Wings, Wires & Collaboration

The Evolution of Avian Protection Plans in Canada

Nikki Copeland, M.E.Des., P.Biol.
ACWS Conference, Banff Alberta
February 28, 2026

ALTALINK

Sustainable Electricity Designation

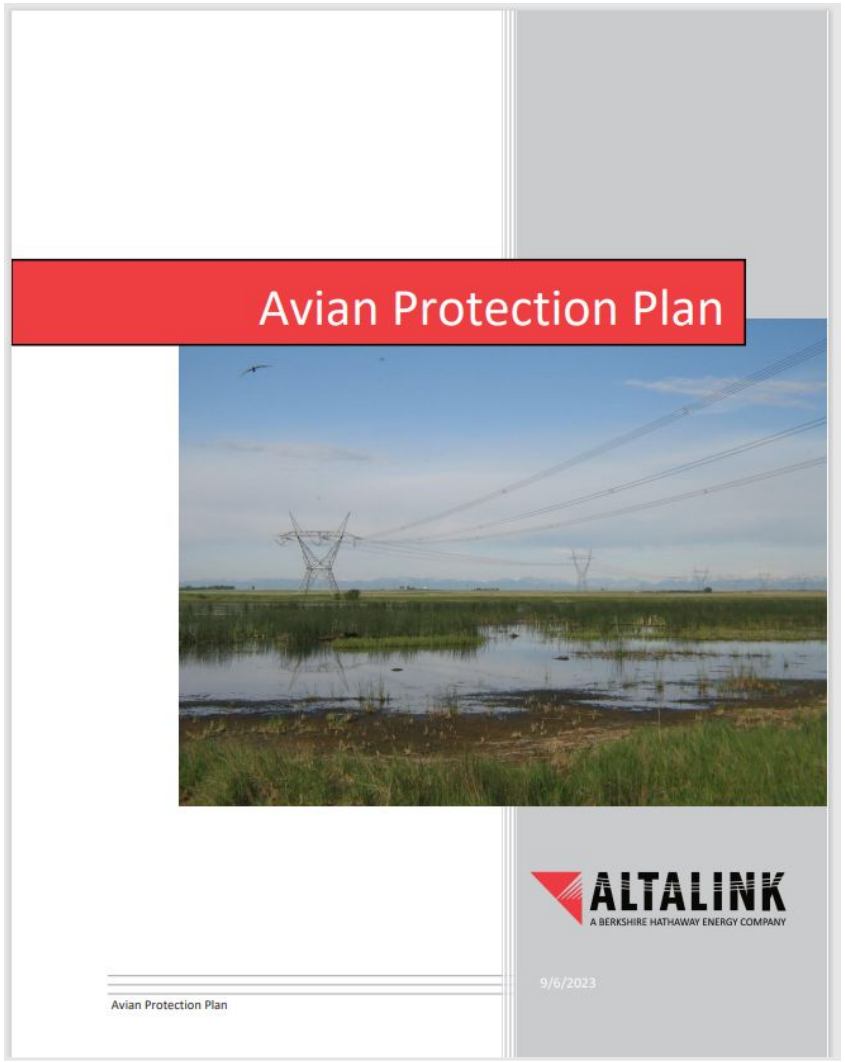
AltaLink Management Ltd.

- Alberta's largest transmission company, serving over 85% of the population
- Operate and maintain ~ 13,000 km of transmission line and 255 substations

Avian Protection Plan (APP)

