



Wetlands, Wildlife Habitat, and Flood Hazards in the Cedar River Basin, Iowa

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THE UNIVERSITY
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Acknowledgments

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Wetlands, Wildlife Habitat, and Flood Hazards in the Cedar River Basin

Introduction

In 2008, flooding in the Cedar River Basin caused more than \$6 billion in damages. Over the decades, conversion of wetlands and floodplains to agriculture and, increasingly, urban development, has reduced the Basin's natural flood protection capacity. While the 2008 floods spurred local collaborative efforts to address flood recovery and prevention in the Basin, as memories of the flood fade it will become more difficult to achieve real and effective results to prevent future flooding.

In May 2012, the Environmental Law Institute (ELI), the Iowa Natural Heritage Foundation, and the University of North Carolina Institute for the Environment (UNC) hosted a workshop on Wetlands, Wildlife Habitat, and Flood Hazards in the Cedar River Basin. The workshop was designed to build on the groundwork laid through existing collaborative efforts, such as the Cedar River Watershed Coalition, by identifying concrete opportunities for new partnerships and on-the-ground projects. Hazard and emergency managers, wetland and wildlife conservation managers, floodplain managers, community planners, and conservation organizations convened to explore how to work effectively together to meet multiple goals and identify the information needed and funding sources available for joint projects that would protect or restore wetlands and floodplains and reduce flood hazards.

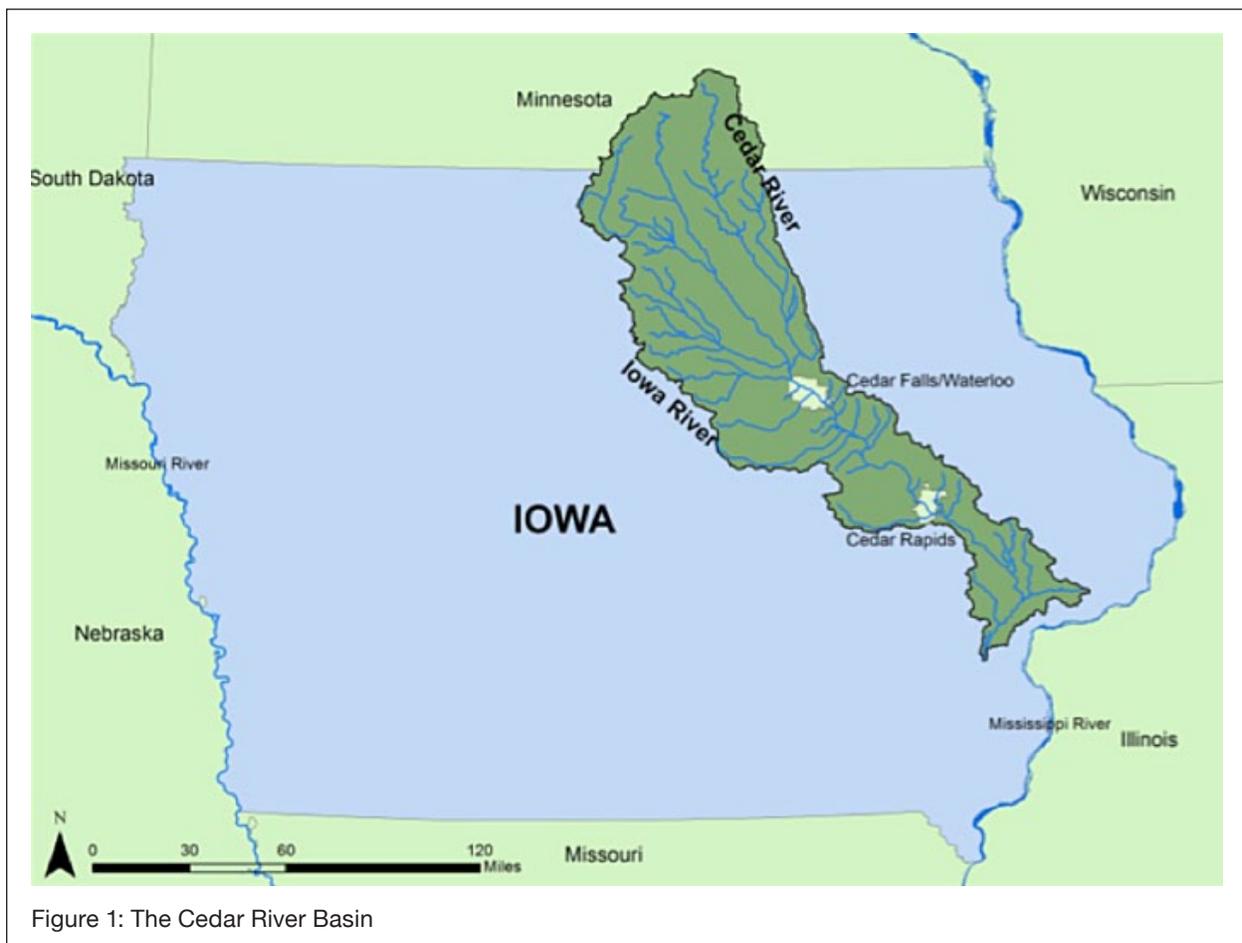


Figure 1: The Cedar River Basin

Background

In 2009, ELI and UNC conducted a study to identify opportunities for habitat and wetland conservation and restoration in areas prone to natural hazards. The study focused on three areas: the Snohomish River Basin in Washington, Osceola and Polk Counties in Florida, and the Rock River Basin in Wisconsin (see an article summarizing our report at <http://www.eli.org/pdf/nwncombininghabitat.pdf>). We found extensive overlap between wetland and wildlife habitats and hazard-prone areas in the three case study sites, but also that there is a general lack of coordination among local hazard mitigation planners and wildlife and wetland agencies. These findings indicated a real need for increased collaboration in these areas and provided the necessary background for a series of workshops—first in the Rock River Basin in 2011 and then in the Cedar River Basin in 2012.

At the state and local level, hazard mitigation planners and emergency managers are responsible for identifying the risks to life and property from disasters, such as floods, and for developing strategies to address these risks. Although wetland protection and restoration have long been recognized as effective non-structural flood hazard mitigation strategies, protecting wetlands or wildlife habitat or improving water quality have rarely been considered in hazard mitigation plans and policies. (see for example the work of Godschalk, et al., 1999; and Mileti 1999).

