



Report to

Ganawenim Meshkiki

Submitted by



ONTARIO TURTLE CONSERVATION CENTRE
HOME OF THE KAWARTHA TURTLE TRAUMA CENTRE

4-1434 CHEMONG ROAD

SELWYN ON, K9J 6X2

Tel: 705-741-5000

E-mail: info@ontarioturtle.ca

Website: www.ontarioturtle.ca

 @OntarioTurtleCC

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CHARITABLE REGISTRATION # 85752 4409 RR0001

The Ontario Turtle Conservation Centre respectfully acknowledges that it is situated on the treaty and traditional territory of the Michi Saagiig Anishnaabeg. We offer our gratitude to the First Peoples for their care for, and teachings about, our earth and our relations.

In 2020, Ganawenim Meshkiki supported OTCC through a grant of \$100,000. Despite the challenges presented due to COVID-19, we accomplished all of the goals and milestones set out in our project this year. The funding provided by the Foundation was invaluable in helping us to meet the demands of an unprecedented year at OTCC. The OTCC hospital was allowed to remain open as an essential service to care for injured and overwintering turtles, as well as the non-releasable education turtles that reside at the centre. All of the recommended procedures and precautionary measures were implemented to ensure the safety of staff and volunteers, and to allow turtle admissions to continue, without direct human to human contact. While office closures presented some communication challenges, we were able to connect with many contacts, program partners and First Responders in the EGBR. We also pivoted very quickly to on-line education workshops, conferences and videos, which have been very well received.

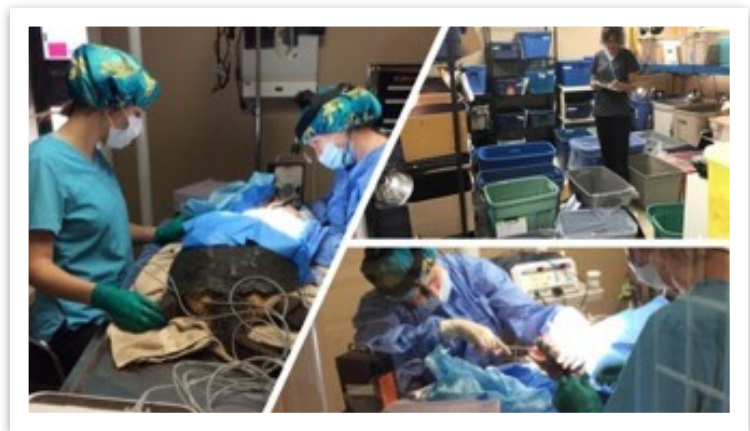
The following provides an overview of the year's activities and accomplishments.

A. Direct Mitigation of Accidental Mortality via Treatment, Rehabilitation and Release

Throughout the 2020 season, 1097 turtles from all 8 species of at-risk native turtles were admitted to OTCC from across Ontario, including 144 admitted from the Eastern Georgian Bay Region (EGBR). 1647 turtles were released back into their home range this year including 195 in the EGBR. In addition to the rehabilitated turtles that have been successfully released back to their home wetlands, some will overwinter at the centre for further healing. Please see charts in *Appendix A* for a summary of admissions and releases by species. The maps in *Appendix B* show the range of admissions and releases across the province.

Admissions decreased this year from 1498 admitted to the hospital in 2019, but numbers remained high in keeping with the previous three

years, due to increased public knowledge of OTCC and its work. It's our theory that the extreme and prolonged heat this summer made the turtles less likely to move at the time that the roads were busy. From observations made by those studying them, it seemed that the turtles were only moving during early morning hours. We always see fewer admissions when it's very hot or very cold, since they need the temperature to be in the ideal range for easy movement (low to mid 20s, and they are all out during the day). In terms of whether COVID-19 restrictions and less traffic were related to the trends this year, it is unlikely that was a factor,



since the province opened back up during nesting season and there was a surge in traffic on the road at that time.

This year, we were able to expand our veterinary capacity, bringing two new veterinarians, Dr. Christopher Dutton, and Dr. Kristen Jenke to our staff team. This will enable OTCC to both increase capacity to treat injured turtles, and increase our ability to share knowledge of Turtle Trauma throughout the veterinary community in the coming year. Dr. Jenke has been with OTCC since she was a veterinary student, and has many years of experience in turtle medicine, as well as experience in snake research, and outdoor education. She will be joining our team full-time in 2021. Dr. Christopher Dutton will be returning to work at the OTCC hospital in the upcoming 2021 season, after spending from April-September 2020 with the OTCC team. Dr. Dutton is currently Adjunct Professor in the Department of Pathobiology, at the Ontario Veterinary College (OVC). He will be working with OTCC in conjunction with the OVC, to bring turtle trauma training to the veterinarians carrying out residencies with OVC, as well as working as a part-time staff veterinarian himself.

Throughout the year, we continued to add to the wealth of data that we collect through all of our work, and is made available to our program partners, Natural Heritage Information Centre (NHIC), the Ministry of Transportation (MTO), and Conservation Authorities. Dr. Carstairs continued her involvement in international turtle conservation as Member of the Tortoise and Freshwater Turtle Specialty Group (TFTSG) of the IUCN (International Union for the Conservation of Nature). In March of 2020, she became a member of the Order of Ontario for her work at OTCC.

