land was interested in selling all 300 acres of their holdings to a single buyer. Three hundred acres was more land than they wanted and consequently the landowner of this adjacent parcel sold the land to a developer.



Figure 1 *Cypripedium arietinum* in typical Western Door County Habitat

The developer then divided the land into parcels and subsequently sold the land in 5 parcels allotments to each of several wholly owned subsidiaries to circumvent the real-estate subdivision laws of Wisconsin. The developer then began to list lots for sale without the burden of some Wisconsin laws. Local zoning laws are often inconsistent and weak. They can also suffer from limited enforcement capacity that prevails in some smaller townships.

Our champion decided to take action to preserve this habitat. She contacted the office of the Public Intervener of Wisconsin. The Public Intervener gave ordinary citizens a place to call for technical and legal advice when they faced complicated environmental problems. They said that normally they would have helped, but the governor had just dissolved the office and they were packing boxes.

Our champion then turned to The Nature Conservancy (TNC). They said that they would like to protect the land but there is no law available in Wisconsin to help. There are limited laws available in Wisconsin to protect plants and no law to prevent incidental takings of plants on private lands in Wisconsin (Wisconsin State Statute 29.604). TNC suggested that she look for something interesting on the land that might help garner support for some type of protection. So Mary went on extensive hikes through the woods looking for something interesting. She found something interesting and thought it might be a *c. arietinum*, but considered that it might also be a *Cypripedium acaule* (Pink Moccasin Lady's Slipper). She had just been reading Virginia Eifert's "Journey in Green Places" which contains definitive descriptions of field presentation of the *c. arietinum* "...the small and rare ram's-head lady's Slipper. This is one of the uncommon and most sought orchids in America and, true to the orchid traditions of elusiveness, has the quality of being invisible while at the same time it is in full view." (Eifert, 1963) At that time our champion did not know a lot about native plants. To establish the impact that can result from a significant experience in conservation it must be noted that in the intervening years, Mary Standish has been awarded a grant from the Academy of Sciences to survey *c. arietinum* populations in Door County, she has participated in field studies on the *c. arietinum* to determine genetic diversity, pollination mechanism and the tracking individual members of populations. She is a key resource in Door County for the identification, preservation and stewardship of native plants and habitat, consulted on books and offered her assistance to many local conservation groups. At that time, our champion used best efforts to conclude that it was likely a *c. arietinum* and invited TNC to see for themselves. TNC was astounded, as this species was not known to be on Green Bay side of Door County (Figure 1). TNC engaged the professional community interested in endangered resources to document the finding. Although the professional community was impressed, there are no laws to prevent the taking of plants on private lands in Wisconsin. In this case, just as in the Gull Lake Wetlands in Manitoba (Ames, 2001) the orchid became the key to causing public involvement.

Our champion was not dissuaded and contacted the Door County Land Trust (DCLT). She subsequently joined the board of the DCLT and proposed that they buy one specific parcel of 1.5 acres containing *c. arietinum*. At that time the DCLT was a small land trust and even this modest purchase was controversial. However, they were able to complete that first stewardship purchase in the Bay Shore Blufflands. The DCLT now owns or protects more that 5000 acres in Door County and more than 450 acres within the Bay Shore Blufflands.

Registration of the Bay Shore Blufflands as a State Natural Area with the Wisconsin Department of Natural Resources (WDNR) had also begun. This designation is important as it permits the engagement of special assistance in the conservation of land or development rights.

During this activity the developer continued working. A road 36 feet wide, and ¾ mile long was cut through the habitat without the benefit of a permit. The developer claimed that none was needed. Subsequent findings show that this road was cut within one or two meters of *c. arietinum* specimens. Most certainly some of the population was lost to this road cut.