Wildlife and wetland managers and conservation organizations play a major role in the preservation and restoration of wetland and floodplain habitats and the ecosystem services they provide. However, their focus is on protecting wetlands and wildlife, not mitigating natural hazards. Wildlife managers typically do not consult with hazard mitigation planners in identifying lands for preservation or restoration. While hazard mitigation planners, emergency managers, and wildlife and wetland managers share many of the same goals—for example, preventing development in flood hazard areas—they often work independently, with little coordination, missing opportunities to leverage funding and capacity to achieve common goals.

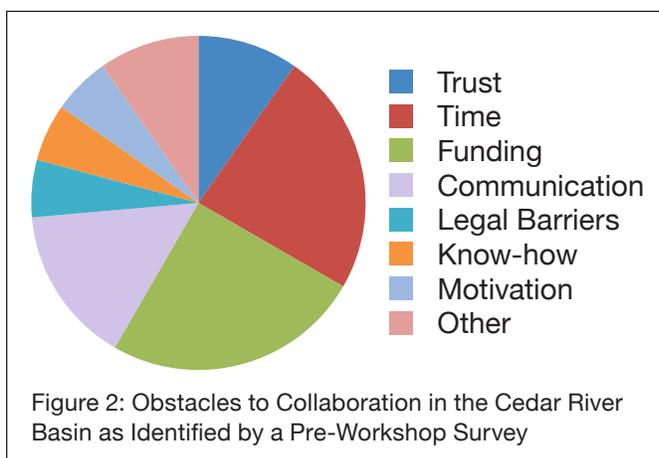
There is a tremendous untapped opportunity to improve wetland and habitat protection and flood hazard mitigation through greater interagency coordination. The Wetlands, Wildlife Habitat, and Flood Hazards workshops were designed to facilitate greater coordination by increasing awareness among hazard and emergency managers, floodplain managers, land use planners, and wetland and wildlife managers about each other's work, where their work overlaps, and opportunities for collaboration.

Wetlands, Wildlife Habitat, and Flood Hazards: A Workshop in the Cedar River Basin

The “Wetlands, Wildlife Habitat, and Flood Hazards in the Cedar River Basin Workshop” was held on May 16 at the University of Northern Iowa’s Center for Energy and Environmental Education and was funded by the McKnight Foundation. The goals of the workshop were to do the following:

- Increase awareness among hazard and emergency managers, floodplain managers, land use planners, and wetland and wildlife managers about each other’s work, and where their work overlaps;
- Identify the obstacles to collaboration among workshop participants; and
- Identify opportunities for collaboration and the information needed and funding sources available for joint projects.

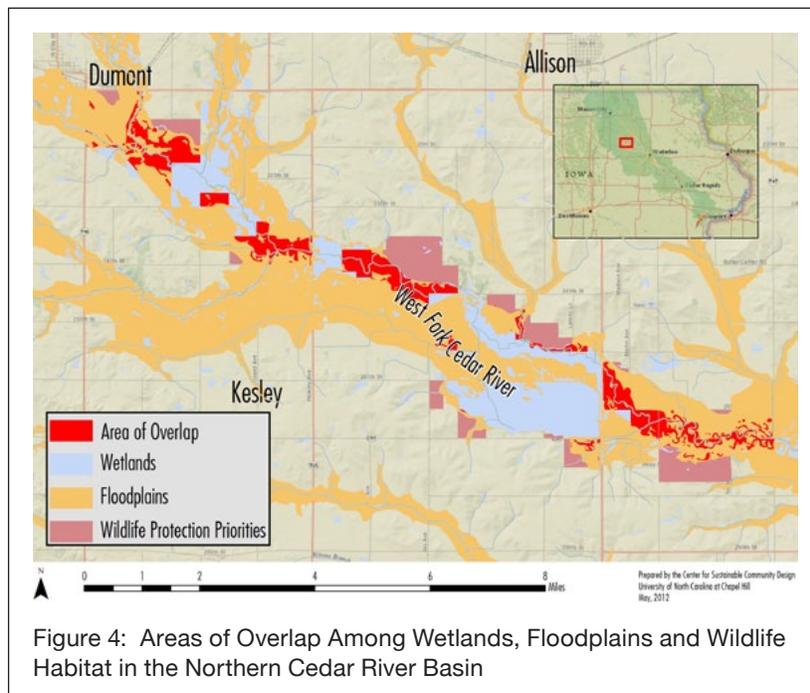
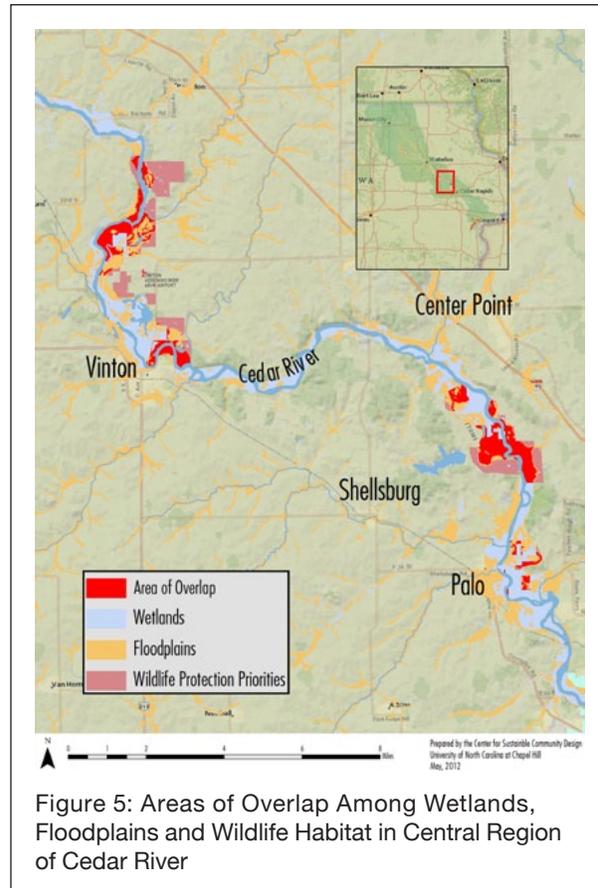
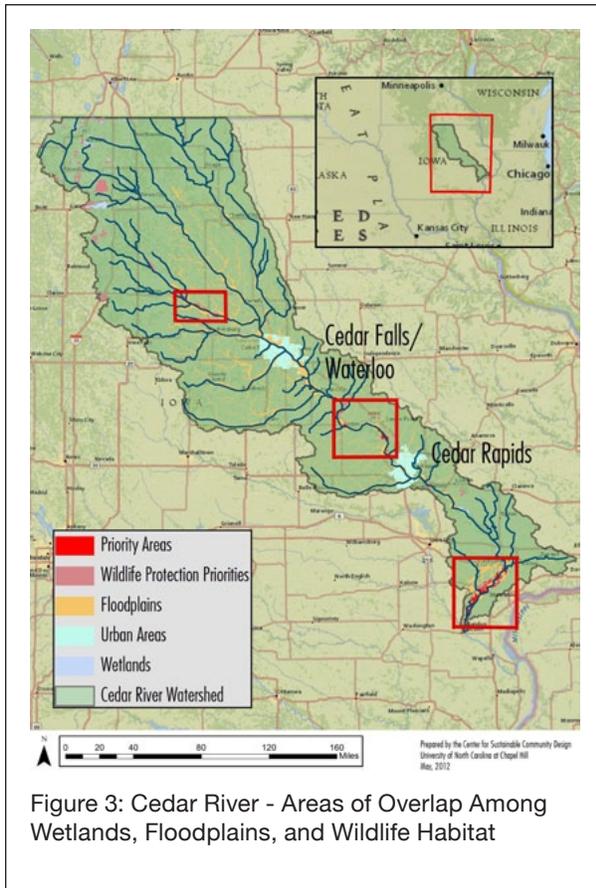
An advisory committee comprised of watershed and wildlife managers, land use planners, and conservation organizations guided the design of the workshop (see “Appendix A:” on page 17), including helping to identify participants and develop the agenda.

