Old Growth Tree Roost Enhancements for Endangered Myotis bats in the Columbia Wetlands

Report for Kootenay Connect









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Environment and Climate Change Canada Environnement et Changement climatique Canada

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Introduction

Remaining old growth forest in the Columbia Wetland (East Kootenay, BC) is patchy but important habitat for old-growth dependent and endangered Northern Myotis (*Myotis septentrionalis*). We installed artificial old growth maternity roosts to connect old growth forest patches and wetland and riverine riparian habitat in the Golden area.

British Columbia is home to at least 16 species of bats and many of these species roost under natural bark and snag roosts. However, only three of these species (Little Brown myotis, Yuma Myotis, Big Brown bat) use traditional bat houses that mimic man-made structures. In contrast, many bat species prefer to roost in older forest stands, relative to young forests because of greater snag availability for roosting (Barclay and Brigham 1996, Kunz and Fenton 2003). As a result, there is also a need to evaluate bark-snag roost enhancement methods that can function as a maternity roost to facilitate the reproductive success of other species of bats (Minard and Eagan 2007, Noteman 2011, Mering and Chambers 2012 and 2014, and Whitaker et al. 2006, Adams et al. 2015).

Species that may benefit from bark-like mimics in BC include: Northern myotis, Long-eared myotis, California myotis, Little Brown myotis, Yuma myotis, Long-legged myotis, Townsend's Big-eared Bat, Big Brown Bat, Eastern Red Bat, Silver-haired Bat and possibly Hoary Bat (Quamme et al. 2019).

The current project pilot enhancements will mimic an old growth habitat corridor for Northern myotis but is likely to benefit other bat species that depend on old growth in the East Kootenays. Habitat enhancement techniques that increase the availability of optimal roosting locations or corridors between old growth patches for bats may help in the recovery of bat species affected by cumulative landscape alterations.

We have partnered up with landowners of Spike Elk Farm, Sigi Liebmann and Brian Aimes, near Burges James Gadsden Park north of Golden, BC, (Figures 1 and 2) to test two artificial old growth tree roost designs on their property. The selected roost enhancement site on the property borders a corridor for Northern myotis from old growth patches to wetland and foraging areas for wetland insects and water sources. The roost poles are adjacent to an existing deciduous forest flyway, to increase the likelihood of discovery and use by bats.

The two roofed and waterproof designs include: (1) a natural bark design by Sigi Liebmann, Swiss Master Timberframer and owner of International Timberframes, using overlapping pieces of Douglas Fir bark attached to a pole, and (2) Brandenbark[™], a commercially available bark mimic from US-based Copperhead Consulting and (Adams et al. 2015).

We imported nine pieces of Brandenbark[™] which will be installed within other identified locations within the provincial, Burges James Gadsden Park and other areas in the next few years, informed by the success of our 2020 pilot poles. Northern myotis and other myotis have been found to utilize BrandenBark[™] in the US (Adams et al. 2015) and Canada (LGL 2015). However, further long-term assessment and testing is warranted.

Following two site visits and an online meeting, Sigi offered to install bark roost poles on his property inkind. He also owns the equipment required to install and maintain the bark pole roosts. Kindly, Sigi volunteered his services and staff to install the two pilot bark pole roosts on his property. These poles were put onto private land adjacent to the park due to a potential land swap that is being negotiated between BC Parks and Sigi; suitable sites for erecting the poles; and to eliminate the need for a park permit at this time given the uncertainty of the land swap. Amanda Weber-Roy provided support from BC Parks for future installations for identified and discussed locations within the park.

The roosts will be monitored in 2021 to inform the placement of the remaining bark roost poles. In the meantime, BC Parks has agreed to incorporate bat roost habitat enhancement in their multi-year plan wetland restoration plan (Biebighauser 2019. Future site locations have been identified within the park, within current and future boundaries.

The increased information and knowledge from this project will inform an upcoming provincial document providing guidance on Best Management Practises for Bats in BC and forward newer enhancement methods.

Artificial old growth trees roosts for Endangered Myotis bats in Golden Area



Roost enhancement site borders a corridor for Northern myotis from old growth patches (in distance) to riparian and wetland feeding areas within Burges James Gadsden Park, Spike Elk Farm and the Golden Rod and Gun Club. (Photos, Darcie Quamme)



Final completed roost enhancement. The roost poles are adjacent to an existing forest flyway, to increase the likelihood of discovery and use by bats.



