# Illinois Conservation Opportunity Areas: Coordination and Planning in Support of the Illinois Wildlife Action Plan

**Project Number: T-55-P-1**

**Final Report**

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## Executive Summary

The following is the final report for grant segment SWG, project number T-55: Illinois Conservation Opportunity Areas: Coordination of Planning and Implementation Strategies in Illinois. As part of the Illinois Wildlife Action Plan (IL-WAP) developed in 2005, thirty-two Conservation Opportunity Areas (COAs) were recognized across the state as high-priority conservation areas, critical to species of greatest conservation need (SGCN) and their habitats. This project was initiated to support a critical function of the IL-WAP and the State Wildlife Grants program by assisting local conservation partners with planning and implementing activities within the COAs. The goals of this project were achieved through four primary objectives:

**Job 1. Provide coordination and communication among conservation partners.** The initial efforts to address this job centered on communicating the purpose of this project with project leaders/contacts and partners. The second stage focused on engaging local conservation partners in need of coordination by facilitating meetings between conservation partners, leading discussions of goals and priorities and by helping partners formalize shared conservation goals under the IL-WAP. Lastly, an online survey among COA participants was implemented through the research portion of the T-55 grant. The survey established a general snapshot of the status of COA planning and provided direction for COA coordination and planning support efforts into the future.

**Job 2. Identify a model process for on-going coordination within and among the COAs.** Several of the initial COAs addressed by the project are at various levels of organization and planning, as detailed in the following report. Given the diversity and complexity of these COAs, as well as the minimal amount of time and resources able to be devoted to planning within each COA, a common planning process must be very simple and rapid. The Nature Conservancy Rapid Conservation Action Planning process (i.e., Rapid CAP) has formed the foundation of initial efforts. We expect that plans developed through this project will provide very basic guidance and form the foundation for future coordination

**Job 3. Explore the development of performance measures for the COAs.** This objective was fulfilled through the research portion of the T-55 grant which included a series of focus groups and an online survey. The research resulted in a list of 10 potential areas in need of support within COAs and provides five key recommendations for the IDNR and TNC to increase the success of such initiatives using resource management planning as a key performance measure.

**Job 4. Communicate progress to conservation partners and develop a final report.** Annual reports have been provided to the IDNR regarding the project's progress and are available through the IDNR website[1]. Also, periodic reports have been provided as key research was completed, which are also available at through the IDNR website[1]. Additionally, any publications that result from this project will be made available.

The following report provides background on the COA project. The tasks and deliverables of Jobs 1-4 are detailed in the report body and accompanying appendices. This final report fulfills the last objective of this project.

[1] http://dnr.state.il.us/orc/wildliferesources/theplan/implementation.htm

## Introduction

### Background

Across the United States there is increasing recognition that conservation of natural resources must be focused on protection and management of critical habitats and species in order to preserve the nation's biodiversity (The Nature Conservancy, 2008). Incentives to this directed conservation effort are limited financial and technical resources that are constraining natural resource agencies in their capacity to protect all areas of their jurisdiction. To assist with developing priorities, the State Wildlife Action Plans provide a valuable foundation for guiding the conservation initiatives of the states and their partners.

Illinois' Wildlife Action Plan (IL-WAP) serves as a blueprint for management, protection and recovery of Species in Greatest Need of Conservation (SGNC) and associated habitats. Developed with input from a wide spectrum of conservation partners, this plan is both strategic and prescriptive, describing the broad issues and specific actions to achieve the identified goals and objectives.

From data compiled during development of the IL WAP, the basic findings concluded that four conditions or features were strongly influencing SGNC current and future status. These included: 1) insufficient habitat for sustaining many of the SGNC, 2) degraded conditions for those habitat which are available, 3) an increasing occurrence of invasive species, and 4) changing land use and other factors associated with anthropogenic influences. Yet financial and technical constraints provide that these issues cannot be addressed across the entire landscape and must be focused where actions will achieve the greatest benefits for long-term conservation of biodiversity.

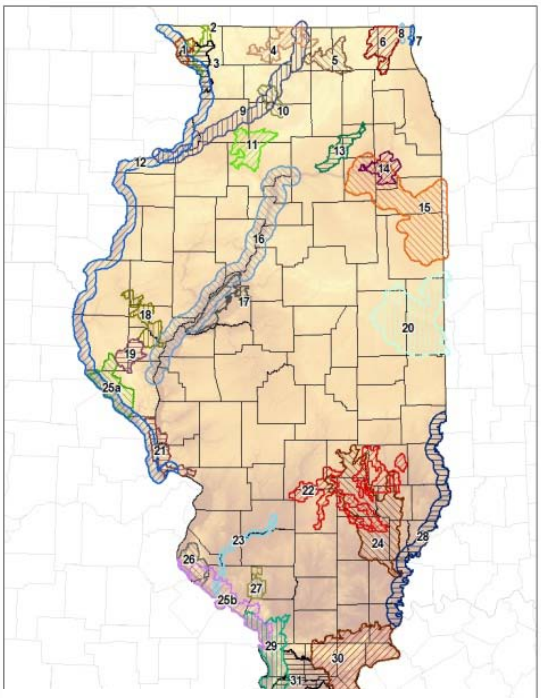

Figure 1. Illinois COA boundaries

### Need

The multiple scales encountered with implementing this WAP promptly lead to recognition of a need for an approach to transition from a statewide perspective to "on-the-ground" implementation. Further, to achieve measurable progress in conservation, this change in scale must be coupled with targeted areas of ecological importance such as high concentrations or metapopulations of Species in Greatest Need of Conservation (SGNC), or critical habitats.

Natural resource management and protection requires the collaboration of many agencies and organizations and Illinois' conservation landscape has many active and productive partners. These groups also work at multiple levels from statewide to local. Thus, within the framework of the statewide IL-WAP, focusing attention on priority habitats and species, and engaging local partners, requires a directed effort to help guide the application of resources and funding where

it can have the most benefit for species and habitats. In the IL WAP, these areas were ranked based upon habitat patch size as well as threatened and endangered species, biodiversity, and regional workshop participants, and are identified as Conservation Opportunity Areas (COAs) (Figure 1).

**Objective**

The objective of this project is to facilitate communication, coordination, and planning within the proposed Illinois Conservation Opportunity Areas to address the IL-WAP.

**Approach**

The various needs of these COAs, and associated species and habitats, require coordination and communication among partners to help ensure the most efficient use of resources and proper implementation of best management practices. Within each COA, guided by recommendations from partners, goals and priorities can be established to support protection and management of habitat for SGNC's.

The issues driving each COA are expected to be diverse, thus flexibility in the coordination, communication and planning approach will be critical. For example, conservation initiatives in some COAs may be directed at a particular species or suite of species, or at one or more habitat types. The area of interest (i.e., focus area) may encompass only a small portion of the identified COA. Yet it is expected that these directed efforts can serve to initiate and address broader ecological concerns. Of interest to this project is the current level of planning and implementation within each COA. Based upon numerous on-going and completed planning efforts of both federal and state agencies, as well as non-governmental organizations, the approach for coordination will vary widely among COAs (Figure 2). To be successful, the project must assess the needs of each COA and in a collaborative approach with the partners, determine the level of involvement.

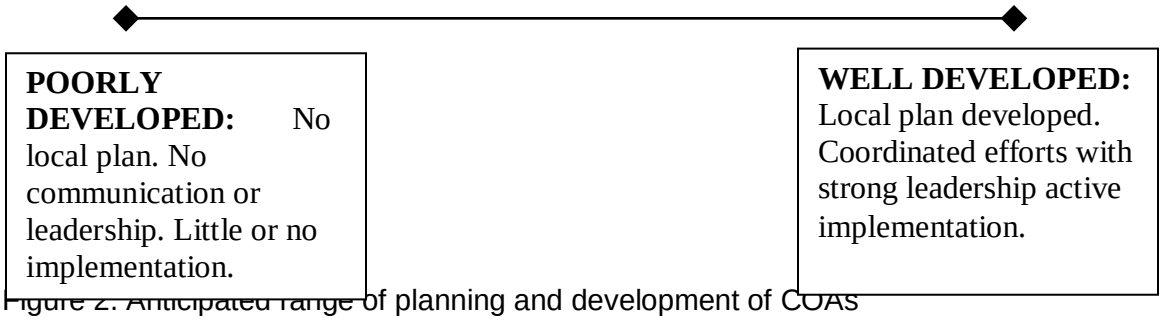


Figure 2. Anticipated range of planning and development of COAs

**Job 1. Provide coordination and communication among conservation partners.**

The initial efforts to address this job centered on communicating the purpose of this project with project leaders/contacts and partners. This coordination included ongoing discussions with several Offices within the IDNR including Realty and Environmental Planning, Land Management and Resource Conservation. Developing this network will be critical to success in the COAs as there are many activities that have either been conducted by the IDNR or are currently underway. The purpose of this project is to support these ongoing activities at whatever level is appropriate. This support may range from providing a basic explanation of the project and potential assistance to a more involved level of coordinating and facilitating meetings.

The second stage in the coordination and communication effort focused on engaging local conservation partners in need of coordination. This would include COAs where conservation planning and development is less sophisticated (Figure 2). Some examples of coordination activities in these cases are: 1) facilitating meetings between conservation partners where goals and priorities are discussed and hopefully agreed upon and 2) helping partners formalize their shared conservation goals under the guidance of the IL-WAP. As the level of development in each COA is different, there is not a set formula for coordination assistance, and it is important to note that the strategy must be adaptable.

Products

- Project brochure to disseminate information about the project
- Article in the August 2009 issue of Outdoor Illinois highlighting the project
- Contact lists for all of the COAs.
- A “frequently asked questions” white paper to help IDNR personnel understand the purpose of the T-55 project.
- Support documentation to help local conservation stakeholders engage the IL-WAP in their conservation planning efforts (Appendix 2).
- Annual reports and updates published on the IDNR website.

**Task 1. Work with the Illinois Wildlife Action Plan Coordinator and ORC Project Manager for this grant to identify the COAs for which planning should be developed. Communicate the status of planning efforts through updates to the Illinois Fish and Wildlife Action Team’s Share Point website administered by IDNR**

We conducted an on-line survey in 2009 designed to gather information about the 32 COAs designated in the IL-WAP as priority areas for conserving Illinois’ species in greatest need of conservation (Appendix 1). The overall intent of the survey was to establish a general snapshot of the status of COA planning, to identify the COAs for which planning should be developed and to provide direction for COA coordination and planning support efforts into the future. The full report based this research is available on the IDNR IL-WAP implementation webpage[2] and on the Share Point website. Summary results are provided in Appendix 2.

Results included:

- Overall status of planning
- Factors for successful resource management planning

- Stakeholders' expectations
- Conservation priorities
- Biggest threats
- Importance of certain conditions
- Satisfaction with certain conditions
- Comments from Stakeholder

The IDNR may decide to focus planning support in COAs with a strong potential for success, thus insuring actions could serve as a catalyst for change and move local efforts towards on-the-ground activities (Table 1). However the IDNR may also decide to direct efforts to those COAs most in need (Table 1).

Table 1. COAs with a strong potential for success & COAs in greatest need of planning support[1]

| COAs with a strong potential for success | COAs in greatest need of planning support |
|---|---|
| Hill Prairie Corridor-South (25.5) | Illinois Beach-Chiwaukee Prairie (7) |
| Wisconsin Driftless Forest (1) | Upper Des Plaines River Corridor |
| Sinkhole Plain (26) | Hill Prairie Corridor-North |
| Kankakee Sands (15) | Siloam Springs |
| Sugar - Pecatonica (4) | Middle Little Wabash |
| Rock River (9) | Lower Fox River |
| LaRue-Pine Hills (29) | Pyramid-Arkland Landscape |
| Eastern Shawnee (30) | Lost Mound (3) |
| Apple River (2) | Green River (11) |
| Lower Kaskaskia Bottomlands (23) | Wabash River (28) |
| Upper Mississippi River (12) | Nachusa (10) |
| Hill Prairie Corridor-South (25.5) | Illinois Beach-Chiwaukee Prairie (7) |

[1] Based on results in Table 3 and Figure 4 of Appendix 2

**Task 2. Facilitate and help coordinate meetings of COA partners**

**Task 3. Review existing management, protection, and future implementation goals for the COAs (or suite of COAs). These may include: watershed plans, site plans, Conservation 2000 Ecosystem Partnership plans, green infrastructure, stream classification, etc**

**Task 4. Identify funding needs and opportunities for management, conservation easements, or acquisitions**

**Task 5. Work with conservation partners to develop plans for proposals and identify funding opportunities from federal, state and private sources to address management needs and information deficiencies**

**Task 6. Develop recommended revisions to the Illinois Wildlife Action Plan and provide those to the Illinois Wildlife Action Plan Coordinator**

**Task 7. Where needed provide technical support to researchers, resource managers in the form of research proposals and reports, reconnaissance and related planning activities, with specific focus on species in greatest need of conservation**

Support was provided to researchers at Southern Illinois University for several research projects

including two on-line surveys and focus groups regarding planning and management within the COAs. Support activities included:

- Brainstorming sessions regarding the needs of COAs
- Regular meetings to share information
- Communication regarding the position of the IDNR and TNC regarding the COAs
- Provision of all COA contact information and planning documents

**Task 8. Work with conservation partners to develop proposals to address planning and coordination and information deficiencies identified in the planning process**

**Deliverable 1. A report to the ORC Project Manager for this grant providing an assessment of the planning process for each COA (up to 10 COAs per year). This report will highlight major activities conducted to facilitate this COA planning effort, including: number of meetings, status of the planning process, data gaps, products, funding needs, and other relevant information. For COAs with ongoing planning and coordination, the report will provide an update on each of these COAs. The report will document how the COA planning process is working to address goals of the IL WAP.**

**Job 2. Identify a model process for on-going coordination within and among the COAs.**

Several of the initial COAs addressed by the project are at various levels of organization and planning. Provided below are some examples.

Middle Mississippi River Corridor Hill Prairie South. A local organization referred to as “Clifftops” has conducted annual meetings since 2008 and has developed a local plan for the area, adapted from the IL-WAP. Goals, challenges, strategies and actions have been identified for the area. The group has leaders and is making progress towards fully implementing its plan. (the Southwestern Illinois Wildlife Action Plan). Clifftops also has their efforts advocated for from within the IDNR through active engagement in the partnership by IDNR personnel.

Mason County Sands. Activities in this COA have formed around recovery of the Illinois Chorus Frog. There are several ongoing activities including research and habitat development that are part of different projects, of which greater coordination has been initiated. For this project, numerous data gaps have been identified, including basic distribution data. It is expected that the Illinois Chorus Frog may serve as a catalyst for additional work on other species (e.g., mud turtle, grassland birds, shore birds) and a SWG proposal, currently under development, is anticipated to address this larger Illinois Chorus Frog work.

Middle Illinois River. There is considerable interest in the Middle Illinois COA, with the primary emphasis on migratory birds. This is a complex area, often with conflicting issues (e.g., fisheries and waterfowl), so developing clearly identifiable goals and objectives will be essential for successful implementation. Ducks Unlimited (DU) is the major driving force in organization within this COA. DU has used the IL-WAP to inform their efforts to acquire aquatic and manage habitat within this COA.

Cache River (Cache River Wetlands Joint Venture Partnership and Friends of the Cache). Major groups involved in the Cache include the U.S. Fish and Wildlife Service, IDNR, TNC the US Forest Service (USFS) and Friends of the Cache. Both TNC and FWS have developed independent conservation plans. In 2009 and 2010, meetings were convened with partners representing interests in the three southernmost COAs (Cache R., LaRue and Shawnee). Results of these meetings revealed a desire for greater collaboration between partners. The USFS recognizes some adversarial attitudes toward the institution by the public and has the desire to engage more in outreach efforts. This represents a great opportunity for collaboration between the IDNR, federal agencies and other stakeholders using the IL-WAP. Other collaborative efforts linked to the IL-WAP that are currently underway include the experimental reconnection of the Lower Cache River and the Upper Cache to demonstrate the effects of a larger scale reconnection, and continued ecological evaluation of the effects of rock weirs placed in the Upper Cache River in previous years.

Crow’s Foot Marsh/Coon Creek/Kishwaukee River. In this COA, there is considerable activity remaining from the C-2000 Ecosystem Partnerships that are still active. The main interests at the moment are the Kishwaukee River watershed, as the driving force in the preliminary COA partnership that has formed is the Kishwaukee River Ecosystem Partnership (KREP). KREP is currently working on bringing more partners into the COA partnership to better represent the whole COA. In 2010, they compiled and submitted for IDNR review suggestions for changing the COA boundaries to better reflect ecological divisions.

Vermilion &Little Vermilion Rivers. This large COA contains Illinois' only designated Wild & Scenic River, the Middle Fork of the Vermilion River. Although there was no formal organization around the IL-WAP in this COA prior to the approval of the T-55 project, the project manager was engaged early on with Prairie Rivers Network (PRN), a non-profit that championed the empowerment of local conservation interests to help form the Vermilion River COA Partnership. Conservation stakeholders representing many different perspectives are engaged in this COA. There are prairie enthusiasts (Grand Prairie Friends, Illinois Nature Preserves), game hunters (Pheasants Forever) and lake and stream conservationists (Prairie Rivers Network, the Champaign County SWCD). Some of the most important issues that this group has agreed to work on together are: outreach to private landowners to encourage more enrollment in conservation easements and promoting more responsible urbanization. The Vermilion River COA Action Plan was completed and approved by the partners in winter of 2010. Efforts are underway to implement the plan.

