

From: LICA Reception <lica2@lica.ca>
Date: Monday, January 27, 2025 at 12:30 PM
To:
Subject: LICA Winter Newsletter

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Good Afternoon, LICA Members,

LICA's Winter Newsletter has been released for your viewing!

Click on the link below to see all the exciting things that are happening.

2025 Youth Calendar Contest Winners

Progress Update on the Beaver River State of the Watershed Report

2025 Earth Day Writing Contest Details

LICA's Acid Deposition Monitoring Deployment of Ion Exchange Resins

Upcoming Events

<https://online.fliphtml5.com/bqscp/clas/>

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2025
Winter
Newsletter

Dark Skies Save Lives

The Importance of Mitigating Light Pollution

By: Stephanie Sampson

Nearly all organisms, from cyanobacteria to mammals, have a **Circadian Rhythm**: a system in our bodies where hormones are released in response to light levels, telling us whether we should be awake or asleep. Different species have different circadian rhythms – in humans, we sometimes say we are a “night owl” or an “early bird”. In wildlife, we use four different categories. **Nocturnal** animals are active during the night, while **diurnal** animals are active during the daytime. **Crepuscular** animals are active at twilight (dawn or dusk) and **catheimeral** wildlife species may be active during the day or night, depending on pressure of predators and resource availability.

There are significant benefits to being nocturnal. Nocturnal animals are often found in high-temperature climates, avoiding the heat of the day to conserve energy and water stores. Many predators are diurnal, which is an advantage for nocturnal prey species, with the ability to camouflage more effectively. In some regions, there is less competition for resources in the dark – think savannah watering holes.

How Light Pollution Affects Wildlife

Being nocturnal also comes with its drawbacks. Light pollution is a serious threat to many migrating species. By interfering with the natural timing of their activities, excess amounts of artificial light in the sky can alter migrating animals' stopover sites, cause collisions with large structures, and impede their ability to navigate effectively. Many birds use astronavigation (stars) to guide their way, but artificial light sends them off of their track. Some species misinterpret the light as longer daylight hours, which can lead to them using their energy reserves prematurely. Light can act as an attractant to species such as butterflies, moths and baby sea turtles, causing them to congregate in unsafe areas and become a concentrated food source for predators; this puts both prey and predator species at risk. On the other hand, light can also act as a repellent. Wildlife may forego otherwise acceptable habitat due to excess light levels – one way to haze a fox or skunk from denning under your shed includes using bright lights at nighttime to emulate an “unsafe” environment.

Natural light also plays an important role in animal reproduction. Many amphibians and birds begin their reproduction cycles based on length of daylight. The equilibrium we see during the spring and fall equinox cue these species hormones, telling them it's time to mate. Artificial light can impede these hormonal cues, and can cause species to reproduce at inopportune times.