Pictured here are Brian Aimes, Darcie Quamme, Cori Lausen and Joyce deBoer Brian Aimes and Sigi Lieberman owners of Spike Elk Farm supported this bat enhancement work on private land.



Volunteers included: Cory Schacher, Rob Kinsey, Fischer Schacher, Sigi Liebmann, Moritz Kohler, Cori Lausen, Darcie Quamme. Missing: Brian Amies, Randy Appleton, Travis Cochran and Joyce deBoer. (Cori Lausen photo)



Figure 1. Burges James Gadsden Provincial Park boundaries from 2013 zoning plan.



Figure 2. Old growth artificial tree roost enhancements north-west of Golden at Spike Elk Farm. Acoustic monitoring at two locations within Burges James Gadsden Park indicated by a yellow circle. Park boundaries indicated by bright green line.

Acoustic monitoring in the East Kootenays

Bat detectors were deployed at five sites by Cori Lausen under in-kind funding from Wildlife Conservation Society (WCS) and Joyce de Boer, BC Community Bat program volunteer. The sites included: Mark Creek Provincial Park, Bluewater Road (near Mark Creek Provincial Park), two locations in Burges James Gadsden Provincial Park, and Ravenwoods Farm in Spillimacheen ("Gerhardts"; Figure 3). Detectors were deployed between 5 June – 7 September, 2020.

The only location where Northern myotis was acoustically detected was at Burges James Provincial Park near Golden. The acoustic identification of this species could not be confirmed this year by mist netting due to the temporary moratorium on bat capture that was associated with the risk of COVID-19 transmission. Seven of eleven species expected in the East Kootenays were detected during the monitoring. Asterisks are species that were detected with caveat in some cases.

- Northern long-eared myotis*(difficult to differentiate acoustically)
- Long-eared myotis*
- Big brown bat*
- Little brown myotis*
- Long-legged Myotis (difficult to differentiate acoustically-might be present)
- Townsend's big-eared bat (acoustically quiet, may need extended monitoring to detect)
- Yuma myotis
- Californian myotis*
- Silver-haired bat*
- Hoary bat*
- Eastern red bat

Based on the detection of Northern myotis at Burges James Gadsden Provincial Park, this site was selected for the installation of Branden Bark pole roosts to simulate old growth tree roosts. This roost enhancement is well timed as BC Parks and Ducks Unlimited plan their upcoming wetland restoration of this area (Biebighauser 2019) The Northern myotis is difficult to detect acoustically, as it is very quiet when it echolocates and must approach the bat detector closely to be recorded. It is also difficult to distinguish from some other species of Myotis bats (Lausen, pers. obs.). Mist net capture is planned for this area to confirm the presence of this species. This capture was planned for 2020, with Bark Pole roost erection to occur in 2021, but due to COVID restrictions which prevented bat capture in 2020, the activities of these two years were swapped.

All nine pieces of Branden Bark were purchased as this was most efficient for batch production and shipping, and we plan to install these roosts in clusters of three as recommended by the manufacturer (pers. comm. Zachary Baer, Copperhead Consulting). This allows the bats to select roosts with the specific microclimate needed for a specific season, day or night using a "<u>Goldilocks Approach</u>". But it also supports evidence that bats in British Columbia require a "<u>Roosting Area</u>" and that a single tree will not meet a bat's needs (pers. comm. Cori Lausen).

Deployment of bat detectors by Cori Lausen of Wildlife Conservation Society



Cori Lausen, WCS biologist deploying bat detectors



Cori Lausen, bat biologist, identifying enhancement locations Photos M. Proctor



Figure 3. Acoustic monitoring site locations. Acoustic monitoring indicated by a yellow circle with site selected for roost enhancement indicated by red star. Park boundaries indicated by bright green line.