Upper Mississippi River. This massive COA encompasses over half of Illinois' western border. It is obvious that there are widely varying interests represented on and near the Mississippi, and this COA is one of the more difficult to classify. Conservation efforts range from very well developed and long-running (The Upper Mississippi River Refuge System, the Upper Mississippi Forest Partnership Action Plan) to relatively new (The Middle Mississippi River Partnership). Since many large agency interests operate and have jurisdiction in this COA (the USFWS, the ACOE), coordination and outreach efforts have focused on educating conservation professionals about the IL-WAP, and reaching out to smaller groups or individual landowners with property in easement to help them to be more informed about how they can voice their concerns about conservation in the COA. In 2010, a series of meetings were convened with partners to discuss how to address the requirement in the IL-WAP that each COA have an "agreed upon conservation philosophy" especially in the face of the daunting distances between the upstream and downstream boundaries of the COA. It was agreed upon that the COA should be broken down into more manageable "focus areas" (FAs) that follow both ecological divisions and historical resources management. Although there is overlap in the active partners in each of the four (4) FAs, each area has a distinct management profile. For instance, the part of the COA that overlaps the Wisconsin Driftless area has different habitat characteristics (e.g., forested blufflands) than the Southern portion of the COA (e.g. hill prairies). The Illinois Nature Preserves Commission and Prairie Rivers Network (PRN) have been heading up the organization of this COA. PRN received a grant from the Grand Victoria Foundation in 2010 to continue these efforts.

Green River and Nachusa. One of the earliest COAs that this project engaged with was the Green River. This was largely due to the initial interest expressed by the Natural Lands Institute (NLI), a land conservancy group that operates mainly in the north and west of Illinois. NLI expressed concern that there was a need for collaborative conservation work in the Green River area and also indicated a desire to head up those efforts. After initial efforts to organize stalled due mainly to budgetary issues, this COA was reengaged late in the T-55 process (2010). At this time, many new partners joined in the effort and formed the Middle Rock River Conservation Partners (MRRCP), which includes individuals who work in both the Green River and Nachusa COAs. Efforts are ongoing but progressing rapidly. The MRRCP has identified areas to focus their collaborative efforts, and has written the first draft of an action plan. Partners involved include NLI, the Dixon Park District, The Nature Conservancy, The Wild Turkey Federation, and the IDNR.

## Conservation Planning

This job also provides for identification of a common planning process. Given the diversity and complexity of these COAs, as well as the minimal amount of time and resources able to be devoted to planning within each COA, a common planning process must be very simple and rapid. It would also be expected that these local COA plans would be updated frequently, thus requiring a very simple process. The Nature Conservancy Rapid Conservation Action Planning process (i.e., Rapid CAP) has formed the foundation of initial efforts. However, the Rapid CAP is a 2-3 day process which, in some situations, may be unacceptably lengthy for some COAs. We expect that plans developed through this project will provide very basic guidance and form the foundation for future coordination. Along with the Rapid CAP, the T-55 project has developed materials for individual COAs to speed along the collaborative process. The project manager wrote a conservation planning outline (Appendix 2) to help partners with little experience see what common constituents of a CAP are. Along with this, the project manager developed a simplified "how to" guide based on the Rapid CAP. Finally, the project manager has data-mined the IL-WAP to give partners information about what is in the IL-WAP that may help inform their planning efforts. As funding, interests, or needs begin to drive implementation in a COA, we fully expect that the COA and Focus Area plans will be updated to reflect the new information. These local plans will help drive the broader Illinois Wildlife Action Plan.

**Task 1. Consult conservation partners, use current and recent planning efforts both in Illinois and other states (where appropriate), and review other pertinent sources to document planning processes.**

**Task 2. Compile guidance materials and assess their relevance to COA planning.**

**Deliverable 1. This job will provide to the ORC Project Manager for this grant, a guidance document outlining a process for COA planning and highlighting specific COA needs where appropriate. This document will help to link the local COA planning to the statewide WAP and serve to identify needed revisions to the WAP.**

## Job 3. Research exploring the development of performance measures: Increasing the "bang for YOUR buck" in Conservation Opportunity Areas

The primary goal of the research portion of the T-55 project was to establish performance measures that could be used as guidelines for targeted assistance. There are multiple ways to access success community-based natural resource management (CBNRM) initiatives: (1) social measures (i.e., capacity possessed by the group); (2) process-based outcomes (i.e., planning and/or coordination); and (3) by achieving desirable environmental outcomes (Kinney 2000; Koontz and Thomas 2006). We set out to construct performance measures in each category.

**Task 1. Within the scope of the ILWAP, develop local performance measures for assessing the status of the COAs.**

Social (i.e., internal) performance measures were developed via focus groups with COA practitioners working across the state. Participants were asked to discuss, list and vote on the most important components for successful COAs during the focus groups. The results were consolidated across the focus groups and identified 10 key performance measures. A summary report on these findings is available in Appendix 3.

**Social Performance Measures (i.e., indicators of success):**

1. Motivation
2. Leadership
3. Respect
4. Shared Values
5. Outreach
6. Marketing
7. Vision/ Planning
8. Communication
9. Funding
10. Equipment/ Supplies

Although concrete outputs will vary widely among COA initiatives, many efforts have and will center on creating natural resource management plans (RMPs) to establish the management objectives and goals for a specified area of land. RMPs can serve as valuable process-based performance measures because they should directly relate to on-the-ground ecological change.

**Process based Measures:**

1. The existence of a resource management plan (RMP)
2. The quality of RMPs (accessed via criteria in Appendix 4)
3. The successful implementation of RMPs

An online survey was constructed to assess the effect of the social performance measures on RMP implementation success (Appendix 5). The results revealed that groups with higher scores on the 10 performance measures achieved more RMP implementation success, and that the social performance measures were predictive of the degree of success. In particular, the research revealed that outreach, respect and common values can move group from low to moderate RMP implementation success, whereas leadership, motivation and vision/planning

can move groups from moderate to high success. A detailed report of these findings is available in Appendix 6.

**Desirable Environmental Outcomes as Performance Measures: Future Research**
The final stage of this research will include an evaluation of the effect of social performance measures and RMPs on actual ecological change over time (Figure 3). The Critical Trends Analysis Program (CTAP) through the Illnois Natural History Survey can be utilized to measure ecological change within the COAs (Appendix 7). Although this research is outside the T-55 grant, our findings will be supplied to the IDNR and other interested agencies.

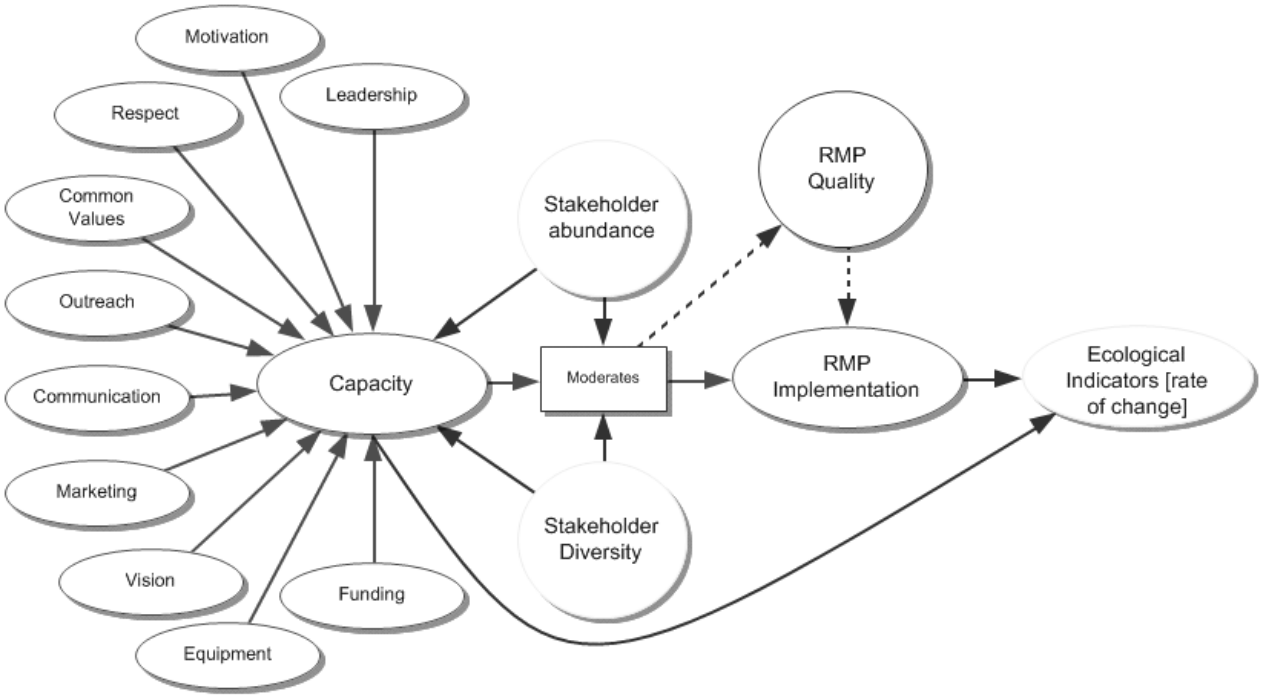


Figure 3. Model of hypothesized relationships between Community-based natural resource management (CBNRM), community capacity and ecological integrity

**Deliverable 1. Provide revised performance measures, goals and actions for incorporation into Wildlife Action Plan future revisions and updates.**

A report was published and submitted to IDNR regarding development of the performance measures. It is available on the IL-WAP implementation page as well as the Share Point site. The goal is for this research and the resulting recommendations to be fully integrated into the IDNR's approach with the COAs. Recommended actions are as follows.

**Research Conclusions: Applying Lessons Learned to the COAs**

In the following section, we provide a series of recommendations based on our results, to further aid in capacity building (i.e., strengthening areas identified as lacking; Beckley et al. 2008) in CBNRM initiatives in general and in specifically in regards to Illinois COAs. If the IDNR decides to increase support to CBNRM (community-based natural resource management) groups forming in the COAs, our recommendations will increase "the bang for your buck." We draw from the capacity literature and from concepts in the business management sector, proven to

increase success. Our recommendations are directed toward CBNRM organizations themselves to improve RMP implementation success and for bridging organizations (e.g., the IDNR and TNC) seeking to assist in such efforts. They are congruent with the final recommendations from the project manger provided in the 2011 Wildlife Action Team T-55 project wrap-up (Appendix 8).

**1. Build on related performance measures to increase capacity.** According to our correlations (Figure 2 in Appendix 6), the relationships among performance measures are complex but intuitive. Groups seeking to improve one particular measure should also focus on related areas. For example, a group promoting respect among its members might find discussions centered on common values helpful, as a means to increase good relationships within the initiative. Similarly, our results indicate that connections with organizational and bridging capital are related to economic capital; CBNRM groups struggling to find funding should concentrate on outreach, marketing and communication. Perhaps most importantly, our results show motivation, leadership, and vision form a tightly correlated matrix with multiple additional correlations involving common values, outreach and communication. This matrix is central to CBNRM group capacity and relies heavily on both human and organizational capital.

*Lost Mound, Kankakee Sands, Green River and the Lower Fox River COAs are struggling with shared vision, as evidence by their high standard deviations on the initial COA survey (Figure 3 in Appendix 2). Maintaining a shared vision could be bolstered in these COAs by concentrating on both leadership and communication.*
*The Green River and Wabash COAs have low satisfaction scores in regards to outreach. Support with communication and marketing would help increase outreach ability within these COAs.*

**2. A singular focus on funding is insufficient.** Accounting for importance and performance, respondents were very satisfied with most performance measures within their CBNRM groups; funding appeared to be the only area in need of attention (i.e., “concentrate here” in the IPA; Figure 1 in Appendix 6). The importance of funding to CBNRM was demonstrated in earlier Illinois surveys and consistently appears in lists of indicators associated with successful CBNRM (Gruber 2010; Moore et al. 2006; Bonnell and Koontz 2007, Beckley et al. 2008). Some explorations of CBNRM groups identify procurement of funding as a measure of success in and of itself (Belton and Jackson-Smith 2010). However, we believe our results show the importance of qualifying performance measure importance with outcomes, not just individual perceptions; although respondents implied the need for more funding to be paramount, the amount of funding in a CBNRM group is not an important measure in discriminating between RMP success groups. In fact, it was one of the few measures not significantly different among all three RMP implementation success groups.

Many bridging organizations concentrate on supplying funding to CBNRM groups and in some cases the procurement of funding is the single rationale for group formation. However, this strategy is tremulous; when groups form to acquire funding, and external factors cause the funding source to dissipate, initiatives lacking in adaptive capacity can collapse and disband (Armitage 2005; Pavey et al. 2007). We would argue that, although funding is crucial, it is not the holy grail of CBNRM success; groups must “work with what they have rather than focusing on their limitations…lack of resources is no excuse for lack of rigor” (Collins 2005, p.18).

*For example, the COAs of Lower Fox River, Kishwaukee River and Nachusa were among least satisfied with current funding conditions according to the original COA survey (Table 3 in Appendix 2). However, individuals within those COAs reported moderately successful RMPs (Table 1 in Appendix 2). Bridging organizations (e.g., the IDNR) interested in the environmental outcomes produced by CBNRM groups should focus on funding only in addition to indicators shown to be of great importance in distinguishing RMP success (e.g., bonding social capital, outreach, leadership, motivation and vision).*

**3. Identify and foster mobilizing assets.** Many researchers divide capacity assets into foundational and mobilizing categories. Foundational assets are the resources available to a community or group (e.g., physical infrastructure, natural resources, and economic capital), whereas mobilizing assets from the social processes and interactions required to move the system toward identifiable goals (Donoghue and Sturtevant 2007; Beckley et al. 2008). These categories are not mutually exclusive; human and social capital are frequently referred to as both foundational and mobilizing (Donoghue and Sturtevant 2007). Importantly, mobilizing assets will remain solely as foundational if they are not activated to address a particular issue (Beckley et al. 2008).

*The results of our MANOVA and global DFA were congruent and clear: vision, motivation, leadership and outreach are most important in terms of RMP success (Tables 3 and 4 in Appendix 6). These indicators are all recognized as mobilizing assets (Flora and Flora 2007; Donoghue and Sturtevant 2007; Mendis-Miller and Reed 2007; Frabricius et al 2007; Beckley et al. 2008), which further demonstrate their importance. CBNRM groups within the COAs must activate these mobilizing assets to produce and implement a RMP, making them a good area for the IDNR to target to increase the likelihood of successful RMPs.*

**4. Moving from low to moderate performance: bonding social capital and outreach are preconditions for success.** Although the importance of bonding social capital (Gittell and Vidal 1998, Warren et al. 1999) and outreach was not evident in the MANOVA or $DFA^{GL}$, the results of the $DFA^{LvM}$ were straightforward (Table 4 in Appendix 6): common values and respect, both components of bonding social capital, and outreach were most predictive of membership in low versus moderate performing CBNRM groups (Figure 4).

