

# Quality Water, Quality Life

## *Community Workshops*

### What We Heard

*Reporting back on what we heard during the BRWA's water quality (non-point source pollution) public engagement efforts.*



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Community Workshops: What We Heard

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**At the Battle River Watershed Alliance we desire to live, work and play in a watershed that sustains all life by using sound knowledge, wisdom and wise actions to preserve our watershed for future generations.**

**Battle River Watershed Alliance**  
**Second Floor**  
**Gateway Centre**  
**4825 51 Street**  
**Camrose Alberta**  
**T4V 1R9**  
**1 888 672 0276**  
[www.battleriverwatershed.ca](http://www.battleriverwatershed.ca)

## Connecting People to Place for Action



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## About the Battle River Watershed Alliance

The Battle River Watershed Alliance (BRWA) was created in 2006 as a non-profit society. Shortly after its formation, the BRWA was selected by Alberta Environment, under *Water for Life: Alberta's Strategy for Sustainability* (Government of Alberta, 2003), as the designated Watershed Planning and Advisory Council (WPAC) for the Battle River and Sounding Creek watersheds within Alberta. See page 6 for a map of the Alberta portions of these watersheds.

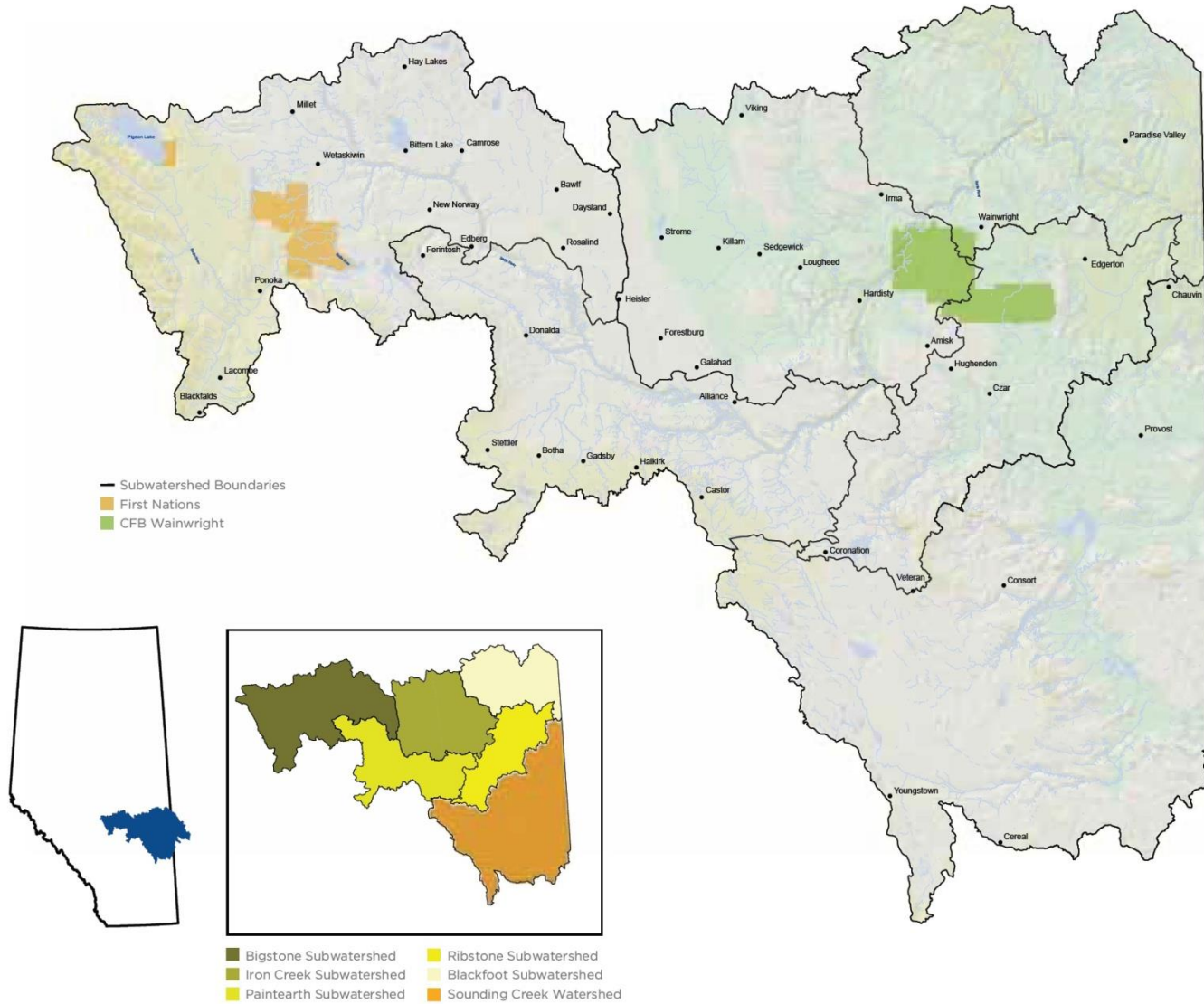
Under Alberta's *Water for Life* strategy, WPACs have a role to report on the state of the watershed, lead in watershed planning, develop best management practices, educate users of the water resource and foster stewardship activities within the watershed.

The BRWA works in partnership with communities, individual watershed residents, watershed stewardship groups, all four orders of government (municipal, provincial, federal and First Nations), industry, academia, and environmental organizations to promote the health and sustainable management of the land and water resources of the Battle River and Sounding Creek watersheds using the best science and social science available.

We exist to have a watershed that sustains all life by using sound knowledge, wisdom, and wise actions to preserve our watershed for future generations.