Stakeholder meetings

An online meeting was held on August 10, 2020 to discuss the details of the Northern myotis roost enhancement at Burges James Gadsden Park once this was identified as a possible site location with an on-site tour for August 13, 2020. Invitees to the online meeting included: Joyce deBoer, Cori Lausen, Sigi Liebmann, Darcie Quamme, Amanda Weber-Roy, Brian Aimes, Bruce Harrison, Chad Parent, and Russell Wagner, with the latter four sending regrets. We discussed BC Park boundaries and the possible support provided by Spike Elk Farm, BC Parks and the Golden Rod and Gun Club which also owns property adjacent to Spike Elk Farm and the wetland areas. Members of the Golden Rod and Gun Club and Ducks Unlimited provided feedback by phone/email.

Name	Group
Brian Aimes	Spike Elk Farm
Joyce deBoer	Golden Bat Ambassador
Bruce Harrison	Ducks Unlimited
Cori Lausen	Wildllife Conservation Society
Sigi Liebmann	Spike Elk Farm, International Timberframes
Darcie Quamme	Integrated Ecological Research
Chad Parent	Golden Rod and Gun Club
Russell Wagner	Golden Rod and Gun Club
Amanda Weber-Roy	BC Parks

On-site tour, August 13, 2020





Edge of wetland as well as a migration corridor for bats



Sigi Liebeman touring the group around his property



Foraging habitat bats. Northern myotis are likely to forage close to tree edges (as shown in distance).



Discussion with stakeholder



Cori Lausen identifying enhancement locations, along forest edges that could be used by Northern myotis. Photo series: Darcie Quamme

Bat enhancement designs

1. BrandenbarkTM

BrandenBark[™] is an artificial bark used as a roost enhancement tool specifically designed for long term for bark roosting bats. Northern myotis, an endangered species (COSEWIC 2014), have been found to utilize BrandenBark[™] in monitoring by Copperhead Consulting, a US-based company that developed the bark (Adams et al. 2015, LGL 2015). We have been in contact with Copperhead Consulting since 2017 following achieving funding from Habitat Conservation Trust Grant to scope this roost enhancement design and assess its applications and costs for British Columbia (Quamme et al. 2019).

<u>BrandenBark[™]</u> is a plastic product (Adams et al. 2015) sold in 3x4 foot sheets to be attached to an untreated utility pole (typically, 25 feet tall with 12-inch diameter butt) to create one roost. The bark was attached with #14 size 2 ½-inch roofing screws tight at the top and every six inches down the seam on the north facing side of the bark.

2. Natural bark design by International Timberframes

A natural bark design was envisioned by Sigi Liebmann, Swiss Master Timberframer and owner of International Timberframes, using overlapping pieces of Douglas Fir bark attached to a pole. This creative design is more cost efficient, built and designed in Canada and uses natural products. It may not have the lifespan of BrandenBark, but Sigi has agreed to provide the long-term maintenance since the roost is on his property. International Timberframe's telescoping forklift (zoom boom) will provide easy access to the bark at height over time.

Assembly of bat roosts

Bat roosts were assembled by International Timberframes. We priced and acquired two cedar poles from a local mill. The cedar poles had a butt diameter of 36 cm and 39 cm and approximately 32 and 35 feet. Cedar was used because of its resistance to heartwood decay. Charring with a blow torch was done to preserve cedar, naturally. The poles were longer than recommended by Copperhead Consulting which are typically 12-inch diameter and 25 ft in height. But we decided to test poles of these heights because Northern myotis typically use tall trees (pers com C. Lausen, 2020).

Steps in the assembly of artificial old growth roosts.



Cedar poles with a butt diameter of 36 cm and 39 cm.

Photo: Darcie Quamme



Poles were charred to prevent decay.

Photo Sigi Liebemann



BrandenBark [™] made from a plastic product.



Douglas Fir bark attached in overlapping layers



Natural bark donated by Randy Appleton.



Side view of natural bark.

Photo series: Sigi Liebemann

Installation of bat roosts

Installation of the roosts took place on Oct 23, 2020. Poles were trailered to the site by International Timberframes. Prior to raising the poles, Cori Lausen place temperature loggers with two probes within the bark to monitor temperature and humidity starting in April, 2021.

A mini excavator was provided by Jackson Contracting and Excavation. Rob Kinsey of Jackson Contracting and Excavation used the machine to dig post-holes approximately seven feet deep. The depth of hole used was approximately 10% of pole length plus two feet. Poles were easily manipulated with the zoom boom also provided by International Timberframes equipment. Post holes were dug in clay soil at the top of a dike which provided effective backfill. Thus, no gravel was needed.