Dr. Sue Carstairs has also worked in partnership with Dr. James Paterson and Dr. Christina Davy throughout the year to publish work that shows the tangible and significant impact that OTCC's rehabilitation efforts have on turtle populations (submitted paper, currently In Review).

Disease Surveillance

Disease surveillance continued to be an important adjunct mitigation strategy in our work.

The identification of Ranavirus and Herpesvirus in Ontario's turtles in 2018, makes it vital to know the biology and status of any infectious disease agents, to protect populations already experiencing heavy pressures from many other threats. Any turtle showing unusual clinical signs, undergoes a full diagnostic workup, to identify the cause. Luckily, most of these have negative results. We also survey a random sample of asymptomatic individuals, to determine if there is a subclinical state in turtle populations. An example of this is Ranavirus testing on turtles housed at OTCC, with no clinical signs, that indicated 3 individuals with low viral loads via q-PCR, were located in the Eastern Georgian Bay Region. Another 50 samples were tested, from a random set of turtles across the province (including EGBR), with no positives detected. Please see map in *Appendix C*.

Through our work the previous two years, (Carstairs, 2019; and Carstairs et. al., 2019*), we have determined that Ontario's turtle species seem to be effective carriers for Ranavirus, a finding that has far reaching effects on other ectotherms such as amphibians and fish. Ongoing studies hope to show whether infected carriers can clear the infection, or whether they progress to show clinical signs. Our work has completely revised the understanding of Ranavirus in Ontario's turtles, and we plan to continue to partner with Trent University to further our quantitative research in this area.

In addition to monitoring for Ranavirus and Herpesvirus, OTCC investigated a unique case. A snapping turtle from the Eastern Georgian Bay Region, with an unusual growth, underwent full diagnostics, including CT scan and surgery at the Ontario Veterinary College. There is no proof that this growth is due to environmental issues, but it cannot be ruled out.

A study was also conducted by OTCC that compiled cases of aural (ear) abscesses in painted turtles admitted to OTCC between 2011-2020. The cause of these abscesses is not known, but it has been linked to the presence of Polychlorinated Biphenyls (PCBs) in the environment. While most of these cases tended towards the areas of higher human population density, there was one that occurred in the Eastern Georgian Bay region (Please see map in Appendix D). This paper is currently In Submission for publication in a peer-reviewed journal.

*Carstairs, 2019. "Evidence for low prevalence of Ranavirus in freshwater turtle species of Ontario, Canada" *PeerJ*.

Carstairs et al, 2019 "Improved detection reveals a high prevalence of Ranavirus subclinical infection in turtles" *Virology*

B. Egg Incubation, Release of Head-started Hatchlings, and Field Research

Although the head-starting of hatchlings was not a component funded by the GMI project, OTCC did harvest eggs, hatch and head-start hatchlings from injured females whose source wetlands are in the EGBR. OTCC incubated



Above: A unique case- a CT scan on a snapping turtle from the EGBR is carried out at Ontario Veterinary College.



Above: A clutch of map turtle hatchlings overwintering at OTCC

over 4500 eggs from turtles across the province, including 270 from the EGBR in 2020. The first hatchling arrived on July 27, 2020, and to date at year-end, 1602 hatchlings resulted have resulted from this program, including 131 from the EGBR. Hatchlings from all species will be headstarted at the OTCC hatching facility, since the larger they are when released, the greater the chance of survival when they are released back to their source wetlands in 2021. A chart of eggs and hatchlings by species can be found in *Appendix E*.

We continued our field research this past summer, which involves following a group of headstarted juvenile Blanding's that were hatched from injured turtles admitted to the OTCC, alongside a group of juvenile Blanding's that were found at our study site. This allows us to compare the movement patterns, behaviour, growth, and survival, between the two groups. Despite the fact that our field season was delayed this year due to the closure of Ontario's Parks, the team was ready to go as soon as we got the green light. The team managed to find all the turtles from 2019, and had a very successful season following our turtles. We plan on following these turtles each year, through to maturity, to ensure that head-started turtles are contributing to the adult population.



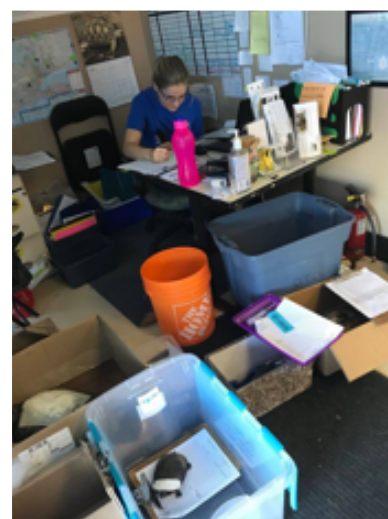
The field crew worked under very difficult conditions this season. Not only did they have to contend with the heat, bugs, and difficult swampland, they also had to wear both masks and visors this year. With their usual amazing attitude, they were heard to say "that's ok, it helps to prevent branches from hitting us in the face!"

C. Education and Community Involvement

Increase Turtle Survival Rates and Conservation Impact through Collaboration

This past year, our First Responder training also had to pivot to a virtual modality, and this has been implemented very successfully. Virtual conference presentations reach audiences from the local to international levels, and are delivered by Dr. Sue Carstairs, Dr. Kristen Jenke, and Dr. Christopher Dutton. In addition, two on-line videos providing up to date knowledge in Turtle Trauma have now been produced: *"Initial Treatment of the Injured Turtle"* and *"Turtle Trauma; Beyond the Initial Stabilization"*. While these have already been presented at virtual conferences, in 2021 we plan to provide access to these resources for veterinarians and rehabilitators in the EGBR, and across the province.