**Visit the BRWA's website for more information:** [www.battleriverwatershed.ca](http://www.battleriverwatershed.ca)

# Battle River and Sounding Creek Watersheds within Alberta

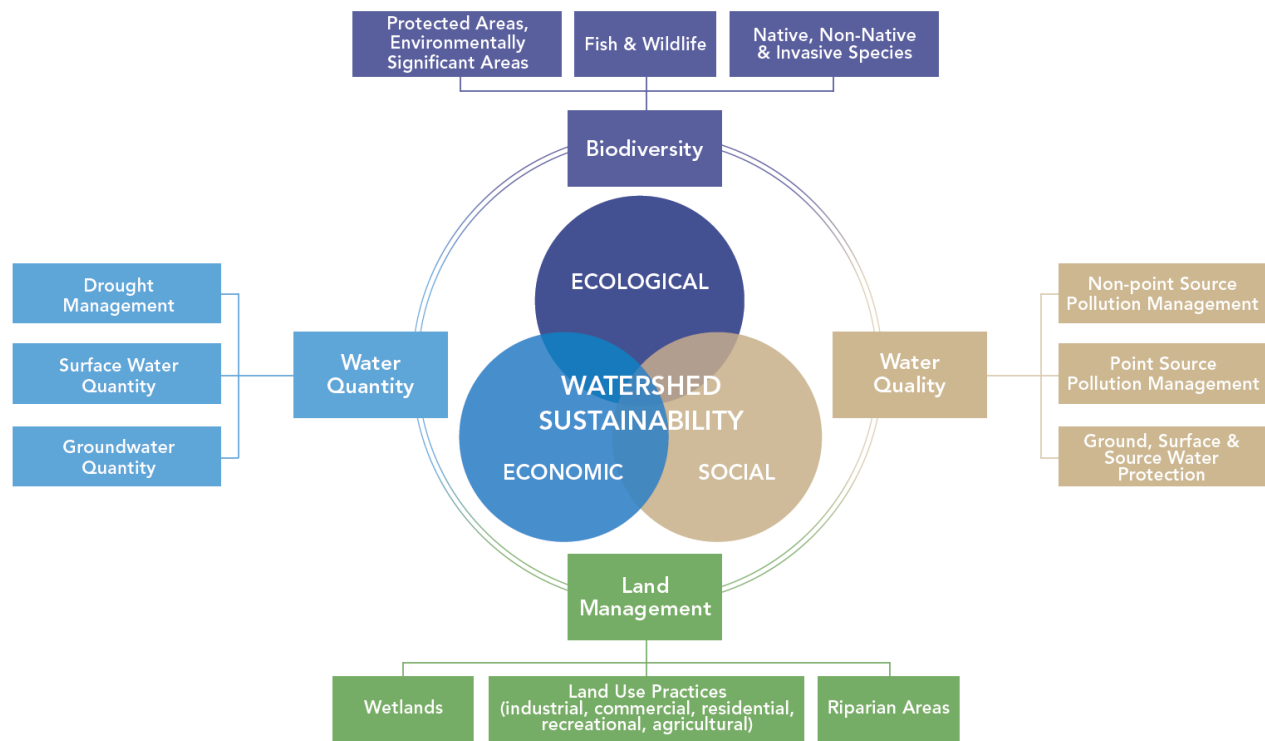


## About This Report

The BRWA released its *State of the Battle River and Sounding Creek Watersheds Report* (SOW report; BRWA 2011) in October 2011. The purpose of that report is to provide a benchmark for assessing watershed sustainability by reporting on key environmental, social and economic indicators in the watershed.

The SOW report was also the trigger for the Battle River Watershed Management Planning Process. This planning process will ultimately result in a comprehensive Watershed Management Plan for the Battle River and Sounding Creek watersheds, and is guided by the *Battle River Watershed Management Planning Process Phase Two Terms of Reference* (BRWA 2012a).

Based on the findings of the State of the Watershed report, as well as feedback from a round of workshops hosted by the BRWA in November 2011, twelve watershed management priorities were identified under the overarching themes of water quantity, water quality, land management and biodiversity. These are outlined in the figure below.



**Figure 1: Key components of the BRWA's watershed management planning process**

The BRWA is now undergoing a process to develop policy advice for each of the priority areas. Beginning in 2012, non-point source pollution management alternatives for the Battle River and Sounding Creek watersheds are being examined.

Public participation is essential throughout this planning process. As such, the development of non-point source pollution policy advice is guided by a public engagement strategy (BRWA

2012b). In addition, all BRWA public engagement efforts are aligned with the International Association for Public Participation core values for public participation (IAP2 2006a-c).

In order to begin the discussion around non-point source pollution policy advice, the BRWA undertook to host a series of community workshops across the Battle River watershed in fall 2012, under the title “Quality Water, Quality Life”. In order to gain feedback from people unable to attend the workshops, an online survey was also created. A follow-up workshop was then held in March 2013 to report back to people and continue the discussion on non-point source pollution policy advice and implementation options.

**The purpose of this report is to share with watershed residents, stakeholders, and decision-makers what we heard during the “Quality Water, Quality Life” community workshops, through the online survey, and at the follow-up workshop in March 2013.**

**See Appendix 1 for a map of workshop locations, Appendix 2 for a description of workshop dates, times and locations, and Appendix 3 for a full list of businesses, organizations, and municipalities who have participated in the BRWA’s discussions around non-point source pollution management to-date.**



## What We Did

### Fall 2012

In the fall of 2012, the BRWA hosted a series of community workshops that were open to all watershed residents, stakeholders and decision-makers. The purpose of these workshops was to:

- 1) provide an overview of the BRWA's watershed management planning process;
- 2) describe the current state of water quality in the Battle River and Sounding Creek watersheds;
- 3) share information about the current knowledge of non-point source pollution, the policy context for its management, and current and emerging management options for reducing NPS pollution; and
- 4) encourage dialogue among watershed residents, stakeholders and decision-makers on the topic of non-point source pollution management alternatives for the Battle River and Sounding Creek watersheds.

Furthermore, an overarching goal of the workshops was to work collaboratively with watershed residents, stakeholders, and decision-makers to begin the work of developing water quality (non-point source pollution) policy advice for the Battle River and Sounding Creek watersheds.

Each workshop began with a presentation outlining the BRWA's watershed management planning process and its current work and research related to non-point source pollution management. The remainder of each workshop involved a facilitated discussion around non-point source pollution management options to improve water quality in the Battle River and Sounding Creek watersheds.

The discussion was structured around these questions:

- What experiences (positive or negative) have you had with water quality in this watershed? In your local area?
- With the goal of improving water quality through managing non-point source pollution:
  - What actions should be taken? By whom?
  - How can these actions be supported? By whom?
  - What barriers are preventing people from taking these actions?
  - How can these barriers be overcome?
- Any other thoughts on water quality that we haven't talked about yet?

These questions were also presented in an online survey for residents, stakeholders and decision-makers who were unable to attend the workshops. The online survey may be accessed at <http://www.surveymonkey.com/s/6KN56SR>.