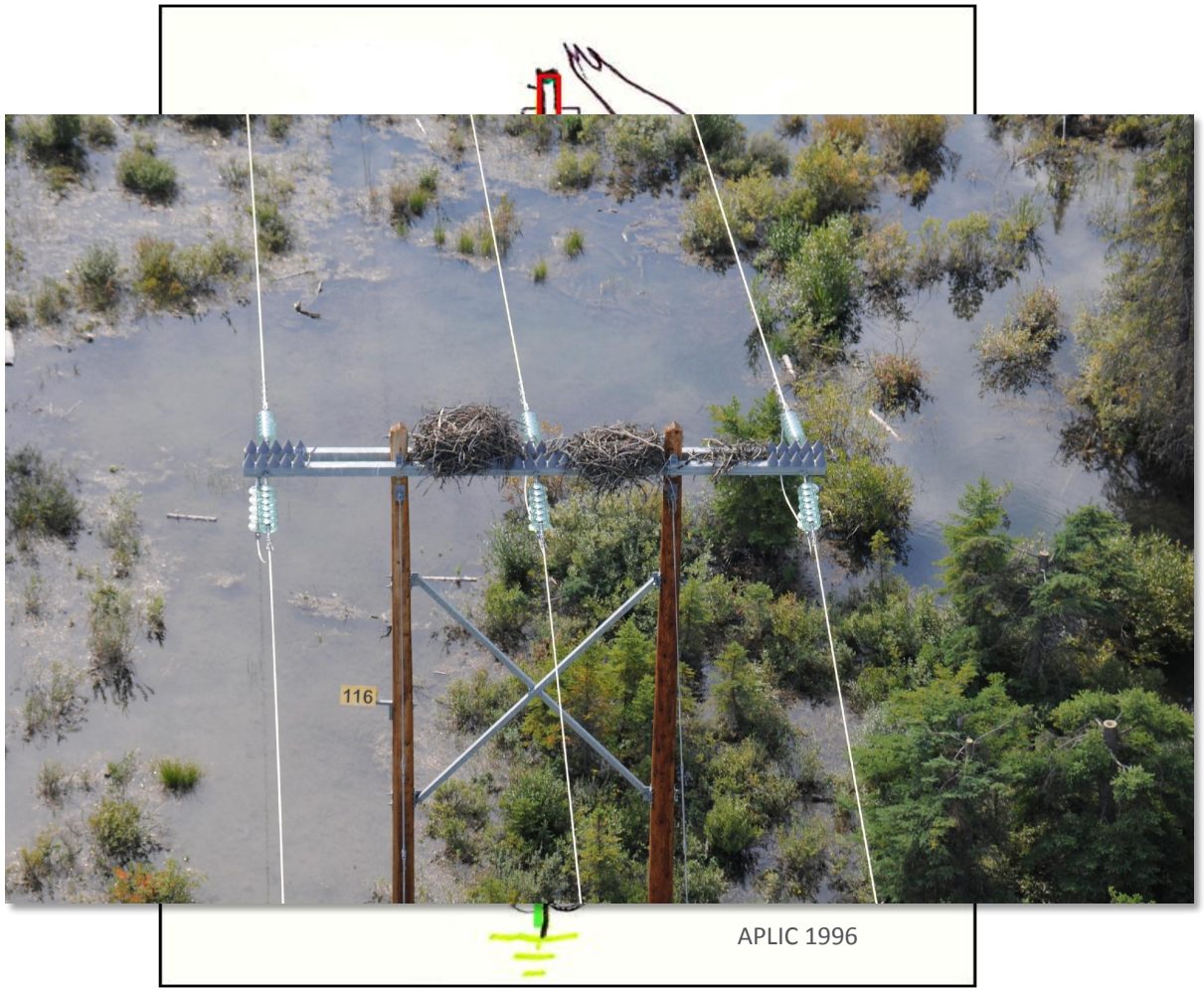
Management system designed to reduce the impact electrical facilities can have on birds

www.altalink.ca



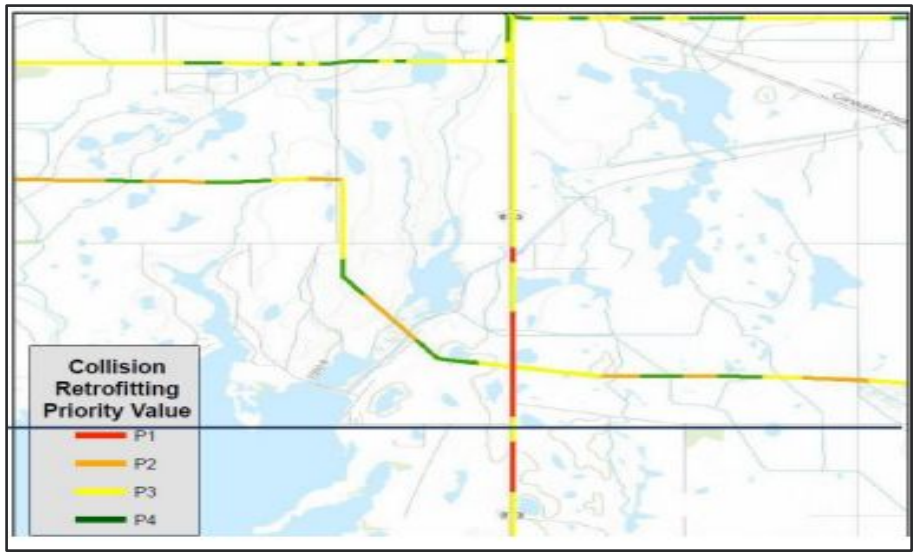
Overview of Avian Impacts and Mitigations