During the 2020 season, all First Responders continued their



Hospital Hot-line and Admissions Area

collaboration with OTCC, and all Turtle Taxi Drivers continued their commitment in bringing these turtles to OTCC. We were even successful in bringing on new First Responders, despite the travel challenges. Our hot-line staff responded to 3474 calls this summer including 278 recorded from EGBR, and responded to 422 e-mail enquiries from or about the EGBR (Please see chart of communications in *Appendix F*). Hot-line staff navigated the No Hands-On new norm, and our services continued without interruption. All staff and partners remained safe in doing so, and turtle admissions proceeded as planned. We plan to continue these procedures throughout the 2021 season as required.

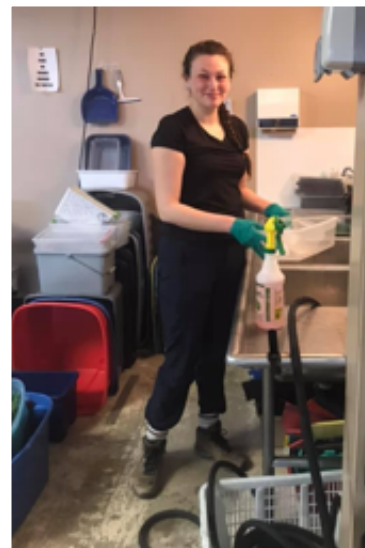
Community Involvement and Volunteer Coordination

In keeping with increased admissions, our overall community and volunteer involvement has also seen a rapid increase over the past few years. In 2020 we had a team of 37 volunteers who regularly care for the turtles, collectively donating an average of 150 hours per week. There are an additional 20 turtle care volunteers on call, as well as 20 volunteer education presenters. Our turtle taxi list has tripled since 2016, with 842 drivers now on the list. 124 drivers made 176 trips to and from the EGBR in 2020 (see chart in *Appendix F*). In all, OTCC now has over 900 volunteers donating over 7000 hours of time per year. New protocols for health and safety for volunteers were put in place in March. OTCC's volunteers continued to care for turtles, transport them across the province, return them to their source wetlands and supported the organization in a myriad of ways.

Due to COVID-19 restrictions, we suspended our *Lunch and Learn* sessions for volunteers, however we developed on-line sessions in response. A *Lunch and Learn* session on the topic of *Releasing Rehabilitated Turtles Back to their Source Wetlands* was presented via Zoom, and an accompanying slide presentation was e-mailed to participants for future reference.

Public Education and Stewardship

Contacts were made last year with a number of individuals and partners across the EGBR to develop partnerships, coordinate education program delivery, and to set up workshops and presentations (please see chart in *Appendix G*). It was agreed among these program partners that though due to COVID-19, virtual program delivery would be our primary channel. Many communities the EGBR do not have internet connectivity, however, and we plan to work with, and connect with communities to develop alternatives throughout 2021. For communities that



OTCC Field Research Technician and Volunteer April Dejong cleans hatchling tanks

do have access to internet connectivity, we set up virtual workshops, and virtual field trips to the OTCC hospital. To date, these on-line initiatives have been very well received by those that have taken part in them.

Province-wide, our education program directly engaged 4000 participants across the province in 2020, despite the cancelling of in-person events. Our sessions were complemented by on-going support by phone, and e-mail, as well as complementary brochures and fact cards.

We developed a working partnership with Kassie McKeown from Alderville First Nation who is currently working with Turtle Island Conservation (TIC) at the Toronto Zoo, and Kelly King of



TRACKS, to develop a brochure entitled *Bridging the Gap: Turtle Connections to First Nations Culture* (copy of final draft of brochure in Appendix H). We plan to distribute the brochure which provides a brief overview of traditional knowledge of turtles and conservation to all participants of our hospital tours, classroom and scientific presentations in the coming year. Audiences with no prior exposure to Indigenous culture and ties to conservation, will have an introduction that will no doubt inspire further interest, and they will be forwarded to our appropriate partner organizations for anyone wanting more in-depth information. Other new educational resources that were developed in 2020 included a brochure and banner on *Ecopassages*, as well as a brochure on *Poaching*.

OTCC's Education Coordinator also introduced a series of videos entitled "Turtle Time" on a variety of turtle and wetland topics, including safely moving turtles from roads, egg laying, nesting and nest protection, helping injured turtles, and cloacal breathing. The videos have been launched on-line through our social media outlets such as Facebook (<https://www.facebook.com/OntarioTurtleCC/>) and Instagram (<https://www.instagram.com/ontarioturtlecc/>). Viewers have been encouraged to submit questions to be answered, as well as suggestions of topics that they would like to see in future videos. We have responded to those requests with 41 posts and videos on social media. The videos have been enthusiastically