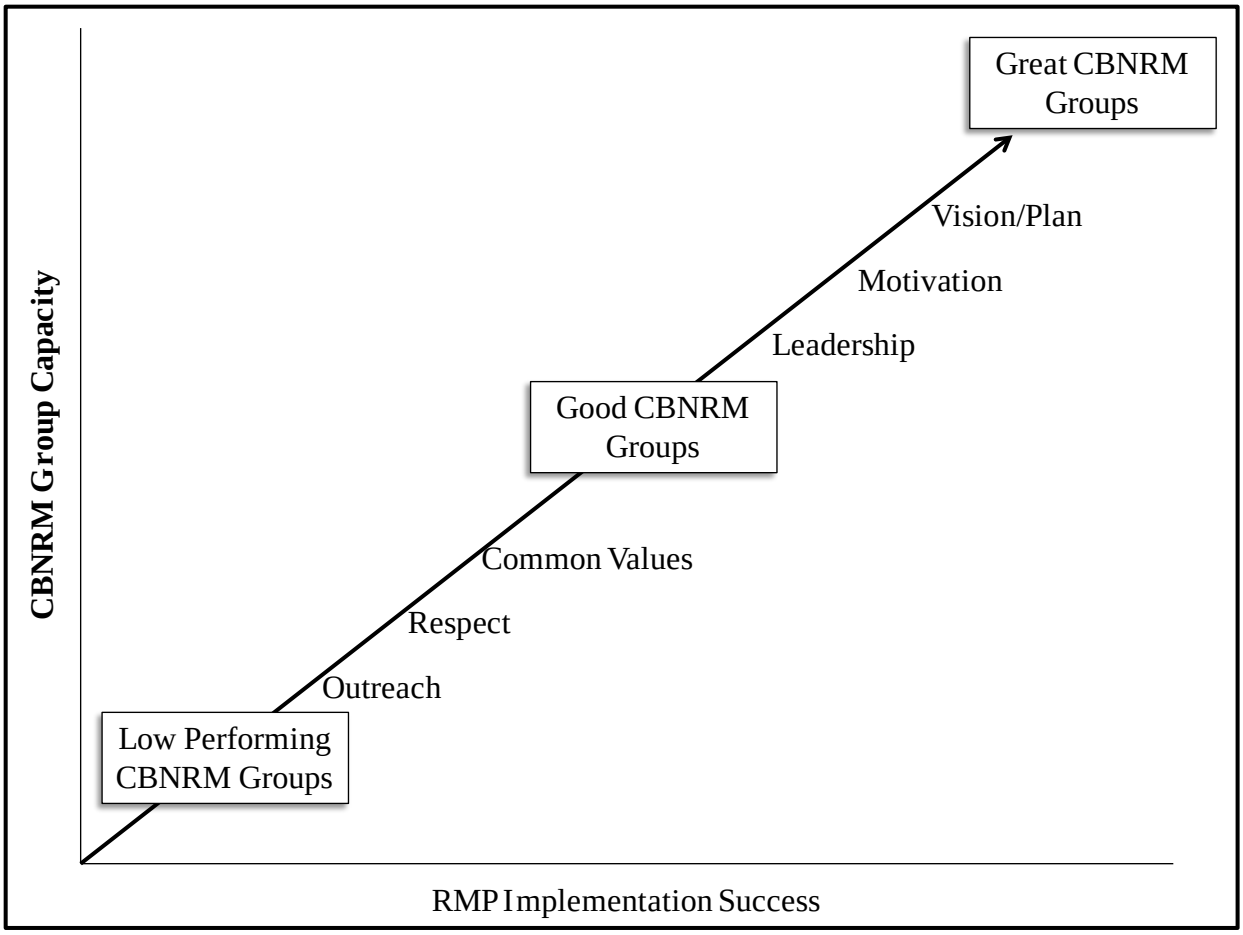


Figure 4. Three types of CBNRM groups along gradients of capacity and RMP implementation success (modeled after Fabricius et al. 2007; based on Tables 3 and 4 in Appendix 6)

Bonding social capital refers to relationships among individuals in the CBNRM group, and includes performance measures such as trust, reciprocity, attitudes and commitment (Naryan 1999; Woolcock 2001; Moore et al. 2006; Mendis-Millard and Reed 2007; Beckley et al. 2008). Maintaining a set of common values can be difficult in CBNRM, especially when initiatives involve multiple stakeholder types who likely hold different views on the value of ecosystem services (e.g., direct and in-direct use, or non-use; Hein et al. 2006). Respect likely plays a role in bolstering good relationships within the CBNRM groups, facilitating trust and reciprocity (Newton 2001), and aiding in conflict management (McGinnis et al. 1999). Together these two performance measures of bonding social capital increase CBNRM group cohesiveness. It follows, therefore, that along the continuum of RMP implementation, bonding social capital would be a pre-curser for success; if a group lacks common values and respect, conflict is more likely to impede progress toward RMP creation and implementation.

Outreach plays a role in increasing citizen participation, a key tenant of CBNRM, which increases the sustainability of initiatives (Foster-Fishman et al. 2001). CBNRM groups must first get their own houses in order before they can be expected to produce and implement RMPs that are more successful. We recommend that CBNRM initiatives, especially newly created groups, focus internally on building bonding social capital, and recruiting community support through outreach activities; these assets will increase their collaborative success (Wondolleck and Yaffee 2000).

*Increasing bonding social capital (e.g., common values and respect) and outreach should be key areas in which to focus support to COAs who are struggling to meet the criteria set out by the IDNR ("Low Performing CBNRM Groups;" Figure 4). According to the initial survey (Table 4 in Appendix 2), those COAs include: Hill Prairie Corridor-North, Siloam Springs, Middle Little Wabash, Lower Fox River, Pyramid-Arkland Landscape, Lost Mound, Green River, Wabash River, and Nachusa. Specifically, having community or landowner support-best achieved through outreach activities, was recognized in the initial survey as the most important factor for COA success.*

**5. Moving from good to great: the importance of leadership, motivation and vision.** Chief among the assets that move organizations from good to great are leadership, motivation, and maintaining a disciplined vision (Collins 2005; Table 4 in Appendix 6). The importance of these three measures was also found to be paramount in the meta-analysis conducted by Fabricius et al. (2007) regarding communities' adaptive capacity for ecosystem management, moving from coping actors (i.e., moderate capacity with moderate success) to adaptive co-managers (i.e., high capacity with high success). We also found leadership, motivation and vision as the most important in distinguishing moderate RMP implementation success from highly successful groups (i.e., from good to great CBNRM groups; Figure 4).

The performance measures of leadership and motivation are inextricably linked; specific to conservation, leadership is defined as inspiring and mobilizing others to achieve purposeful change (Manolis et al. 2009). Although motivation and leadership ranked lower than vision, we argue that motivation and leadership are necessary antecedents to creating and sustaining a shared vision or plan in a CBNRM group. "The 'who' questions come before the 'what' questions – before vision, before strategy, before tactics, before organizational structure;" great vision without great people is irrelevant (Collins 2005).

Such motivating individuals are particularly important in crisis, and have the ability to transform socio-ecological systems in response (Olsson et al. 2004) and increase the ability of the group to find long-term solutions and achieve adaptive co-manager status (Fabricius et al. 2007). These individuals are identified as are productively neurotic, self-motivated and self-disciplined (Collins 2005). CBNRM groups should seek out and build highly capable individuals who contribute to the team, can confidently manage the group, and catalyze commitment towards pursuit of a shared vision to build enduring greatness. Identifying individuals with these key characteristics, known as "level 5 leaders" (Collins 2005), and fostering them in leadership roles, should be a primary focus for capacity building within CBNRM initiatives.

*We recommend focusing on leadership, motivation and vision in CBNRM groups in COAs who seem to be doing moderately well, but are still struggling in some areas ("Good CBNRM Groups;" Figure 4). According to the initial survey (Table 4 in Appendix 2), those COAs include: Upper Mississippi River, Middle Illinois River, Vermilion River, Prairie Ridge Landscape, Lake-McHenry Wetland Complex, Midewin, Pere Marquette, Kishwaukee River, Lower LaMoine River, Cache River-Cypress Creek, Mason County Sand Areas, Illinois Beach-Chiwaukee Prairie and Upper Des Plaines River Corridor.*

Once motivated leaders are in place, the pivot point in moving groups from good to great is in attaining disciplined clarity about how to produce the best long-term results and rejecting opportunities out-of-line with the vision. Collins (2005) refers to this as the hedgehog concept (p.

90). Visionaries build bonding social capital within CBNRM groups and can prevent ecosystem mismanagement; they are essential in moving groups from moderate to high capacity (Frabricius et al. 2007). Within CBNRM groups, the shared vision should include superordinate goals, shared solutions and common understanding of problems (Foster-Fishman et al. 2001). Developing a quality plan for CBNRM group action is also a fundamental component of vision setting and many CBNRM practitioners have found it to be a vital component of success (Gruber 2010). A quality work plan should articulate strategies and responsibilities for accomplishing coalition goals and monitoring progress (Foster-Fishman et al. 2001). The plan should also anticipate desired outcomes and include a conceptual model of systems and strategies to integrate diverse (e.g., environmental, social, and economic) objectives (Gruber 2010).

### Potential Ways to Integrate Performance Measures into the IL-WAP

We recommend that to achieve RMP implementation success, CBNRM groups within the COAs should build on related performance measures to increase capacity, recognize that a singular focus on funding is insufficient and identify and foster mobilizing assets. Initially, to move from low to moderate performance, groups should build bonding social capital (e.g., respect and common values) and outreach as preconditions for success (Figure 4). To move from good to great (i.e., moderate to high performance) CBNRM groups should seek out and foster motivated leaders and remain focused on their vision (Figure 4). The IDNR, TNC and other bridging organizations will serve these groups best, and have the largest impact on RMP implementation and thus ecological change, by following these recommendations. Upon revision, the IL-WAP should highlight these performance measures as keys to success within the COAs, perhaps integrating them into the key COA criteria, perhaps under criterion three (i.e., partners willing to be involved) or criterion four (i.e., financial and human resources).

## Job 4. Communicate progress to conservation partners and develop a final report.

Annual reports have been provided to the IDNR regarding the project's progress and are available through the IDNR website[3]. Also, periodic reports have been provided as key research was completed, which are also available at through the IDNR website[5] and on Share Point. Additionally, any publications that result from this project will be made available.

**Task 1. Work with conservation partners to identify GIS support needs at the local COA level. Coordinate those localized GIS support needs with the ORC Watershed Protection Section.**

**Task 2. As appropriate, provide updates on status of the project as noted above. Updates provided regarding GIS???**

**Task 3. Write annual and final reports for the project.**

The following reports have been provided to the IDNR and are available on the IDNR IL-WAP Implementation page:

- SWG T-55 Annual Report 2008-2009
- SWG T-55 Annual Report 2009-2010
- SWG T-55 Annual Report 2010-2011

**Deliverable 1. Provide COA planning progress and update information to Watershed Protection Section for incorporation into the ORC Management Tracking System (MATS).**

**Deliverable 2. This job will provide interim reports and a final report on this project. Both hard-copies and electronic copies will be made available with specifications on number of copies to be determined by mutual agreement.**

The following reports have been provided to the IDNR and are available on the IDNR IL-WAP Implementation page:

- SWG T-55 Annual Report 2008-2009
- SWG T-55 Annual Report 2009-2010
- SWG T-55 Annual Report 2010-2011
- An Assessment of Illinois Conservation Opportunity Areas: Stakeholders' Perspectives on Conservation Planning, Implementation and Threats (2010)
- Making Conservation Work: Ideas from On-The-Ground Practitioners (2011)
- Research Portion of the T-55 Grant: Progress Report (2012)

[3] http://dnr.state.il.us/orc/wildliferesources/theplan/implementation.htm

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# Appendices

## Appendix 1. Initial COA survey

### Conservation Opportunity Areas (COA) project

#### 1. SURVEY INSTRUCTIONS

1 - Please refer to the Conservation Opportunity Areas (COA) map provided before completing the survey. 2 -

You may complete a separate survey for up to three (3) COAs.

3 - An asterisk (*) indicates that a response is required for the question or any part of the question. 3 -

To complete the survey you must click on the SUBMIT button after the last question.

Page 1

# Conservation Opportunity Areas (COA) project

## 2. RESPONDENT INFORMATION

**1. From the list below, please select the choice that most closely describes your affiliation.**

- = University/Research Institution
- = Federal Agency
- = State Agency
- = Other (please specify)
- = Non-govermental Organization
- = Private Stakeholder (Landowner)
- = Private Stakeholder (Non-landowner)

**2. OPTIONAL: If you wish to receive more information about Conservation Opportunity Areas (COAs), please provide your name and e-mail address below.**

Name:

Email:

# Conservation Opportunity Areas (COA) project

## 3. CONSERVATION OPPORTUNITY AREAS

From the list below, please select one (1) Conservation Opportunity Area (COA) for which you are able to provide insight about the area's current status and potential for conservation opportunities.

You may complete a separate survey for up to three (3) COA's.

### *3. Select one COA (see map)

- = Wisconsin Driftless Forest (1)
- = Apple River (2)
- = Lost Mound (3)
- = Sugar - Pecatonica (4)
- = Kishwaukee River (5)
- = Lake-McHenry Wetland Complex (6)
- = Illinois Beach-Chiwaukee Prairie (7)
- = Upper Des Plaines River Corridor (8)
- = Rock River (9)
- = Nachusa (10)
- = Green River (11)
- = Upper Mississippi River (12)
- = Lower Fox River (13)
- = Midewin (14)
- = Kankakee Sands (15)
- = Middle Illinois River (16)
- = Mason County Sand Areas (17)
- = Lower LaMoine River (18)
- = Siloam Springs (19)
- = Vermilion River (20)
- = Pere Marquette (21)
- = Prairie Ridge Landscape (22)
- = Lower Kaskaskia Bottomlands (23)
- = Middle Little Wabash (24)
- = Hill Prairie Corridor-North Section (25)
- = Hill Prairie Corridor-South Section (26)
- = Sinkhole Plain (26)
- = Pyramid-Arkland Landscape (27)
- = Wabash River (28)
- = LaRue-Pine Hills (29)
- = Eastern Shawnee (30)
- = Cache River-Cypress Creek (31)

# Conservation Opportunity Areas (COA) project

## 4. CURRENT & FUTURE PLANNING

First, we would like to understand your perception of the likelihood of certain conditions, actions or circumstances in this COA.

* **4. Do you know of any Resource Management Plans that may be available for any part of this COA or nearby areas?**

= Yes = No

**5. If you answered "yes" to the previous question, please provide the source, title, author, date, internet address, or other information that would allow us to locate the resource managment plan.**

## Conservation Opportunity Areas (COA) project

### 5. CURRENT & FUTURE PLANNING (CONTINUED)

* **6. Are you aware of any data collection/monitoring efforts to assess the Resource Management Plan for this COA?**

- Yes
- No

**7. If "yes" to the previous question, please provide information about the monitoring (e.g., agency or organization conducting the data collection).**

# Conservation Opportunity Areas (COA) project

## 6. MANAGEMENT PLANS

The following questions ask about your perspective on the availability and effectiveness of existing Resource Management Plans in this COA.

**8. How effective is/are the Resource Management Plan(s) for managing and protecting fish and wildlife.**

- = Extremely ineffective
- = Somewhat ineffective
- = Neither ineffective or effective
- = Somewhat effective
- = Extremely effective
- = Unsure

**9. How effective is/are the Resource Management Plan(s) for managing and protecting important habitats?**

- = Extremely ineffective
- = Somewhat ineffective
- = Neither ineffective or effective
- = Somewhat effective
- = Extremely effective
- = Unsure

**10. Please list the most important factors that have contributed to the success of the Resource Management Plan (List up to 3).**

**11. Please list the most important factors that have reduced the success of the Resource Management Plan (List up to 3).**

* **12. How likely are the following to occur in this COA?**

| | extremely unlikely | somewhat unlikely | neither unlikely or likely | somewhat likely | extremely likely | unsure/NA |
|---|---|---|---|---|---|---|
| A Resource Management Plan for this COA or adjacent areas will be completed within the next two years. | = | = | = | = | = | = |
| Tangible progress towards implementing the Resource Management Plan within three years of plan completion. | = | = | = | = | = | = |
| Local interest and commitment to conservation initiatives; support from local landowners. | = | = | = | = | = | = |
| Active local outreach programs. | = | = | = | = | = | = |
| Positive media attention around conservation initiatives over the next three years. | = | = | = | = | = | = |
| Documented, measurable benefits for habitat or fish and wildlife populations over the next three years. | = | = | = | = | = | = |

# Conservation Opportunity Areas (COA) project

## 7. TIMEFRAMES & PRIORITIES

The following questions are to understand your perspective on the estimated amount of time to achieve results and priority actions within this COA.

*** 13. Upon completion of a Resource Management Plan for this COA, how long do you believe it will take to see benefits for fish & wildlife and important habitats?**

- = Less than 6 months
- = 6 to 12 months
- = 1-3 years
- = 4 to 10 years
- = more than 10 years
- = Unsure

*** 14. For this COA, please rank the following statements with respect to their need in this COA. Note: Only one response per statement and no duplicate rankings.**

| | 1 - Lowest Priority | 2 | 3 | 4 | 5 | 6 | 7 - Highest Priority |
|---|---|---|---|---|---|---|---|
| Protect and improve near-stream and instream habitat. | = | = | = | = | = | = | = |
| Improve forests and savannas, for wildlife habitat and economic value. | = | = | = | = | = | = | = |
| Restore and enhance wetlands for wildlife habitat and hydrologic function. | = | = | = | = | = | = | = |
| Expand and improve grassland and shrub habitats in agricultural landscapes. | = | = | = | = | = | = | = |
| Prevent, contain, and manage invasive plants, animals and diseases. | = | = | = | = | = | = | = |
| Provide public and private landowners with information for proper stewardship of habitats. | = | = | = | = | = | = | = |
| Assist urban areas in developing and supporting smart growth, open space, wildlife recreational areas. | = | = | = | = | = | = | = |

# Conservation Opportunity Areas (COA) project

## 8. THREATS TO RESOURCES

The following question is designed to understand your view of future threats to the resources.

**15. To what extent are the following conditions a threat to the future of fish and wildlife in this COA?**

| | No Threat | Slight Threat | Moderate Threat | Major Threat | Extreme Threat | Unsure |
|---|---|---|---|---|---|---|
| Climate change | = | = | = | = | = | = |
| Structures - infrastructure | = | = | = | = | = | = |
| Changes in hydrology or flow | = | = | = | = | = | = |
| Loss of habitat-changing landuse | = | = | = | = | = | = |
| Degrading habitat quality | = | = | = | = | = | = |
| Pollutants - sediment | = | = | = | = | = | = |
| Genetic issues | = | = | = | = | = | = |
| Illegal harvest or poaching | = | = | = | = | = | = |
| Invasive species (please specify the 3 highest priorities species) | = | = | = | = | = | = |
| Other (please list) | = | = | = | = | = | = |

List 3 invasive species or other (please specify)

# Conservation Opportunity Areas (COA) project

## 9. PLANNING AND IMPLEMENTATION

The next question inquires about the importance of, and your satisfaction with, various factors associated with planning and implementation success within this COA.