## March 2013

Feedback received during the fall workshops and through the online survey supported the development of draft water quality (non-point source pollution) policy advice for the Battle River and Sounding Creek watersheds. Recommendations contained within the draft policy advice may be divided into two broad categories: 1) policy advice for rural, agricultural landscapes; and 2) policy advice for communities and country residential developments. The March 2013 workshop focused on sharing information and receiving feedback on topics and recommendations related to the first category. The BRWA plans to host a workshop in the future to share information and receive feedback on topics and recommendations related to the second category.

The discussion rounds at the March workshop were structured around these questions:

- Do you agree with the draft recommendations?
- Do you have any suggestions for how these recommendations could be improved?
- Is there anything missing?
- Potential partners: Do you have any suggestions for changes?

Guest speakers enriched the conservation by presenting on topics related to several of the draft recommendations. Presentations included:

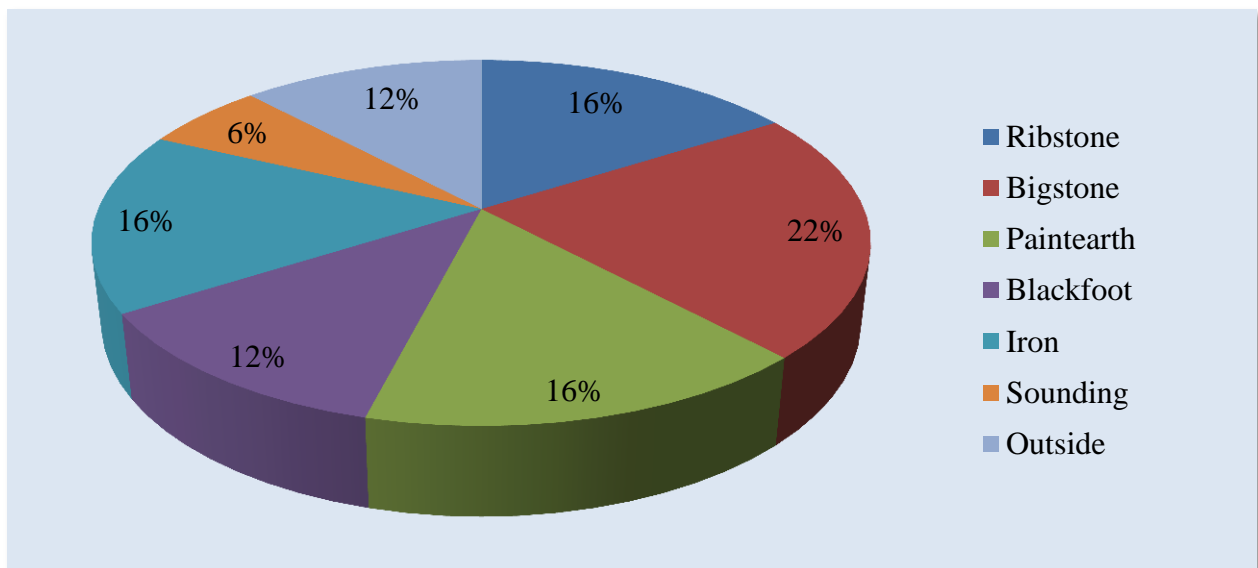
- Kristen Lorenz, groundwater specialist from Alberta Agriculture and Rural Development (ARD), discussed the results of various ARD studies related to water quality impacts in agricultural landscapes, including the recently completed nutrient beneficial management practices study.
- Chris Teichreb, limnologist and water quality specialist with Alberta Environment and Sustainable Resource Development, discussed the draft Water Quality Objectives recently developed for the Battle River watershed, as well as next steps in developing strategies to meet these objectives.
- Perry Phillips, program coordinator for the Alberta Environmental Farm Plan (EFP) program, discussed the EFP as a tool for environmental stewardship of Alberta's agricultural lands. He also provided an update on Growing Forward 2.

## Who Attended

### Fall 2012 Workshops

50 people attended the fall 2012 community workshops, representing stakeholder groups from across the watershed, including municipal and federal government, environmental and agricultural organizations, watershed stewardship groups, agricultural producers, landowners and other watershed residents. Members of the press were in attendance at four of the six workshops. Figure 2 illustrates workshop attendance by subwatershed, and Figure 3 shows workshop attendance by sector. While no provincial government representatives were present at the workshops, representatives from Alberta Agriculture and Rural Development and Alberta Environment and Sustainable Resource Development participate in the BRWA’s Watershed Management Plan Steering Committee and support communication and involvement from those provincial departments.

Some sectors and stakeholder groups were not represented at the fall workshops. These groups were invited to provide input through other means, and the BRWA will continue to ensure that all stakeholder groups are provided with opportunities to be involved throughout the watershed management planning process.



**Figure 2: Fall 2012 workshop attendance by subwatershed**

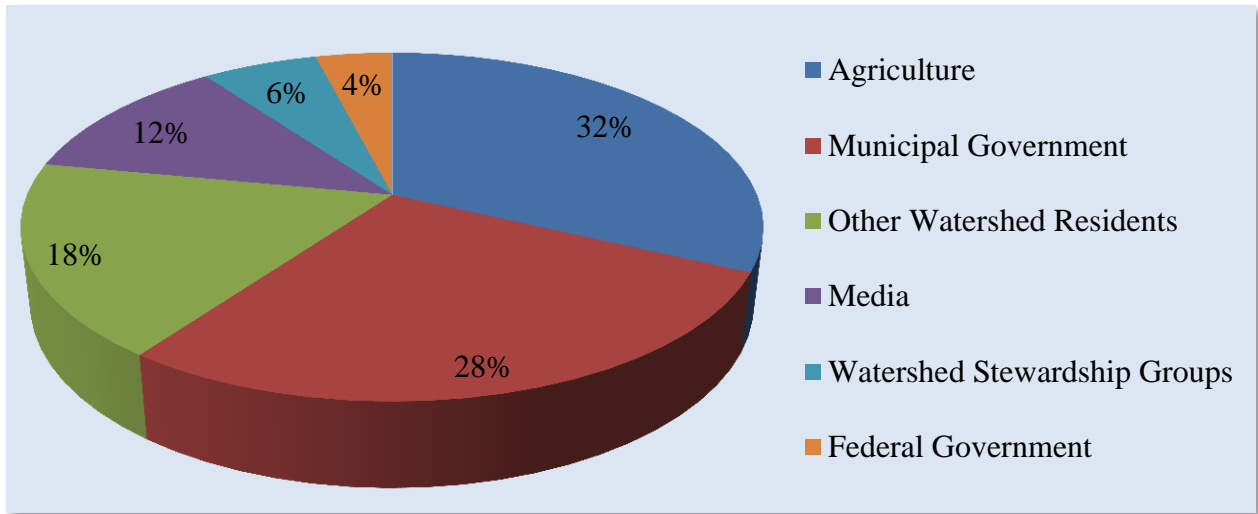


Figure 3: Fall 2012 workshop attendance by sector

## March 2013 Follow-up Workshop

32 people attended the March follow-up workshop, representing stakeholder groups from across the watershed, including municipal and provincial government, environmental and agricultural organizations, watershed stewardship groups, agricultural producers, landowners and other watershed residents. A reporter from the Community Press newspaper was also in attendance. Figure 4 illustrates workshop attendance by subwatershed, and Figure 5 shows workshop attendance by sector. There were no workshop attendees from the Ribstone subwatershed and Sounding Creek watershed.