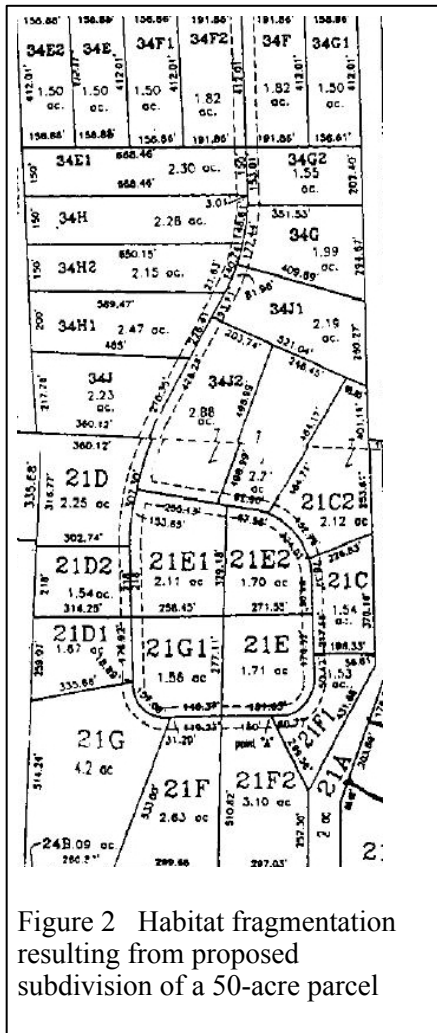


Figure 2 Habitat fragmentation resulting from proposed subdivision of a 50-acre parcel

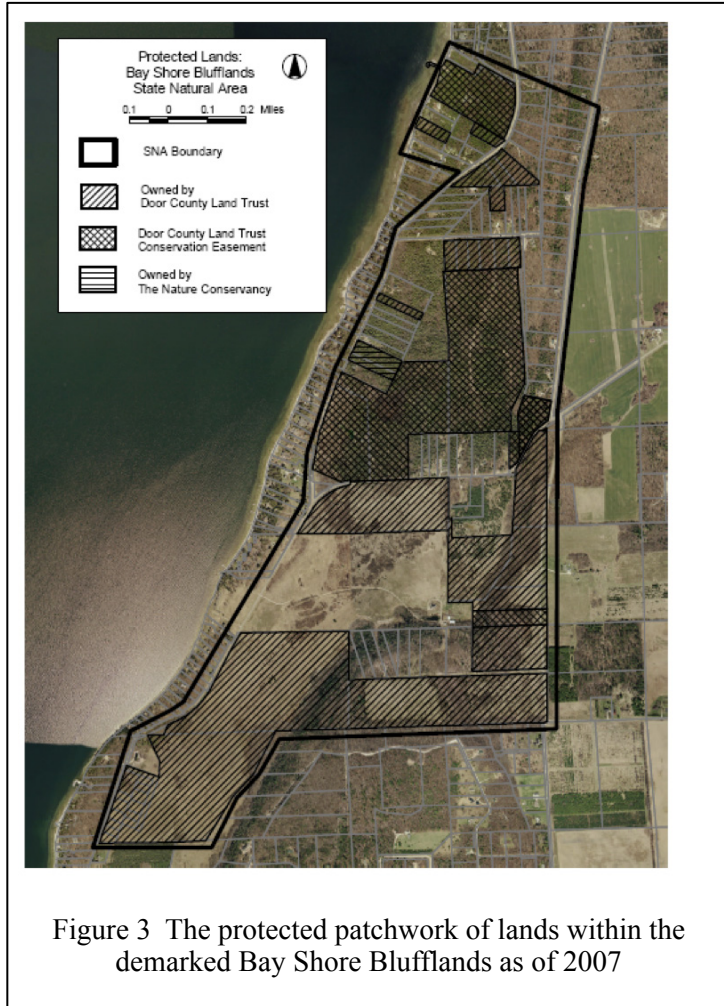
The local township was troubled by the road construction and stopped the work. This stoppage was not before the entire road was cut and ½ mile had been fitted with an underlayment barrier and 2 feet of gravel.

While this was occurring our champion contact the WDNR to investigate what, if anything, could be done within the law to stop or slow the destruction of this orchid habitat. More specimens of *c. arietinum* continued to be found within the developer owned properties. The WDNR could not stop the project, but it could and did request a species inventory and a wetland assessment on the developer’s property. The wetland assessment found ephemeral ponds, which reduced the project to 19 lots, from the proposed 29 buildable vacation home lots (Figure 2). Notably the *c. arietinum* populations on this parcel are localized on less than six of the vacation home lots as originally platted by the developer.

Conservation buyers seeking an interesting project toured 50 acres of the most important habitat with our champion and the DCLT. The conservation buyers were seeking a project that was part of a network of likeminded land stewards.