*** 16. Please rate both the importance of, and your level of satisfaction with, each statement as it pertains to this COA.**

**Importance Scale:**
**1-extremely unimportant, 2-somewhat unimportant, 3-neither unimportant or important, 4-somewhat important, 5-extremely important 6-unsure or N/A**

**Satisfaction Scale:**
**1-extremely unsatisfied, 2-somewhat unsatisfied, 3-neither satisfied or unsatisfied, 4-somewhat satisfied, 5-extremely satisfied, 6-unsure or N/A**

| | Importance | Satisfaction |
|---|---|---|
| Availability of scientific data on species or important habitats. | | |
| Partners with a shared vision and participating in conservation actions. | | |
| Strong leadership from natural resource management agencies. | | |
| Strong leadership from local partner organizations. | | |
| Availability of core habitats and corridors for fish and wildlife populations. | | |
| Funding for COA conservation projects. | | |
| Sharing of physical resources (e.g., equipment, supplies, etc.). | | |
| Outreach to stakeholders. | | |
| Monitoring the status of fish, wildlife and habitats. | | |
| Availability of public lands within the COA. | | |

# Conservation Opportunity Areas (COA) project

## 10. COMMENTS

Please include any additional comments that you feel will be of assistance with planning and implementation in this COA.

NOTE: If you wish to complete a survey for another COA (up to three) please return to the email solicitation we sent you and begin again. Thank you!

**17. Any additional comments.**

**Appendix 2. Summary results from initial COA survey: Research to determine the current state of planning in the COAs**

We conducted an on-line survey in 2009 designed to gather information about the 32 COAs designated in the IL-WAP as priority areas for conserving Illinois' species in greatest need of conservation. The overall intent of the survey was to establish a general snapshot of the status of COA planning in Illinois and to provide direction for COA coordination and planning support efforts into the future.

**Methods**

- Development of the survey began in November 2008 and involved participants from the IDNR Office of Resource Conservation, TNC and SIUC.
- The resulting survey instrument included closed and open-ended questions producing quantitative and qualitative data (Appendix 4).
- The instrument was reviewed and pretested by the research team including SIUC, IDNR, and TNC representatives and approved by SIUC's Human Subject's Committee.
- Targeted respondents were individuals with knowledge of conservation activities within or near designated COAs including government (state and federal) employees, individuals working for non-governmental organizations (NGOs) and individuals from the IDNR involved in writing the IL-WAP.
- Approximately 275 individuals were invited via email to participate in the study on May 6th 2009.
- Data were collected through an internet-based survey program (SurveyMonkey.com) from May 6th, 2009 to July 3rd, 2009.
- Individuals could take the survey for up to three different COAs.
- Data were downloaded in raw and summary form. Open-ended responses were categorized and grouped by theme and coded to allow for quantitative content analysis.
- Data analysis consisted of basic descriptive statistics using Microsoft Excel© version 2007. Responses of "unsure" or "N/A" were coded as missing data when calculating means and standard deviations.

**Results**

The results reported are based on 209 completed surveys. Each of the COAs was represented in the survey. Sixteen individuals initiated but did not complete the survey. A response rate was not calculated because individuals could complete the survey multiple times for different COAs and unique respondents were not tracked. The survey comprised seven sections based on important questions regarding the status of COAs. The full report is available at (http://dnr.state.il.us/orc/wildliferesources/theplan/implementation.htm). Study findings presented below were the most important in making our overall recommendations.

**The overall status of resource management planning in the COAs.** Stakeholders were asked to rate the effectiveness of the resource management plan in the COAs on a scale from 1 (extremely ineffective) to 5 (extremely effective). Overall, resource management plans were viewed by most stakeholders to be "somewhat effective" in managing or protecting fish, wildlife and important habitats.
Effectiveness ratings for resource management plans were averaged for each COA (Table 1). Overall, resource management plans in the Hill Prairie Corridor-North Section and Cache River-Cypress Creek COA were rated the most effective while plans in the Mason County Sand Areas and the Pyramid-Arkland Landscape COAs were rated the least effective. Stakeholders of the

Green River and Wabash River COAs were unsure regarding the effectiveness of their resource management plans.

Table 1. Effectiveness of resource management plans within COAs, rated on a scale from 1 to 5, with one being “not at all effective” and 5 being “extremely effective.”

| COA | Managing/protecting fish and wildlife | | | Managing/protecting important habitats | | |
|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD |
| Hill Prairie Corridor-North Section | 2 | 4.50 | 0.71 | 2 | 4.50 | 0.71 |
| Cache River-Cypress Creek | 5 | 4.40 | 0.55 | 5 | 4.40 | 0.55 |
| Sugar - Pecatonica | 3 | 4.33 | 0.58 | 3 | 4.00 | 0.00 |
| Hill Prairie Corridor-South Section | 3 | 4.33 | 0.58 | 3 | 4.33 | 0.58 |
| Eastern Shawnee | 3 | 4.33 | 0.58 | 3 | 4.33 | 0.58 |
| LaRue-Pine Hills | 7 | 4.14 | 0.69 | 7 | 4.14 | 0.69 |
| Wisconsin Driftless Forest | 2 | 4.00 | 0.00 | 2 | 4.50 | 0.71 |
| Apple River | 2 | 4.00 | 0.00 | 2 | 4.50 | 0.71 |
| Nachusa | 1 | 4.00 | - | 1 | 4.00 | - |
| Upper Mississippi River | 2 | 4.00 | 0.00 | 2 | 3.00 | 1.41 |
| Midewin | 4 | 4.00 | 0.00 | 5 | 4.00 | 0.00 |
| Kankakee Sands | 6 | 4.00 | 0.00 | 6 | 3.83 | 1.47 |
| Siloam Springs | 1 | 4.00 | - | 1 | 4.00 | - |
| Pere Marquette | 3 | 4.00 | 0.00 | 3 | 4.00 | 0.00 |
| Lower Kaskaskia Bottomlands | 1 | 4.00 | - | 4 | 4.25 | 0.50 |
| Sinkhole Plain | 1 | 4.00 | - | 1 | 4.00 | - |
| Kishwaukee River | 6 | 3.83 | 0.41 | 6 | 3.83 | 0.41 |
| Lower LaMoine River | 3 | 3.67 | 0.58 | 3 | 3.67 | 0.58 |
| Vermilion River | 8 | 3.63 | 1.06 | 7 | 3.86 | 0.90 |
| Prairie Ridge Landscape | 8 | 3.63 | 1.41 | 8 | 3.63 | 1.41 |
| Lake-McHenry Wetland Complex | 5 | 3.60 | 0.89 | 5 | 3.60 | 0.89 |
| Middle Illinois River | 7 | 3.57 | 0.79 | 8 | 4.13 | 0.35 |
| Lost Mound | 2 | 3.50 | 0.71 | 2 | 2.50 | 2.12 |
| Illinois Beach-Chiwaukee Prairie | 2 | 3.50 | 0.71 | 2 | 2.50 | 2.12 |
| Rock River | 7 | 3.43 | 1.40 | 7 | 3.57 | 1.13 |
| Lower Fox River | 3 | 3.00 | 1.73 | 4 | 3.25 | 1.50 |
| Middle Little Wabash | 2 | 3.00 | 0.00 | 2 | 3.00 | 0.00 |
| Upper Des Plaines River Corridor | 2 | 2.50 | 2.12 | 2 | 2.50 | 2.12 |
| Mason County Sand Areas | 3 | 2.00 | 1.73 | 3 | 2.67 | 2.08 |
| Pyramid-Arkland Landscape | 1 | 2.00 | - | 1 | 2.00 | - |

**Important conditions to planning and implementation in COAs.** Stakeholders were asked to rate first, how important a series of conditions are to COA planning and implementation on a 5-point scale (1- extremely unimportant to 5-extremely important) and second, their level of satisfaction (1- extremely unsatisfied to 5- extremely satisfied) with those conditions in COAs. The difference between the importance and satisfaction mean rankings for each condition was calculated. Conditions with negative rank differences ranked high on the importance scale but low on the satisfaction scale. Conditions with positive rank differences ranked low on the importance scale but high on the satisfaction scale. Stakeholders on average identified funding for COA projects and partners with a shared vision as the most important conditions (Table 2). Partners with a shared vision was the condition with which stakeholders were most satisfied. However, funding for COA projects and strong leadership from natural resource management

agencies were conditions that resulted in the highest negative rank difference suggesting that stakeholders deem these conditions important, but are less satisfied with them in the COAs.

**Table 2**. Importance of and satisfaction, rated on a scale from 1 (low) to 5 (high), with conditions for COA planning and implementation

| Conditions | Importance | | | | Satisfaction | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | R+ | N | Mean | SD | R | RD++ |
| Funding for COA conservation projects | 120 | 4.57 | 0.99 | 1 | 125 | 2.17 | 1.11 | 10 | -9 |
| Partners with a shared vision and participating in conservation actions | 125 | 4.53 | 0.99 | 2 | 127 | 3.47 | 1.16 | 1 | 1 |
| Availability of core habitats and corridors for fish and wildlife populations | 124 | 4.52 | 0.94 | 3 | 130 | 3.22 | 1.07 | 5 | -2 |
| Strong leadership from natural resource management agencies | 123 | 4.51 | 0.92 | 4 | 129 | 2.91 | 1.31 | 9 | -5 |
| Availability of scientific data on species or important habitats | 126 | 4.48 | 0.94 | 5 | 127 | 3.33 | 1.18 | 3 | 2 |
| Monitoring the status of fish, wildlife and habitats | 125 | 4.41 | 0.90 | 6 | 126 | 3.10 | 1.14 | 7 | -1 |
| Strong leadership from local partner organizations | 124 | 4.26 | 1.00 | 7 | 126 | 3.25 | 1.13 | 4 | 3 |
| Availability of public lands within the COA | 128 | 4.12 | 1.11 | 8 | 125 | 3.37 | 1.15 | 2 | 6 |
| Outreach to stakeholders | 126 | 4.11 | 0.99 | 9 | 119 | 2.97 | 1.05 | 8 | 1 |
| Sharing of physical resources (e.g., equipment, supplies, etc.) | 127 | 3.65 | 0.97 | 10 | 117 | 3.17 | 0.92 | 6 | 4 |

+ Rank ordered by means
++ Rank difference between importance and satisfaction

Mean satisfaction ratings for each condition were also calculated for the individual COAs (Table 3). To determine overall stakeholder satisfaction, means were averaged for each COA. Stakeholders from Hill Prairie Corridor-South Section (4.13) were the most satisfied with the conditions of their COA and stakeholders form the Wabash River (1.80) were the least satisfied with the conditions of their COA.

Table 3. Satisfaction (on a scale from 1 “extremely unsatisfied” to 5 “extremely satisfied”) with conditions in COAs

| COAs | Data available | Partners | Agency leadership | Partner leadership | Habitats | Project funding | Resource sharing | Outreach | Monitoring | Public lands available | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hill Prairie Corridor-South | 4.00 | 4.67 | 3.67 | 5.00 | 4.67 | 3.33 | 4.33 | 4.67 | 3.00 | 4.00 | 4.13 |
| Sinkhole Plain | 4.00 | 4.00 | 3.00 | 4.00 | 4.00 | 4.00 | 3.00 | 4.00 | 4.00 | 3.00 | 3.70 |
| Eastern Shawnee | 4.00 | 3.60 | 3.20 | 3.60 | 4.20 | 2.80 | 3.20 | 3.00 | 3.80 | 4.75 | 3.62 |
| Midewin | 4.00 | 4.00 | 3.25 | 3.25 | 3.25 | 3.00 | 3.75 | 3.67 | 3.75 | 3.50 | 3.54 |
| Rock River | 3.67 | 3.71 | 3.29 | 4.00 | 3.71 | 2.80 | 3.00 | 3.83 | 3.33 | 3.86 | 3.52 |
| Lower Kaskaskia Bottomlands | 3.75 | 4.00 | 3.50 | 3.50 | 4.00 | 2.25 | 2.75 | 3.50 | 3.50 | 3.00 | 3.38 |
| Upper Des Plaines River Corridor | 4.33 | 3.00 | 2.67 | 3.67 | 3.50 | 1.67 | 3.00 | 3.33 | 3.50 | 4.50 | 3.32 |
| Lake-McHenry Wetland Complex | 4.00 | 3.80 | 4.20 | 3.80 | 2.60 | 1.75 | 3.20 | 3.20 | 3.00 | 3.25 | 3.28 |
| Pyramid-Arkland Landscape | 3.00 | 1.00 | - | 3.00 | 3.00 | 5.00 | 3.00 | 4.00 | 4.50 | 3.00 | 3.28 |
| LaRue-Pine Hills | 3.33 | 3.67 | 3.33 | 3.00 | 4.17 | 1.83 | 3.17 | 2.83 | 3.33 | 4.00 | 3.27 |
| Vermilion River | 4.00 | 3.88 | 3.50 | 3.38 | 2.63 | 1.63 | 3.14 | 3.00 | 3.38 | 4.00 | 3.25 |
| Wisconsin Driftless Forest | 3.00 | 4.50 | 2.00 | 4.50 | 4.00 | 1.00 | 4.00 | 3.00 | 2.50 | 4.00 | 3.25 |
| Illinois Beach-Chiwaukee Prairie | 3.33 | 3.33 | 3.33 | 2.67 | 4.00 | 3.00 | 3.33 | 2.33 | 3.67 | 3.50 | 3.25 |
| Prairie Ridge Landscape | 4.57 | 3.67 | 3.11 | 3.11 | 2.78 | 2.25 | 3.38 | 2.67 | 3.63 | 2.75 | 3.19 |
| Cache River-Cypress Creek | 3.00 | 3.33 | 3.17 | 2.50 | 3.17 | 2.83 | 3.00 | 3.33 | 3.33 | 3.83 | 3.15 |
| Middle Illinois River | 3.56 | 3.75 | 3.11 | 3.67 | 3.11 | 2.13 | 2.88 | 3.00 | 3.33 | 2.89 | 3.14 |
| Sugar - Pecatonica | 3.50 | 4.50 | 3.00 | 3.60 | 3.00 | 1.83 | 2.25 | 3.50 | 2.50 | 3.67 | 3.14 |
| Kankakee Sands | 3.00 | 3.50 | 3.00 | 3.17 | 3.57 | 1.83 | 3.40 | 3.20 | 3.29 | 3.17 | 3.11 |
| Upper Mississippi River | 2.00 | 4.00 | 1.00 | 5.00 | 5.00 | 1.00 | 3.00 | 4.00 | 2.00 | 4.00 | 3.10 |
| Lower LaMoine River | 2.67 | 3.67 | 2.67 | 3.33 | 3.00 | 1.67 | 3.33 | 2.67 | 3.00 | 4.00 | 3.00 |
| Middle Little Wabash | 3.50 | 3.00 | 2.50 | 3.00 | 2.50 | 3.00 | 4.00 | 2.50 | 3.00 | 3.00 | 3.00 |
| Pere Marquette | 2.80 | 2.80 | 2.20 | 3.00 | 3.60 | 2.40 | 3.20 | 2.75 | 2.75 | 3.80 | 2.93 |
| Hill Prairie Corridor-North | 2.50 | 2.00 | 3.00 | 3.50 | 2.50 | 3.50 | 4.00 | 2.00 | 2.00 | 3.50 | 2.85 |
| Apple River | 2.33 | 4.50 | 1.50 | 4.00 | 3.00 | 2.00 | 2.50 | 2.50 | 2.33 | 3.50 | 2.82 |
| Siloam Springs | 2.00 | 2.00 | 2.00 | 2.00 | 4.00 | 4.00 | 4.00 | 2.00 | 2.00 | 4.00 | 2.80 |
| Lower Fox River | 2.67 | 3.20 | 2.20 | 2.80 | 3.33 | 1.33 | 3.25 | 2.60 | 3.40 | 3.00 | 2.78 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Kishwaukee River | 2.83 | 3.50 | 2.33 | 3.83 | 2.67 | 1.33 | 3.33 | 2.50 | 1.67 | 2.50 | 2.65 |
| Mason County Sand Areas | 2.60 | 2.60 | 2.80 | 2.60 | 2.60 | 2.40 | 3.00 | 2.40 | 2.60 | 2.80 | 2.64 |
| Lost Mound | 2.67 | 2.33 | 2.33 | 1.33 | 3.00 | 1.67 | 2.33 | 2.33 | 3.67 | 2.67 | 2.43 |
| Green River | 2.50 | 2.00 | 2.00 | 1.50 | 2.00 | 2.50 | 2.50 | 1.00 | 1.00 | 4.00 | 2.10 |
| Nachusa | 4.00 | 1.00 | 1.00 | 2.00 | 1.00 | 1.00 | 3.00 | 3.00 | 2.00 | 2.00 | 2.00 |
| Wabash River | 2.00 | 1.50 | 1.33 | 1.67 | 2.00 | 1.67 | 3.00 | 1.50 | 2.33 | 1.00 | 1.80 |

**Summary Status.** A summary of findings and overview of each COA is provided to highlight the diverse needs and strengths of these areas across the state. The overall status of each COA was determined in reference to creation of quality RMPs and the first three criteria developed by the IL-WAP for COA designation: 1) wildlife and habitat resources of statewide importance; 2) partners willing to be involved; and, 3) financial and human resources (Table 4).