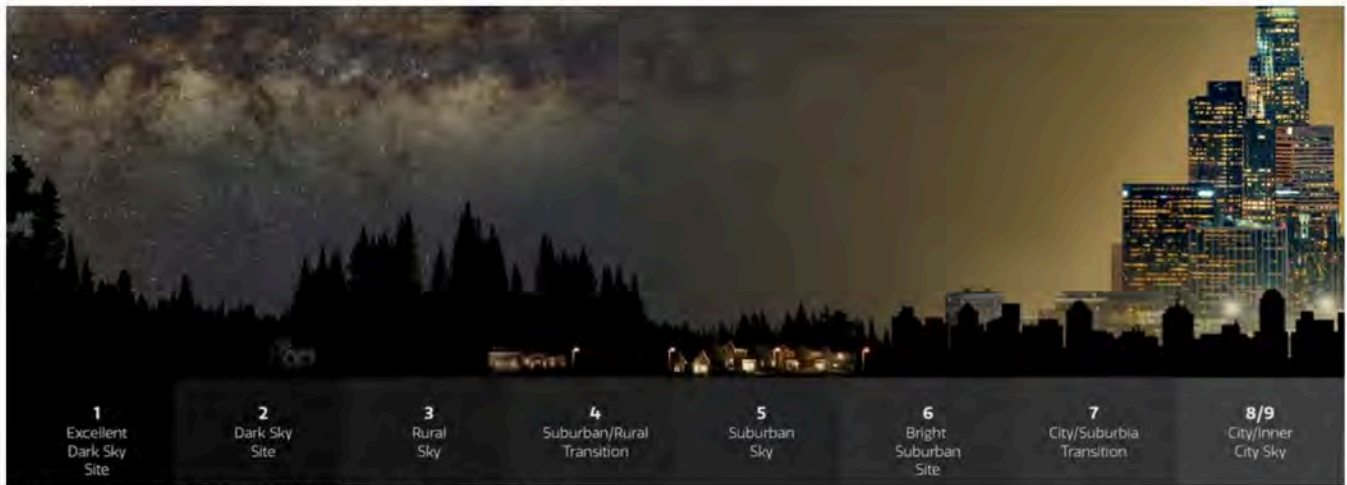


Image credit: NOIRLab/NSF/AURA, P. Marenfeld

Which Species in the LICA Region are Nocturnal?

The LICA region is home to many nocturnal species: Bobcats, American Porcupines, various bat species, Striped Skunks, Red Foxes, American Badgers, Cougars, Owls, and Raccoons, to name a few! Our region is also along four major migratory flyways, which means we have many visiting bird species throughout the spring and fall that can benefit from having wildlife-friendly skies.



How Can I Help?

Many city planners are now taking lighting into further consideration when planning parks and urban development projects. We may not be able to darken entire cities on our own, but we can make a difference in our own backyards! Consider using wildlife friendly wavelengths (amber/red are best for preserving night vision), aiming your lights in the right direction, and/or using motion sensors to reduce the duration of bright lights.



Not Recommended- Glare Lights

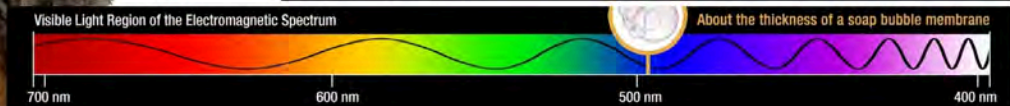
Typical 'Wall Pack' 	Typical 'Yard Light' 	Flood Light 
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Recommended- Shielded Lights

Opaque Reflector 	Typical 'Shoebbox' 	Flood Light with Hood 
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Sources of information:
 • Diagram adapted from Good Neighbour Lighting, 2007
 • <http://www.zbat-eps.harvard.edu/neipag/DIAG1.gif>
 • Lake Protection Workbook- <https://watersheds.ca/lake-protection-workbook/>
 • Photo credit: Igor Bortoluzzi



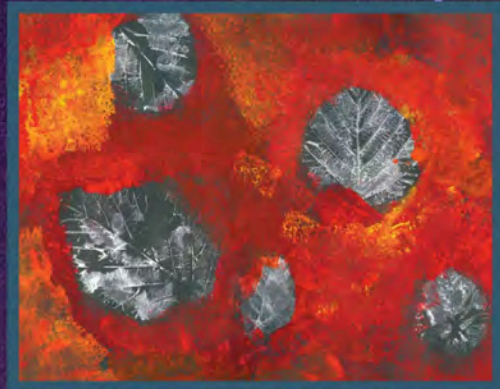


2025 Youth Calendar Contest

Congratulations to our Winning Artists!



Haddie Blake, Gr. 2.



Enoch Groothuysen, Gr. 2.



Anastasia Malysheff, Gr. 9.



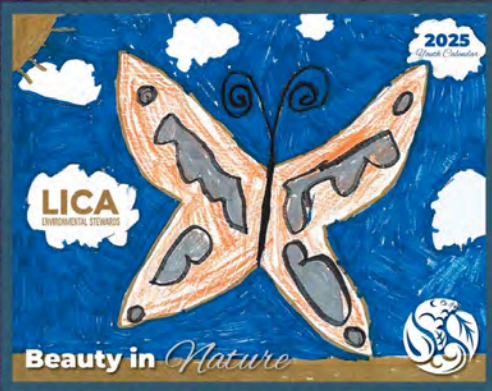
Davy Gagnier, Gr. 3.