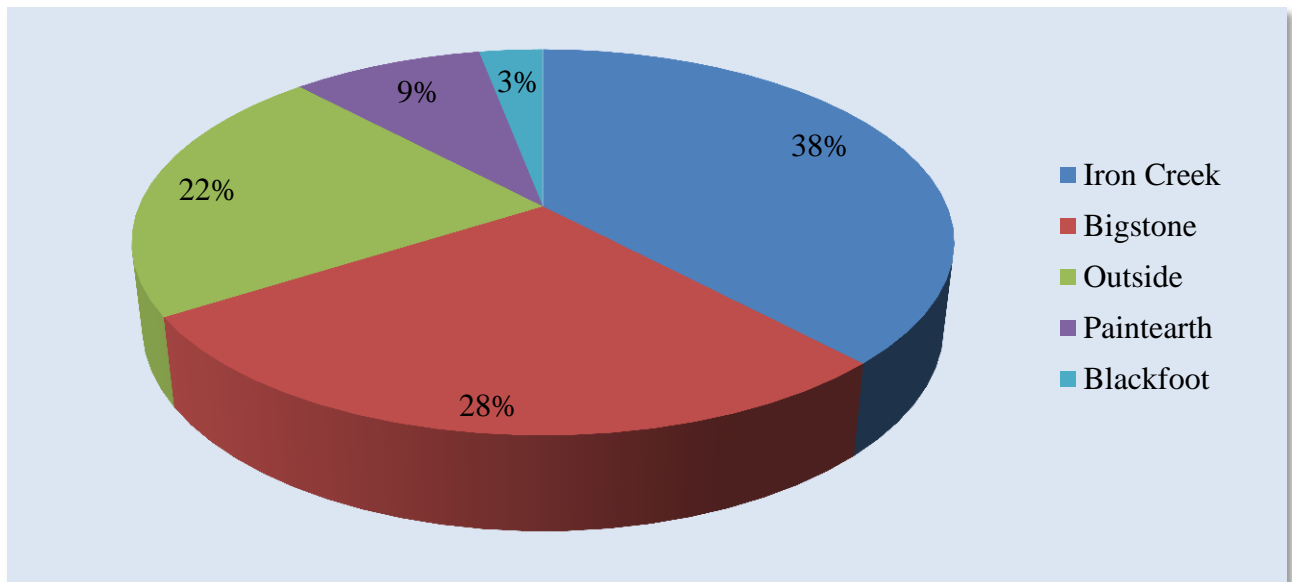
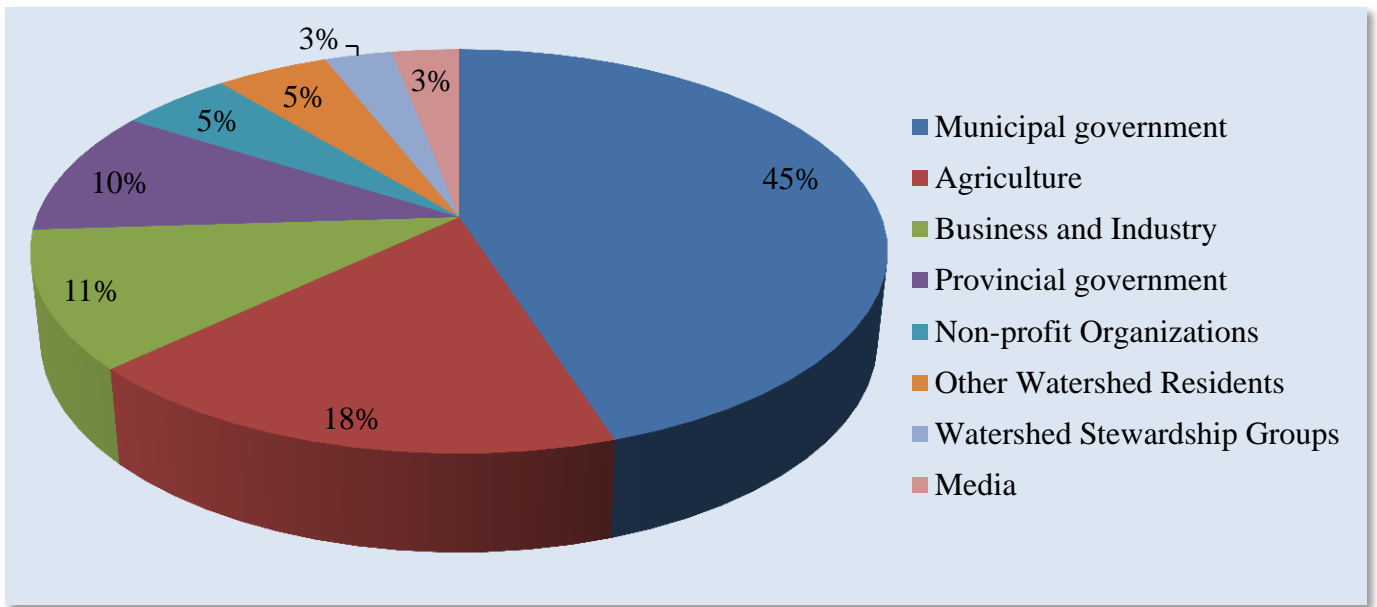


Figure 4: March 2013 workshop attendance by subwatershed



**Figure 5: March 2013 workshop attendance by sector**

Similar to the fall 2012 workshops, not all sectors and stakeholder groups were equally represented at the follow-up workshop. These groups will be invited to provide input through other means, and the BRWA will continue to ensure that all stakeholder groups are provided with opportunities to be involved throughout the watershed management planning process.