- Electrocutions
  - Poles
  - Substations
- Collisions
  - Circuits & overhead wires
- Nesting Issues

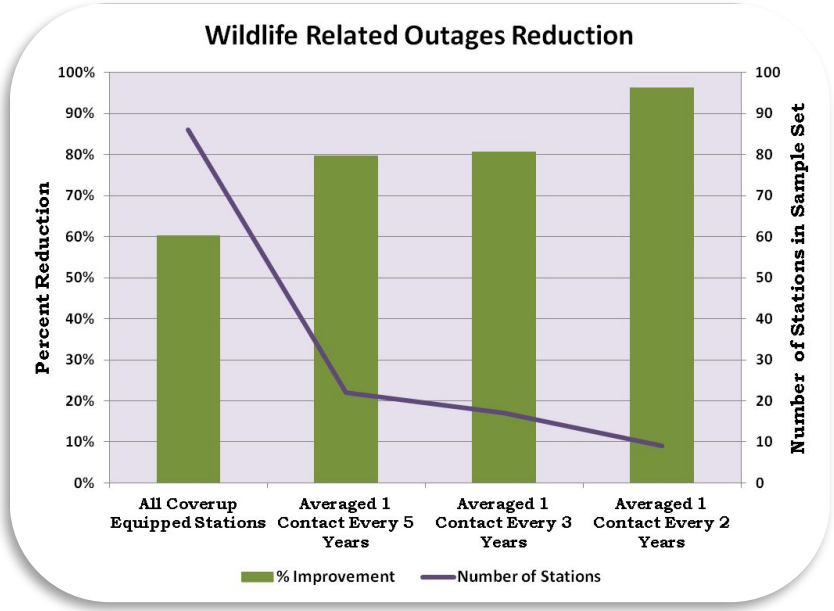


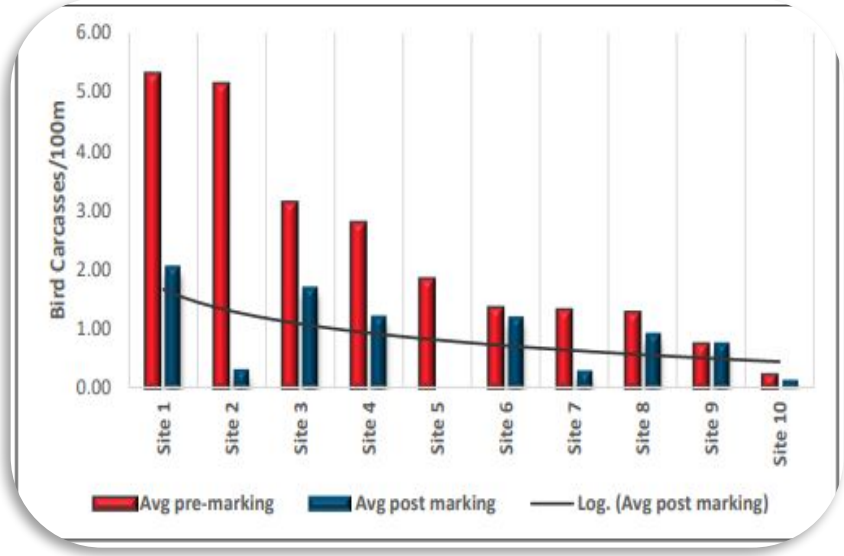
The Problem & The Response

- Hidden impacts - bird collisions & electrocutions were widespread but largely invisible to Operations and Management teams.
- Science-driven issue identification - outage analysis data, GIS risk mapping, field studies quantified the systemwide risks.
- Personal & organizational motivation toward environmental stewardship and electrical reliability



Turning Research into Practical Solutions





- Data-backed risk-based mitigation: 255 km high-risk lines; <1% of power poles posed most electrocution risk.
- Substation mitigation and innovation reduced wildlife outages by ~95% in substations and installing bird markers significantly reduced collision rates.
- Avian-safe designs integrated into routing, engineering, construction, maintenance.
- Culture change driven by early Management and field crew engagement

20 CALGARY SUN NEWS WEDNESDAY, FEBRUARY 11, 2009 calgarysun.com Find Your Next Caree

Flying start to power firm's plan

TARINA WHITE
Sun Media

Alberta's largest energy transmission company is the first in Canada to create a plan to protect birds that fly into power lines and substations.