Clay soils at the top of the dike are less likely to be inundated with ground water at peak flows or at least for shorter periods thus preserving the cedar poles for extended years. No sands or gravels were encountered at this elevation, so the excavator encountered no problems in digging approximately a 7foot post hole. A test pit prior to arriving to troubleshoot this possibility. Installation of artificial old growth bark roosts at Spike Elk Farm on October 23, 2020



International Timberframes trailering the artificial old growth roosts to the site.



Bat poles with waterproof and overhanging roof with Darcie Quamme, Sigi Liebmann and Cory Schacher.



Cori Lausen removing roof to set up temperature/humidity loggers within the BrandenBark.



Two probes were placed within bark using WCS Canada bat program equipment.



Roof topped with roofing paper, Joyce deBoer and Darcie Quamme, right to left.



Test lift of pole with zoom boom

Photos, Darcie Quamme and Cori Lausen

Installation of artificial old growth bark roosts, continued



Mini excavator from Jackson Contracting, with Sigi Lieberman



Post-holes were approximately 7 feet deep



Pole placed in post hole



Digging to post-holes.



Poles being transferred to the post holes using zoom boom.



International Timberframe team backfilling post hole

Photo series, Darcie Quamme and Cori Lausen

Artificial Old Growth Bark Installations completed





Installed Brandenbark (in distance) with Darcie Quamme





Installed BrandenBark (in foreground) with Cori Lausen

Photo series, Darcie Quamme and Cori Lausen

Conclusion

We exceeded expectations on community, private landowner and provincial involvement. We were able to engage enthusiastic community volunteers and matching funds. Volunteers also developed their own slogan which was that we all should "*Think Like a Bat*" to understand the habitat and roosting needs of endangered Myotis bats.

We imported nine pieces of Brandenbark[™] which will be installed Burges James Gadsden Park and other areas in the next few years, informed by the success of our 2020 pilot poles. We also installed two bat roosts instead of just one because of the creativity and professionalism of Sigi Lieberman and the kind donation of time from International Timberframes volunteer team. Future maintenance of the roosts will be aided by International Timberframes, particularly with the use of the telescoping forklift to clean and download data but also to troubleshoot potential problems or redesigns.

The roosts will be monitored in 2021 and over the long term to inform the placement of the remaining bark roost poles. BC Parks has agreed to incorporate bat roost habitat enhancement in their multi-year plan wetland restoration. Accessible site locations have been identified within the park.

The outputs from this project will inform upcoming provincial documents, organizations such as the BC Bat team, BC Community Bats and agencies.

Acknowledgements

Darcie Quamme of Integrated Ecological Research and Cori Lausen, Wildlife Conservation Society Canada Bat Program provided initial scoping of the project under Habitat Conservation Trust Fund seed project support.

The Wildlife Conservation Society Canada, Bat Program headed by Cori Lausen, provided in-kind: staff support, site reconnaissance and contacts, acoustic monitoring, temperature loggers, reporting, media, website articles and outreach. Thank you to the Bat Program team members including: Dana Blouin and Heather Gates.

Darcie Quamme carried out implementation, facilitation of installation, reporting, media, cost quotes and importing BrandenBark[™] from Copperhead Consulting.

A big thank you to Amanda Weber-Roy of BC Parks who provided information on the park boundaries and history of the park. We thank you for the support and are excited about future collaboration.

Many Golden locals assisted with this project, including donation of equipment, labour, materials, land and ideas. The volunteers and donors included: Sigi Liebmann (Spike Elk Farm/International Timberframes), Brian Amies (Spike Elk Farm), Travis Cochran (cedar poles), Randy Appleton (bark pieces), and Brian Jackson and Rob Kinsey (Jackson Contracting & Excavation, mini-excavator and operator). The International Timberframes volunteer team included: Cory Schacher and son Fischer, Moritz Kohler and Sigi Liebmann (Zoom Boom, trailer, and other equipment).

Suzanne Bayley of the Columbia Wetlands Stewardship Partners helped to identify the initial location and provided the financial administration. Micheal Proctor and Marcy Mahr, Kootenay Connect leads, provided administration and support for the Kootenay Connect Project.