Based on the findings of the wetland survey, the species survey and the road work stoppage the developer was open minded to finding an alternative to constructing a subdivision. The DLCT helped to facilitate a lengthy negotiation ultimately resulting in the sale of the 50 acres to the conservation buyers along with their granting a conservation easement. Our champion also granted a conservation easement on her 16 acres to the DCLT.

The DLCT has been instrumental in fostering the protection and preservation of the Bay Shore Blufflands. They along with the WDNR, TNC and local landowners continue to expand the protected lands within the Bay Shore Blufflands State Natural Area (SNA). So far more than 450 acres of the SNA are protected by the DCLT with most open for public hiking (Figure 3).



Prior to coordinated effort of a social network the Bay Shore Blufflands did not exist and the orchid habitat within its bounds was under imminent threat of destruction. As noted on a WDNR website, but not published, the Bay Shore Blufflands SNA 377: “ Located along more than three miles of the Niagara Escarpment, Bay Shore Blufflands is an ecologically complex site with a diversity of plant communities both above and below the escarpment and a series of seeps and springs at the base of the bluff’s talus slopes. Rising 150-200 feet above the low terrace of Green Bay, the steep carbonate cliffs and outcrops support numerous rare land snails including the cherrystone drop snail (*Hendersonia occulta*), a state-threatened species. The site contains many rare plants including the federally threatened dwarf lake iris (*Iris lacustris*). Other species are variegated horsetail (*Equisetum variegatum*), Hooker's orchid (*Platanthera hookeri*), long-spurred violet (*Viola rostrata*), and large-flowered ground-cherry (*Leucophysalis grandiflora*). Rare animals include red-shouldered hawk (*Buteo linneatus*), Midwest Pleistocene vertigo (*Vertigo hubrichti*), and Iowa Pleistocene vertigo (*V. iowaensis*). Bay Shore Blufflands was designated a State Natural Area in 2002.”

The local natural habitat stewards including the DCLT, the Door Stewardship Alliance, the Bay Shore Property Owners Association and the WDNR though the Land Owner Incentive program continue to partner to remove exotic invasive plants. Collectively these groups have tallied thousands of hours in this effort. These same groups look for new opportunities to protect and expand the acres of native orchid habitat under protection.

Persistent stewardship is necessary to ensure the protection of the habitat and the ongoing viability of populations. “Threats to the viability of *Cypripedium arietinum* include habitat loss or alteration, mechanical damage, competition and collecting . These threats may be naturally occurring or man-made.” (Brzeskiewicz, 2000)



Figure 4 Shows the author in the background employing a “no-trample” approach to orchid survey of the *Cypripedium arietinum* seen foreground.

These ongoing challenges can prove to be daunting to a conservation landowner. An orchid habitat steward must have access to technical experts that can assist with management strategies and tactics. These tactics may range from simple surveys, as shown in Figure 4 to more sophisticated protection. In the case of the *C. arietinum* the topics can quickly become complex and can include herbivory from deer or weevils, canopy encroachment and pollinator reduction. These topics are beyond the expected knowledge of a typical conservation landowner.



Figure 5 *Cypripedium arietinum* flowering at only 14.0 cm as seen on May 23<sup>rd</sup> in Door County, WI

Finally as stewards of a threatened population conservation landowners must recognize that we must not “love our orchids to death” (Taylor). Care should be taken near the *C. arietinum* as its diminutive stature, seen flowering in Figure 5 at only 14.0 cm, combined with sparse disbursement of populations make it easy to miss or worse inadvertently trample.

Thankfully conservation land owners within the Bay Shore Blufflands have a social network, which is available to suggest and provide best practices needed to sustain the rare habitats supporting native orchids.

**Defining the elements of a community support network to protect orchid habitat:**

A community support network is a social network. Social networks typically operate on Nodes (individuals or organizations) that are tied through one or more interdependency. The preferred communications channel in the social network are those that are effective and comfortable to the members of the network.

Applying a social network model to the process of conserving habitat can begin through described the functional roles of the Node. The person(s) taking on the role of the Node can be from a number of various stakeholder groups. Further, one person could fulfill the function of multiple roles within the social network. When conserving habitat using a community support network it can be helpful to consider the roles of; Champion, Enforcer, Rule maker, Buyer, Seller and Advisor. Table 1 outlines these roles and actions that may be performed in the various phases of a orchid habitat preservation.

**Champion (Examples: Neighbor, Citizen Scientist, Enthusiastic Volunteer )**

Primary consideration should be given to the role of the local champion when securing native orchid habitat.