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## What We Heard: Fall 2012 Workshops

### Experiences with Water Quality

**Watershed residents were asked to reflect on experiences they have had with water quality in the Battle River and Sounding Creek watersheds. Their responses are described below.**

The Alberta River Water Quality Index is calculated for the Battle River based on water quality monitoring conducted at the two long-term river network stations located along the Battle River. Based on this Index, Battle River water quality has been given an overall rating of *fair* from 2006 to 2010 (more recent data is unavailable at this time). This rating signifies that Alberta water quality guidelines are “sometimes exceeded by moderate amounts”, with water quality occasionally departing from desirable levels. The “nutrients” index category has been rated as either *poor* or *marginal* from 2003-2010, meaning that guidelines are often exceeded by large amounts.

In contrast to these ratings, many watershed residents found it difficult at first to think of negative experiences they have had with water quality in this area. One potential reason for this is that many people no longer rely directly on the Battle River for their drinking water.

Camrose, Wainwright, Ohaton and Bittern Lake are the only communities within the Battle River watershed that still receive their drinking water from the river, representing about 30% of the watershed’s urban population. For the purposes of this report, “urban” refers to people living in any city, town, or village. Wetaskiwin, which comprises about 15% of the watershed’s urban population, uses water from Coal Lake, which feeds into the Battle River through Pipestone Creek. Where people do rely on local surface water sources for household use, drinking water treatment standards are such that the quality of the “source” of this water is rarely, if ever, considered by the average resident.

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*Rather than relying on our water treatment facilities to do all the water treatment for us, **source water protection** is an approach to ensuring safe drinking water for our communities that looks at managing water quality at its source. This means ensuring that the water quality of our lakes, rivers, streams and groundwater systems is protected through minimizing or controlling potential sources of pollution or contamination. We can reduce water treatment costs by thinking about the quality of our drinking water before it even reaches our water treatment facilities.*

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Apart from those who use local surface water bodies and waterways for household use (primarily the communities identified above), the remainder of the people of this watershed receive their

water from groundwater sources or through pipelines from the North Saskatchewan River and Red Deer rivers. A recent survey of 43 communities in the Battle River and Sounding Creek watersheds, representing about 70% of the population of these watersheds, found that about 40% of these people rely on regional water supply systems from the North Saskatchewan and Red Deer rivers for their drinking water. Another 15% of urban residents rely on groundwater supplies.

While the waste water from our homes and communities ends up in the Battle River watershed, it is easy to become disconnected from the potential impacts of waste water when we rely on clean drinking water from elsewhere to meet our needs.

### Groundwater Quality

Related to groundwater, most workshop participants noted that their well water is, for the most part, good quality. Some commented on the naturally high variability in groundwater quality that can be observed from well to well, even within a small area of land. Others have noticed the gradual deterioration of the quality of their well water. Periodically, high fecal coliform counts in well water have been noted. People question where these fecal coliforms are coming from. They also question what impact waste transfer stations have on both ground and surface water quality. In one region of the watershed (Shorncliffe Lake), salt water migration is an issue of concern, with the potential to impact both surface water and ground water sources. People in the Iron Creek subwatershed also commented on the high salinity of the water in some wells in that area. They also noted that salinity seems to be increasing, as evidenced by the salinity of local soils.

### Surface Water Quality

Several surface water quality issues were mentioned at the workshops, which were often associated with specific actions thought to negatively impact water quality. Recreation and development around recreational lakes was described as one such action that has an impact on water quality. Inappropriate disposal of sewage from private sewage systems was also noted as a concern. In addition, watershed residents have witnessed fish kills around Pigeon Lake that are associated with high nutrient levels and high water temperatures. Home owners around Fish Lake commented on the excessive weed growth that has developed on that lake in recent years, limiting their ability to swim and fish there.

Several other issues were identified, including year-round cattle access to natural water bodies and waterways, as well as the clearing of land along lakes, rivers and streams, and in upland areas. Watershed residents have seen first-hand that many banks of the Battle River are unstable and eroding due to lack of vegetation cover. Degraded riparian areas have also been observed along the shorelines of major recreational lakes such as Pigeon Lake. Healthy riparian areas are critical to the health of aquatic ecosystems due to their ability of filter out many harmful pollutants from surface water runoff.



Some people have witnessed increased algae blooms in recent years, along with fewer fish in the Battle River and other streams where they were once abundant. Stories from Iron Creek tell of increased pollution in that waterway, and recollections of a time when people would swim there. Some residents from the Ribstone Creek region have noticed a shift from smaller livestock operations to more intensive feedlot operations. In contrast, some cattle ranchers along the Ribstone Creek consider the creek’s water quality to be fairly good, and value the flood plains of the creek for hay production.

People also recognize that water quality is closely associated with water quantity. In this part of the province, we cannot rely on large volumes of water to “flush out” the pollutants in our lakes, rivers and streams.

Despite these water quality challenges, people also had some positive experiences related to water quality. They appreciate the waterfowl that make use of local wetlands. They have seen the positive benefits that off-site livestock watering systems have on riparian vegetation and local waterfowl and other wildlife.



**Castor Workshop (Oct 4, 2012)**

## Action to Improve Water Quality

**Workshop participants were asked to consider actions that could or should be taken to improve water quality in the Battle River and Sounding Creek watersheds, specifically related to non-point source pollution management.**

### Urban Actions

The management of non-point source pollution within urban environments is largely about managing stormwater. “Low Impact Development” (LID) has emerged in recent years as an innovative means of managing stormwater as close to its source as possible. LID techniques include rain barrels, rain gardens, bioretention areas, bioswales, green roofs, and permeable pavement. While workshop participants commented on the limited degree to which many such techniques have been implemented in Alberta, they recognized the positive benefits these techniques could have as a means of controlling stormwater runoff from local communities.

Several workshop participants were interested in exploring how permeable pavement (pavement that allows water to filter through the pavement into the ground below) could be utilized in local communities. Concerns were raised about how permeable pavement would perform in Alberta’s cold climate, but it was suggested that test patches could be used to evaluate the functionality of any given type of permeable pavement. Several people also thought that rain barrels, green roofs, rain gardens and bioswales were techniques that could be applied in their communities. Demonstration projects could determine the appropriateness of these techniques in various communities.

Stormwater retention ponds were described as another possible technique for managing stormwater in our communities. Some people further emphasized that these ponds should mimic natural water filtering systems such as wetlands, noting the important role riparian vegetation plays in improving water quality. Some smaller communities utilize drainage ditches to manage stormwater. Workshop participants described how cattails and other beneficial vegetation are often removed from these ditches because they are thought to be a fire and/or flood hazard. Their value in improving water quality and reducing the rate of surface water runoff is not recognized. They suggested that more education around the benefits of maintaining more natural drainage ditches could encourage more appropriate management of these areas.

