Ocular Injuries in Captive Songbirds

Elisa Fosco
Director of Animal Care
Walden's Puddle Wildlife Center
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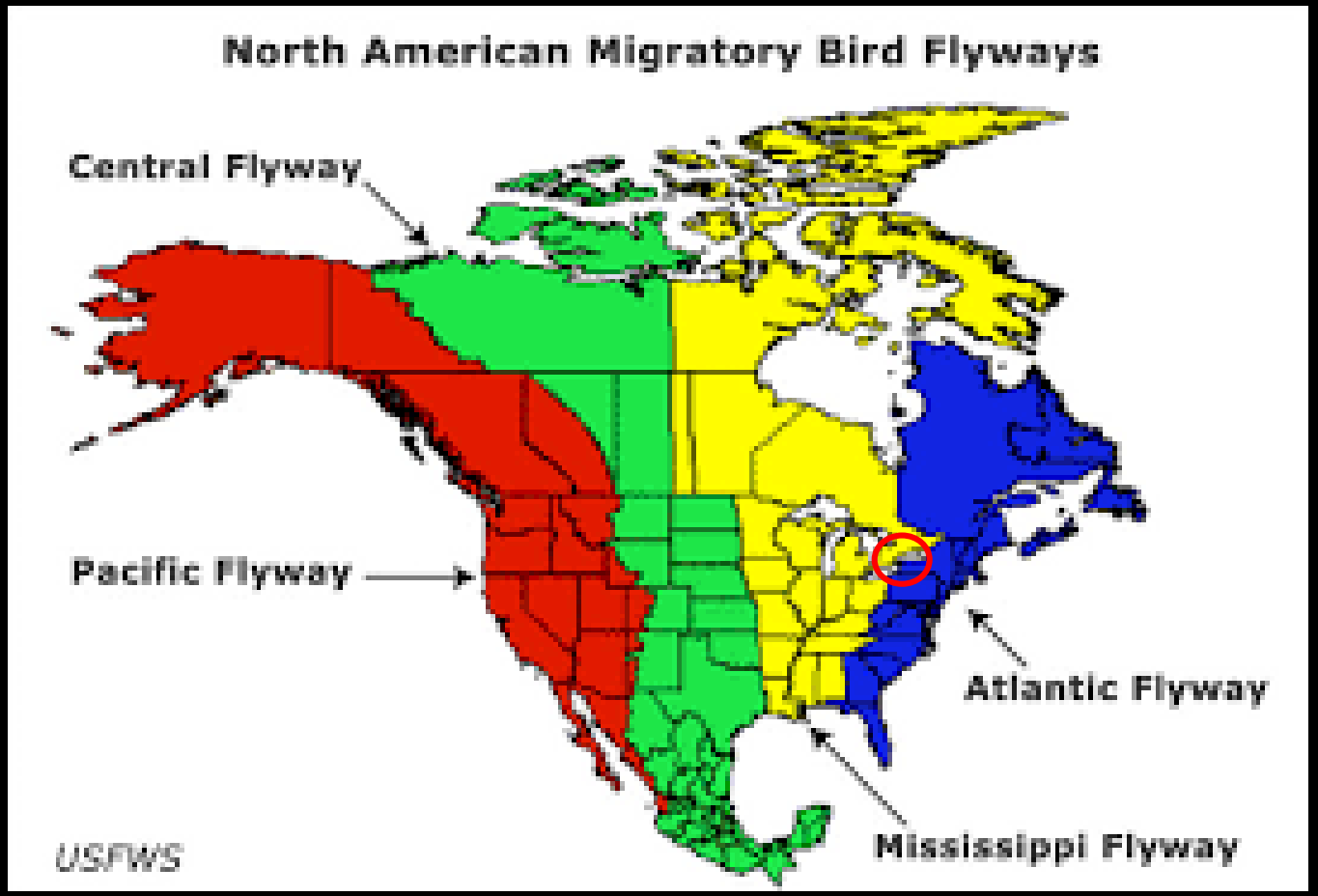
WINDOW COLLISIONS IN NOCTURNAL MIGRANTS