AltaLink yesterday unveiled its avian protection plan, which aims to mitigate the impact electrical facilities have on birds.

Nikki Heck, AltaLink's environmental adviser, said the company operates about 12,000 km of transmission line and more than 260 substations across Alberta.

"We do have a lot of bird impacts, so that's one of our target programs — we want to try to reduce those impacts," said Heck.

"We try to be a responsible steward in the communities that we operate and we have a number of environmental protection programs to mitigate t he impacts of our business."

AltaLink uses Alberta-designed protective covers for power lines and substations which prevent birds from making dangerous contact with electricity.

The transmission company has also donated $5,000 to the Alberta Birds of Prey Foundation, a volunteer organization that rehabilitates injured birds. Each year, the foundation assists up to 200 birds, said director Colin Weir, adding about 10% are injured by power lines.

"We're just a very small charity, so that's a very significant one-time contribution for us — we're absolutely delighted," said Weir.

He applauded AltaLink's new avian protection plan.

"They are being so proactive out there in Alberta trying to save the lives of these birds," said Weir.

"This extra mitigation work really helps reduce the risk of wildlife from getting injured."

tarina.white@sunmedia.ca

See Page 4 of our Boat & Sportsmen's Show

WATCH THE VIDEO
calgarysun.com/video

STUART DRYDEN/SUN MEDIA

Scott Thon, president and CEO of AltaLink, holds Mr. Bogle, a Great Horned Owl from The Alberta Birds of Prey Foundation, after Thon's company donated $5,000 to the foundation as part of AltaLinks new avian protection plan to protect birds from contact with electricity.

Breaking news at calgaryherald.com Saturday, May 18, 2013 A7

2013 EMERALD AWARDS

FINALIST: INDIVIDUAL CATEGORY

Saving birds from the wires

ELIZABETH WITHEY
POSTMEDIA NEWS

It was treeplanting that triggered environmentalist Nikki Heck's epiphany: working in industry was the best way to make a difference.

"I got frustrated being the person putting the trees in the ground," says Heck, 33, an environmental adviser with the electric utility company AltaLink. "I wanted to be the person making the decision about how the land was managed in the first place."

The Calgarian was an aspiring biologist when she treeplanted during her university years. The job paid her tuition and opened her eyes.

"I knew I didn't want to be the peon; I wanted to be making the decisions up front," she says.

In 2004, while studying for a master's degree in environmental design at the University of Calgary, Heck began working at AltaLink, Alberta's main electricity transmission provider. She was still new to the job when a public report arrived about birds colliding with transmission lines near Edmonton.

Heck was sent out to investigate. "What I found was, when a bird collides with a transmission line, there's no (power) outage, so the company doesn't even know it happened," she explains.

She began to research, and discovered that the impact of electricity infrastructure on birds was quite significant and virtually unknown to the Canadian electricity industry.

"I was blown away by the scale of the issue."

Collisions with the lines is a big problem, especially for water birds (ducks, geese, swans, herons and cranes); their large bodies make it difficult for them to manoeuvre quickly enough to avoid an obstacle in time. There is also a risk of electrocution, for eagles, owls, hawks and other raptors that perch on a pole can be electrocuted, usually when taking off or landing. Birds who nest on structures can also be electrocuted, though the risk is much smaller.

Heck set about creating Canada's first Avian Protection Plan, a management system to mitigate the impact of power lines on birds. "We don't try to keep them off," she explains. "We try to make our facilities avian-safe."

The plan includes numerous bird-friendly procedures and mitigations that AltaLink has implemented. To reduce bird collisions with power lines, it has marked high-risk areas. The markers have colour patches that reflect light in the UV and colour spectrum, which makes the lines more visible to birds so they can react more quickly to avoid a collision. So far, about one-third of AltaLink's high-risk sites have been outfitted with the markers. Sites for new lines are assessed for collision risk (proximity to a wetland, for example) and are either avoided or outfitted with markers during construction.