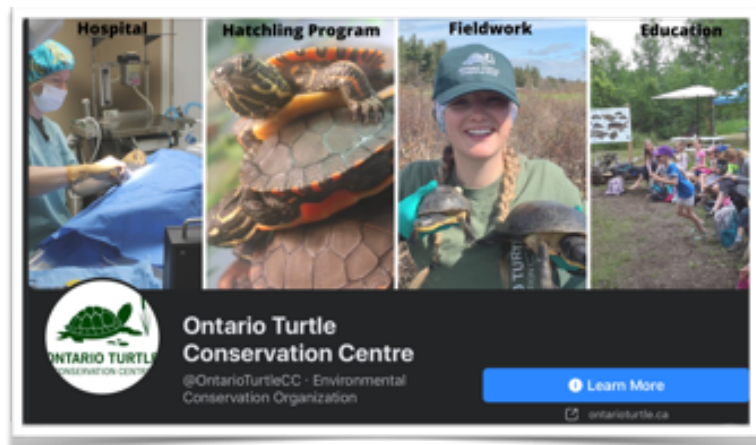


received, reaching close to 3 million viewers and engaging over 450,000 people on social media. The video on *How to Safely Move a Snapping Turtle* went viral with over 12,000 shares and 1,200,000 views on Facebook within days. In the coming year, we plan to make these videos available in other formats for communities in the EGBR without internet connectivity.

Unfortunately the cancelling of all of our in-person events also included our yearly hatchling releases to which we invite the public. We have shared videos of hatchling releases and of releases of rehabilitated adult turtles via social media. We are hoping to reintroduce all of our in-person workshops as soon as it is safe to do so, as the in-person presentations and chance to meet our non-releasable education turtles has been proven to be invaluable in providing a memorable experience to participants. The videos and virtual sessions, however, have proven to be an important component of our outreach programming, an excellent complement to our in-person sessions, and we plan to continue them after our workshops can be resumed.

Web-site and Social Media

Overall the OTCC web site had 127,000 unique visitors last year, and a total of 473,000 visits. Website visits have tripled in three years. Our social media followers are actively engaged, and stay current through interaction with our daily posts. Our Facebook page currently has 20,100 followers, Twitter 8000, and Instagram 5500. Facebook reach is approximately 86,500 people per month, with 18,000 people being actively engaged. As outlined above, some of our posts on Facebook have gone viral, reaching over 2 million people.



Appendix A:

Releases and Admissions by Species

Releases

Total Releases for 2020: 1647

Total Releases for 2020 in EGBR: 195

Species	Total Released	Total Released in EGBR
PATU	209	33
BLTU	38	21
MATU	41	8
MUTU	12	0
SNTU	1345	133
SSTU	1	0
WOTU	1	0