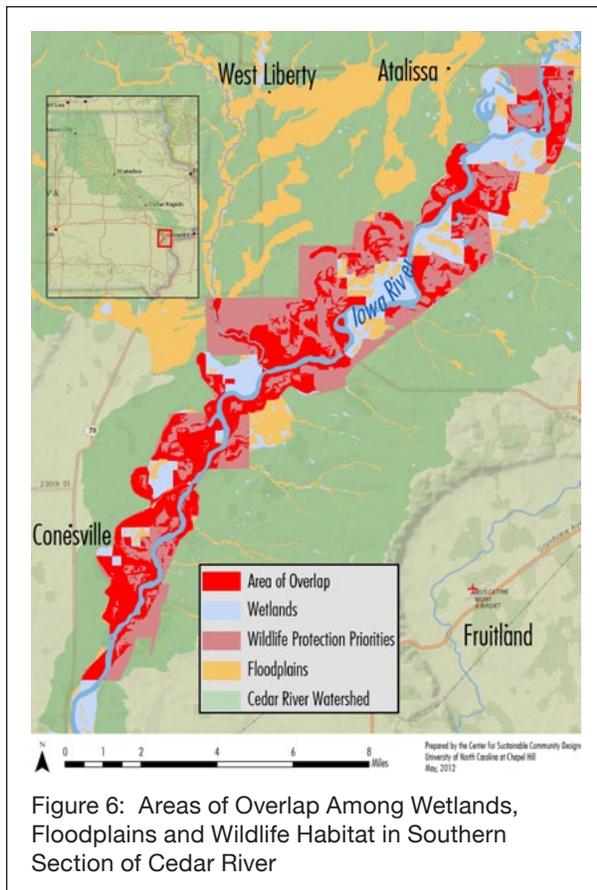


Prior to the workshop, ELI and UNC conducted a web survey of all invited participants: 54 (out of 55) workshop participants completed the survey. The purpose of the survey was to learn more about the mission and objectives of each participating organization, understand what participants wanted to get out of the workshop, recognize where people had collaborated across agencies or jurisdictions, identify some of the benefits and obstacles to collaboration, and to inquire about priorities for the future. In the survey, most (59%) respondents indicated that they frequently collaborate

with other organizations in Iowa, particularly with city or county planning/zoning agencies and with floodplain management offices. The main obstacles to collaboration identified in the survey were the following (in order of importance): funding, time, communication and trust (see Figure 2).

In preparation for the workshop, ELI and UNC also prepared a set of maps to illustrate areas where floodplains and wetlands overlap with priority habitat areas identified by the Iowa Department of Natural Resources (see “Appendix B:” on page 18 for methods). The purpose of the maps was to illustrate where state and local agencies could focus their scarce resources to achieve mutual objectives: flood mitigation, wetland restoration, and habitat protection. Through mapping, we found extensive overlap between wetlands and wildlife habitats and flood-prone areas in the Basin. Four maps of the Cedar River watershed were created: Figure 3 outlines (in red boxes) three areas where there is considerable overlap among wetlands, floodplains, and wildlife habitat; Figures 4, 5, and 6 zoom in on each of the focal areas. For these maps, floodplain and habitat data were obtained from Iowa’s Natural Resources Geographic Information Systems Library (<http://www.igsb.uiowa.edu/nrgislibx/>).





Three distinct sections of the Cedar River Basin showed a high concentration of intersections among wetlands, floodplains, and priority habitat areas (i.e., “priority areas”). Figure 4 details a stretch of the West Fork of the Cedar River, in the northern region of the Basin, between the towns of Allison, Dumont, and Kelsey where a significant section of the Basin is labeled as a Priority Area. As illustrated in Figure 5, four distinct groupings of Priority Areas exist along the Cedar River in the central region of the Basin between the towns of Vinton, Center Point, Shellsburg, and Palo. Figure 6 shows the highest concentration and most continuous section of Priority Areas within the Basin. At the southern end of the Basin, near the towns of West Liberty, Atalissa and Conesville, the Iowa River features a significant stretch of delicate and diverse land. For example, a nearly continuous 15-mile stretch of the Iowa River, which is very close in proximity to the Mississippi River, is mapped as a Priority Area.