Thank you to Mark Fjeld, Project Manager of the Ktunaxa owned business (Nupqu Limited Partnership) who provided us with information and photos on their placement of BrandenBark in the traditional territory of the Ktunaxa Nation within the Revelstoke Reach in collaboration with the BC Hydro Effectiveness monitoring program (pers. comm Mark Fjeld 2020).

A big thank you also to Jay Fitzsimmons, Larry Saris and Chris Brown of the Ontario Ministry of Transportation for the reports on BrandenBark installation and monitoring (LGL 2015 and 2016, Dillon 2018a and 2018b) used as a mitigation tool east of Toronto, Ontario (pers com. Jay Fitzsimmons and Larry Saris).



Cory Schacher, Rob Kinsey, Fischer Schacher, Sigi Liebmann, Moritz Kohler, Cori Lausen, Darcie Quamme. A heart-felt thank you to our partners and volunteers.

Cori Lausen, photo



Pictured here are Brian Aimes, Darcie Quamme, Cori Lausen and Joyce deBoer. Missing: Amanda Weber-Roy.

ITF Volunteer, photo

Statement of Matching Funds (\$17,348)

Wildlife Conservation Society Canada's Bat Program led by Cori Lausen, provided in-kind: staff support, time spent on site reconnaissance and local contacts, acoustic monitoring for siting of the bark roosts, reporting, media, website articles and outreach, and supplies for monitoring and installation (e.g. batteries, hardware). (\$3108).

Amanda Weber-Roy of BC Parks provided a day of time to provide advice, review and collaboration, and a half day on site for recon. (\$480). BC Parks will provide considerable matching funds in future years as the bat enhancement continues within Burges James Gadsden Park.

Grant from Columbia Basin Trust (grant to WCS Canada covering Travel expenses and humidity/temperature loggers) (\$5000).

Birchdale Ecological Ltd. donated use of 3 bat detectors, market rental value (\$3600).

Community Bats of BC contributions were valued at: \$160.

Many Golden locals assisted with this project (International Timberframes, Jackson Consulting, Randy Appleton, Travis Cochran) including donations of equipment, labour, materials, land and ideas which were valued at approximately \$5000 or more.

Future maintenance will be aided by International Timberframes, particularly with the use of the Zoom boom to clean and download data but also to troubleshoot potential problems or redesigns. BC Parks is willing to provide future collaborations and support regarding the enhancement of the Burges James Gadsden Park.

References

Adams, J., P. Roby, P. Sewell, J. Schwier, M. Gumbert and M. Brandenburg. 2015. Success of BrandenBark, an artificial roost structure designed for use by Indiana bats (*Myotis Sodalis*). National Meeting of the American Society of Mining and Reclamation, Lexington, KY Reclamation Opportunities for a Sustainable Future June 7–11, 2014. R.I. Barnhisel (Ed.) Published by ASMR, 3134 Montavesta Rd., Lexington, KY. <<u>pdf</u>>

Biebighauser, T. 2019. Burges James Gadsden Provincial Park Wetland Restoration Design Plan. Prep. For BC Parks.

Barclay, R. M.R. and R.M. Brigham. 1995. Bats and forests symposium: October 19-21,1995 Victoria, British Columbia, Canada. <<u>pdf</u>>

Chambers, C.L., V. Alm, M.S. Siders, and M.J. Rabe. 2002. Use of artificial roosts by forest-dwelling bats in northern Arizona. Wildl. Soc. Bull. 30:1-7. <<u>pdf</u>>

Kunz, T.H. and Fenton, M.B. eds., 2003. Bat ecology. University of Chicago Press.

LGL Environmental. 2016. Little Brown Myotis: Mitigation Plan. Annual monitoring report (2015). Prep. For the Ministry of Transportation, Province of Ontario.

LGL Environmental. 2015. Mitigation Plan for Little Brown Myotis (*Myotis lucifugus*): Highway 407 East, Phase 2. Annual monitoring report (2014). Prep. For the Ministry of Transportation, Province of Ontario.