Table 4. Summary data on individual COAs, arrows indicate mean score on a scale of very low (↓↓), low (↓), moderate (↔), high (↑) and very high (↑↑)

| COA | N | RMP[1] | Criterion 1[2] | Criterion 2[3] | Criterion 3[4] |
|---|---|---|---|---|---|
| Hill Prairie Corridor-South (25.5) | 4 | ↑ | ↑↑ | ↑↑ | ↑ |
| Wisconsin Driftless Forest (1) | 4 | ↑ | ↑ | ↑↑ | ↔ |
| Sinkhole Plain (26) | 1 | ↑ | ↑ | ↑ | ↑ |
| Kankakee Sands (15) | 15 | ↑ | ↑ | ↑ | ↔ |
| Sugar - Pecatonica (4) | 9 | ↑ | ↔ | ↑↑ | ↔ |
| Rock River (9) | 9 | ↑ | ↑ | ↑ | ↔ |
| LaRue-Pine Hills (29) | 7 | ↑ | ↑ | ↑ | ↔ |
| Eastern Shawnee (30) | 7 | ↑ | ↑ | ↑ | ↔ |
| Apple River (2) | 5 | ↑ | ↔ | ↑↑ | ↔ |
| Lower Kaskaskia Bottomlands (23) | 4 | ↑ | ↑ | ↑ | ↔ |
| Upper Mississippi River (12) | 2 | ↑ | ↑↑ | ↑ | ↓ |
| Middle Illinois River (16) | 24 | ↑ | ↔ | ↑ | ↔ |
| Vermilion River (20) | 19 | ↑ | ↔ | ↑ | ↔ |
| Prairie Ridge Landscape (22) | 10 | ↑ | ↔ | ↑ | ↔ |
| Lake-McHenry Wetland Complex (6) | 8 | ↑ | ↔ | ↑ | ↔ |
| Midewin (14) | 7 | ↑ | ↔ | ↑ | ↔ |
| Pere Marquette (21) | 7 | ↑ | ↑ | ↔ | ↔ |
| Kishwaukee River (5) | 6 | ↑ | ↔ | ↑ | ↔ |
| Lower LaMoine River (18) | 3 | ↑ | ↔ | ↑ | ↔ |
| Cache River-Cypress Creek (31) | 9 | ↑ | ↔ | ↔ | ↔ |
| Mason County Sand Areas (17) | 8 | ↑ | ↔ | ↔ | ↔ |
| Illinois Beach-Chiwaukee Prairie (7) | 5 | ↔ | ↑ | ↔ | ↔ |
| Upper Des Plaines River Corridor (8) | 3 | ↔ | ↑ | ↔ | ↔ |
| Hill Prairie Corridor-North (25) | 3 | ↑↑ | ↔ | ↓ | ↔ |
| Siloam Springs (19) | 1 | ↑ | ↑ | ↓ | ↔ |
| Middle Little Wabash (24) | 2 | ↔ | ↔ | ↔ | ↔ |
| Lower Fox River (13) | 13 | ↔ | ↔ | ↔ | ↓ |
| Pyramid-Arkland Landscape (27) | 2 | ↓ | ↔ | ↓↓ | ↑ |
| Lost Mound (3) | 3 | ↔ | ↔ | ↓ | ↓ |
| Green River (11) | 4 | ↓ | ↓ | ↓ | ↓ |
| Wabash River (28) | 4 | - | ↓ | ↓ | ↓ |
| Nachusa (10) | 2 | ↑ | ↓↓ | ↓↓ | ↓↓ |

[1]Average of the mean scores from questions 8 and 9
[2]Mean score from question 16 satisfaction, item e
[3]Mean score from question 16 satisfaction, item b
[f]Average of the mean scores from question 16 satisfaction, items c, d and f,

The fourth criterion developed by the IDNR is that a COA must have an agreed-upon conservation purpose and set of objectives. This criterion is deemed extremely important in successful COA management by the stakeholders in this survey as well as the IDNR as it increases opportunities for COAs to receive funding.

To quantify shared vision within the COAs we used the standard deviation associated with selected responses (e.g., key threats, conservation priorities, importance of various conditions) throughout the survey (Figure 3). Individuals in COAs with high levels of deviation in the answers to these questions can be interpreted as having divergent viewpoints, whereas COAs with low deviation can be interpreted as having more individuals with a similar vision for the COA. The Middle Little Wabash emerged as a COA with shared vision along with Hill Prairie Corridor South and Lower LaMoine. Lost Mound appears to be a COA in need of assistance in developing a shared vision.

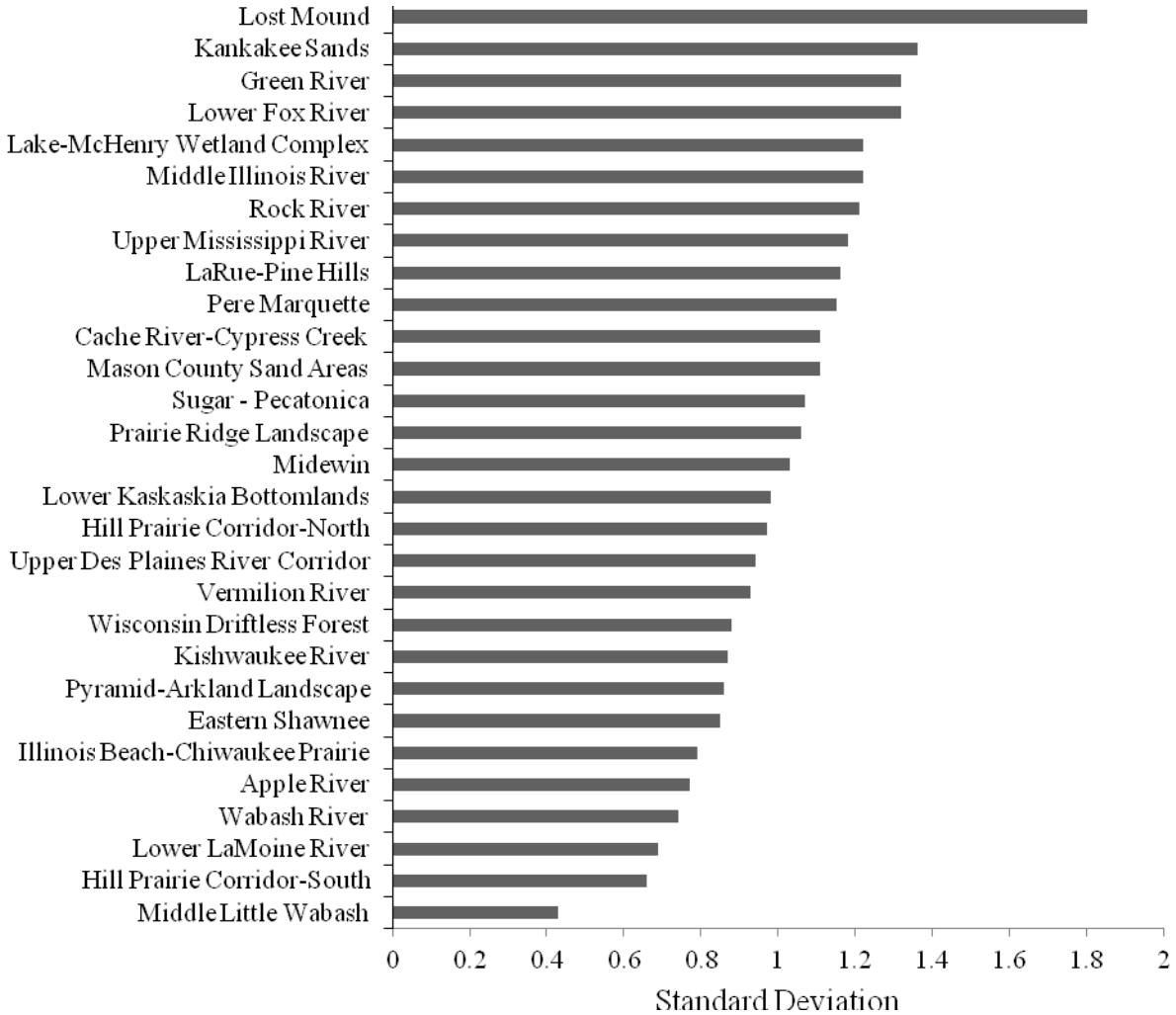


Figure 3. Mean standard deviation from selected questions in each COA to quantify degree of like-mindedness

## Conclusions

Overall, a variety of planning efforts in different stages were documented across the COAs. While stakeholders' general evaluation of the resource management plans was that they are somewhat effective, over a quarter acknowledged being uncertain about how effective the plans will be in managing and protecting habitats or fish and wildlife. This uncertainty can be attributed

to the fact that many COAs are still in the early phases of planning or have just begun monitoring efforts.

This study provides a barometer of the status of COA planning and some clear insight into indicators of success of a resource management plan. According to stakeholders, funding is critical[4]. Not having the appropriate level of funding or the type of equipment needed for conservation planning and implementation appears to be a major constraint to success. Interestingly, the single most important contributor to success, according to stakeholders, is having community or landowner support. COAs will benefit from technical support that provides information about various funding sources, resource pooling opportunities, and creative interagency or cross-sector partnerships. COAs also will benefit from guidance in strengthening relationships with community members and landowners.

[4] Although funding was consistently referenced in the survey as extremely important, later research (objective 3) shows the effect of funding on overall RMP success is limited.

**Appendix 3. Focus Group Results Regarding Social Performance Measures: Identifying the most important indicators of success within COAs**

Community-based natural resource management (CBNRM) initiatives are forming in the COAs across Illinois. CBNRM groups foster participation from community members, resource users, and local institutions in decision-making. Although such initiatives can be highly diverse, they all share four key principles: 1) stakeholders acknowledge ecosystem health and services as critical to the community; 2) resource decisions are made through collaborative processes, inclusive of people affected by management decisions; 3) equity is sought in the distribution of ecosystem benefits; and 4) citizens and communities are acknowledged as fundamental components of ecosystems (Gray et al. 2001).

The initial survey revealed that the CBNRM groups within the COAs vary in their ability to meet their goals, with some groups reporting more success in their collaborative efforts than other groups (Table 4 in Appendix 2). Why are some groups more successful others? Why do some groups have a greater capacity for success?

Capacity can be defined as the collective ability of a group to combine various forms of capital within institutional and relational contexts to produce desired results or outcomes (Beckley et al. 2008). Generally, the concept is divided into five key capital types that comprise unique sets of indicators (Table 1).

Table 1. Capacity capital types, definitions and associated indicators[1]

| Capital Type | Definition | Indicators from the Literature |
|---|---|---|
| Human Capital | Assets brought to the group by its members | education, skills, creativity, leadership, indigenous knowledge, core attitudes, and life experience |
| Bonding Social Capital | The internal relationships among various stakeholders and groups within the collaboration | trust, reciprocity, shared values, and commitment |
| Bridging Social Capital | Relationships between the CBNRM collaboration and other groups (e.g., local or state governments) | togetherness, cooperation, valuation of diversity |
| Organizational Capital | Governance structure within the CBNRM collaboration | group membership structure, meeting protocols, and procedures (e.g., decision making) |
| Economic Capital | Tangible group assets | physical (vehicles, office space) and financial indicators (financial resources and fundraising) |

[1]Sources include Hancock (1999), Moore et al. (2006), Donoghue and Sturtevant (2007), Flora and Flora (2007), Mendis-Millard and Reed (2007), Beckley et al. (2008)

Our objective was to use the CBNRM groups organizing in Illinois' COAs to identify the ten most important indicators of CBNRM group capacity to meet conservation goals under the current socio-institutional contexts facing natural resource management. The number of potential indicators in the literature is exhaustive; Gruber (2010) found more than 60 in his recent literature review and the McKinsey Capacity Assessment Grid covers 50 individual indicators. It was our intention to create a succinct list of key indicators that would allow for easier use among

CBNRM groups and with bridging organizations (Berkes 2009), like the IDNR and TNC, who are interested in assisting CBNRM groups build their capacity for success within the COAs.

## Methods

We selected five COAs that varied in conservation priorities, identified threats, wildlife and habitat resources, the number of partners involved, financial and human resources available, and in their conservation philosophies and objectives. We strategically selected invitees based on their affiliations and gender to achieve maximum variation in stakeholder type and experience. Individuals were solicited personally via email, indicating the purpose of the study was to discuss capacity within COAs.

We conducted audio recorded focus groups with individuals working in CBNRM groups across various COAs. The focus groups lasted between 60 and 90 minutes and were structured to allow for maximum exploration of the capacity capitals, with a focus on the necessary indicators of successful CBNRM. Participants were encouraged to share examples of successful CBNRM initiatives in their COAs.

Five large sheets of paper were hung, one representing each capital type (Table 5). Participants were asked which capacity indicators were the most important for successful COAs within each capital type. As indicators were suggested they were written on each corresponding sheet. For each indicator proposed in the focus group, discussion continued until placement within capital type and specific verbiage were agreed upon. Lastly, participants were asked to individually place a sticker on the two most important indicators written under each of the five capital types.

Analysis:

- We developed a series of guidelines to keep grouping, consolidation, and placement consistent as we combined data from the five focus group sessions.
- The indicators under each capital type were ordered by agreement (e.g., how many groups mentioned each) and by importance (e.g., the total number of stickers on each indicator).
- The final top ten were selected based on their rankings in each category.

## Results

Twenty-six individuals participated in the five focus groups. Most participants were male (67%), and half (50%) were between the ages of 55 and 64. The greatest proportion of participants reported having a Master's degree (40%) and worked for non-governmental organizations (35%). Our focus group size (2-7 participants per session; $\mu$=5) constitutes what Krueger and Casey (2009) refer to as mini-focus groups. This type of small focus group is increasing in popularity, and although mini-focus groups may limit the total range of experiences, they allow for more in-depth insights and are preferred when participants have "a great deal to share about the topic or have intense lengthy experiences with the topic of discussion" (Krueger and Casey 2009).

The listing process resulted in 43 capacity indicators for CBNRM initiatives. Sixteen were eliminated because they were only mentioned in one focus group. The remaining 27 indicators were listed under each capital type in order of agreement and importance (Table 2). The terminology and comments associated with the top-ten indicators were explored further (Table 3).

Table 2. Top indicators of capacity, (§) included in top-ten list

| Capital Type | Rank Ordered by Agreement (n=26)[†] | Rank Ordered by Importance (n=19)[‡] |
|---|---|---|
| Human Capital | Motivation (5) [§]<br>Leadership (5) [§]<br>Staff/volunteers (5)<br>Member/stakeholder diversity (4)<br>Knowledge/skills (3)<br>Success/productivity (2) | Motivation (16) [§]<br>Leadership (15) [§]<br>Knowledge/ skills (10)<br>Member/stakeholder diversity (4)<br>Staff/volunteers (3) |
| Bonding Social Capital | Respect/trust (3) [§]<br>Mutual interests/shared values (3) [§]<br>Continuing education (2)<br>No ego involved (2)<br>Encourage participation (2) | Respect/trust (8) [§]<br>Mutual interests/shared values (2) [§]<br>Continuing education (2)<br>Shared outcomes/goals (2)<br>Continuing education (2) |
| Bridging Social Capital | Outreach/education (4) [§]<br>Marketing (4) [§]<br>Reputation (3)<br>Conflict management (3)<br>Partnerships (2)<br>Including diverse groups (2) | Outreach/education (11) [§]<br>Reputation (6)<br>Including diverse groups (6)<br>Partnerships (5)<br>Marketing (3) [§] |
| Organizational Capital | Plan (5) [§]<br>Communication (4) [§]<br>Clear roles (3)<br>Political capacity (3)<br>Funding requests (3)<br>Regular meetings (2)<br>Organization/ coordination (2) | Plan (11) [§]<br>Communication (9) [§]<br>Clear Roles (4)<br>Political capacity (2)<br>Funding requests (2) |
| Economic/ Built Capital | Funding (5) [§]<br>Equipment/supplies (2) [§] | Funding (21) [§] |

[†]Ordered by the number of focus groups in which the indicator was mentioned (recorded in parentheses). The indicator was listed if it was mentioned in more than one focus group. If the same number of focus groups listed various indicators (i.e., equal agreement), they were ordered in the list secondarily by importance. Agreement rankings are from five focus groups (n=26).

[‡]Ordered by the number of stickers each indicator received (in parentheses). The indicator was listed if it received 2 or more stickers and was listed by at least two focus groups. If equal numbers of stickers were on various indicators (i.e., equal importance), they were ordered secondarily by agreement. Importance rankings were not conducted in one focus group due to time constraints, therefore, the importance rankings are from four focus groups (n=19).