Admissions

Total admitted in 2020: 1097

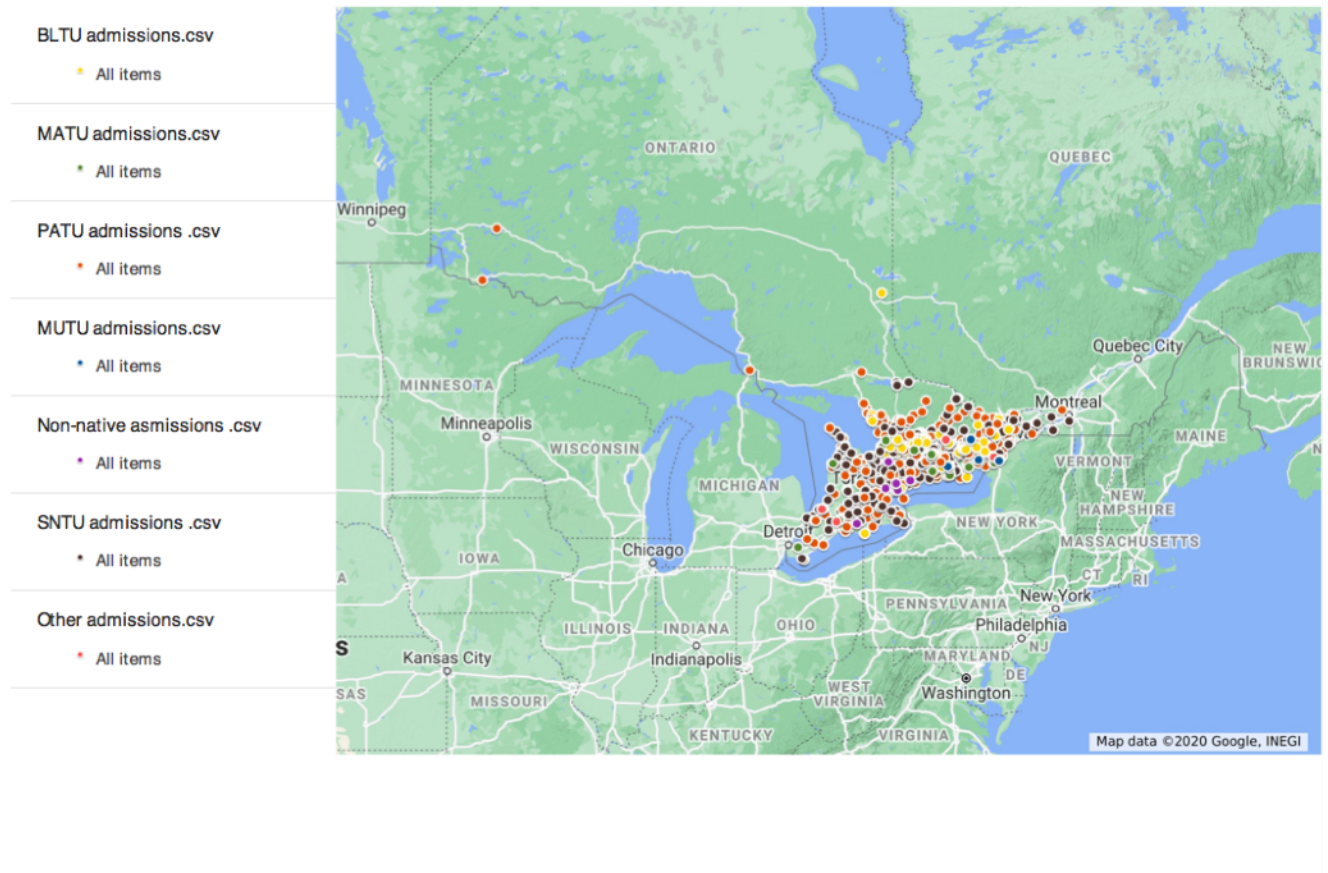
Total admitted from EGBR in 2020: 144

Species	Total Admitted	Total Admitted from EGBR
PATU	653	89
BLTU	47	11
MATU	22	5
MUTU	6	0
SNTU	357	38
SSTU	1	0
WOTU	1	Unknown
SPTU	1	0
Non-native	7	1
Snake	2	0

Appendix B:

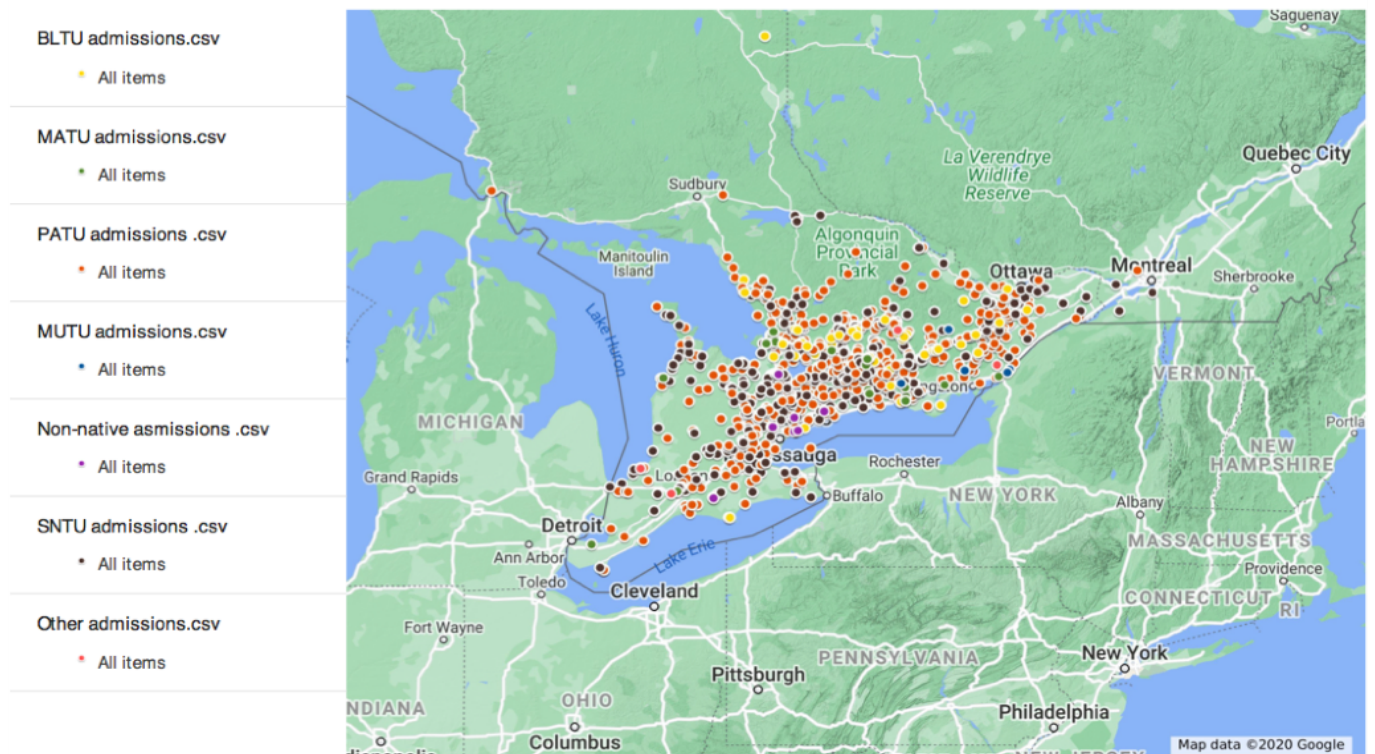
Admissions Across Ontario

Turtle Admissions 2020



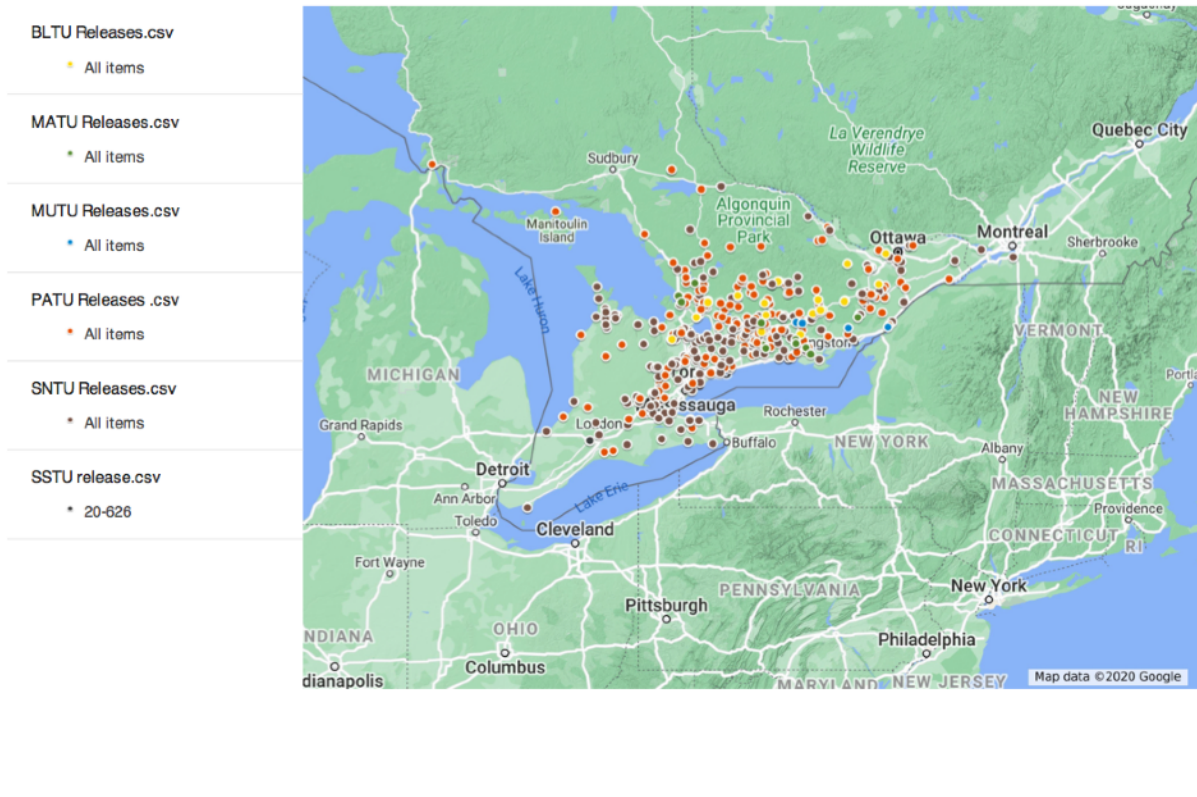
Appendix B (Continued): Admissions Close-up