Dillon Consulting. 2018a. Bat Roosting Replacement Structure Monitoring. Highway 401 at Mavis Road. (Agreement #2015-E-0054 – Assignment 14). Prep. For the Ministry of Transportation, Province of Ontario. (File # 164882).

Dillon Consulting. 2018b. Bat Roosting Replacement Structure Monitoring. Highway 400/Teston Road Service. (Agreement #2015-E-0054 – Assignment 14). Prep. For the Ministry of Transportation, Province of Ontario. (File # 164882).

Minard, A. and D. Eagan. 2007. Bat habitat and forest restoration treatments. Working papers in Southwestern Ponderosa Pine Forest Restoration. Northern Arizona University. Flagstaff.

Noteman, 2011. L. Hidden housing – artificial bark for bats. Bats Magazine. Volume 16, Issue 3. Randall, L. A., Barclay, R.M., Reid, M. L., and Jung, T. S.

Mering, E.D., and C.L. Chambers. 2012. Artificial roosts for tree-roosting bats in northern Arizona. Wildl. Soc. Bull. 36:765-772.

Mering, E.D., and C.L. Chambers. 2014. Thinking outside the box: a review of artificial roosts for bats. Wildl. Soc. Bull. 38:741-751.

Quamme, D.L., C. Lausen and E. McLeod. 2018. Quantifying and enhancing the pest-control services provided by bats to the timber industry. Prep. for the Habitat Conservation Trust and the Forest Enhancement Society. <u>pdf</u>.

Whitaker, J. O. Jr., D. W. Sparks, and V. Brack. Jr., 2006. Use of artificial roost structures by bats at the Indianapolis International Airport. Environmental Management 38:28–36.

Media and Articles featuring Northern Myotis Roost Enhancement

The Wildlife Conservation Society has featured this project in social media and helping to spread the importance of habitat conservation and improvement for bats across Canada with their nationally based profile.

1. Beyond the Box!

While many people gravitate to erecting bat boxes to help bats, these box structures in fact generally only appeal to two species of bats in the East Kootenay, so erecting tree-bark structures to use as additional roosting habitat can help many more species of bats.

Dr. Cori Lausen and Nelson biologist Darcie Quamme have partnered up with landowners Sigi Liebmann and Brian Amies near Burges James Gadsden Park of Golden, BC to erect two unique bat roosts: one is designed by Liebmann, using large slabs of bark attached to a pole, and the other wrapped with Branden Bark, a commercially available bark mimic from US-based Copperhead Consulting. Using a bat detector, local bat ambassador Joyce deBoer and Lausen discovered that there are at least 6 species of bats using this area, all of which would benefit from bark roosts to raise their young. This is only the second location in BC to erect the Branden Bark bat roosts.

Many locals assisted with this project, including donation of equipment, labour, materials, land and ideas: Sigi Liebmann, Brian Amies, Joyce deBoer, Travis Cochran, Ron Appleton, Brian Jackson (Jackson Contracting & Excavation), Rob Kinsey, Cory Schacher, Fischer Schacher, Moritz Kohler. This project is part of a larger effort to conserve bats in the Columbia Wetlands, and is supported in part by funding from Columbia Basin Trust and Environment Canada and Climate Change Strategy ("Kootenay Connect" Initiative). November 16, 2020 <u>https://wcsbats.ca/Our-work-to-save-bats/Bat-Friendly-Forestry-Practices-Project</u>

2. Artificial old growth trees provide roosts for bats in Golden Area – Golden Star

Our bat team and partners set up new bat roosts in BC, mimicking old growth trees! Traditional bat boxes only appeal to some species of bats - these roosts provide habitat for species that naturally roost in trees https://bit.ly/3kwgZat, November 6, 2020

3. Bark for Bats! Local Timberframing Company Kicks Off Bat Week Building "Trees" for Bats

Spike Elk Farm landowners Sigi Liebmann and Brian Amies near Burges James Gadsden Park have been extremely generous in donating time and land to erect two unique bat roosts. One is in fact designed by Liebmann, using large slabs of bark attached to a pole to simulate an old growth tree or snag that many species of bats will use. The other roost is a pole wrapped at the top with Branden Bark, a commercially available bark mimic from US-based Copperhead Consulting.