Riley Stark, Gr. 4.



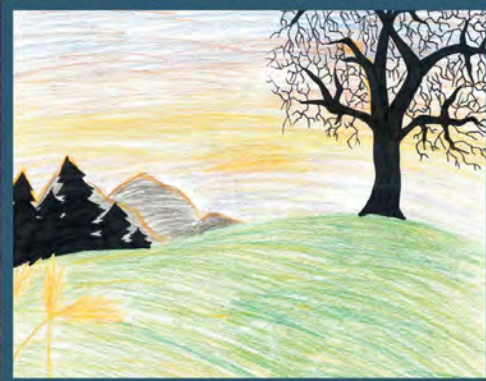
Ryla Poulin, Gr. 5.



Leah Monteith, Gr. 4.



Jillian Faith Sapigao, Gr. 8.



Shylit-Rae Major-Cardinal, Gr. 12.



McKellar Gagnier, Gr. 5.



Caerys Young-Krekoski, Gr.5.



Khailyn Gayle Campipi, Gr. 8.



Reese Elliott, Gr. 6.

**Pick up your Free
Calendar at the LICA
Office!**

The Beaver River State of the Watershed Report

By: Kayla Hellum

Progress Update

As a Watershed Planning Advisory Council, LICA's role is to assess, report on, and share the State of the Beaver River watershed. April 1, 2024, marked the start of a two-year State of the Watershed project. Year 1 (2024/25) will result in a published written report and Year 2 (2025/26) introducing an online component.

From April to November, Fiera Biological Consulting Ltd., completed the assessment and quantification of indicators chosen by LICA. As part of this assessment, LICA Staff worked simultaneously with Indigenous communities to create an Indigenous Knowledge component to this re-created state of the Beaver River watershed report.

Indigenous Knowledge Holders and Elders were offered the opportunity to participate in engagement sessions to share Indigenous knowledge, histories, and stories of their choosing. These teachings are being integrated into the report as a valuable insight to document what people on the land have/are experiencing in real time concerning watershed changes.

Five engagement sessions took place during this knowledge-gathering process with 23 participants representing six Indigenous Communities. Two group sessions were planned, one specific to Métis histories and one specific to First Nations histories. In addition, private engagement sessions were offered to those unable to attend the group sessions, to which 3 private sessions took place. Tobacco was offered individually to each member in the exchange of knowledge, and an honorarium gifted in appreciation of their time.

LICA is grateful for the growing, meaningful relationships with First Nations and Métis Peoples and Communities in the watershed and is pleased to have had support in developing this significant component of the report.

The first draft of the State of the Watershed report is currently being reviewed internally. Métis and First Nation Elders and Knowledge Holders who participated in this project will be given the opportunity to participate in the review process to grant approval of the Indigenous Knowledge sections, prior to publication.

LICA looks forward to the completion of this project and how the results will inform management in the watershed. Follow-up engagement sessions will be scheduled to inform on what we heard!



Recognizing Kim Sturgess for her Generous Donation!

LICA is thrilled to celebrate Kim Sturgess, the founder and CEO of WaterSMART Solutions, for her extraordinary contributions to water management in Alberta and continued commitment and support of Watershed Planning Advisory Councils (WPACs).

P. Kim Sturgess, C.M., DSc, LL.D., MBA, P.Eng., FCAE., has successfully led WaterSMART Solutions since its inception in 2005 and has been at the forefront of innovative water management solutions to address Alberta's complex water challenges.

Kim has personally provided LICA with the largest donation to date of \$25,000! We could not be more grateful for this donation and the significant opportunities it creates for our organization. We are immensely thankful for this support and the strides it will make in management initiatives in the Beaver River watershed.