It is not known exactly how many birds are killed annually by electricity infrastructure. A 2005 extrapolation study suggested a mortality rate of 130 million birds per year in the

Ted Rhodes/Calgary Herald

Calgarian Nikki Heck is a finalist for an Emerald Award because she created Canada's first avian protection plan. It has reduced bird electrocutions on AltaLink power lines by 95 per cent.

> We can keep the lights on for customers and we can prevent bird mortality
> NIKKI HECK, ENVIRONMENTAL ADVISER WITH ALTALINK

AltaLink's efforts to make its infrastructure bird-friendly also includes the installation of custom cover-ups at substations (where electricity is converted from high voltage to low voltage before it is used in homes, etc.). The cover-ups provide an insulative barrier for exposed electrical parts so that birds can safely perch on the equipment. This strategy has reduced bird electrocutions (a.k.a. "contacts") by 95 per cent in substations where frequent contacts were occurring. But people benefit, too. Heck examined 20 years of outage data and deduced that birds caused about 20 per cent of power outages, a number that's comparable with other utility companies across North America. Some 85 per cent of Albertans get their electricity through AltaLink transmission lines, so preventing bird contacts means fewer of us now experience power outages.

"It's the coolest thing, it's truly win-win," says Heck. "We can keep the lights on for customers and we can prevent bird mortality."

The cover-ups have already been installed in more than one quarter of AltaLink's 280 substations in the province, helping AltaLink benefit the environment and its bottom line.

"This is a huge environmental issue that's also costing us money," says Heck. "Twenty per cent of your outages (that could be mitigated with simple hardware) is unacceptable."

Heck says that the other two electrical utilities in Alberta — Atco Electric and Fortis Alberta — have followed suit since she developed the plan for AltaLink.

Her pioneering efforts to reduce bird deaths from electric utility facilities is the reason that Heck is a finalist for an Emerald Award in the individual category. Administered by the Alberta Emerald Foundation, the awards recognize outstanding commitment to environmental initiatives by Albertans.

She is grateful to work at a company "where there's a culture of environmental protection," and equally grateful that she gets to work with wildlife, as she'd always hoped.

"One of the things that keeps me going every day is looking at my kids," the mother of two says. "I want them to enjoy the wild places I did as a kid. Anything I can do to protect those places is really important."

Emerald series

The Alberta Emerald Foundation was founded in 1991 to promote and celebrate outstanding and innovative environmental stewardship by individuals, community groups, business, industry and government in Alberta. The Emerald Awards are its flagship initiative. This year's winners will be revealed at a gala at Edmonton's Citadel Theatre on Thursday, June 6. The Alberta Emerald Foundation, The Edmonton Journal and the Calgary Herald have created a partnership to produce a series about several of this year's finalists. Articles will appear on Saturdays until June 8.

HERALD PHOTO BY NORM LEBUS

Working from a company truck cherry picker, AltaLink environmental adviser Nikki Heck uses metal twist ties for chain link fences to anchor poplar branches on a nesting platform for ferruginous hawks just outside Milk River.

Home renovation for local hawks

AltaLink building nesting platforms for endangered ferruginous hawks

By NORM LEBUS
Lethbridge Herald

MILK RIVER — A hawk's nest on a conveyor belt shut down part of a landowner and the media because it's an issue that people care about, definitely. The hawks are endangered and everyone wants to see them have a safe place to nest."

That's because Alberta's ferruginous hawk population dropped from 3,400 birds in 1992 to an estimate of 1,216 last year. Only last year were the hawks upgraded from a threatened species to

"If they're moved into a better nesting area, they'll have a higher chance of producing more young for a longer stretch of years," she said. "Also, this site will have less chance of the young being hurt after they're born."

The ferruginous hawk is the largest bird of prey in North America, averaging 22.5 to 25 inches long, with a 53-to 56-inch wingspan. The birds

High-wire bird hazards fitted with lights

St. Albert's Big Lake wetlands area used to test special reflectors

JEFF HOLUBITSKY
Journal Staff Writer
EDMONTON

If a utility company's project works out, about 75 bright little warning signs swaying on power lines above St. Albert's Big Lake wetland area should make life safer for migrating birds this fall.