In restoration of the *Platanthera leucophaea*, (Eastern Prairie Fringed Orchid) in Illinois recruitment enthusiastic volunteers to get the project going, especially in the climate of short funding was vital (Bloome 2006). The early years of this restoration project was further discussed in the book, *Miracle Under the Oaks* by William Stevens.

A champion for preservation is vital for most successful outcomes in habitat protection. The habitat may need continued attention from a champion to report the status of threats to the habitat or orchid population. Threats ranging from ATV's, herbivory (Figures 6 and 7), invasive encroachment, construction of public roads or private structures, abnormal changes in hydrology among others should be rapidly communicated to other in the support network by a local Champion. A delay of one day can result in un-repairable damage given the fickle nature of orchid habitat and micro-habitat preferences.



Figure 6 Herbivory of *Cypripedium arietinum* by the *Stethobaris ovata*



Figure 7 Herbivory of *Cypripedium arietinum* by the *Stethobaris ovata* weevil

**Enforcer (Examples: WDNR, Township, County, Land Trust)**

Prime consideration should be given to the role of the enforcer(s) of the legal framework along with their specific knowledge of the proper application of regulations in protecting habitat. The enforcer role can be implemented from any level of government or government agency. To achieve the desired outcome, the application of enforcement actions could arise from multiple agencies.

A legal framework is used in an attempt to preserve the habitat for the *Arachnorchis (Caladenia) rosella* as described by Robinson (Robinson 2005). Regretfully, there are no uniform enforcement standards or norms that can be used to protect habitats across a state like Wisconsin, to say nothing of a country or a continent. By way of example; under Wisconsin law plants have no specific rights. In contrast water and wetlands do have comparatively strong protection. Even with sound laws, the capacity to enforce varies by city, county and township. The important element for habitat preservation that can be used widely is not common laws, but common techniques used to find those that are knowledgeable regarding how to use the prevailing laws to achieve a constructive end. The role of the Enforcer is also helpful in assessing the likelihood of success in orchid habitat protection projects. Finding those Enforcers may take diligent questioning of the Advisors within the social network.

In the Door County case study, three regulations were used to define the limits of development; a WDNR plant survey requirement, a WDNR wetland delineation and a township driveway permit application. The three regulations ultimately compelled a sale and thus save 50 acres of prime *c. arietinum* habitat. Securing habitat using available regulations is feasible with help from those that know the laws and also know how they may be used to compel enforcement. This requires finding a person at an agency or office who cares, if not about orchid habitat, at least about enforcement obligations.

Ongoing protection of private habitats often requires the enforcement of easements or covenants. Protection obligations are often managed by land trusts acting as the owner of the development rights; having the obligation and a means to enforce any breach of agreement. Enforcement of ongoing protection of habitat is just as important as securing the habitat. The Champion(s) may need to ensure that the financial and organizational capacity of the easement Enforcer will allow to protect the habitat in perpetuity.

#### **Rule makers (Examples: WDNR, EPA)**

The process of local and state rule making is not beyond the scope of consideration to save habitat. Local boards can greatly influence actions taken over local habitat. Running for village trustee, or lobbying for town planning board membership can be the most direct way to protect certain parcels. Although this approach is time consuming it can be ultimately effective. Public office can provide an opportunity to educate and exchange ideas on these important topics.

Statewide or Provincewide rulemaking policies that impact land stewardship and preservation are more sophisticated and are achievable when a dedicated social network is activated. Statewide programs of preservation have the advantage of standardizing the techniques and dialog used in protection. This expands the population of the social network that can be engaged in preservation. One example of statewide action is the Wisconsin League of Conservation Voters' (WLCV) legislative priority agenda. This consensus agenda is set and endorsed by 85 organization across the state and provides habitat impacting policy recommendations at the state level. (WLCV Wisconsin Conservation Priorities 2009-2010, unpublished)

Rule making at federal and international levels are beyond the scope of this paper.

Rule makers also will typically have programs or tools to help with the implementation or execution of enforcement. Rule making bodies are often an ally in preservation. They may also have access to grants and funds to protect the resources in ways that circumvent the need for enforcement.

#### **Buyers or Conservation Owners (Examples: individuals, Land Trusts)**

The role of the Buyer is to fulfill the transaction to secure the land or the easement, operate the land in a manner that protects the orchids and finally for an individual to ensure the ultimate transfer of the land to a qualified owner.