The generosity did not stop with just LICA, Kim also donated to nine other WPACs, bringing her contributions to a tremendous \$250,000. This donation will work towards protecting and preserving Alberta's watersheds, an essential resource that supports communities, wildlife, and ecosystems across the region. Kim believes that sustainable water management holds the key to a healthier future for us all and her passion and drive continue to support this. Kim's work to protect our precious resource of water is an inspiration to us all.



Thank you, Kim, from all of us at LICA!

2026



LICA
ENVIRONMENTAL STEWARDS

Youth Calendar Contest

If you're a K-12 student in the IICA region,
send us your artwork inspired by our theme!

This year's theme is:

**The Past. Present and Future
of Environmental Stewardship**

25 Years of Lakeland Industry and Community Association

Deadline: 5:00 P.M. Friday, September 27, 2025!

Winners will have their
artwork featured in our 2025
Calendar, and will receive a
CASH prize!



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OUTREACH@LICA.CA - 780-812-2182

2025

Earth Day Writing Contest

You are invited to enter LICA's 2025 Writing Contest. Compete for prize money while practicing for the Grade 6 and 9 Provincial Achievement Tests!

This Year's **"Our Power, Our Planet"**
Theme is: Focusing on the global commitment to renewable energy

Send your entries to LICA via email, mail, or in person.

Teachers:

Please include an entry form, and score for each student. Please score according to the [ELA Scoring Guide](#)

See the Writing Prompts for Details
Grade 6: News Article
Grade 9: Formal Letter

Deadline: May 30, 2025 @ 5:00p.m.

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Deploying Ion Exchange Resins to Enhance Acid Deposition Monitoring

By: Mike Bisaga

This fall, LICA took a major step forward in understanding acid deposition patterns by deploying ion exchange resins (IERs) at key monitoring sites. This monitoring method provides data on deposition patterns, helping us assess potential impacts on ecosystems and inform effective management strategies.

Understanding Acid Deposition

Acid deposition occurs when airborne pollutants, primarily nitrogen oxides (NO_x) and sulfur dioxide (SO₂), are released into the atmosphere where they can combine with water vapor to form acidic precipitation (rain, snow, or sleet) or transform and settle directly as dry particles onto surfaces. Major sources of these pollutants include energy production, industrial activities, and transportation emissions. While some deposition occurs naturally, excessive levels can disrupt the chemistry of soil and surface water (such as lakes and rivers), impacting the health of plants, animals, and other organisms that depend on these ecosystems.



Collaborating with Our Sister Organization

LICA's IER program benefits greatly from the expertise and resources of the [Wood Buffalo Environmental Association \(WBEA\)](#), our sister airshed organization based in Fort McMurray. Established to monitor and assess the impacts of air emissions in the Regional Municipality of Wood Buffalo, the WBEA has developed robust protocols for deposition and forest health monitoring that are integral to our program. The WBEA supplies the sample media and performs laboratory services for LICA's IER program which ensures consistency in methodologies and high-quality results.

The WBEA's Forest Health Monitoring Program has set a standard for studying the cascading effects of deposition, beginning with changes in soil chemistry and progressing to ecosystem alterations. By aligning with

the WBEA's proven protocols, including their emphasis on acid-sensitive ecosystems like jack pine forests, LICA is building on established best practices to enhance regional environmental monitoring efforts. This collaboration allows both organizations to share data, strengthen scientific rigor, and improve our collective understanding of acid deposition across northern Alberta.

How IERs Work and Their Deployment

The IER system uses passive technology to measure atmospheric deposition. Precipitation is funneled through columns or tubes containing specialized resin beads. These beads capture key ions, including nitrate, sulfate, calcium, and magnesium, which are later analyzed in the lab to determine deposition levels. The resin columns are retrieved twice annually, in May and October, to track seasonal variations.