Table 3. Terminology and comments associated with the top-ten indicators of capacity

| Capital Type-Indicator & Terms[†] | Excerpts from focus group recordings |
|---|---|
| Human Capital- Motivation<br>Shining lights<br>Focus/willing to work together<br>Motivated people<br>Enthusiasm<br>Catalyst/energetic | *[You need] key individuals to champion efforts…who can rally the troops and get everyone involved. If you have a person who's willing to have a vision and take charge [they] can often times get others to rally behind that effort.*<br><br>*A big part of success is having highly motivated people…that just work so hard in the beginning. You can have one highly motivated person that lights a fire under others, but if you don't have a core group it's not going to happen either.* |
| Human Capital- Leadership<br>Commitment and dedication<br>Leadership succession<br>Politically correct leadership<br>Strong leadership<br>Core leadership group<br>Champions | *The top the leadership… should be the one-percenters to use the old terminology…the guys that will go over the top.*<br><br>*…dedication, because if people aren't dedicated to making it happen, then nothing happens…if you've got a good leader and dedicated people then you can get an awful lot of stuff done.*<br><br>*Success is [made possible by] having those key individuals that have stepped to the plate to champion specific efforts.* |
| Bonding Social Capital- Respect<br>Mutual respect<br>Listening<br>Trust/respect | *A mutual respect…professionalism. Listening on both sides.*<br><br>*When [another group] comes down and they have an idea, and [those] people turn their back…that doesn't keep a group together. Respect for ideas, respect [for] even crazy ideas.*<br><br>*Hopefully they all respect each other, can trust each other, at a minimum.* |
| Bonding Social Capital- Common Values<br>Shared outcomes<br>Common ground<br>Same page<br>Like-minded | *Some kind of shared interest in end results…I also like the things you're trying to accomplish.*<br><br>*A shared interest in end results.* |

Table 3. Continued (part 2).

| Capital Type-Indicator & Terms† | Excerpts from focus group recordings |
|---|---|
| Bridging Social Capital-Outreach/ education<br>Support from community<br>Support from resource users<br>Environmental education<br>Education<br>Outreach to diverse groups<br>Don't preach to the choir<br>Private landowner, NGO and hunter support | *The group needs to somehow effectively outreach to the community, seek out collaboration and cooperation. Environmental education is important. It provides hope for the future.*<br><br>*Education within the group and between different groups is vital...you don't want to just speak to the choir…outreach is so important, getting outside of the building.* |
| Bridging Social Capital-Marketing<br>Tag line<br>Selling your product to the community<br>Brand/logo<br>Social events<br>Public relations and the press<br>Community recognition and public relations | *You have got to have a good tag-line…it's kind of a marketing strategy; you're selling your product.*<br><br>*It's very difficult, you get all the [conservation] groups sitting at the table and they all get it, but it comes down to marketing to get it out to the other groups and if you can't devolve a successful marketing plan you're not going to reach them, and it's not going to work.* |
| Organizational Capital-Plan<br>Adaptive plan<br>Long term vision<br>Stated goals and objectives<br>Clear plan<br>Long-term goals<br>Planning | *You need a defined plan with goals and objectives; you can't expect people to allocate funds to you if you don't know what you're going to do with it.*<br><br>*People tend to be busy and if they're part of an organization that doesn't know what they're doing… the membership falls off very rapidly. They're not being productive and people are like, "I've got 10 different groups I wish I could be in, this one isn't getting anywhere, I'm not going to be involved in it…They better…have a plan and get working on it.* |
| Organizational Capital-Communication<br>Between leadership and others<br>Within and between organizations<br>Clear communication<br>Top to bottom and vice versa<br>Between nested groups | *There is often a large disconnect between conversations happening at the leadership level and at the worker bee level and that has to go away or you don't make the progress that you need.*<br><br>*You got to have clear communication from top to bottom, and then in reverse, from the bottom up. I know some organizations, the bigger they get sometimes the people making the decisions, aren't the ones in the field and the people out there don't know what's going on…you don't want that to happen.* |

Table 3. Continued (part 3).

| Capital Type-Indicator & Terms† | Excerpts from focus group recordings |
|---|---|
| Economic Capital- Funding | *You can just put a big dollar sign up there.* |

| | |
|---|---|
| Money/what's available<br>Political support monies<br>Funding<br>Government funds and tax dollars<br>Adaptive funding<br>Various sources including private and out-of-area | *It's shifting for many organizations, with extension services cut and the IDNR has been cut and will probably have more cuts…there are significant funding gaps that are literally changing the environment for us.*<br><br>*Flexibility or the lack there of in some of the programs…you can't always [get money] to do what you want.* |
| Economic Capital-Equipment/supplies<br>Equipment<br>Website<br>Supplies | *Equipment, maps, [and] all the references and technical stuff you really need to have.* |

**Conclusions**

Our top-ten list of capacity indictors for CBNRM comprises the indicators of motivation and leadership under human capital, respect and mutual interest/shared values under bonding social capital, outreach/education and marketing under bridging social capital, planning and communication under organizational capital, and funding and equipment/supplies under economic capital. Nine of these ten indicators were congruently ordered as ranked by agreement (e.g., the top two by agreement under each capital type) and as ranked by importance (e.g., the top two by importance under each capital type). The only discord appeared in the second indicator of bridging social capital; marketing was highly agreed-upon (i.e., listed by four focus groups) but was ranked fifth in order of importance, whereas reputation, listed by just three focus groups, was ranked second in order of importance. We included marketing in our top-ten list instead of reputation; we weighted agreement among our participants as more significant than the importance rankings due to the higher number participants (n=26 for agreement vs. n=19 for importance).

These indicators can be used by bridging organization as social performance measures within CBNRM groups operating in the COAs.

The aim of our study was to develop a list of the ten key indicators of CBNRM group capacity, reflective of current, on-the-ground conditions across Illinois' COAs. Our results have practical applications for CBNRM groups with Illinois' COAs and individuals interested in building or assessing the capacity of such organizations. The list can be used as a centerpiece for self-assessment within a COA CBNRM group, or by bridging organizations (e.g., the IDNR and TNC), who should focus organizational and support efforts on these ten indicators.

**Appendix 4. Resource management plan evaluation instrument from Brody (2003)**

| **RMP Characteristic** | **0 (not present)** | **1 (mentioned)** | **2 (specific)** |
|---|---|---|---|
| **Factual Basis** | | | |
| *A. Resource inventory* | | | |
| Ecosystem boundaries/edges | | | |

| | | | |
|---|---|---|---|
| Ecological zones/habitat types | | | |
| Ecological functions | | | |
| Species ranges | | | |
| Habitat corridors | | | |
| Distributions of vertebrate species | | | |
| Areas with high biodiversity/species richness | | | |
| Vegetation classified | | | |
| Wildlife classified | | | |
| Vegetation cover mapped | | | |
| Threatened and endangered species | | | |
| Invasive/exotic species | | | |
| Indicator/keystone species | | | |
| Soils classified | | | |
| Wetlands mapped | | | |
| Climate described | | | |
| Other water resources | | | |
| Surface hydrology | | | |
| Marine resources | | | |
| Graphic representation of transboundary resources | | | |
| Other prominent landscapes | | | |
| *B. Ownership patterns* | | | |
| Conservation lands mapped | | | |
| Management status identified for Network of conservation lands | | | |
| Conservation lands mapped | | | |
| Distribution of species within network of conservation lands | | | |
| *C. Human impacts* | | | |
| Population growth | | | |
| Road density | | | |
| Fragmentation of habitat | | | |
| Wetlands development | | | |
| Nutrient loading | | | |
| Water pollution | | | |
| Loss of fisheries/marine habitat | | | |
| Alteration of waterways | | | |
| Other factors/impacts | | | |
| Value of biodiversity identified | | | |
| Existing environmental | | | |
| Carrying capacity measured | | | |
| Regulations described | | | |
| Incorporation of gap analysis data | | | |
| **Factual Basis sub-total** | | | |
| **Goals and objectives** | | | |
| Protect integrity of ecosystem | | | |
| Protect natural processes | | | |

| RMP Characteristic | 0 (not present) | 1 (mentioned) | 2 (specific) |
|---|---|---|---|
| Maintain intact patches of native species | | | |
| Establish priorities for native | | | |
| Protect rare/unique landscape | | | |
| Species/habitat protection elements | | | |
| Protect rare/endangered species | | | |
| Maintain connection among wildlife habitats protected areas | | | |
| Represent native species within | | | |
| Maintain intergenerational sustainability of ecosystems | | | |
| Balance human use with maintaining viable wildlife populations | | | |
| Restore ecosystems/critical habitat | | | |
| Other goals to protect ecosystems | | | |
| Goals are clearly specified | | | |
| Presence of measurable objectives | | | |
| **Goals and objectives sub-total** | | | |
| **Interorganization coordination and capabilities** | | | |
| Other organizations/stakeholders | | | |
| Coordination with other identified organizations/jurisdictions specified | | | |
| Coordination within jurisdiction specified | | | |
| Intergovernmental bodies specified | | | |
| Joint database production | | | |
| Coordination with private sector | | | |
| Information sharing | | | |
| Links between science and policy | | | |
| Position of jurisdiction within specified bioregion specified | | | |
| Intergovernmental agreements | | | |
| Conflict management processes | | | |
| Commitment of financial resources | | | |
| Other forms of coordination | | | |
| **Interorganization coordination and capabilities sub-total** | | | |
| **Policies, tools, and strategies** | | | |
| *A. Regulatory tools* | | | |
| Resource use restrictions | | | |
| Density restrictions | | | |
| Restrictions on native vegetation removal | | | |
| Removal of exotic/invasive species | | | |
| Buffer requirements | | | |
| Fencing controls | | | |
| Public or vehicular access | | | |
| Phasing of development | | | |
| Controls on construction restrictions | | | |

| | | | |
|---|---|---|---|
| Conservation zones/overlay districts | | | |
| Performance zoning | | | |
| Subdivision standards | | | |
| Protected areas/sanctuaries | | | |
| Urban growth boundaries to exclude habitat | | | |

| **RMP Characteristic** | **0 (not present)** | **1 (mentioned)** | **2 (specific)** |
|---|---|---|---|
| Urban growth boundaries to exclude habitat | | | |
| Targeted growth away from habitat | | | |
| Capital improvements | | | |
| Site plan review programming | | | |
| Habitat restoration actions | | | |
| Actions to protect resources in other jurisdictions | | | |
| Other regulatory tools | | | |
| *B. Incentive-based tools* | | | |
| Density bonuses | | | |
| Clustering away from habitats | | | |
| Transfer of development rights | | | |
| Preferential tax treatments | | | |
| Mitigation banking | | | |
| Other incentive-based tools | | | |
| *C. Land acquisition programs* | | | |
| Fee simple purchase | | | |
| Conservation easements | | | |
| Other land acquisition techniques | | | |
| *D. Other strategies* | | | |
| Designation of special taxing districts for acquisition funding | | | |
| Control of public investments and projects | | | |
| Monitoring of ecological health and human impacts | | | |
| Public education programs | | | |
| **Policies, tools, and strategies sub-total** | | | |
| **Implementation** | | | |
| Designation of responsibility | | | |
| Provision of technical assistance | | | |
| Identification of costs or funding | | | |
| Provision of sanctions | | | |
| Clear timetable for implementation | | | |
| Regular plan updates and assessments | | | |
| Enforcement specified | | | |
| Monitoring for plan effectiveness and response to new information | | | |
| **Implementation sub-total** | | | |

| | |
|---|---|
| **RMP TOTAL** | |

## Appendix 5. Performance Measure Survey[5]

**Welcome!**

Thank you for taking the time to complete our survey today! It should take approximately 15-20 minutes complete.

Please remember the following as you take the survey:

Although your natural resource organization may no longer meet, or your involvement may have ended, please answer the questions to the best of your ability.

As most organizations are still active, the questions are in present tense. If past tense is more applicable to your individual group or situation, please feel free to think about the questions in past tense.

Your responses will provide us with invaluable information on natural resource planning and management in Illinois. You will receive a $1.00 compensation for taking this survey which we will donate to the conservation organization of your choosing. Don't forget to make this selection on the last page of the survey.

Thank you again,
Natalie J. Mountjoy
Graduate Research Assistant

[5] An example survey for Ackerman Creek can be viewed at http://www.surveymonkey.com/s.aspx?PREVIEW_MODE=DO_NOT_USE_THIS_LINK_FOR_COLLECTION&sm=LGO4M07MtIG3Hn1WV4f%2fY00VcLZnCh%2bZXlynm71x8BY%3d

## 1- LEADERSHIP

**A. Overall, my natural resource management group...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| has effective leadership. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**B. Leadership in my natural resource management group...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| exhibits vision. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| prepares people for change. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| makes informed decisions. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| exhibits strategic thinking. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| is experienced. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**C. How important is leadership to your group's overall capacity for success?**

**D. How confident are you in these responses?**

## 2- MOTIVATION

**A. Overall, my natural resource management group...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| is motivated. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**B. Individuals in my natural resource management group...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| are inspired. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| work hard. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| are dedicated. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| believe their investment in the group is worthwhile. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| believe meaningful rewards will result from their involvement. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**C. How important is motivation to your group's overall capacity for success?**

**D. How confident are you in these responses?**

## 3- RESPECT

**A. Overall, in my natural resource management group...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| respect is a key principle among members/stakeholders. | | | | | | | |

**B. Members/stakeholders in my resource management group display appropriate levels of...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| consideration with regard to one another. | | | | | | | |
| civility with regard to one another. | | | | | | | |
| reciprocity with regard to one another. | | | | | | | |
| tolerance with regard to one another. | | | | | | | |
| acceptance with regard to one another. | | | | | | | |

**C. How important is respect to your group's overall capacity for success?**

**D. How confident are you in these responses?**

## 4- SHARED VALUES/INTERESTS

**A. Overall, individuals within my natural resource management group...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| share common values regarding natural resource management. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**B. Within my natural resource management group...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| a common set of basic values exists. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| individuals have a shared sense of purpose. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| values remain stable under leadership changes. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| values clearly support the overall purpose of the organization. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| individuals have a shared interest in end results. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**C. How important are shared values/interests to your group's overall capacity for success?**

**D. How confident are you in these responses?**

## 5- COMMUNITY OUTREACH

**A. Overall, in my natural resource management group...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| community outreach is a priority. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**B. My natural resource management group...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| communicates to the public through educational seminars. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| communicates to the public through printed media. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| communicates to the public through electronic media. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| gains stakeholder input from community meetings. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| gains stakeholder input from social gatherings in the community. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**C. How important is community outreach to your group's overall capacity for success?**

**D. How confident are you in these responses?**

## 6- MARKETING

**A. Overall, my natural resource management group...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| implements a clearly defined marketing strategy | | | | | | | |

**B. My natural resource management group...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| is fully aware of the power of PR/marketing activities. | | | | | | | |
| engages in marketing activities. | | | | | | | |
| continually participates in marketing activities. | | | | | | | |
| possesses a range nonprofit PR/marketing expertise. | | | | | | | |
| uses external resources for marketing activities. | | | | | | | |

**C. How important is marketing/PR to your group's overall capacity for success?**

**D. How confident are you in these responses?**

## 7- Plan

**A. My natural resource management group...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| has a shared vision. | | | | | | | |

**B. The shared vision...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| provides a clear expression of the organization's reason for existence. | | | | | | | |
| is referred to frequently. | | | | | | | |
| outlines goals. | | | | | | | |
| is periodically reassessed by members. | | | | | | | |
| was relied on to create the management plan. | | | | | | | |

**C. How important is having a shared vision to your group's overall capacity for success?**

**D. How confident are you in these responses?**

## 8- COMMUNICATION

**A. My natural resource management group...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| has a well-designed internal communication system. | | | | | | | |

**B. Communication within my natural resource management group...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| keeps everyone aware of my group's activities. | | | | | | | |
| raises levels of knowledge. | | | | | | | |
| supports decision-making. | | | | | | | |
| promotes information sharing between different sectors of my group (e.g., between office workers and on-the ground volunteers). | | | | | | | |
| promotes information sharing between different levels of my group (e.g., between boards and committees or between chairs and volunteers). | | | | | | | |

**C. How important is communication to your group's overall capacity for success?**

**D. How confident are you in these responses?**

## 9- FUNDING

**A. Overall, my natural resource management group...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| has funding available to meet our goals. | | | | | | | |

**B. My natural resource management group...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| has effective internal fundraising skills. | | | | | | | |
| has developed sustainable revenue generating activities. | | | | | | | |
| has highly diversified funding sources. | | | | | | | |
| has the financial resources to employ required people (e.g., staff and contractors). | | | | | | | |
| has the financial resources to implement actions to meet goals. | | | | | | | |

**C. How important is funding to your group's overall capacity for success?**

**D. How confident are you in these responses?**

## 10- EQUIPMENT

**A. Overall, my natural resource management group...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| has the equipment needed to meet our goals. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**B. My natural resource management group has access to...**

| | strongly disagree | disagree | slightly disagree | neither agree nor disagree | slightly agree | agree | strongly agree |
|---|---|---|---|---|---|---|---|
| office supplies (e.g., telephones, computers with internet). | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| electronic media (e.g., website, Facebook page, twitter account). | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| vehicles. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| necessary equipment to manage natural resources on the ground. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| the appropriate amount of equipment to manage natural resources on-the-ground. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**C. How important is equipment to your group's overall capacity for success?**

**D. How confident are you in these responses?**

## Current Status

**Is the plan you helped produced still in use?**

- Yes
- No
- I don't know

**How successfully was your plan implemented?**

- Not successfully at all
- Low success
- Slightly successful
- Somewhat successful
- Very successful
- Extremely successful
- Unsure

**Would you like to add any comments regarding your involvement in natural resource planning or this survey?**

## Respondent Information Form

This page provides us with some information about you! This demographic information is for group reporting purposes only and will not be linked to your responses in any way.