The priority areas of the Lower Cedar River (Figure 6) contain some of the most biologically significant areas within the Basin. Many rare

fauna and plants are present; most importantly, two G1 (5 or fewer known occurrences globally) plant communities can be found here, including the Swamp White Oak Savanna and the Central Tallgrass Fen. Further, over 70% of the reptile and amphibian species found in Iowa can be found within the Lower Cedar and The Nature Conservancy has documented more than 400 plant species, of which 70% are native, within the 370 acre Swamp White Oak preserve alone, and close to 1000 plant species in the entire region.

There are several ongoing preservation, restoration, and planning efforts in the Lower Cedar River region. The Nature Conservancy and other private landowners and partners have protected more than 20,000 acres in the region. In 2003-2005, working with partners in the Lower Cedar, the Conservancy initiated a conservation planning process, identifying additional priority areas for conservation, and continues to acquire new land. Further, as of 2008, NRCS offices in the area have enrolled more than 10,000 acres of flood-prone cropland into Wetland Reserve Program and Emergency Watershed Protection programs and the Iowa Department of Natural Resources, the U.S. Fish and Wildlife Service, and County Conservation Boards own and manage approximately 10,000 acres in the region. Ducks Unlimited, Izaak Walton League, and Pheasants Forever chapters in the area have also been active in raising funds for conservation projects. (See The Nature Conservancy (2008) The Lower Cedar River Conservation Action Plan for more information).

The Participants

More than 50 people attended the one-day workshop. Participants included wetland and wildlife managers from the Iowa Department of Natural Resources; hazard mitigation planners and disaster specialists from Iowa Homeland Security and Emergency Management; local emergency managers; local planning and zoning managers; local floodplain managers; members of local conservation organizations; federal agency staff, including the Natural Resources Conservation Service and the U.S. Army Corps



of Engineers; County Soil & Water Conservation Districts; Minnesota Department of Natural Resources; and County Conservation Boards; among others. Participants hailed from 14 counties, including Worth, Mitchell, Howard, Cerro Gordo, Floyd, Chickasaw, Franklin, Butler, Bremer, Black Hawk, Benton, Linn, Cedar, and Muscatine counties. A full list of participants can be found in “Appendix C:” on page 19.

The Agenda

Although many workshop participants indicated in the preliminary survey that their organization collaborates with other organizations frequently, discussions with Advisory Committee members and responses to other questions on the web survey indicated that many groups attending the workshop did not have much concrete overlap in activities or knowledge with other organizations’ programs and priorities. Based on these results, the workshop was designed to provide opportunities for participants to interact with different organizations and agencies to identify opportunities for greater collaboration.

In order to raise awareness among the agencies and organizations about each other’s activities and priorities and the benefits that can be gained from collaboration, the morning session included introductions to the following topics: land protection in floodplains, watershed management, hazard mitigation, wildlife habitat protection, floodplain management, and community planning and zoning (see “Appendix D:” on page 22 for the Workshop Agenda). The morning session also included an overview of physical overlap between habitat and natural hazard zones in the watershed and a review of the Iowa Flood Center’s flood mapping in the Cedar River Basin. These early sessions were essential to set the stage for the afternoon dialogue on obstacles and opportunities for interagency collaboration. In the afternoon, participants broke into groups to identify examples of successful collaboration, obstacles to collaboration, and opportunities to overcome obstacles, including possible funding sources available for joint projects. The breakout sessions were designed to facilitate dialogue among the entire group of participants. The final group session focused on identifying next steps to ensure long-term interagency collaboration and cooperation.

Preserving Wetlands and Mitigating Flood Hazards through Interagency Collaboration

The Workshop confirmed the potential benefits of interagency collaboration. Participants indicated that improved communication, promotion of locally led actions or initiatives, more long-range planning to identify priority areas, and development of established structures for continued communication could all lead to projects that yield multiple benefits.

Obstacles

Despite the potential benefits of interagency collaboration, the workshop participants identified a number of obstacles that could hinder progress, including lack of identified priorities and measurable outcomes, regulatory hurdles, funding, political and geographical scale, political will, communication and outreach, and logistical hurdles.

1. Lack of identified priorities and measurable outcomes

Many participants indicated that a lack of “defined priorities,” including identified priority geographical areas for preservation or restoration, significantly constrains progress in the Basin. Participants suggested that there is a “lack of work done in advance to identify high priority areas where investment should be ready to go” when funding is secured or there is political or public will to act (often in response to a disaster).

Participants also suggested that although there is a “framework in place for coordinating Basin-wide activities, there is little to point to in terms of outcomes” on the ground. Participants indicated that there is a need for additional studies on the outcomes of existing projects. However, some suggested that it might be difficult to “measure the collective impact of all of these local projects.” Further, participants suggested that the “lag time” before a project’s results become apparent makes it hard to point to measurable outcomes in a timely fashion in order to engage funders and the public to support continued work.

2. Regulatory Hurdles

Workshop participants noted that “federal rules and red tape” hinder collaborative efforts and limit the ability of agencies and non-profits to reach Basin-wide goals. For instance, participants indicated that there are often “regulatory restrictions on using two different sources of funding for one project.” In some cases these restrictions are representative of the differing, and sometimes conflicting, missions of different agencies. For example, as two participants noted, the Natural Resources Conservation Service’s “Wetland Reserve Program rules are not designed for emergencies,” and “FEMA is prohibited from using hazard mitigation funds on agriculture lands.” Participants also suggested that there is a lack of incentives to encourage responsible land use by private landowners. Further, there are few enforcement mechanisms to ensure that landowners and public officials comply with responsible practices and, as a result, much of the “cost associated with flooding gets externalized to the general public.”

3. Funding

Funding—both lack of funds and funding restrictions (related to both timing and geographic area)—was also identified as a significant obstacle by participants. For example, several participants

noted “government funding cycles are short” compared to the long-term investments needed to effectively complete wetland restoration projects. Additionally, participants mentioned that funding is “always slow and too late to take advantage of landowner interest soon after the flooding” (especially in rural areas with agricultural land owners). Finally, participants indicated that “funding is restricted by political boundaries,” designated only for use in a particular area, limiting the utility for accomplishing Basin-wide flood mitigation goals.