In general, it was recommended that careful attention be paid to the way in which urban development occurs in our watershed.

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*Non-point source pollution is defined as contaminants that enter water bodies from a number of diffuse sources. This pollution is often carried by surface water runoff, but may also enter water bodies through atmospheric deposition and seepage from groundwater systems.*

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## Rural Actions

Because east-central Alberta is a largely agricultural landscape, many of the suggestions for improving water quality in rural landscapes came back to agricultural practices. Related to livestock production, a common recommendation was that livestock access to natural water bodies should be limited and water provided to animals through off-site watering systems. A related suggestion was that riparian areas be protected through establishing riparian setbacks or buffer zones. The protection of wetlands on both crop and pasture land was also thought to be important for the improvement of water quality.

There was broad support for crop management practices such as conservation or minimum tillage, as well as for maintaining natural, or at least grassed, waterways in cropped fields. Another suggestion was to return marginal land to grass, rather than try to seed it to crops.

Several watershed residents commented on the value of Agriculture and Agri-Food Canada's "Prairie Shelterbelt Program" in promoting the planting of trees and other vegetation in both upland and riparian areas on agricultural land. They expressed their disappointment that the federal government has chosen to discontinue the program.

In addition to agricultural concerns, there was also some discussion around the potential impacts of private septic systems, for country residences in general and especially for lake-side communities. Many workshop participants told stories of people improperly disposing of their sewage, whether into local ditches, waterways, or other lands. This is often considered to be the easiest and most cost-effective means of disposing of the sewage. In other cases, sewage may enter the watershed unintentionally due to old or otherwise faulty systems. One recommendation was that all such faulty septic systems should be replaced. A related concern was that, in most cases, people with older systems are not required to upgrade as improved regulations are put in place, provided their systems met the regulations in place at the time of installation (also referred to as the "grandfathering" of older systems). Some residents felt that all old systems need to be upgraded to meet new regulations.

## Water Quality Monitoring

A key action described at the workshops was that more intensive water quality monitoring is required to better understand the sources of pollution in our watershed. People questioned why there are only two long-term water quality monitoring stations in the Battle River watershed, and why both are located in the Bigstone subwatershed (the headwaters region) while the rest of the watershed has none. A more specific recommendation related to water quality monitoring was

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*Wetlands and riparian areas are able to improve water quality through trapping, storing, or otherwise processing various pollutants. They also serve as natural water storage units, which limits the amount of runoff (and thus pollutant transport) from the landscape.*

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that tributary streams of the Battle River could be monitored to identify the pollutants coming from these sources.

### **Supporting Action**

Workshop participants identified several key elements that contribute to collaboration and the creation of collective solutions to watershed issues. First, it is important to acknowledge the perspectives people bring with them and build an understanding of watershed issues based on the best information available. It is then possible to come together to discuss watershed issues, find common ground, and explore alternatives for action to address those issues. It is a central goal of the BRWA to provide a forum for such discussions.

It was also noted that it is important to manage people's expectations related to the work of watershed management planning. This is a long-term process, and it may take time for the effects of management actions to become apparent. One workshop participant emphasized that small, incremental actions taken by everyone may be better than "grandiose" schemes that do not encourage the participation of all watershed residents.

### **Encouraging Action through Education**

"Nothing will happen without building public awareness," one workshop participant stated, echoing the sentiments of people across the watershed. Many workshop participants pointed to the central role that educational programs play in bringing attention to local watershed issues and encouraging action. They encouraged more work to be done in this area. While many people emphasized the importance of educating youth, others broadened the field to include farmers, ranchers, and other landowners; urban residents and planners; businesses; new homeowners; and all others who live, work and/or play in this watershed.

## Overcoming Barriers to Action

**Workshop participants described various barriers that may be preventing people from taking the actions discussed above. They also outlined ways in which these barriers can be overcome and means by which beneficial management actions can be supported.**

### Money

First and foremost, watershed residents pointed to the central role financial considerations play in determining action or inaction. In communities, there are costs associated with incorporating such low impact development techniques as rain gardens, bioswales and permeable pavement. For country and lake residents, upgrading private sewage systems has major financial implications. In the agricultural industry, “increased production and development trumps protection of environment”, as one workshop participant said. Others commented on the time and cost involved in implementing some beneficial management practices. These costs are even more of a barrier when landowners are uncertain about how those practices will benefit them, monetarily or otherwise. Beneficial management practices may also be seen as a barrier to maximizing profits. For example, one resident made the point that farmers may be able to make more money by draining or degrading wetlands and riparian areas and farming through them.

### Incentives

Many watershed residents pointed to the benefits of financial incentive programs in encouraging the implementation of beneficial management practices. They see such programs as a way of getting more buy-in from producers and building trust. One concern related to these programs is that they often require a large amount of paperwork, which may be a barrier to participation for some. In particular, several people commented on negative experiences with the Environmental Farm Plan and Growing Forward programs due to the tediousness of the application process, the volume of paperwork required, and the amount of time required to complete that paperwork.

In addition, some landowners were apprehensive about programs such as conservation easements that result in a long-term, legally-binding agreement to manage an area of land in a particular way. Instead, many landowners seemed most comfortable with incentive programs that allow the producer to be flexible and adaptable in the way they manage their land.

While incentive programs often reward landowners for practices that work to reclaim degraded landscapes, some people felt that landowners should also be rewarded for landscapes that have been maintained in a natural state for many years (for example, recognizing the value of a wetland that a landowner has left intact for many years).

Related to the concept of incentives, watershed residents suggested that other instruments such as subsidies, tax credits, carbon credits, and rebate programs could be used to encourage beneficial actions. For example, governments and other agencies could offer rain barrels to local residents

at discounted rates, or provide financial support to people who want to install rain gardens or upgrade private septic systems.

## **Rural Actions**

In addition to money, workshop participants described several other barriers to implementing beneficial management practices in rural areas. The sheer scale of some farming operations and the size of equipment used reduce the likelihood that small wetlands will be left intact. A specific comment related to off-site watering systems was that in some cases it is too difficult to use some of these systems due to terrain. In other cases, these systems may have to be checked daily to ensure they are properly functioning. In general, it was suggested that more research and development could help to improve the technology of these systems so they are more reliable and adaptable in a variety of situations.