### Gender

- Male
- Female

### What is your race/ethnicity?

- Caucasian/Non-Hispanic
- Hispanic/Latino
- African American
- Pacific Islander/ Asian
- Other

### What is your age range?

- 18-24 years
- 25-34 years
- 35-44 years
- 45-54 years
- 55-64 years
- 65-74 years
- 75 & up

### Which is the highest level of education you have completed?

- Less than high school
- High school/GED
- Associate's degree
- Bachelor's degree
- Completed Master's degree or equivalent
- Completed Ph.D., Ed.D., or equivalent

## Your $1.00 Donation

**To which of the following groups would you like to donate your $1.00 compensation for completing this survey?**

- The Nature Conservancy
- Illinois Audubon Society
- Conservation Foundation
- Sierra Club

Other (please specify)

Thank you for assisting us in this research effort. Your opinions are extremely valuable and this work will help shape future natural resource planning efforts across the state.

Welcome!

## Appendix 6. Process-based Performance Measures: Determine which indicators have the greatest effect on resource management implementation success

Although concrete outputs vary widely among CBNRM initiatives, many efforts center on creating natural resource management plans (RMPs), which serve as an important mediator to ecological outcomes; successful RMP implementation should directly influence ecological integrity as envisioned by those contributing to the plan.

We used findings from the focus groups (Appendix 3) in combination with an extensive review of the literature and pre-existing capacity surveys to construct a short (i.e., 15 minute) on-line capacity survey. Specifically, the instrument included sections on the ten key capacity indicators, with an additional section dedicated to the evaluation of RMP implementation success[6].

We sought to determine the current amount of capacity in CBNRM planning groups across Illinois and to explore relationships among the capacity indicators. Additionally, we sought to analyze the effect of capacity on RMP implementation success and determine which indicators exert the strongest influence. We hypothesized that groups with higher levels of capacity would experience more RMP implementation success and that the capacity indicators could be predictive of the degree of success.

### Methods

Our purpose was to survey individuals involved in CBNRM who had worked on the formulation of natural resource management plans across Illinois. We collected RMPs and individual contact information through agency and non-profit contacts, and through online searches resulting in a list of 540 email addresses for individuals[7] involved in 29 different CBNRM planning efforts across the state.

Data were collected via an online survey in November 2011. We constructed the questionnaire using Survey Monkey™, with separate questionnaires for each CBNRM planning group, identical except for the survey title and unique online URLs. Our survey instrument[8] comprised ten capacity indicator sections and a section regarding RMP implementation success (Appendix 5). We constructed a global measure for each capacity indicator as well as accompanying specific items (Table 1) based on the results of the focus groups, a review of the capacity literature and pre-existing capacity measurement tools (McKinsey and Company 2001; Raymond et al. 2006).

---

[6] Comparison of capacity levels and RMP implementation success required usage of groups outside the context of COAs, as adequate time must have lapsed since RMP implementation for respondents to adequately judge success. However, many of the CBNRM groups surveyed are now active in COAs.

[7] Many individuals (92) were involved in multiple planning initiatives (2-5) and were sent unique emails for each plan with which they were associated.

[8] An example survey for Ackerman Creek can be viewed at http://www.surveymonkey.com/s.aspx?PREVIEW_MODE=DO_NOT_USE_THIS_LINK_FOR_COLLECTION&sm=LGO4M07MtIG3Hn1WV4f%2fY00VcLZnCh%2bZXlynm71x8BY%3d

Table 1. Global and specific items affiliated with each indicator included on the questionnaire[1]

| Indicator | Global and specific items affiliated with each indicator | |
|---|---|---|
| Leadership | My group has effective leadership. | |
| | Vision | Strategic thinking |
| | Adapts to change | Experience |
| | Informed decisions | |
| Motivation | My group is motivated. | |
| | Inspired | Involvement worthwhile |
| | Works hard | Meaningful rewards |
| | Dedicated | |
| Respect | Respect is a key principle among members/stakeholders. | |
| | Consideration | Tolerance |
| | Civilty | Acceptance |
| | Reciprocity | |
| Common Values | My group shares common values regarding natural resource management. | |
| | Common set of basic values | Support the overall purpose |
| | A shared sense of purpose | Shared interest in end results |
| | Stable under changes | |
| Outreach | In my group, community outreach is a priority. | |
| | Educational seminars | Community meetings |
| | Printed media | Social gatherings |
| | Electronic media | |
| Marketing | My group implements a clearly defined marketing strategy. | |
| | Aware of the power | Range of expertise |
| | Engages in marketing activities | Uses external resources |
| | Continually participates | |
| Vision | My group has a shared vision. | |
| | Reason for existence | Is periodically reassessed |
| | Is referred to frequently | Was relied on to create plan |
| | Outlines goals | |
| Communication | My group has a well-designed internal communication system. | |
| | Aware of my group's activities | Info sharing between sectors |
| | Raises levels of knowledge | Info sharing between levels |
| | Supports decision-making | |
| Funding | My group has funding available to meet our goals. | |
| | Internal fundraising skills | Revenue generating activities |
| | Revenue generating activities | Diversified funding sources |
| | Highly diversified funding sources | |
| Equipment | My group has the equipment needed to meet our goals. | |
| | Office supplies | Necessary equipment |
| | Electronic media | Appropriate amount |
| | Vehicles | |

[1]Foster-Fishman et al. (2001), Newton (2001), Ilbery and Maye (2006), Moore et al. (2006), Lynch et al. (2007), Beckley et al. (2008) and Gruber (2010)

We asked respondents to rank their level of agreement (i.e., bipolar 7-point Likert-type scale: 1= strongly disagree, 2= disagree, 3= slightly disagree, 4= neither agree nor disagree, 5= slightly agree, 6= agree, 7= strongly agree) with positive statements regarding each indicator. These

responses were then interpreted as “indicator scores” for analysis, with higher scores demonstrating higher indicator predominance within each associated CBNRM group. We also asked respondents to rank the overall importance of each indicator and their level of confidence in their responses. Lastly we asked respondents and to rank the success of their RMP implementation on a unipolar six-point Likert-type scale (1 = not successful at all, 2 = low success, 3 = slightly successful, 4 = somewhat successful, 5 = very successful and 6 = extremely successful). We recoded this item from six categories to three groups for analysis: 1= no to low success, referred as the “low group;” 2 = slightly to somewhat successful, referred to as the “moderate group;” and, 3 = very to extremely successful, referred to as the “high group.”

Analysis: PASW Statistics version 18© was used for analyses. We conducted a univariate exploration of the capacity indicators and RMP implementation success to determine current amounts in CBNRM planning groups across Illinois. Importance-performance analysis (IPA) was used to explore the overall satisfaction with the level of capacity indicators within the CBNRM groups. To examine the relationships among the capacity indicators, we used Spearman rank correlations, which are depicted using a modified VENN diagram approach.
To examine the relationship between RMP implementation success and the capacity indicators we conducted multivariate analysis of variance (MANOVA). To ascertain whether our capacity indicators could be predictive of RMP implementation success, we conducted three discriminant function analyses (DFAs). We evaluated the hit ratio of each DFA to measure how well each function predicted membership; most researchers accept a hit ratio that is 25% larger than the prior probability (Burns and Burns 2008).

## Results

**Survey Response.** We distributed 540 email requests for participation in our survey and received 190 survey responses representing a 30% response rate. Our sample size met the requirements for all statistical analyses and comprised mostly white (96.3%), male (66.5%) respondents. The predominating age and education categories were 55 to 64 years of age (33.5%) and attainment of a Master’s degree (33.5%).

**Capacity Indicators.** The results supported creation of a mean index for each of the 10 capacity indicators, which were used for further analyses. Overall, the average capacity score was 4.92 on a seven-point scale (Table 2). Respondents evaluated their groups’ capacity highest in regards to motivation followed closely by the indicators of respect, common values and leadership. Respondents rated their groups the lowest regarding funding, and on the indicators of marketing, equipment and outreach (Table 2). On average, the indicators were ranked from moderately important to important (i.e., 4-6 on a seven point scale). Respondents reported being moderately confident to confident in their responses (i.e., 4-6 on a seven-point scale).

Table 2. Univariate analysis of the capacity indictors ranked ordered by mean score (1-7), with sample size (N) and one standard deviation (SD).

| Indicator | N | Mean Score[a] | SD | Mean Importance[b] | SD | Mean Confidence[c] | SD |
|---|---|---|---|---|---|---|---|
| Motivation | 184 | 5.68 | 1.03 | 5.59 | 1.03 | 5.12 | 1.12 |
| Respect | 176 | 5.67 | 1.07 | 5.17 | 0.88 | 4.99 | 1.08 |
| Common Values | 174 | 5.46 | 1.06 | 5.05 | 1.11 | 4.96 | 1.08 |
| Leadership | 190 | 5.30 | 1.43 | 5.67 | 1.10 | 5.10 | 1.08 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vision/Plan | 168 | 5.26 | 1.15 | 5.24 | 1.08 | 4.94 | 1.12 |
| Communication | 166 | 4.91 | 1.36 | 5.12 | 1.06 | 4.86 | 1.10 |
| Outreach | 170 | 4.90 | 1.25 | 5.11 | 1.29 | 5.04 | 1.06 |
| Equipment | 164 | 4.46 | 1.39 | 4.19 | 1.44 | 4.91 | 1.24 |
| Marketing | 170 | 4.11 | 1.37 | 4.38 | 1.25 | 4.70 | 1.10 |
| Funding | 166 | 3.44 | 1.57 | 5.56 | 1.26 | 5.20 | 1.24 |
| Average | 173 | 4.92 | 1.27 | 5.11[a] | 1.15 | 4.98 | 1.12 |

**Importance performance analysis.** Importance-performance analysis (IPA) traditionally divides indicators into four categories: 1) concentrate here, 2) keep up the good work, 3) low priority and 4) possible overkill (Martilla and James 1977). In our analysis, funding was the only indicator in need of concentration; most indicators fell into the "keep up the good work" category (e.g., leadership, motivation, outreach, communication, vision, common values and respect). Marketing and equipment fell into the "low priority" category (Figure 1).

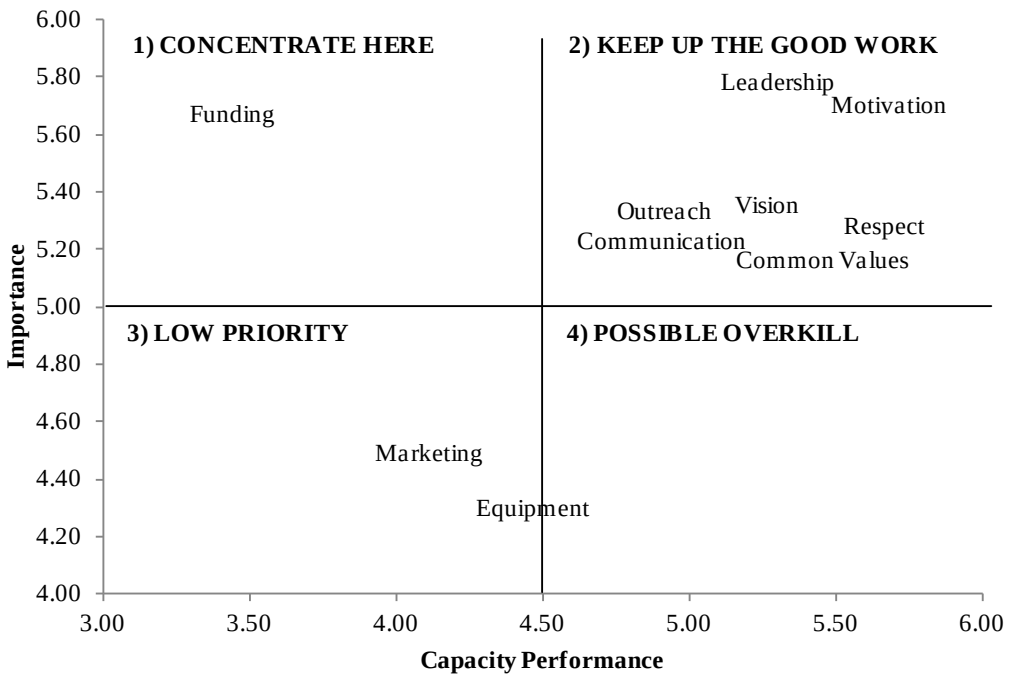


Figure 1. Importance-performance grid based on indicator scores on the seven-point Likert scale. Positioning of vertical and horizontal axis is a matter of judgment; we moved the centroid to (4.5, 5.0) vs. (3.5, 3.5) due to an absence of low scores (Martilla and James 1977).

**Correlations.** To explore the relationships among capacity indicators we conducted Spearman correlations (Figure 2). All correlations were significant at $P < 0.001$, except for respect and marketing and respect and equipment ($P < 0.05$), and the relationship between respect and funding ($P = 0.08$). The highest correlations (*rho* > 0.60-0.72) were explored further (Figure 5). The relationship between motivation and leadership elicited the strongest correlation (*rho* = 0.72), followed closely by vision and communication (*rho* = 0.70), motivation and common values (*rho* = 0.67), vision and outreach, and vision and motivation (both *rho* = 0.65).

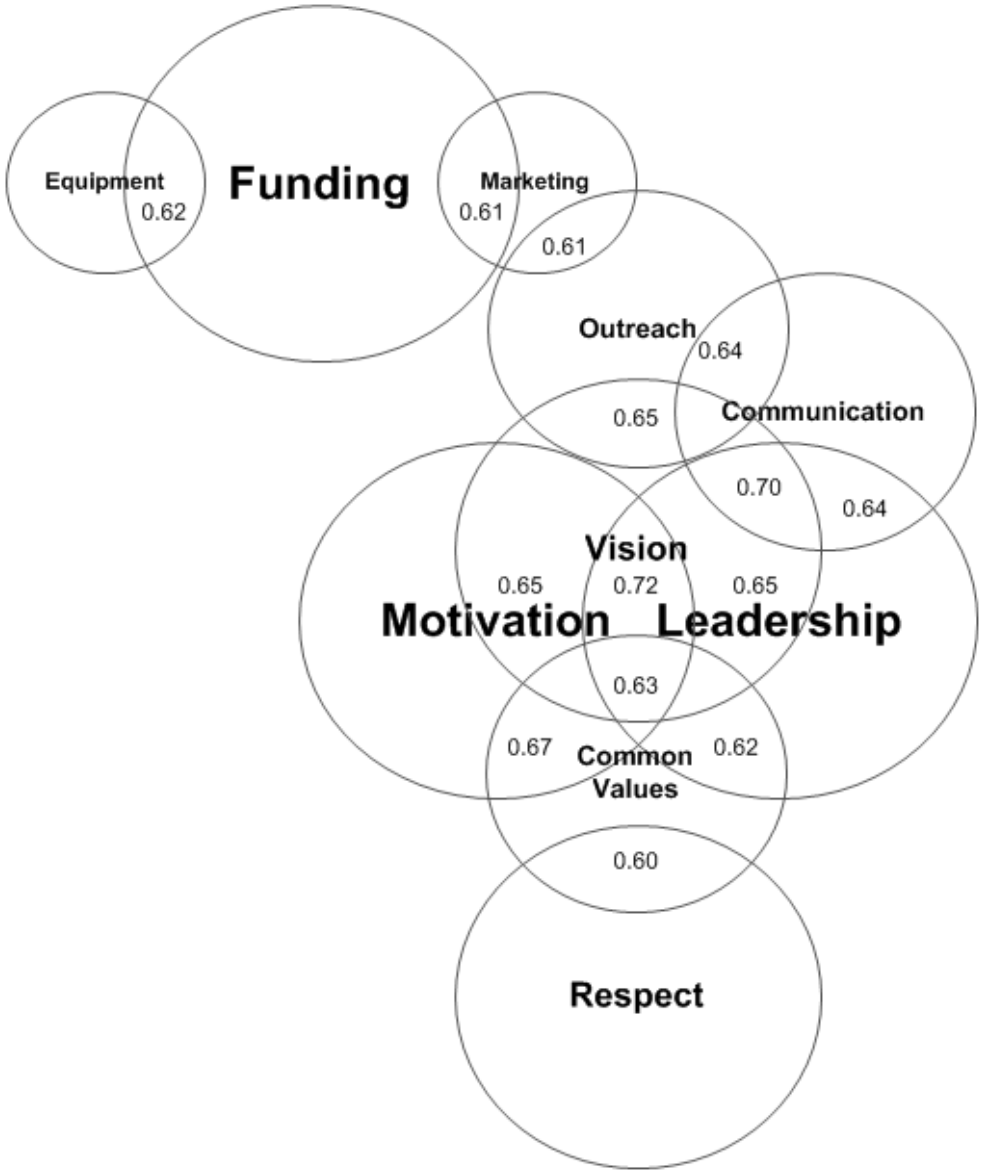


Figure 2. Spearman rank correlations (*rho* $\geq$ 0.6) among the capacity indicators. Symbol and font size depict importance as ranked by respondents on scale from 1 to 7, broken into four groups based on natural breaks: leadership, motivation and funding (5.67-5.56), vision and respect (5.24 and 5.17, respectively), common values, outreach and communication (5.12-5.05) and marketing and equipment (4.38 and 4.19, respectively).