4. Political and Geographical Scale

Ecological boundaries rarely correspond with political boundaries. Thus, addressing issues across a watershed or ecosystem requires cooperation and coordination across political jurisdictions, resulting in a patchwork of authorities responsible for habitat conservation, floodplain management, and hazard mitigation planning in a given watershed or river basin. Workshop participants noted that this issue of scale—both geographical and political—is an obstacle to collaboration in the Basin. Participants also noted that it is often difficult to work across political boundaries to accomplish flood mitigation and habitat conservation goals and “difficult to expand existing projects beyond political boundaries.”

5. Political Will

A lack of political will—especially among local elected officials who make many of the land use decisions—hinders local and state agencies and organizations from pursuing projects that may provide multiple benefits. Participants expressed concern that “officials choose to ignore floodplain realities in favor of short-term economic gain,” and that the “will is not there to manage floodplains.”

6. Communication and Outreach

A lack of communication among agencies and organizations working in the Basin as well as among these groups and the public was cited as a major obstacle. Participants also cited the lack of a central location for information (necessitating “constant networking” to keep up with the latest data) and a lack of information on the roles of the various actors in the Basin as major obstacles.

In terms of public communication, a lack of public understanding of the role that wetlands play in flood mitigation and the “perception that there is a ‘technical fix’ for flooding,” were cited as detrimental to public support of wetlands protection. There is a need for more communication with the public. Workshop participants, however, suggested that there is no one place to find all water-related work in the Basin, and that there is “a lack of communication venues” to share the work with the public.

7. Logistics

One logistical obstacle identified by workshop participants included the cumbersome nature of collaboration between large agencies, especially since many of the organizations are “too busy to begin with,” leaving their employees with limited time to devote to collaborative projects (in spite of the fact that collaboration might increase their reach and impact). Similarly, it can be difficult to involve the public in habitat protection projects and flood mitigation campaigns due to the time constraints of individual citizens; for instance, it is difficult to get the public to attend many meetings.

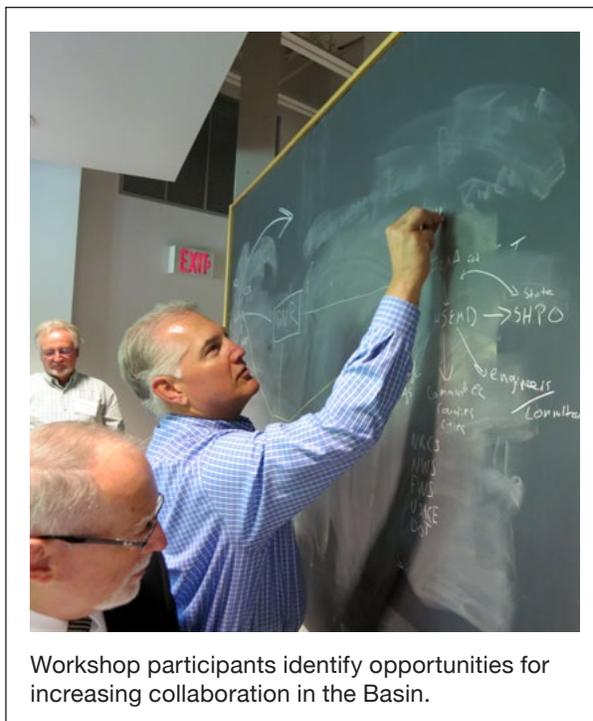
Opportunities

Multiple, realistic opportunities exist to overcome these obstacles and leverage funding sources and capacity to engage in interagency collaborative projects that yield multiple benefits. Workshop participants identified a number of opportunities including the following:

1. Identify Priority Areas/Projects and Common Goals

Long-range, comprehensive planning, specifically identifying and prioritizing (“based on decreasing budgets”) the “most vulnerable sites” for protection as well as promising candidates for restoration in advance, would help to stimulate more “locally-led” initiatives and “action”. Such initiatives and activities would not only help meet local habitat protection and flood hazard mitigation goals, but also will increase local buy-in (of the public as well as elected officials) and provide examples of successful projects upon which neighboring communities can build. There is, however, often little time to capitalize on public enthusiasm and political will for such projects (often occurring immediately following major flood events), and calls for proposals and funding program sign-up periods are often short. Proactive and collaborative planning (including “more input by habitat/floodplain managers in hazard mitigation plan development”) can help to overcome these obstacles and may also have broader implications for land use and development decision-making throughout the Basin. As one participant suggested, “state and local plans are relied upon when it comes to making regulatory decisions.”

Identification of priority land areas with the greatest conservation and flood hazard risk reduction value would allow organizations with limited resources to achieve greater results and will identify areas where different agencies and organizations can collaborate to achieve mutual goals. As a first step towards identifying priorities, there is a need to “identify common goals” across the Basin. As one participant suggested, it would be beneficial to establish “statewide benchmarks with measurable results,” perhaps in the form of a state water plan. Another agreed, stating “we need to make the connection that planning cannot be done by every group,” but everyone could buy into a set of clearly defined, concrete goals developed with comprehensive stakeholder participation. Clear goals with measurable results and a clear plan for achieving them are the necessary “intermediate steps toward a larger goal.” Recent research reports—such as The Nature Conservancy’s “Iowa-Cedar River Basin Needs and Capacity Assessment Summary” and Earth Economic’s “Valuing Nature’s Benefits: An Ecological Economic Assessment of Iowa’s Middle Cedar Watershed”—could help inform the development of Basin-wide goals.



Workshop participants identify opportunities for increasing collaboration in the Basin.