In the case of the sale or donation of a “no development” conservation easement Land trusts fulfill the role of the Buyer. Although the easement is structurally different than actual ownership most of the obligations and rights that relate to habitat preservation are similar.

Motivations for willing buyers vary but can include; a sense of habitat conservation for the greater good or the creation of a legacy. Conservation of habitat has real costs, however owners that are already committed to conserve the land may gain some financial benefits from donating development easements (Diehl et al, 1988).

Certain types of buyers, such as land trusts, may also receive funding assistance from a broad variety of sources. One example is the Knowles-Nelson Stewardship Program. The Wisconsin Legislature created this innovative program in 1989 to preserve valuable natural areas and wildlife habitat, protect water quality and fisheries, and expand opportunities for outdoor recreation. This program provides matching funds for qualified land trusts to acquire lands within State Natural Areas. Under this program the state leverages private donations to assist in creation of preserved lands within targeted areas. (Bergquist, 2007)

The Buyer also presumably becomes a partner in preservation through the restoration and preservation of habitat. The Buyer benefits greatly from engaging the social network of Advisors that can span from a university research lab to the neighbor and member of the local property owners association. Formal programs and entities exist to assist with the stewardship process. The WDNR has implemented an efficient version of a national program called the Landowner Incentive Program that provides guidance and financial support, matching volunteer labor hours with monies that can be used to engage professional help. This program helps landowners protect rare plants and animals. (Esch, 2007) The program targets habitats that contain endangered or threatened resources and is a model of effective public private partnership.

Transition planning for Buyers is also necessary for sustainability of habitat protection. This could include transition plans for Land Trusts in the event of dissolution and wills or estate planning for individuals.

### **Seller or Existing Land Owners, not interested in conservation obligations (Examples: Aging landowners, developers)**

The role of the Seller is to affect the transfer of the land or the development rights in manner that is consistent with protection of the habitat. The Seller may need to be encouraged to sell through various means of enforcement of laws, education and engagement of the social network. This process of transferring ownership or development rights can at times be more art than science. "... people do things for their reasons, not your. The fact that you are charged to protect natural and historic resources may not mean a thing to anyone except you. To make landowners pay attention, you have to tell them what your work can do for them." (Diehl et al, 1988)

Through selling below market value, bargain Sellers can take the middle ground approach and blended opportunity to partially monetize an asset while still doing something that also provides personal fulfillment.

### **Advisors: (Examples: WDNR, Door County Land Trust, Universities, TNC)**

A healthy community of Advisors with a variety of skills and capacity is necessary to support many aspects of the habitat protection. These Advisors can be found within groups that are located locally, regionally or nationally. Advisors may include Friends Groups, Property Owners Groups, the Native Orchid Conference, The Nature Conservancy, Land Trust Alliance, local land trusts, festivals of nature, invasive species remediation groups, universities, DNR and governments. Groups or members of Advisor organizations will likely fill many of the vital roles in the social network preserving orchid habitat.

The Advisors collectively and individually act as a key resource of knowledge and support for the Champion(s) and the Buyers. They can also promote rule making and identify enforcement opportunities. Advisors can be available to share everything from best practices and contacts to funding sources.