"Anytime there is a structure in the air it can pose a hazard to birds, and in the Big Lake area there is a lot of activity with different types of waterfowl," says John Rasmussen, environment manager of AltaLink, Alberta's largest rural electrical transmission company with more than 11,000 kilometres of power lines.

He says the Big Lake area was chosen for the $10,000 pilot project because it is easy to monitor and because it has a large number of migrating birds in the spring and fall. "There have been impacts on the wire, so obviously we are aware of that, and that is why we are initiating a pilot project there to see what we can do to mitigate it."

The orange, yellow and white markers were installed every five to 10 metres over Fiel Pond and the Sturgeon River last week by crews using a helicopter.

Rasmussen says the types of birds most at risk are the larger ones, such as herons or swans, as well as the smaller diving ducks.

The index-card-sized markers, which cost about $50 each, were chosen because positive results in U.S. trials indicated reflectors can reduce collisions with wires by up to 90 per cent, he says. "We did a lot of research to find the best marking device and there are a lot out there."

Atco also is testing the reflectors near Drumheller.

Rasmussen says the devices reflect visible and ultraviolet light because birds are capable of seeing both. "That's quite important because in low light or overcast conditions you still get a lot of UV coming through the cloud cover."

The markers also glow faintly in the dark, helping to make wires visible during short migration days in early spring or late fall, Rasmussen adds.

AltaLink will have staff monitor the Big Lake reflectors to see how effective the markers are. If they live up to their early promise, the reflectors could be used at other locations in the province, such as at wetlands near Brooks.

While the reflectors might provide migrating birds with some warning, Alberta Fish and Wildlife biologist Mark Heckbert says the only way to prevent bird deaths would be to move the electrical lines away from wetlands or to bury them.

"These things are not a solution to proper line routing," Heckbert says. "What I advocate is to make sure these lines, if they are above ground, are not placed in important pathways to and from a lake."

Few studies in Alberta or across North America accurately document the number of birds killed in collisions with power lines, he says, because carcasses are usually eaten quickly by scavengers such as coyotes or crows, before anyone finds them. However, Heckbert believes power lines are the biggest killer of trumpeter swans, a species particularly susceptible to collisions because their large size makes it difficult to change directions quickly.

"Power lines in Alberta are the biggest single known mortality for adult trumpeter swans," he says, adding that he was not aware of any similar studies on other Alberta species.

Every year between six and 10 swan carcasses are found beneath lines in the Grande Prairie area, but Heckbert says this number is likely a tiny fraction of the total deaths. "I think the reflectors are of limited value because they are not going to work well during foggy conditions or in snow storms, which are common conditions during peak migration times for birds in Alberta."

University of Alberta graduate researcher Cindy Platt, with the Wildlife Rehabilitation Society of Edmonton, welcomes the project and was on hand last week to see the reflectors installed.

"We do get some birds at the rehab that have collided with the power lines and anything they can do to reduce that is all right," she says.

"It has worked in the States and I'm very optimistic it will work here."

jholubitsky@thejournal.canwest.com

SUPPLIED

AltaLink environmental specialist Nikki Krechko holds up a reflector designed to prevent migrating birds from flying into power lines.

es Winter storm blamed for ducks in tailings pond

LETHBRIDGE erald

WORT HANNAM KICKS OFF NEW CD with concerts

John Wort Hannam will be on stage tonight at the Empress Theatre in the first of two CD release concerts

C4

erald.com FRIDAY, OCTOBER 5, 2012

hose ants?

IUANA, T EXPERTS M

Local experts have tried and failed to identify the plants police mistakenly seized from an accused drug trafficker's backyard.

Back in May, police took 1,624 plants from Tom Thomas Heckman's garden in the 900 Block of 13 Street North, declared the haul the largest-ever take-down of an outdoor grow operation in Lethbridge's history, and laid five criminal charges against the 41-year-old grandfather.

Police withdrew one count of producing a controlled substance earlier this week after lab results proved the plant is weed not marijuana. But no tests didn't reveal exactly what the plants are.

Heckman has said the tall-blooming perennials, which he got from his neighbour 10 years ago, are Montana daisies. But local botanical consultants are still curious to find out for sure.

Academics at the University of Lethbridge Herbarium, where police brought some of the seized plants in addition to sending samples to be lab-tested in B.C., were unable to definitively identify them.