In alignment with the WBEA's methodology, LICA deployed IERs in groups of six to ten at each site. These groups are split evenly between columns designed for anion analysis (e.g., nitrate and sulfate) and base cation analysis (e.g., calcium and magnesium). IERs are installed in two configurations:

- **Freefall (FF) Sites:** Located in open areas, these sites primarily capture bulk wet deposition (e.g., precipitation like rain and snow) but also include some dry deposition of airborne particles settling onto the collection surface.
- **Throughfall (TF) Sites:** Positioned beneath forest canopies, these sites measure deposition that interacts with vegetation. In addition to capturing wet deposition, TF sites also account for dry deposition that accumulates on canopy surfaces and is subsequently washed down by precipitation, providing insights into how vegetation influences nutrient and pollutant deposition.

Fall 2024 Implementation

This fall, LICA installed IER systems across multiple monitoring sites in our region, a process that included selecting suitable locations, thoroughly cleaning and assembling collector components, and installing the resin media. We also deployed field blanks—unused resin columns exposed to the same conditions—to monitor for potential contamination during transport and deployment.

To adapt the IERs for winter conditions, snow tubes were attached to collectors. These tubes allow snow to accumulate in the funnel, where it remains until it thaws and flows through the resin column. The deployment in both Freefall and Throughfall configurations ensures that data collected reflects a wide range of environmental conditions, enhancing our understanding of deposition patterns across the region.

Continued...



Figure 1, Ion Exchange Resin Deployments: The photos above showcase LICA's ion exchange resin (IER) deployments in two configurations: under the forest canopy, known as a Throughfall site (right), and in an open area, referred to as bulk deposition or Freefall site (above). In the spring of 2025, these sites will be revisited to install permanent electric fencing to deter curious wildlife, namely bears. From top to bottom, each post-mounted collector features the following components: a stainless steel "crown" designed to deter birds, a black snow collection tube (used only during winter to capture and direct snowfall), a red funnel for channeling precipitation, a white coupler that securely connects the funnel to the column containing the ion exchange resin beads, and finally, a sturdy post to anchor the collector firmly to the ground. This setup ensures stability and effective sample collection throughout the monitoring period.