<b>Roles and candidates</b>	<b>Action in Securing Habitat</b>	<b>Action in Restoring Habitat</b>	<b>Action in Preserving Habitat</b>
<b>Champion:</b> <ul style="list-style-type: none"> <li>▪ Neighbors</li> <li>▪ Local Citizen</li> <li>▪ Scientists</li> <li>▪ Enthusiastic</li> <li>▪ Volunteers</li> </ul>	<ul style="list-style-type: none"> <li>▪ Alerts about opportunities or threats</li> <li>▪ Actions to cause enforcement</li> <li>▪ Networking information / action</li> </ul>	<ul style="list-style-type: none"> <li>▪ Alerts about opportunities or threats</li> <li>▪ Active partner in restoration</li> <li>▪ Actions to cause restoration</li> <li>▪ Networking information / action</li> </ul>	<ul style="list-style-type: none"> <li>▪ Alerts about opportunities or threats</li> <li>▪ Active partner in preservation</li> <li>▪ Actions to cause preservation</li> <li>▪ Networking information / action</li> </ul>
<b>Enforcer:</b> <b>Government or Government Agency (Federal , State, Local, enforcement agency)</b> <b>Land Trust</b>	<ul style="list-style-type: none"> <li>▪ Enforcement</li> </ul>	<ul style="list-style-type: none"> <li>▪ Enforcement of restoration requirement (rarely )</li> <li>▪ Enforcement of easement</li> </ul>	<ul style="list-style-type: none"> <li>▪ Enforcement of preservation obligation</li> <li>▪ Enforcement of easement</li> </ul>
<b>Rule Maker:</b> <b>Government or Government agency (Local, State, Federal DNR, EPA, etc.)</b>	<ul style="list-style-type: none"> <li>▪ Education</li> <li>▪ Development of helpful laws</li> </ul>	<ul style="list-style-type: none"> <li>▪ Landowner Incentive Programs</li> <li>▪ Education</li> <li>▪ Development of helpful laws</li> </ul>	<ul style="list-style-type: none"> <li>▪ Landowner Incentive Programs</li> <li>▪ Education</li> <li>▪ Development of helpful laws</li> </ul>
<b>Buyer:</b> <ul style="list-style-type: none"> <li>▪ Conservation Buyers</li> <li>▪ Conservation Owners</li> <li>▪ Land Trusts</li> </ul>	<ul style="list-style-type: none"> <li>▪ Means to secure habitat and/or provide conservation easement</li> <li>▪ Easement creation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Stewardship responsibilities can include restoration</li> <li>▪ Easement enforcement</li> </ul>	<ul style="list-style-type: none"> <li>▪ Stewardship, preservation and legacy responsibilities</li> <li>▪ Easement enforcement</li> </ul>
<b>Seller:</b> <b>Existing Land Owners, not interested / capable of conservation</b>	<ul style="list-style-type: none"> <li>▪ Willing land or easement seller or bargain seller</li> </ul>		
<b>Advisor:</b> <b>Land Trusts, Friends Groups, Property Owners Groups, Native Orchid Conference, The Nature Conservancy, Land Trust Alliance Academia</b>	<ul style="list-style-type: none"> <li>▪ Information</li> <li>▪ Awareness</li> <li>▪ Guidance</li> <li>▪ Research</li> <li>▪ Education</li> <li>▪ Networking</li> <li>▪ Actions to cause enforcement</li> </ul>	<ul style="list-style-type: none"> <li>▪ Awareness</li> <li>▪ Guidance</li> <li>▪ Research</li> <li>▪ Education</li> <li>▪ Networking</li> <li>▪ Stewardship</li> <li>▪ Actions to cause restoration</li> </ul>	<ul style="list-style-type: none"> <li>▪ Awareness</li> <li>▪ Guidance</li> <li>▪ Research</li> <li>▪ Education</li> <li>▪ Networking</li> <li>▪ Stewardship</li> <li>▪ Actions to cause preservation</li> </ul>

**Table 1 Roles of the parties to a social network within the process of orchid habitat preservation**

### **Conclusion**

In all phases of orchid habitat conservations it is helpful to consider the social network that can be employed to achieve the desired protection. Success in complex orchid habitat preservations can be achieved through the resiliency of a strong social network. Formally defining the roles within a social network is helpful to ensure that there are no gaps in the network relating to vital roles. All of the social network roles defined herein are considered important in archiving orchid habitat preservation. However, some roles are considered vital to achieving productive outcomes. The role of Champion is considered vital in most all instances of orchid habitat preservation. The roles of Buyer and Seller are of course vital for projects requiring that land or easements be secured. The role of Enforcer of regulations and rules is frequently vital to fully understand the merits and likelihood of success in the preservation of specific orchid habitats.

## Acknowledgements:

I would like to acknowledge the Native Orchid Conference for the opportunity present this paper and to speak at their annual conference in June of 2009. It is indeed a great honor. I want to also acknowledge Kip Knutson for his guidance that an amateur might have something to offer in the way of perspective and experience that helps to further the cause of native orchid habitat preservations. I most assuredly have expanded my capacity to protect native orchid habitat though the process of producing this paper. The topic of a community support network rightly acknowledges the community that directly supports my work beginning with Mary Standish, citizen scientist, neighbor and friend; the great staff at the Door County Land Trust; the many professionals at the Wisconsin Department of Natural Resources; and mostly my wonderful wife who teaches me that when in nature and especially in the presence of orchids or toads to slow down, be quiet, listen and learn something new.

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