Providing Communities and Decision-Makers with State-of-the-Art Floodplain Maps and Real Time Information on Flood Conditions

The Iowa Flood Center (IFC), founded following the devastating 2008 Midwestern US flood in an effort to mitigate future flood impacts, provides Iowa communities and decision makers state of the art floodplain mapping and real-time information on flood conditions. With funds from the U.S. Department of Housing and Urban Development, IFC, in partnership with the Iowa Department of Natural Resources, is creating and updating floodplain mapping across the state using detailed topographic data collected during a recently completed statewide aerial LiDAR (Light Detection And Ranging) survey. LiDAR, an optical remote sensing technology that uses lasers from aircrafts to obtain accurate (within approximately 7 inches) elevation measurements, allows for more precise delineation of floodplain boundaries. IFC has produced a number of additional flood-relevant tools, which are accessible to the public through the Iowa Flood Information System (IFIS). IFIS provides real time, community-centric information on flood conditions, forecasts, visualizations, and other flood-and weather-related information and applications. The IFC maps and IFIS tools will help improve flood monitoring and predictions in Iowa, reducing damage from future floods. (See www.iowafloodcenter.org for more information).

2. Strengthen networks

Strong networks between agencies and organizations have the potential to overcome “the challenge of political boundaries” and many of the other obstacles identified above. Although there are existing structures for bringing groups together from across the Basin, such as the Cedar River Watershed Coalition, new partnerships—particularly with emergency managers, developers and real estate experts, community members, councils of government, and other non-traditional partners—could improve outcomes. As one participant put it, “sometimes people don’t collaborate with people they do not share common goals with; however, there is in reality a possibility of successful collaboration despite different goals.” Participants noted that this could be achieved on a small scale through the development of “personal relationships” between staff members at diverse agencies; however, more structured relationships at the organization level may be more successful at sustaining long-term partnerships. Several participants suggested that regular meetings, preferably “multiple sessions per fiscal year,” are necessary to ensure that momentum is sustained.

3. Improve communication and access to information

Several participants suggested that better communication tools to help agency and organization staff working in the Basin “keep up on what different groups or agencies are doing” would help them to determine when goals and work align and would facilitate better collaboration. As one participant suggested, this could help to identify projects where “private organizations could tackle gaps that the government can’t reach.” Suggestions for such tools included quarterly newsletters, a listserv, and a clearinghouse of information. In addition to information on existing projects, these communication tools could also identify upcoming events and funding opportunities. Specific information and outreach regarding the new Iowa Flood Center maps,

USGS/FEMA maps, the INHF/ELI/UNC overlay maps (see above), and a classification of the roles of the various actors in the Basin (who they are, what they do, how they fit in, and what projects are best suited to them) could also be included. A report detailing return on investment of existing projects would also be useful. Several participants noted that the Iowa Floodplain and Stormwater Management Association is already serving as a clearinghouse and may be a good starting point to meet this need in Iowa. There is also a Cedar River Watershed monthly e-newsletter, which advertises events, grant opportunities, successes, and relevant headlines across the Basin.

Collaborating to Restore Wetlands and Mitigate Floods in Louisa County

When floodwaters broke through the Louisa County levee system in 1993, silt deposits damaged nearby crop grounds and standing water leached the surrounding soil of nutrients. The 1993 flooding – the seventeenth flood since the levee was built in 1910 – left eleven breaks in the levee system and many landowners eager to be relieved of the responsibility of farming non-reliable crop ground. With a high probability of the reoccurrence and the high costs associated with responding to these flooding events, local landowners and environmental organizations saw an opportunity to transform this highly flood prone land into the Horseshow Bend Division of what is now called the Port Louisa National Wildlife Refuge. The refuge now provides wildlife habitat, temporary floodwater storage, and water quality improvement. With funding from the U.S. Department of Agriculture’s Emergency Wetland Reserve Program as well as with acquisition funds from the Natural Resource Conservation Service, the U.S. Fish and Wildlife Service, The Conservation Fund, Federal Emergency Management Agency, the Iowa Natural Heritage Foundation, and Pheasants Forever the partnership (through the Iowa Natural Heritage Foundation) was able to buy fee title to 2,575 acres from ten willing landowners. After the buyouts, breaches in the cross levee were repaired and sites were restored and transferred to the U.S. Fish and Wildlife Service as part of the Refuge. Subsequent floods – including the 2008 flood – have demonstrated the continued value of this approach.

This public/private partnership demonstrates the benefits that can be gained by forming working partnerships between private landowners and government agencies. A Memorandum of Agreement delineated the various roles to be played by the various organizations and agencies involved in the project. For instance, the Natural Resources Conservation Service administered the new Emergency Wetlands Reserve Program as well as the funds appropriated under it, the Army Corp of Engineers was in charge of repairing the levee, the U.S. Fish and Wildlife Service’s staff engaged in environmental assessments of the land, and the Iowa Natural Heritage Foundation facilitated negotiations and completed land transactions between landowners and the federal government. The numerous organizations involved with the buyouts played significant roles and their collaboration serves as an applicable example for future flood management and planning projects. The project is now in an adaptive management phase (e.g., breaches in the cross levee caused by more recent flooding were not repaired) and has led to other successful efforts in the region. (See http://www.leopold.iastate.edu/sites/default/files/events/case_study.pdf for more information).

These resources also could serve as a means to educate the public about the linkages between wetlands conservation and flood hazard mitigation and thus, hopefully, increase community buy-in and support of collaborative projects. One participant suggested the public would get involved if they perceive the project will provide a real “fix” to the flooding problem and where the project will result in multiple benefits for the community. Another suggested that the public would get involved where there is “permanent protection, so we don’t have to pay for it two or three times.” Development and dissemination of success stories (including the Iowa Department of Agriculture and Land Stewardship demonstration sites, among others) may be particularly effective in motivating locally led projects and public buy-in. Sharing success stories with the public and providing praise and recognition to those who do get involved would increase community involvement (some case studies suggested by workshop participants can be found in boxes in this report). Another way to better involve the community is to collaborate with non-traditional partners, including community-led groups.

The County Conservation Board Directors in the Cedar River Watershed have developed a plan to effectively communicate messages to the public about reducing flooding in the watershed. The Plan was developed based on a series of focus groups held throughout the Basin that tested different watershed management/flood risk reduction messages to identify ones that resonated with multiple audiences. The plan is now being implemented as an education plan, led by the County Conservation Boards, throughout the Basin.