Turtle Admissions 2020

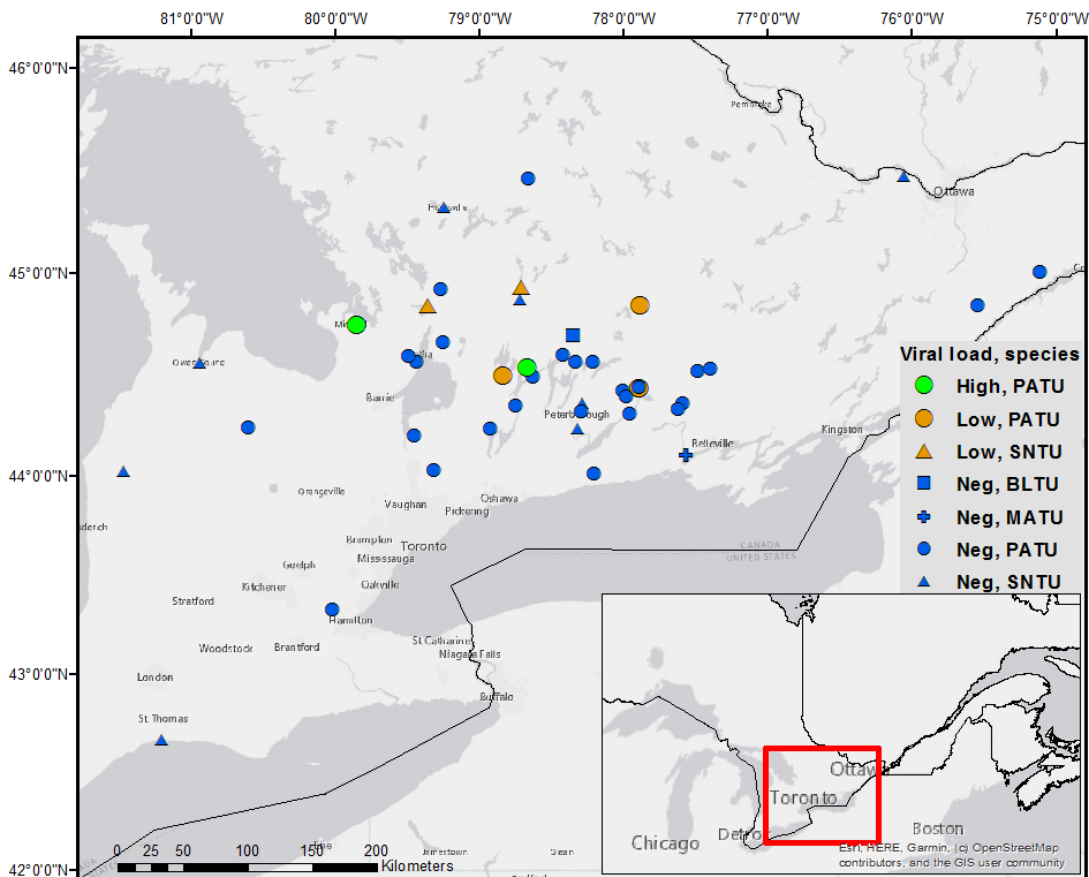


Appendix B (Continued): Releases

Turtle Releases 2020



Appendix C: Ranavirus Testing



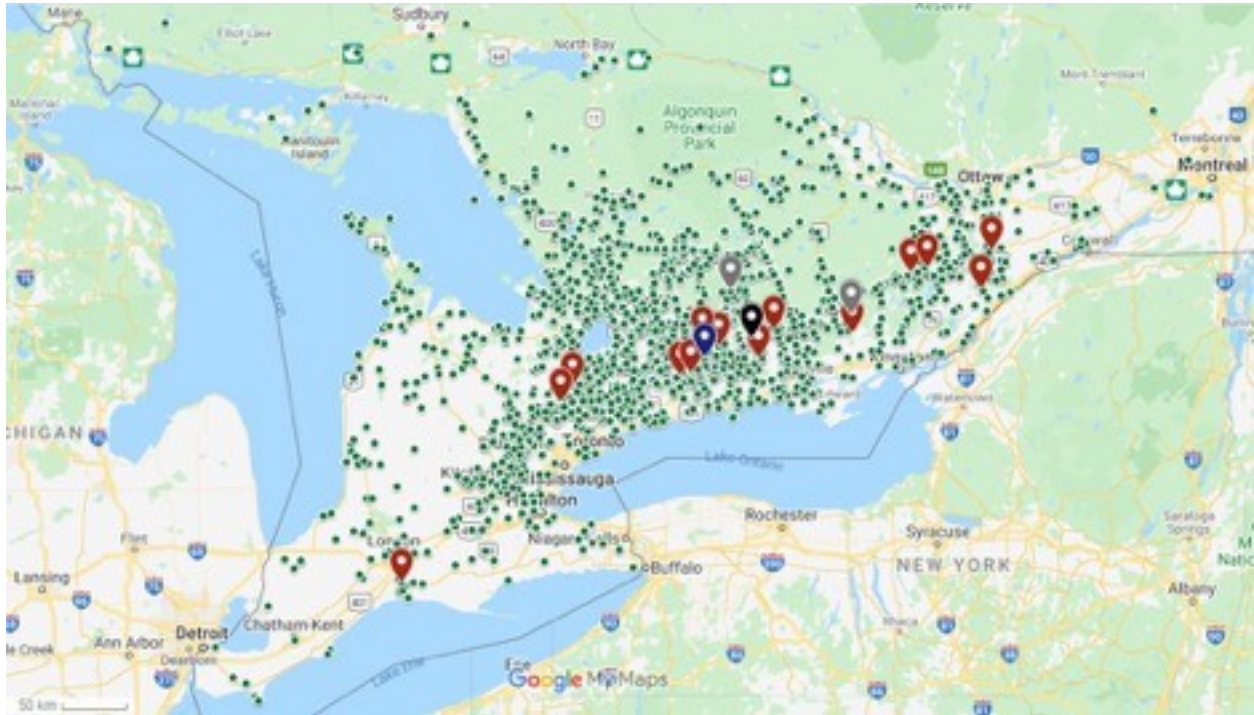
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Appendix D:

Aural Abscesses in Painted Turtles
admitted to OTCC between 2011-2020



Map Above: Green dots represent Painted turtle admissions to OTCC from 2011-2020. Red, Blue and Black flags indicate those with aural abscesses

Appendix E: Eggs and Hatchlings

Eggs

Total Eggs including broken eggs in 2020: 4711

Total Eggs **not** including broken eggs in 2020: 4544

Species	Total Eggs (including broken eggs)	Total Eggs (including broken eggs) from EGBR	Total Eggs (not including broken eggs)	Total Eggs (not including broken eggs) from EGBR
PATU	1117	161	1061	157
BLTU	253	24	244	24
MATU	162	36	159	36
MUTU	5	0	5	0
SNTU	3168	283	3069	270
Snake	6	0	6	0

Hatchlings

Total Hatchlings Reared in 2020: 1602

Total Hatchlings from EGBR Reared in 2020: 131

Species	Total Hatchlings	Total Hatchlings from EGBR
PATU	386	65
BLTU	108	0
MATU	62	24
MUTU	5	0
SNTU	1041	42
Snake	0	0

2020 Reared hatchling releases below are Included in the Release numbers specified in Appendix A. Total hatchlings reared and released in 2020: 102 EGBR: 0

Species	Total Hatchlings Reared and Released	Total Hatchlings reared and released in EGBR
SNTU	102	0

Appendix F:

Communications, Community Involvement

Taxi Drivers driving to and from EGBR

Amount Traveling to and from EGBR in 2020	Current Total Taxi Drivers/ Release Volunteers in Database	Taxi Drivers/ Release Volunteers added to list in 2020	Total Trips to and from EGBR in 2020
124	842	239	176

Trips made are based on admissions from the EGBR and emails.

Phone Enquires

Total phone calls recorded in 2020	Total phone calls recorded in 2020 from or about EGBR
3474	278

Email Enquires

Numbers pulled from turtle taxi email and education email.