John Bain, director of the Herbarium and a professor of botany at the U of L, examined leaves of Heckman's unlicensed plants and said they are certainly not drugs. That police drug experts confused the two "surprises me," he said.

"If you took the individual leaves off and they weren't attached to the plant, I could see how the individual leaves might look alike," he said, but marijuana has leaves attached in what ... and of looks like fingers on a hand, whereas these ones were attached directly to the stem, so by way the leaves were attached is very different."

Montauk daisies are native to Japan and aren't commonly found locally, he said, but the plants might be some other type of daisy.

XL si

Meat pl scare tak about to r

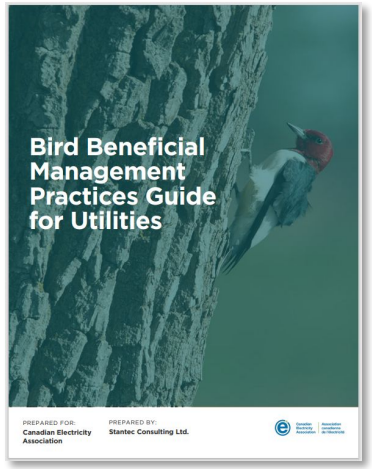
The compa

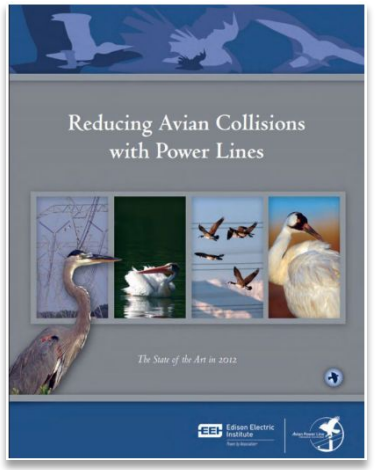
FREEDOM TO FLY

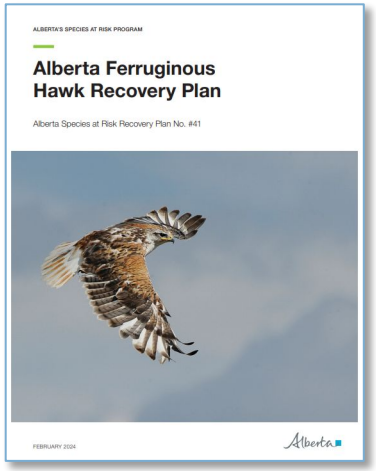
Nikki Heck, an environment adviser for AltaLink, alongside her three-year-old daughter Kamryn, releases a great horned owl, one of six birds of prey released Thursday morning at the Lethbridge Golf and Country Club after being rehabilitated at the Alberta Birds of Prey Centre. See story on Page A3.

Outside Influence

- Policy contributions: Ferruginous Hawk recovery planning and guidelines.
- Stewardship and research leadership (osprey work, nest relocations, targeted studies).
- National/international impact: APLIC workshop leadership, collision-reduction technical guidance.
- Broad knowledge-sharing across youth, engineers, utilities, and policymakers.







Outcome & Lessons

- Innovation curve and adoption by other utilities.
- Success factors: align science with operations, pilot early wins, schedule strategically, engage crews, R&D.
- Mitigations are now integrated in internal SOPs and KPIs.
- Human element: passion, persistence, cross-disciplinary cooperation.

What made this program so successful?

- **Clear Understanding of the Issue:** Comprehensive risk assessments revealed that a relatively small subset of facilities posed a disproportionately high risk, enabling targeted, effective mitigation with real environmental and business benefits.
- **Strong Leadership Support:** Early engagement with senior leaders secured organizational buy-in and the funding needed to drive meaningful mitigation programs.
- **Open Collaboration Beyond Our Walls:** We built strong external partnerships with government, conservation groups, rehabilitators, educators, and the public. We shared information candidly and made our Avian Protection Plan openly available.
- **Internal Education That Shifted Culture:** Focused training for field crews created a culture that recognizes and proactively addresses environmental impacts. This bottom-up support that has been essential to the APP's success.
- **Commitment to Action, Not Just Policy:** We followed through by delivering what was promised.

Avian impacts are a significant aspect associated with the electric utility industry and are avoidable!

Reducing mortality has a direct link to company performance

“Save the birds, keep the lights on”

ALTALINK

Sustainable Electricity Designation