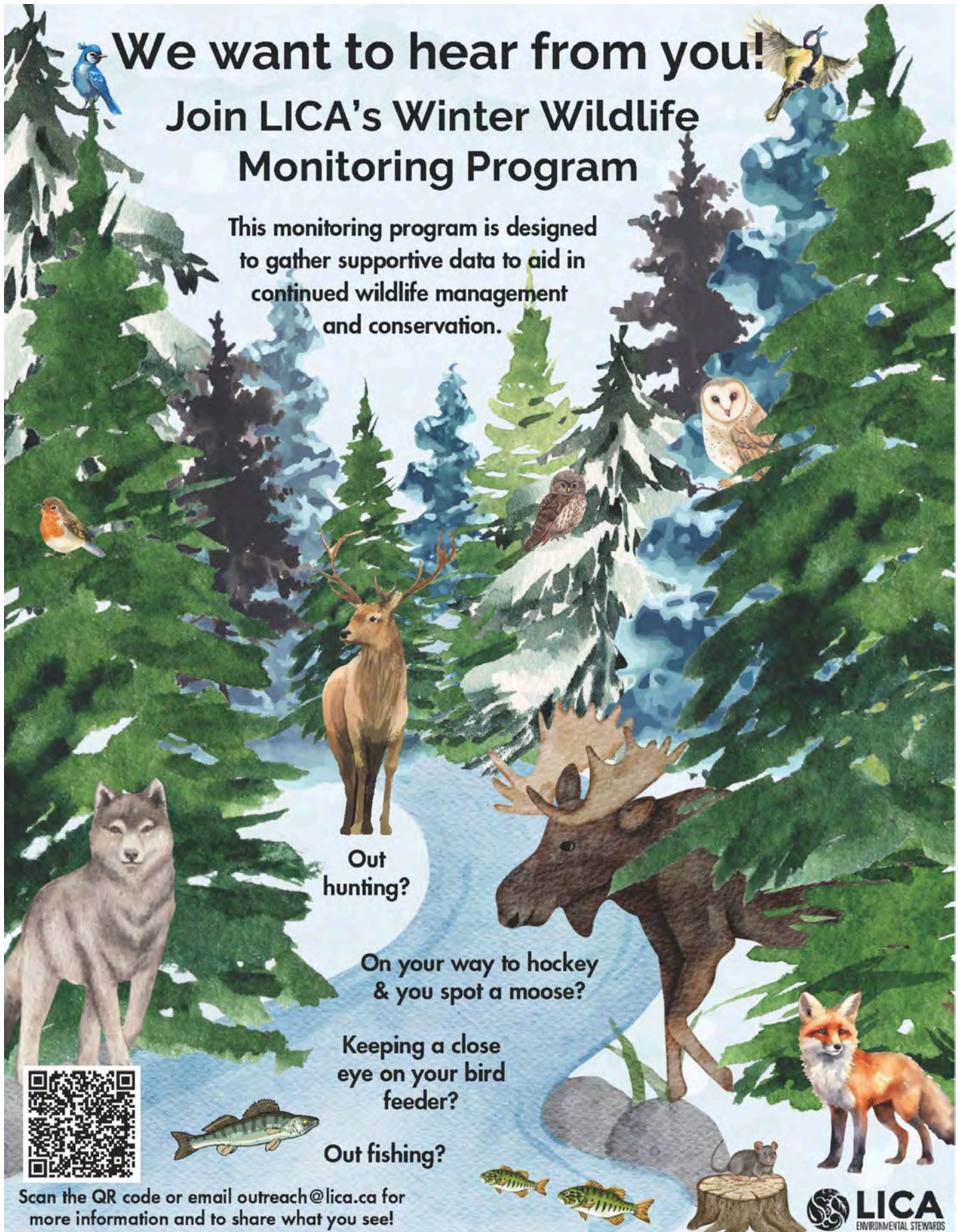
Looking Ahead

The collaboration with the WBEA and the deployment of IERs mark an important step forward in LICA's commitment to environmental stewardship. By building on shared expertise and consistent methodologies, the data collected will provide important insights into acid deposition patterns and their potential effects on ecosystem health.

We want to hear from you!

Join LICA's Winter Wildlife Monitoring Program

This monitoring program is designed to gather supportive data to aid in continued wildlife management and conservation.



Out hunting?

On your way to hockey & you spot a moose?

Keeping a close eye on your bird feeder?

Out fishing?



Scan the QR code or email outreach@lica.ca for more information and to share what you see!



Get to Know LICA!

How Did you Ring in the New Year?

Mike

My grand plan for NYE was to spend the day snowshoeing and the evening at a remote cabin, ringing in the new year in the backcountry. But my body had other ideas. I managed to throw out my back picking up a pair of shoes (yes, shoes...), so I spent most of NYE (and the first few days of 2025) sprawled on the couch, "celebrating" with what remained of our Christmas chocolate stash. At least my taste buds had a great start to the year!



Stephanie

My husband and I went to bed early on New Year's Eve, and spent New Year's Day hiking up Lizard Peak in Lake Havasu, Arizona! An exhilarating way to start 2025!



Lori

I rang in the New Year with board games, laughter, and had a chance to enjoy some local fireworks!



Kayla

Spending Time with Friends and Family!



Kristina

I welcomed the New Year with close friends, gathered around a cozy bonfire and playing board games. Together, we set meaningful intentions for the year ahead, focusing on fostering meaningful connection and prosperity. It was an inspiring way to start 2025 with purpose and positivity.

Upcoming Events

February-March

February 6, 2025

Nocturnal Animals Workshop
Bonnyville Municipal Library
5:30pm - 7:30 pm

February 17, 2025

LICA Office Closed
Happy Family Day!

February 26, 2025

LICA Board of Directors Meeting
LICA Boardroom
10:00am - 1:00pm

March 5, 2025

Seed Starting Workshop
Bonnyville Municipal Library
5:30pm - 7:30 pm

March 6, 2025

Seed Starting Workshop
Cold Lake South Library
6:00pm - 8:00 pm

March 26, 2025

LICA Board of Directors Meeting
LICA Boardroom
10:00am - 1:00pm




Please check out the LICA website or
Facebook page for more information
on upcoming events!
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