4. Pursue regulatory changes

“Cutting through the regulatory red tape” and more reliable agency interpretation of regulations could streamline projects and improve outcomes on the ground. Standardizing government policies across agencies to make wetlands protection, flood hazard mitigation, and emergency response policies more consistent with one another would enhance collaborative opportunities and reduce cases in which the work of one agency undermines the work of another. Participants also agreed that it would be beneficial to streamline easement programs in the next Farm Bill to make this form of wetlands conservation easier.

5. Pursue funding opportunities

In addition to the traditional funding sources (e.g., Wetland Reserve Program, North American Wetlands Conservation Act grants, etc.), workshop participants identified a number of new and innovative funding sources. For example, one participant suggested that the Water Resources Development Act (WRDA) might be a potential source of funding. Another participant suggested that wetland mitigation banks might be an opportunity to fund wetland restoration efforts in the Basin. Several participants suggested a need to make “conservation as profitable as farming” through “purchase of development rights” or “committed political will to funding,” for example.

Participants also felt that there are opportunities to improve the funding of collaborative efforts through regulatory changes. For instance, one participant suggested that it would be beneficial for “some of the hazard mitigation grant funds to go to agricultural lands and not just structures.” Participants also felt that it would be beneficial to change regulations in order to make it easier to combine different sources of federal money to fund a project. Another suggested that enrollment in the Conservation Reserve Program, which provides payments to farmers to take highly erodible

or environmentally sensitive cropland out of production for 10 years or more, could be coupled with tax incentives. For example, CRP rental payments are currently subject to self-employment Social Security taxes, because the Internal Revenue Service (IRS) considers CRP payments to be income from farming (with exceptions for retired farmers). Some argue that CRP payments should be considered rental income and not subject to the self-employment tax (Cowan 2010).

Improving the Flood Retention and Habitat Quality of Dry Run Creek

In 2004, the Iowa Department of Natural Resources (DNR), the University of Northern Iowa (UNI), and the City of Cedar Falls, in partnership with numerous non-profit organizations, and community development agencies, collaborated to address biological impairment issues in the Dry Run Creek Watershed in Cedar Falls, Iowa. The goal of the Dry Run Creek Project is to reduce urban runoff from impervious surface through the implementation of infiltration based best management practices. The project also takes measures to address ancillary concerns such as sedimentation through stream bank stabilization, filter strips, and rural practices including grassed waterways, conservation tillage, and buffer strips. The Iowa Watershed Improvement Review Board, the DNR, the Iowa Department of Agriculture and Land Stewardship - Division of Soil Conservation, IJOBS, and the Community Foundation of Northeast Iowa fund the project. The Dry Run Creek Project has developed the capacity to infiltrate over 170,000 gallons of stormwater per day through rain gardens, bioretention cells, permeable pavement, and bioswales. In addition, work has been done to reduce sedimentation runoff by over 100 tons annually. IOWATER, the DNR, Black Hawk Soil and Water Conservation and UNI conduct weekly and monthly monitoring activities to assess the progress of the project. The Black Hawk Soil and Water Conservation District also conducts outreach activities to educate the public about the services the project provides for the community. Presentations, press releases, and an annual workshop are all part of this outreach program and help educate and motivate watershed stakeholders to address watershed issues in their neighborhoods. (See http://www.blackhawkswcd.org/Dry_Run_Creek_Watershed.php for more information).

Conclusion

To build community resilience to flooding, organizations and agencies need to find opportunities to stretch increasingly scarce resources. By combining financial resources and staff capacity, organizations can sometimes achieve together what neither could accomplish alone. Collaborative projects that both help to conserve wetlands and wildlife habitats while also protecting communities from flood damage will help to ensure the protection of vital ecosystems and the natural services they provide. Collaboration across organizations is often challenging—workshop participants identified many obstacles—but these obstacles are not insurmountable.

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Appendices

Appendix A: Advisory Committee

Wetlands, Wildlife Habitat, and Flood Hazards in the Cedar River Basin Advisory Committee

- Pat Boddy, RDG Planning and Design
- Jennifer Fencil, Environmental Services Director, East Central Iowa Council of Governments
- Vern Fish, Executive Director, Black Hawk County Conservation Board
- Dennis Goemaat, Deputy Director, Linn County Conservation
- Susan Judkins Josten, Community Development Specialist, MSA Professional Services
- Jeff Sherman, Environmental Specialist/County Sanitarian, Floyd County Board of Health
- Mary Beth Stevenson, Iowa-Cedar River Basin Coordinator, Iowa Department of Natural Resources

Appendix B: Preparing Maps of Wetlands, Floodplains and Wildlife Habitat

The University of North Carolina Institute for the Environment (UNC) prepared maps showing the overlap among wetlands, floodplains, and wildlife habitat in the Cedar River Basin. To develop these maps, first, UNC gathered the necessary geospatial data layers, including flood hazard areas (floodplain) and priority habitat areas (Wildlife Protection Priority Area layer from the Iowa DNR). Floodplain and habitat data were obtained from Iowa's Natural Resources Geographic Information Systems Library (<http://www.igsb.uiowa.edu/nrgislib/>). The 100-year floodplain data was obtained from FEMA's website. A few counties within the Cedar River watershed do not participate in the National Flood Insurance Program, thus floodplain shapefile data was unavailable for those counties.

After gathering the data layers, UNC conducted a GIS analysis using ArcGIS. UNC added the data layers described above to the map of the two Basins, making sure the coordinate and projection systems were compatible and adjusting accordingly through the Projections and Transformations tab within the Data Management Utility in ArcToolbox. In order to overlay all the relevant layers and identify areas of overlap, UNC used the intersect tool within the overlay tab of the Analysis Tools Utility, which lies within ArcToolbox, adding the relevant data layers and conducting the analysis. The resulting maps showed the areas where the different layers overlap (all other areas were not identified in the output). The areas of overlap represent opportunities where the goals of emergency management and wildlife agencies can be furthered through conservation and restoration.