Dr. Cori Lausen, lead bat biologist with Wildlife Conservation Society Canada's bat conservation program (<u>www.wcsbats.ca</u>), and Nelson biologist Darcie Quamme met up with Liebmann and a whole team of local volunteers and bat enthusiasts last month as a kick off for world Bat Week.

Quamme and Lausen worked with Liebmann over the summer to facilitate the construction of these 2 bat roosts, which are tall poles with bark at the top, creating cavities for bats to roost. Each roost is situated close to the river and the nearby wetlands, where bats are known to drink and forage. Temperature options inside the roosts, and the number of bats and species that use these two types of bark roosts will be monitored over the coming years.

Lausen worked with local Bat Ambassador Joyce deBoer to record bat ultrasound in this area this past summer. Using a bat detector, deBoer and Lausen discovered that there are at least 6 species of bats using this area, all of which would benefit from bark roosts to raise their young. These bats give birth to only a single young each year, and their pups are more likely to survive their first winter if they can be born early in the summer, giving them time to grow and fatten before winter hibernation. Lausen hopes that these roosts, because they are likely to receive a lot of sun early in the spring, will help local bats get a jumpstart on their gestation in spring – the warmer that bat roosts are in spring, the sooner their pups can be born.

While many people gravitate to erecting bat boxes to help bats, these box structures in fact generally only appeal to two species of bats in the East Kootenay, so erecting these tree-bark structures can help many more species of bats. This is only the second location in British Columbia to erect the Branden Bark bat roosts, the first being an BC Hydro installation south of Revelstoke last year, where the roosts were immediately used by bats. There will be much anticipation over the winter to see what the bats think of these two new roosts when they return in spring.

Many locals assisted with this project, including donation of equipment, labour, materials, land and ideas: Sigi Liebmann, Brian Amies, Joyce deBoer, Travis Cochran, Randy Appleton, Brian Jackson (Jackson Contracting & Excavation), Rob Kinsey, Cory Schacher, Fischer Schacher, Moritz Kohler. This project is part of a larger effort to conserve bats in the Columbia Wetlands, and is supported in part by funding from Columbia Basin Trust and Environment Canada and Climate Change Strategy ("Kootenay Connect" Initiative). To learn more about this and other Wildlife Conservation Society Canada bat conservation projects visit <u>www.wcsbats.ca</u>., submitted to Golden Star by Cori Lausen, November 2020.

4. In celebration of bat week

Beyond the box! Roost enhancement can mean so much more than putting up a bat box. Bat boxes are only used by a few species of bats in BC who prefer buildings, but 10 species of bats roost under bark! WCS Canada in a partnership project is trialing this bark replacement, BrandenBark, which mimics old growth tree bark that can be used as a roost to bridge intact old growth forests. Lasting up to 30 years, this can provide immediate roosts while natural ones recover. Thanks to International Timberframes for their help in this project! #batweek2020 #barkroost #BrandenBark #partnersforbats. October 26, 2020 https://www.facebook.com/wcsbatscanada

5. Beyond the #batbox! 10 species of bats roost under bark!

@WCS_Canada and partners are trialing this bark replacement, #BrandenBark, which mimics old growth tree bark that can be used as a roost to bridge intact old growth forests. #barkroost #partnersforbats, October 26, 2020, <u>https://twitter.com/wcscanadabats</u>

Darcie Quamme@dlquamme1, Thank you to our volunteers for this bat enhancement project in Golden, BC, at Spike Elk farm including: Sigi Liebmann, Brian Aimes, Travis Cochran, Randy Appleton, Jackson contracting & excavation, International Timberframes volunteers, Rob Kinsey, Cory Schacher, Moritz Kohler. https://twitter.com/dlquamme1

6. Northern Myotis enhancement

Remaining old growth forest in the Columbia Wetland (East Kootenay, BC) is patchy, but the Western Canada Bat Conservation Program is hoping there is enough to support the old-growth dependent Northern Myotis (*Myotis septentrionalis*). Last week WCS Canada's Cori Lausen set up bat detectors to confirm their presence--- Once we know they are there, we will install BrandenBark(TM) as roost enhancement to connect old growth forest patches. Thanks to the Kootenay Connect project, Darcie Quamme (Integrated Ecological Research) and the Columbia Wetland Stewardship Partners for their help and leadership in this project! August 2020