## **Technical Support for Action**

Education is essential in raising awareness and understanding of watershed issues and what can be done to address those issues. However, even when people understand the issues and are aware of beneficial actions that could be taken, they may not have the technical knowledge or skills required to implement certain beneficial management practices. In rural settings, technical knowledge may be required to install an off-stream watering system for cattle. In urban communities, residents may require technical expertise to properly install a rain garden on their property. It is important that such technical assistance be made available in order to support the implementation of beneficial management practices.

## **Socio-Cultural Barriers to Action**

Several workshop participants noted that change will not occur without a change in thinking, a change in habit, a change in paradigm. They pointed to the fact that many habits and ways of being have become entrenched in our culture. Even attitudes and cultural norms around something as seemingly small as lawn maintenance can have a substantial impact on our watershed. As an additional barrier to change, people may hold to the belief that “we’ve always done it this way, so we’re going to continue doing it this way”.

Another barrier to action identified at the workshops was a lack of public responsibility and accountability: “nobody wants to claim responsibility for things like poor water quality. We’ll always point the finger at others first. No one will stand up and take responsibility for the river, the watershed”, said one local resident. It’s easy to think that water quality is someone else’s problem, or to point to others who are doing things much worse than we are.

Finally, it is easy to become apathetic towards the issue of water quality in this region of the world, especially considering that we have safe and clean drinking water delivered directly to our

homes. Workshop participants also linked this apathy and lack of awareness to “people being more and more detached from their natural environment”.

As described above, watershed residents point to education and awareness as important tools to overcome these barriers to action. People may be more likely to take action on watershed issues when they see the benefits of those actions and have the tools they need to make it happen.

### **Political Barriers to Action**

There was a general sentiment among workshop participants that various levels of government could do more to take action on water issues, and that there must be the political will to make this happen. At the municipal level of government, it was acknowledged that there are often a number of everyday issues and tasks to be addressed, and so the building of long-term solutions to water quality issues may be placed on the back-burner.

Though positive incentives were often thought to be more effective than regulations, watershed residents also acknowledged the value of regulations in protecting water quality. This is especially important for those who choose not to participate in voluntary programs designed to support beneficial management practices. People felt that where regulations are put in place, an alignment between municipal, provincial and federal policies and regulations would be beneficial to effective water management. They also noted that if regulations are put in place, the government must ensure that these regulations are adequately enforced.

## What We Heard: March 2013 Follow-up Workshop

As stated above, feedback received during the BRWA's fall workshops and online survey supported the development of draft water quality (non-point source pollution) policy advice for the Battle River and Sounding Creek watersheds. Discussion at the March 2013 workshop focused around non-point source pollution management strategies for rural, agricultural landscapes. Information on this topic was provided through guest speakers, followed by rounds of discussion that provided workshop participants with an opportunity to provide some initial comments on the related policy advice/recommendations developed by the BRWA. In general, workshop attendees were in agreement with the draft recommendations related to non-point source pollution management in rural, agricultural landscapes. They provided more specific comments on a number of the recommendations. Below is a brief description of those comments.

### Agricultural Management

With regards to agricultural management, there was general agreement with the recommendations proposed. However, the recommendations focus largely on the adoption of voluntary beneficial management practices, and some people wondered if more emphasis should be placed on regulatory means of managing some agricultural practices. Other participants pointed to the need for increased educational efforts around agricultural regulations already in place, as well as increased enforcement of those regulations to ensure compliance.

There was also a suggestion to have "test" or "control" sites to evaluate the effectiveness of various management practices in improving water quality and agricultural production. In addition, questions were raised about the feasibility of some of the beneficial management practices proposed, including composting (costs and water use associated with proper composting), off-site watering systems (ensuring that these systems are reliable in extreme winter conditions) and manure spreading (the need for adequate areas of land to spread manure, and variable capacities of large and small operations to achieve this).

### Water Quality Objectives and Monitoring

There was general agreement with the recommendations proposed. In particular, participants supported the creation of additional long-term water quality monitoring stations along the Battle River, as well as increased monitoring of tributary streams within the watershed. Watershed residents also agreed that it is important to look at potential water quality impacts from atmospheric deposition.

### Wetlands and Riparian Areas

Workshop participants agreed that protection of wetlands and riparian areas plays a key role in maintaining and improving water quality. They asked for clarification on what it means to



“maintain” riparian areas that are currently in good health. They also pointed to the importance of mapping flood plains and riparian areas to more clearly understand the extent of these areas across the watershed. Finally, they noted the importance of considering potential impacts to wetlands, riparian areas and other natural areas from various land use practices, including the clearing of trees in rural areas and the use of recreational vehicles in sensitive areas.

## **Stormwater and Wastewater Management**

Watershed residents noted that more could be done to adequately maintain stormwater and wastewater infrastructure in rural communities and landscapes. They also reaffirmed the importance of providing cost-effective sewage disposal options to rural residents, given that upgrading these systems is cost prohibitive to many landowners.

## **Encouraging Beneficial Management Practices**

Workshop participants emphasized the importance of effective educational programs to support increased knowledge and adoption of beneficial management practices. In addition, they supported the use of financial incentives to offset the costs associated with implementing these practices.

Several participants voiced concerns about the development of a manure transportation incentive program. The aim of such a program would be to reduce costs associated with transporting excess manure to land bases that could benefit from additional nutrient inputs. In particular, they were concerned about the potential carbon footprint associated with increased manure transportation, as well as the potential for increased nutrient issues in the areas to which excess manure is transported. Some people suggested that increased promotion of manure composting would be a better alternative.

## **Sharing of Information**

Workshop participants agreed that the sharing of information is essential for watershed residents to gain knowledge and understanding of the current state of the Battle River and Sounding Creek watersheds and actions that may be taken to improve the social, economic and ecological health and sustainability of these watersheds.

## Next Steps

Based on feedback from watershed residents, stakeholders, and decision-makers during the BRWA's fall 2012 water quality workshops, draft water quality (non-point source pollution) policy advice was developed for the Alberta portions of the Battle River and Sounding Creek watersheds. The draft policy advice was then presented for initial stakeholder input at the BRWA's March 2013 follow-up workshop.

While a broad cross section of watershed stakeholders were present at the March workshop, the BRWA would like to gain additional feedback on the draft policy advice document before it is finalized in order to ensure broad stakeholder input. Paper and online surveys will serve as the main method for gathering this feedback.