Appendix C: List of Workshop Participants

Wetlands, Wildlife Habitat, and Flood Hazards in the Cedar River Basin Workshop

Wednesday, May 16, 2012
Center for Energy and Environmental Education
University of Northern Iowa

Participant List

Dan Abel
Commissioner
Linn County Soil & Water Conservation District

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Iowa Homeland Security and Emergency Management

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Black Hawk County Conservation Board

Matthew Fisher
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The Nature Conservancy

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Linn County

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Black Hawk County Emergency Management Agency

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Iowa State University Extension

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MSA Professional Services

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Iowa Department of Natural Resources

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Buchanan County

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Black Hawk County Soil & Water Conservation District

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Sherman Lundy
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Black Hawk County Soil & Water Conservation District

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Joe Myhre
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North Iowa Area Council of Governments

Tom Oswald
State Lead Public Assistance Coordinator
Iowa Homeland Security
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Benton County Conservation

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State Wildlife Action Plan Manager
Iowa Department of Natural Resources

Kevin Richards
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U.S. Geological Survey Iowa Water Science Center

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Iowa Natural Heritage Foundation

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Stormwater Manager
City of Cedar Rapids

Brian Schoon
Director of Development and Transit
Iowa Northland Regional Council of Governments

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Floyd County Board of Health

Nicholas Smith
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Linn County Soil & Water Conservation District

Amber Wasendorf
Citizen

Curt Weiss
Director
Muscatine County Conservation Board

Nathan Young
Associate Director/Associate Research Engineer
Iowa Flood Center/IIHR-Hydroscience & Engineering

Project Partners

Rebecca Kihslinger
Science and Policy Analyst
Environmental Law Institute

David Salvesen
University of North Carolina
Institute for the Environment

Eric Thomas
University of North Carolina
Institute for the Environment

Appendix D: Workshop Agenda



THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL



Wetlands, Wildlife Habitat, and Flood Hazards in the Cedar River Basin:
A workshop to identify opportunities to protect vital wetland and wildlife habitat and promote resilience to flooding in the Cedar River Basin through greater interagency coordination

Wednesday, May 16, 2012
Center for Energy and Environmental Education
University of Northern Iowa

Workshop Agenda

Workshop Description:

This workshop is designed to build on the groundwork laid through existing collaborative efforts such as the Cedar River Watershed Coalition by identifying concrete opportunities for new partnerships and on-the-ground projects. The workshop will explore how hazard and emergency managers, floodplain managers, land use planners, and wetland and wildlife conservation managers can work effectively together to meet multiple goals and identify the information needed and funding sources available for joint projects.

Objectives:

- Increase awareness among hazard and emergency managers, floodplain managers, land use planners, and wetland and wildlife managers about each others' work, and where their work overlaps;
- Identify the obstacles to collaboration among hazard and emergency managers, floodplain managers, land use planners, and wetland and wildlife managers; and
- Identify opportunities for collaboration and the information needed and funding sources available for joint projects.

8:30 am **Registration & Breakfast**

9:00 – 9:15 **Welcome & Introductions**

- Kamyar Enshayan, UNI Center for Energy and Environmental Education
- Duane Sand, Iowa Natural Heritage Foundation

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- 9:15 – 9:30 **Project Goals and Survey Results**
- Rebecca Kihslinger, Environmental Law Institute
 - David Salvesen, UNC Institute for the Environment
- 9:30 – 10:00 **Flood Mapping in the Cedar River Basin**
- Eric Thomas, UNC Institute for the Environment
 - Nathan Young, Assistant Director, Iowa Flood Center
- 10:00 – 10:40 **What We Do: Hazard mitigation, wetlands protection and wildlife management, floodplain management, and community planning**
- Long-term Investments in Land Protection in Flood Plains
 - Laurel Foreman, Natural Resources Conservation Service
 - Vern Fish, Black Hawk County Conservation Board
 - Watershed Management
 - Jeff Tisl, Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation
 - Sara Strassman, American Rivers
- 10:40 – 10:55 **Break**
- 10:55 – 12:15pm **What We Do: Continued**
- Hazard Mitigation
 - Tom Hauber, Iowa Homeland Security and Emergency Management, Public Assistance Program
 - Terry Brown, Iowa Homeland Security and Emergency Management, Hazard Mitigation Program
 - Wildlife Habitat Protection, Restoration, and Management
 - Katy Reeder, Iowa Department of Natural Resources
 - Jason Auel, Iowa Department of Natural Resources
 - Floodplain Management
 - Susan Judkins Josten, MSA Professional Services
 - Planning and Zoning
 - Les Beck, Linn County Planning and Development
 - Brian Schoon, Iowa Northland Regional Council of Governments
- 12:15 – 12:45 **Lunch**
- 12:45 – 1:45 **Break-out Session 1 – Examples of Successful Collaboration and Obstacles to Collaboration**
- Rebecca Kihslinger, Break-Out Instructions and Desired Outcomes
 - Rebecca Kihslinger, David Salvesen, Eric Thomas, Facilitators
- Desired Outcomes:*
- Identify previous examples of successful collaboration to yield multiple benefits in the Basin.
 - Identify the obstacles to collaboration.

- 1:45 – 2:30 **Report Back**
• David Salvesen, Facilitator
- Discussion Questions:*
- What are the keys to success?
 - What are the major obstacles to collaboration?
- 2:30 – 2:45 **Break**
- 2:45 – 3:45 **Break-out Session 2 – Overcoming Obstacles**
• Rebecca Kihslinger, Break-Out Instructions and Desired Outcomes
• Rebecca Kihslinger, David Salvesen, Eric Thomas, Facilitators
- Desired Outcomes:*
- Identify opportunities to overcome obstacles to collaboration.
 - Identify the information needed for joint projects.
 - Identify the funding sources available for joint projects.
- 3:45 – 4:30 **Report Back**
• David Salvesen, Facilitator
- Discussion Questions:*
- How can obstacles to collaboration be overcome?
 - What are the opportunities for collaboration across disciplines?
 - What is the key information needed?
 - What are the most promising sources of funding?
- 4:30 – 5:00 **Recommendations and Next-Steps**
• Tom Oswald, Iowa Homeland Security and Emergency Management
• Rebecca Kihslinger, Environmental Law Institute
- Discussion Questions:*
- Where do we go from here? How do we continue the collaboration?
 - Should we continue the collaboration started at the Workshop?
 - How do we leverage the relationships and networks built through the Cedar River Watershed Coalition?
- 5:00 pm **Adjourn and Informal Gathering**

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