**Significant differences across RMP implementation success groups.** The MANOVA revealed a significant multivariate main effect for RMP implementation success; capacity, as measured by our indicators, was significantly different across categories of RMP implementation success (Pillai's Trace = 0.567, F (20, 232) = 4.592, P < 0. 001; Table 3). All the indicator means increased from the low to moderate to high success groups, supporting our hypothesis that CBNRM groups with higher levels of capacity experience increased greater RMP implementation success.

Table 3. MANOVA and Dunnett C post-hoc analyses of individual capacity indicators across CBNRM planning groups (n=127), rank ordered by F-value.

| Predictor | RMP Implementation Success Group | | | F | $r^2$ |
|---|---|---|---|---|---|
| | Low (n=23) | Moderate (n=63) | High (N=41) | | |
| Vision/Plan† | $4.33_a$ | $5.17_b$ | $6.13_c$ | 28.56* | 0.32 |
| Motivation† | $4.88_a$ | $5.64_b$ | $6.41_c$ | 28.34* | 0.31 |
| Leadership | $4.49_a$ | $5.27_a$ | $6.34_b$ | 18.38* | 0.23 |
| Outreach† | $3.91_a$ | $5.03_b$ | $5.57_c$ | 18.31* | 0.23 |
| Common Values† | $4.46_a$ | $5.49_b$ | $5.93_c$ | 17.10* | 0.22 |
| Communication† | $3.85_a$ | $4.93_b$ | $5.65_c$ | 15.23* | 0.20 |
| Marketing† | $3.18_a$ | $3.97_b$ | $4.75_c$ | 12.99* | 0.17 |
| Respect | $4.90_a$ | $5.88_b$ | $6.03_b$ | 11.19* | 0.15 |
| Equipment | $3.79_a$ | $4.14_a$ | $5.20_b$ | 11.04* | 0.15 |
| Funding | $2.49_a$ | $3.24_a$ | $4.18_b$ | 11.00* | 0.15 |
| Multivariate Tests | Pillai's Trace[a] | F (df) | Sig | Partial Eta Sq | Power |
| RMP Success | 0.567 | 4.591 (232) | <0.001 | 0.284 | 1.000 |

Means with different subscripts (a-c) are significantly different based on Dunnett C (p<0.05).
[a]Pillai-trace is the most robust alternative when the assumption of unequal variance is violated (Sheean-Holt 1998).
† Indicates predictors that are significantly different across all RMP implementation success groups
*p < 0.05

**The predictive power of the capacity indicators.** Aside from the global DFA (i.e., $DFA^{GL}$ with all three RMP success groups), we also conducted a DFA with just the low and moderate group within range ($DFA^{LvM}$) and a DFA with just the moderate and high group within range ($DFA^{MvH}$). This allowed us to identify the indicators that discriminated best between groups one and two (i.e., low and moderate success), and two and three (i.e., moderate and high success) separately.

Two significant discriminant functions emerged from $DFA^{GL}$, with Wilk's lambda = 0.495 ($\chi^2$ = 84.009, $P$ < 0.001) and Wilk's lambda = 0.851 ($\chi^2$ = 19.220, $P$ < 0.023), respectively (Table 4). Vision and motivation were followed by leadership, outreach, and common values on function one (Table 4). Respect was highest on function 2, followed by common values, equipment, and communication. In support of our hypothesis, the functions resulting from $DFA^{GL}$ were successful at predicting RMP success group membership, with high accuracy in predicting each individual group (Table 5). The hit ratio was also acceptable, with 62.3% of original cases correctly identified, representing a 29% increase from prediction by chance alone (i.e., 33.3%).

Table 4. Structure coefficients, summary variables and sample size (n) for the global discriminant function analysis ($DFA^{GL}$), the DFA with low and moderate success groups ($DFA^{LvM}$) and the DFA with moderate and high success groups ($DFA^{MvH}$). Predictors are rank ordered by coefficients on function 1 (Fxn 1) for each DFA.

| $DFA^{GL}$ (n = 127) | Fxn 1 | Fxn 2 | $DFA^{LvM}$ (n = 86) | Fxn 1 | $DFA^{MvH}$ (n = 104) | Fxn 1 |
|---|---|---|---|---|---|---|
| Vision/Plan | 0.800 | -0.014 | Common Values | 0.735 | Vision/Plan | 0.722 |
| Motivation | 0.796 | 0.065 | Respect | 0.707 | Motivation | 0.708 |
| Leadership | 0.640 | -0.085 | Outreach | 0.670 | Leadership | 0.628 |
| Outreach | 0.614 | 0.373 | Motivation | 0.610 | Equipment | 0.553 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Common Values | 0.585 | 0.410 | Communication | 0.584 | Marketing | 0.429 |
| Communication | 0.574 | 0.220 | Vision | 0.561 | Funding | 0.427 |
| Marketing | 0.539 | 0.047 | Marketing | 0.440 | Communication | 0.397 |
| Funding | 0.496 | -0.033 | Leadership | 0.390 | Outreach | 0.374 |
| Equipment | 0.478 | -0.278 | Funding | 0.363 | Common Values | 0.331 |
| Respect | 0.423 | 0.543 | Equipment | 0.179 | Respect | 0.119 |

$DFA^{LvM}$ resulted in one significant function (Wilk's lambda = 0.722, $\chi^2 = 25.710$, $P = 0.004$; Table 3). Based on natural breaks, the predictors of common values and respect loaded the highest, followed by outreach, motivation, communication and vision (Table 10). Overall, the function was able to successfully distinguish between the low and moderate groups, with an acceptable hit ratio (79.1%), representing a 29.1% increase from prediction by chance alone (Table 11).

One significant function also resulted from $DFA^{MvH}$ (Wilk's lambda = 0.643, $\chi^2 = 42.890$, $P < 0.001$; Table 10). Vision, motivation and leadership loaded the highest followed by equipment, marketing and funding (Table 4). The function was able to successfully distinguish between the moderate and high groups, and the hit ratio (74%) falls close to the acceptable range with a 24% increase from prediction by chance alone (versus the necessary 25% increase; Table 5).

Table 5. Classification results with frequency and percent (in parentheses) predicted correctly in each group.

| Model | RMP Success | Predicted Group Membership | | | Hit Ratio[a] |
|---|---|---|---|---|---|
| | | 1 Low | 2 Moderate | 3 High | |
| $DFA^{GL}$ | 1 Low | 16 (69.6)* | 4 (17.4)* | 3 (13.0)* | |
| | 2 Moderate | 13 (20.6)* | 31 (49.2)* | 19 (30.2)* | 62.3% |
| | 3 High | 0 (00.0)* | 7 (17.1)* | 34 (82.9)* | |
| $DFA^{LvM}$ | 1 Low | 16 (69.6)* | 7 (30.4)* | 11 (17.5)* | 79.1% |
| | 2 Moderate | 11 (17.5)* | 52 (82.5)* | 11 (17.5)* | |
| $DFA^{MvH}$ | 2 Moderate | 11 (17.5)* | 44 (69.8)* | 19 (30.2)* | 74.0% |
| | 3 High | 11 (17.5)* | 8 (19.5)* | 33 (80.5)* | |

[a]Compare to the prior probability of 33% in $DFA^{GL}$ and 50% for both $DFA^{LvM}$ and $DFA^{MvH}$, most researchers accept a hit ratio that is 25% larger than the prior probability (Burns and Burns 2008).
*Denotes groups with most correctly predicted cases.

**Conclusion**

Our results demonstrate that CBNRM groups with higher levels of capacity experience more RMP implementation success (MANOVA), and that capacity is predictive of the degree of success (DFA[GL]). The relationships among the capacity indicators to be intuitive but complex, and that while funding is imperative, other indicators are more important in distinguishing successful groups based on perceived RMP implementation success. We found support for our hypotheses that groups with higher levels of capacity achieve greater RMP implementation success, and that capacity indicators can be predictive of the level of success. Specifically we found that outreach, respect and common values are critical in moving low performing CBNRM groups towards more success and that leadership, motivation and vision are key to moving groups from moderate achievement to higher levels of RMP implementation success

> We recommend using RMP implementation success as an process-based performance measure for CBNRM groups working within the COAs.

These results are intended for use by CBNRM groups, like those forming in the COAs, for capacity self-assessment and as a springboard to increase their RMP implementation success. Bridging organizations (e.g., the IDNR, TNC, etc.) can also the survey to determine the capacity status of groups they intend to support. The results can also help bridging organizations fouc their support in the most important areas to increase RMP implementation success within the COAs. As CBNRM and similar initiatives become more popular, this type of research—specifically, linking capacity to actual outputs—will be increasingly necessary.

**Appendix 7. Number of CTAP sites with each COA: Potential Environmental Performance Measure**

| COA | CTAP Sites (n) |
|---|---|
| Kanakakee Sands | 37 |
| Lake - McHenry Wetland Complex | 24 |
| Upper Des Plaines River Corridor | 22 |
| Upper Mississippi River | 21 |
| Middle Illinois River | 20 |
| Middle Little Wabash | 17 |
| Pyramid - Arkland Landscape | 17 |
| LaRue - Pine Hills - Western Shawnee - Trail of Tears | 13 |
| Mason County Sand Areas | 10 |
| Vermilion River | 10 |
| Midewin | 8 |
| Green River | 7 |
| Hill Prairie Corridor - North Section | 6 |
| Lower Kaskaskia Bottomlands | 6 |
| Lower Fox River | 5 |
| Pere Marquette | 5 |
| Sinkhole Plain | 5 |
| Lower LaMoine River | 4 |
| Hill Prairie Corridor - South Section | 3 |
| Rock River | 3 |
| Siloam Springs | 3 |
| Lost Mound - Hanover Bluff - Mississippi Palisades | 2 |
| Nachusa - Franklin Creek - Castle Rock - Lowden Miller | 2 |
| Sugar - Pecatonica River | 2 |
| Kishwaukee River | 1 |
| Prairie Ridge Landscape | 1 |
| Illinois Beach-Chiwaukee Prairie | 0 |
| Wabash River, Floodplain & Backwater Ponds | 0 |
| Wisconsin Driftless Forest | 0 |
| Total CTAP Sites | 254 |
| Mean CTAP Sites per COA | 8.75862069 |

## Appendix 8: T-55 project wrap up presentation to IFWAT outline

# T-55 (Conservation Opportunity Areas) Project Wrap-up

David J. Myers, COA Project Manager

May 18th, 2011

**Overview:**

- What were COAs designed to be?
  - Early conversations with core partners revealed:
    - COAs represent *some* of our best habitat, where we think people have the capacity to partner/are partnering around conservation issues.
    - COAs are one avenue by which the IL-WAP core partners could foster and support local efforts to implement the plan.
      - Possibility of dedicated funds (SWG or otherwise)??
- The COA project manager position
  - Early Conversations with core partners revealed:
    - Gather information about who is doing what, where
    - Be a liaison between stakeholders and agencies
    - Be a "facilitator of synchronization"

**Project Objectives (from the T-55 grant agreement):**

1. Assess the current status of planning of ILWAP COAs, track planning progress in the COAs, and provide coordination among conservation partners
   - We have been in touch with stakeholders representing all of the COAs
   - IL-WAP talks organized and given / planning meetings attended / assisting with the planning process

2. Identify a model process for on-going coordination within and among COAs
   - There is no one model that represents a magic bullet of coordination between CBC partnerships and agencies
   - Partnership statement works as an "ice-breaker" in new partnerships.
   - Expectation that local partners are going to adapt is unrealistic. WE have to be adaptable.

3. Explore the development of performance measures for the COAs
   - What makes a successful conservation partnership?
     i. Natalie Mountjoy (graduate student, SIUC)
   - Developing a model for successful partnerships
     i. Includes both behavioral and ecological measures.

4. Communicate progress to conservation partners and develop a final report.
   - IFWAT meetings and my final report to the IDNR/partners

**Appendix 9. Procedures for the Revision of Draft COA Boundaries**

The revision of draft COA boundaries can be developed and documented through either the use of the existing COA map provided by the IDNR, or through the use of maps and data obtained independently or developed by the individual developing or revising the boundary.

**Revisions using existing maps:**

1) To extend/expand a current or existing boundary segment (as depicted on the IDNR map) beyond that which is delineated, use a heavy black Sharpie® pen to delineate where the boundary should be located. Then highlight this segment with a yellow highlighter (Figure 1). Clearly label the line segment (either with a letter or numeral), and provide precise, clear, and accurate documentation of the line segment on an attached memo.

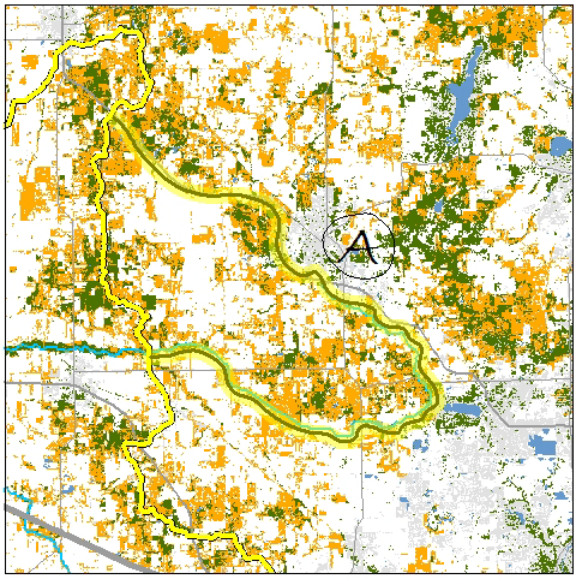


Figure 1.

Within the textual description of the line segment:

- Include the name of the COA
- Describe *why* the boundary was extended
- Describe specifically *what* should be included within the expansion (i.e., protected lands, landscape features, wildlife focus areas, etc.)
- Provide a textual description of how the boundary is determined (e.g., *Segment A should follow Sugar Creek north to the Highway 41 bridge. Segment B then follows Highway 41 east to its intersection with the original draft boundary.*)

2) If the boundary was expanded to specifically include an area of interest such as protected lands or a wildlife focus area, sketch the boundary (or boundaries) of these

areas with a *blue* pen. Clearly label the area on the map, and provide a brief documentation of this area on the attached memo.

The attached documentation should include:

- Name of the protected area
- What the area is (forest preserve, focus area, state park, etc)
- Owner of property, if possible
- Importance of area to COA

3) If a specific part of the boundary should NOT be included, whether an expansion was delineated or not, designate the segment or segments of the boundary with a series of hatch marks (using the black sharpie) along the entire length of the boundary segment (Figure 2). Again, label the line segment with a letter or numeral, and then within the accompanying memo, explain why this area should not be included within the COA.

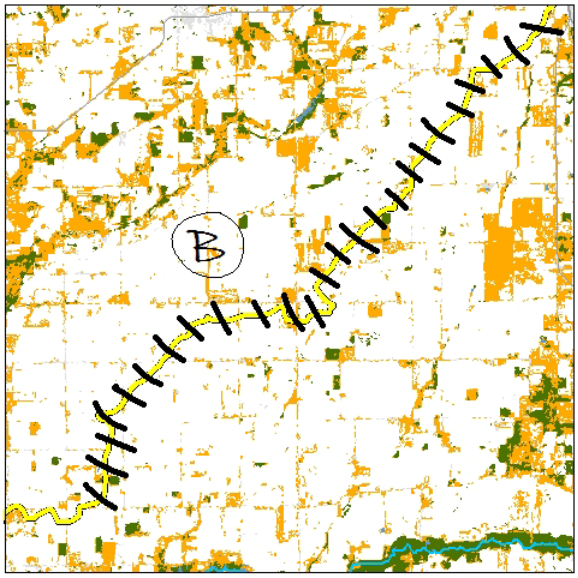


Figure 2.

**Revisions Using Other Map/Spatial Resources**

A number of additional resources are available through which boundary revisions and expansions can be delineated. However, boundaries derived from these sources can only be as accurate as the base data from which it is developed. A full and complete accounting of the sources used should be provided. Some suggestions of base-map sources are:

- **USGS Topographic Maps**. Quadrangle name must be included.
- **State highway maps** are useful if scale is appropriate, and necessary reference features are depicted on the map.
- If **plat maps** are used county, township, range, and sections should be clearly labeled.

In addition, shapefiles or geodatabases developed within a GIS, or subsequently-produced maps can also be submitted for boundary revisions. Spatial data provided should include a projection file, as well as an accompanying complete textual accounting of the data. If GIS-developed maps are provided, the scale should be that which provides enough buffering around the area of interest so that the area can be viewed in reference to adjacent landscape features.

As previously stated, it is not the intent of the attached IDNR-produced maps and materials to provide the definitive and final definition of the COA boundaries. Rather, the depicted boundaries should represent a starting point from which to commence a discussion of the actual location of these areas. Active participation in the delineation process is vital for the successful implementation of the objectives and goals described within the Wildlife Action Plan.

In addition to the COA atlases distributed at the February 20th Wildlife Action Team meeting, smaller (8 ½ x 11) PDF versions of the maps soon will be made available for download from the Wildlife Action Plan Sharepoint site. These maps may lack some of the detail found in the atlases, but should provide enough base information concerning the boundaries to allow partners to suggest revisions.

Correspondences and materials pertaining to draft COA boundaries should be directed to:

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