Total email threads recorded in 2020	Total email enquires in 2020 from or about EGBR
8109	422

Turtle taxi email: 3382

Education email: 4727

Conservation Action Surveys

Total submitted in 2020	Total submitted from EGBR in 2020
151	16

Appendix G

Public Education and Stewardship Component Delivery

An *OTCC Virtual Field Trip* provided for the **McMaster Ecohydrology lab** at McMaster University. Jan 05-2021 from 1-2 pm. They are doing habitat ecohydrology for reptiles in peat in Northern Ontario Barrens and Bog Ecosystems landscape (Nobel) Georgian Bay Biosphere Reserve.

Two *OTCC Virtual Field Trips* provided for **Mountain View Elementary School** .in Collingwood. Dec. 2, 2020, Dec 16, 2020.

OTCC Virtual Field Trip provided for **Georgian College**, Tamara Fisher-Cullen, M.Ed., TESL, OCELT Curriculum Advisor on Sept 12, 2020

Josh Casey Information/Communications Coordinator of the **Near North District School Board** was in touch on Jan 6, 2021 and is interested in setting up *virtual field trips* for classes in the board.

Contact has been made with Scott Millar, Supervisor of Community Education for the **Bluewater District School Board**. Awaiting reply to set up *virtual field trips*.

Discussions took place on coordinating delivery of the education component of the project among Wendy Baggs, OTCC Education Coordinator, and the contacts listed below. While communicating with these contacts, it was mutually agreed that due to COVID-19, virtual presentations would be our primary yet challenging option due to limited access to internet in remote areas, and the closure of many First Nations offices.

Patrick Brennan- gmi@henveyinlet.com. Executive Director, **Ganawenim Meshkiki**

Tianna Burke - biologist@gbbr.ca **Georgian Bay Biosphere Reserve**

Jeff Hathaway- info@scalesnaturepark@gmail.com **Scales Nature Park**

Sherrill Judge- sjudge@gbbr.ca Maawaanji"iwe Manager, **Georgian Bay Biosphere**

Cory Kozmik- cory.kozmik@magfn.com Species at Risk Biologist & Program Coordinator **Magnetawan First Nation**

John Urquart- john@blazingstar.ca **Blazing Star Environmental**

Initial communications were sent out to First Nations communities, Schools, Libraries and Cottagers Associations in the EGBR on Sept. 23 2020. Attached to this introductory letter was a poster and a short trailer highlighting what participants could expect from the program.

An introductory email was sent out to a second set of contacts in the Eastern Georgian Bay Area in Dec 2020, communicating info about our virtual educational tours.


Appendix H


Conservation as Tradition

Indigenous people have been practicing conservation since time immemorial. Pre-colonialization Indigenous conservation practices in Canada included sustainable harvesting and hunting practices as well as prescribed burning.

These conservation practices came as a result of understanding that all things are interconnected. Spending time on the land allows for understanding balance in biodiversity which instills a greater appreciation of and connectedness to the environment. Through careful observation and living close to nature, changes are more readily noticed in the environment. This connectedness is illustrated by turtles' critical role in the maintenance of healthy water and watersheds. As turtle populations decrease, changes in wetland health are evident, ultimately affecting larger bodies of water and other species who live there.

Photo: Joe Crowley






If you find an injured turtle, call us immediately!
705-741-5000




This brochure was produced in collaboration with Kassie McKeown, Alderville First Nation
Funding provided by Ganavenim Meshikiki (Eastern Georgian Bay Initiative)

ganavenim meshikiki
Ganavenim Meshikiki is a registered charity.

Front cover art by: _____




4-1434 Chemong Rd.,
Selwyn, ON K9J 6X2
www.ontarioturtle.ca
info@ontarioturtle.ca
705-741-5000

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The legal name of OTCC is the Kawantha Turtle Trauma Centre.
Charitable Registration # 85752 4409 RR0001



Bridging the Gap: Turtle Connections to First Nations Culture


Indigenous conservation practices developed as a result of appreciating the interconnectedness of all things.

Turtle Island

First Nations peoples call North America "turtle island" because legend describes this land as being situated on the back of a turtle. The creation story describes a flood where the turtle gives his shell for the land to grow on until all can inhabit it. This turtle is believed to be a snapping turtle, as they are the largest, and are often found with algae and other plant material growing on their shell. Like the photo below, they sometimes look like a moving island.

In Southern Ontario, archaeological studies have unearthed turtle shells, turtle shakers and other artifacts depicting turtles. The cultural importance of the turtle cannot be understated in the current day as well.

Photo: Timothy C. Roth, Back Fence Turtle



13 Moons on the Turtle's Back

Although we usually count 12 months in a year, technically the moon travels around the earth 13 times within that year. This allows for 13 lunar months, each approximately 28 days long. Many First Nations people believe that these 13 lunar cycles are depicted on turtles' shells. The centre of the shell (carapace) has a pattern of thirteen larger scutes which represent the 13 moons of the lunar calendar. The circle of smaller scutes that surround the edge of the shell add up to 26, depicting the number of days in a lunar cycle.

Each cycle or moon has a name that has a cultural teaching which explains the cycle of life and nature. In this respect the turtle is viewed as a timekeeper.





Photo: Joe Crowley



The Turtle With the Sun Under Its Chin

Some Indigenous people call the Blanding's turtle "the turtle with the sun under its chin." Can you guess why? In First Nation storytelling, the Blanding's turtle was given his yellow chin when he returned the sun to the sky. He saved the sun by keeping it in his mouth, and a bright yellow shine could be seen under his chin.

* draft awaiting credit for artwork