Discussions from the March workshop also provided a starting point for developing guidelines to support the implementation of the non-point source pollution policy advice. Thus, next steps also include developing non-point source pollution implementation guidelines and seeking broad stakeholder input on those guidelines.

Stakeholder feedback will be taken into consideration and incorporated into the policy advice and implementation guidelines documents before they are finalized and presented to the BRWA Watershed Management Plan committee and Board of Directors for final approval.

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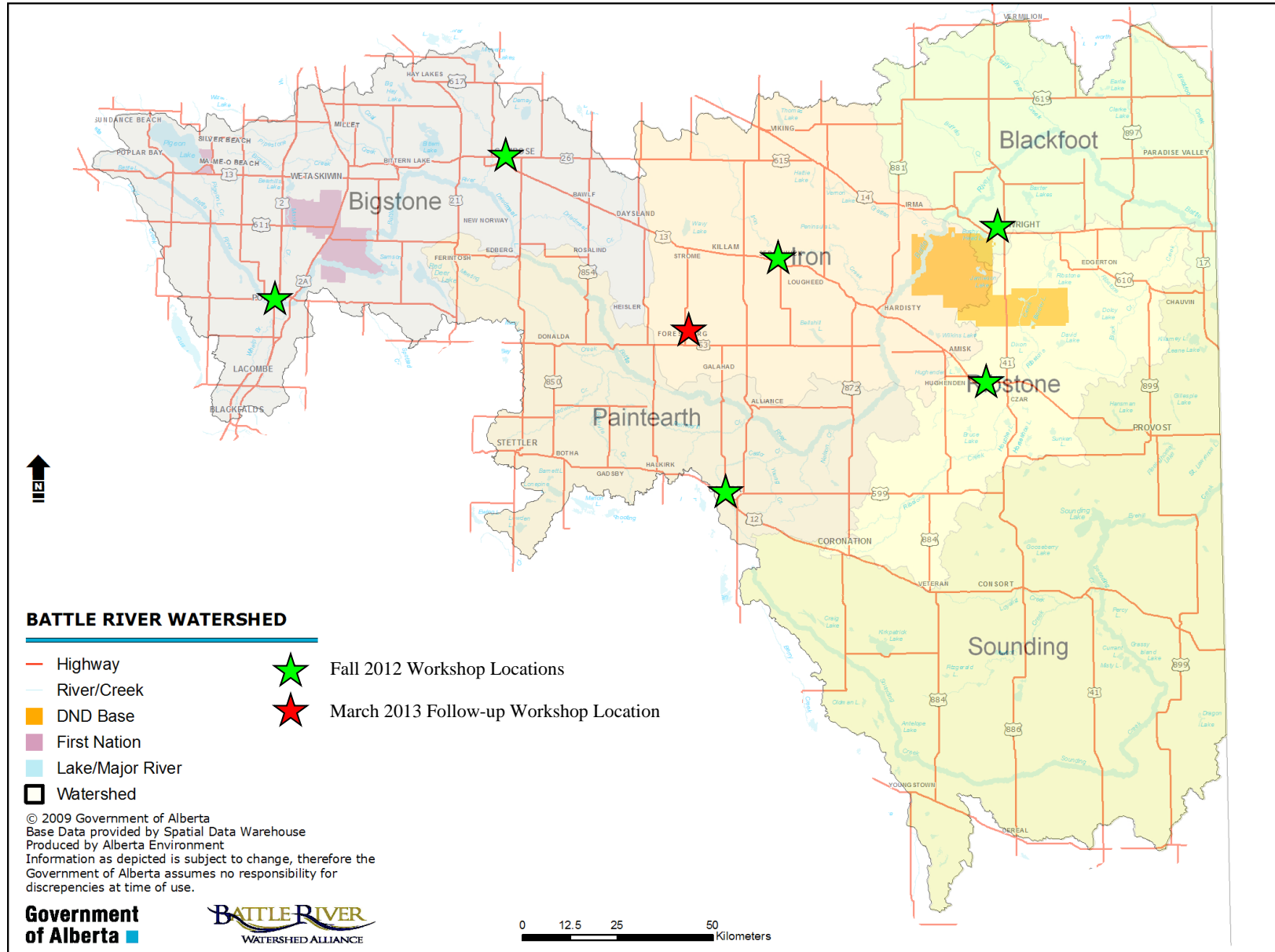
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# Appendix 1: Workshop Locations



## Appendix 2: Workshop Details

Community	Location	Date	Time	# of Participants
<b>Czar</b>	Shorncliffe Lake Hall	<b>Sept 11, 2012</b>	7:00-9:30pm	7
<b>Camrose</b>	Stoney Creek Centre	<b>Sept 13, 2012</b>	7:00-9:30pm	7
<b>Ponoka</b>	Kinsmen Community Centre	<b>Sept 18, 2012</b>	7:00-9:30pm	11
<b>Wainwright</b>	Wainwright & District Communiplex	<b>Sept 20, 2012</b>	7:00-9:30pm	8
<b>Sedgewick</b>	Flagstaff County office	<b>Oct 2, 2012</b>	7:00-9:30pm	8
<b>Castor</b>	County of Paintearth office	<b>Oct 4, 2012</b>	7:00-9:30pm	9
<b>Forestburg</b>	Forestburg Community Centre	<b>Mar 1, 2013</b>	10:00am-3:30pm	32

## Appendix 3: Stakeholder Groups Represented

Below is a list of the businesses, organizations, and municipalities who have participated in the BRWA's discussions around non-point source pollution management to-date:

- Alberta Agriculture and Rural Development
- Alberta Drainage Council
- Alberta Environment and Sustainable Resource Development
- Alberta Farmer (newspaper)
- Alberta Riparian Habitat Management Society (Cows and Fish)
- ATCO Power
- Battle River Research Group
- Camrose County
- Castor Advance (newspaper)
- City of Camrose
- City of Lacombe
- Community Press (newspaper)
- County of Vermilion River
- County of Wetaskiwin
- County of Paintearth
- DMR Farms
- DND Wainwright
- Flagstaff County
- Friends of the Chain Lakes Society
- Intensive Livestock Working Group
- Iron Creek Watershed Improvement Society
- MD of Wainwright
- Lacombe County
- Leduc County
- Losness Drilling
- Ponoka County
- Ponoka News
- Rodvang Farms
- Star News (newspaper)
- Town of Stettler
- Town of Ponoka
- Town of Provost
- Town of Viking
- Village of Donalda
- Village of Forestburg
- Village of Lougheed