Atlantic Flyway and Mississippi Flyway



Atlantic Flyway and Mississippi Flyway

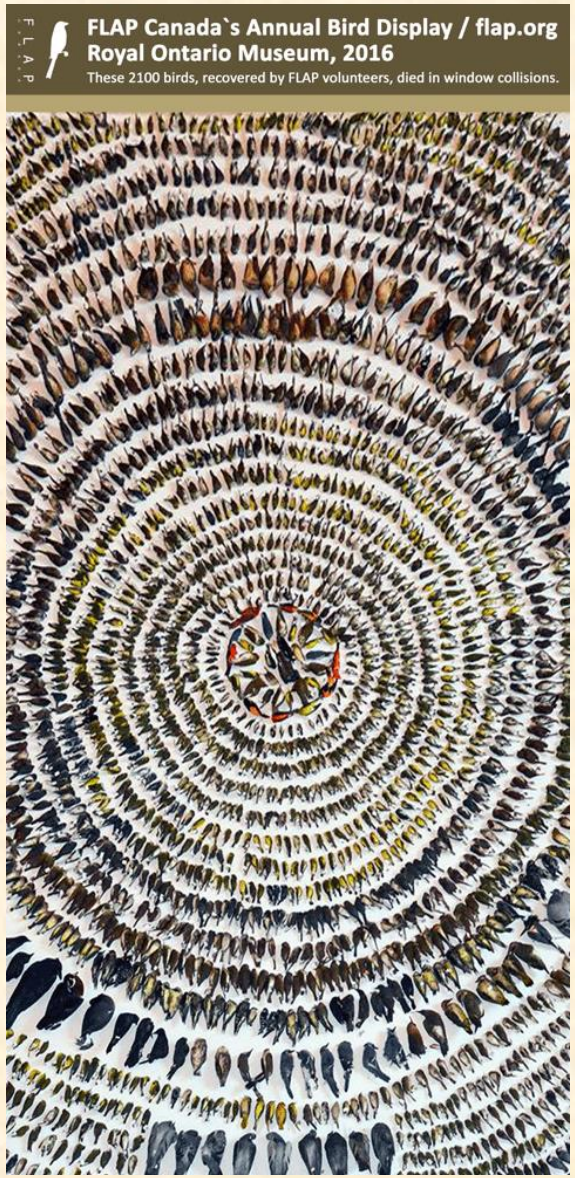
Window collisions in nocturnal migrants

- The city of Toronto is a large urban obstacle in the main Atlantic flyway
- Thousands of passerine species moving between Canada and South America
  - Neotropical migrants
  - Many species of concern
- Major N/S route of annual migration

Fatal Light Awareness Program


sparrows

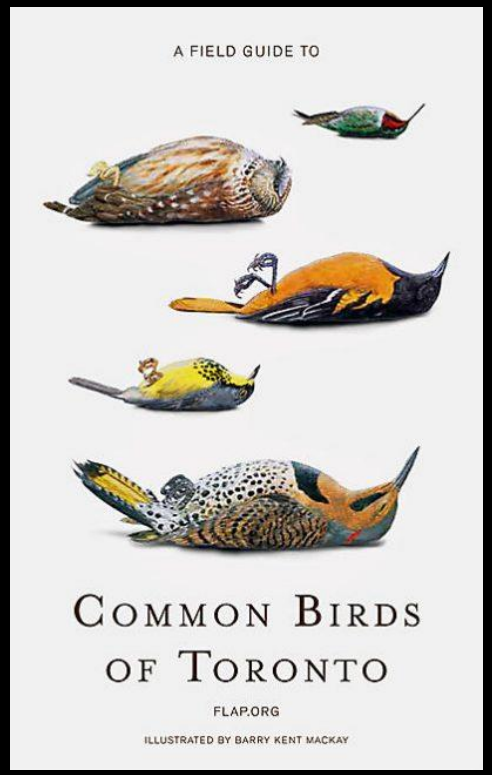
An estimated 1 to 10 migratory birds die per city building, per year. As one example, Toronto alone has over 950,000 registered buildings (9 million birds each year)



LIGHTS OUT TORONTO!

BirdSafe

BirdSafe® Building Standards
The first of its kind risk assessment designed to objectively assess a building's risk for bird collisions.



WORKING TOGETHER TOWARD A COMMON GOAL...

FLAP

- Collects birds
- Documents incidence and fatalities
- Developing bird safe building standards
- Public education and awareness
- 'Lights Out Toronto'

Toronto Wildlife Centre

- Evaluates and rehabilitates live casualties

While numbers vary, TWC admits hundreds of migratory adult songbirds every year as a result of window collisions

Primary Injuries Documented:

- Corneal trauma
- Shoulder and wing injuries

ADMISSION PROTOCOL FOR FLAP BIRDS

Initial treatment…

- Weight
- Ovitrol™ for ectoparasites
- Meloxicam PO (+/- Tramadol PO)
- A few drops of diluted Ener-gel™ (Nutrical™)
  - Robins and thrushes excluded

Physical Exam including eyes and flight ability…

- Gross eye exam and corneal assessment
  - Fluoroscein™ stain in birds > 10g
    - *If positive, bird is started on Ab ophthalmic drops TID (BID in high stress individuals)*
    - *If negative, bird is test flown*
- Flight test if eyes are uninjured

STANDARD CARE PROTOCOL

- Full rounds are done daily
- Birds are weighed, medicated and re-assessed DAILY with the goal of immediate release once cleared
- Fluorescein stain is repeated in most patients daily
  - While this may seem excessive, it is necessary to reduce or minimize rehab period
- Physically conditioned for migration so minimal delay is imperative
  - Conserve metabolic state
  - Minimize deconditioning

On the Significance of Spring Migratory Restlessness in Caged Birds *Author(s): Eberhard Gwinner and Dieter Czeschlik Source: Oikos, Vol. 30, No. 2, Current Bird Migration Research*

Fat-Deposition Strategies among High-Latitude Passerine Migrants*, Anna-Marie Benson and Kevin Winker Source: The Auk, Vol. 122, No. 2 (Apr., 2005), pp. 544-557 Published by: American Ornithological Society*

Due to admission numbers and amount of historical data, we began a study to document the 'incidence of corneal injuries in window strike songbirds during migration'

Goal-

- To inform the veterinary and the rehab communities of the importance of corneal assessment in window strike songbirds

Plan-

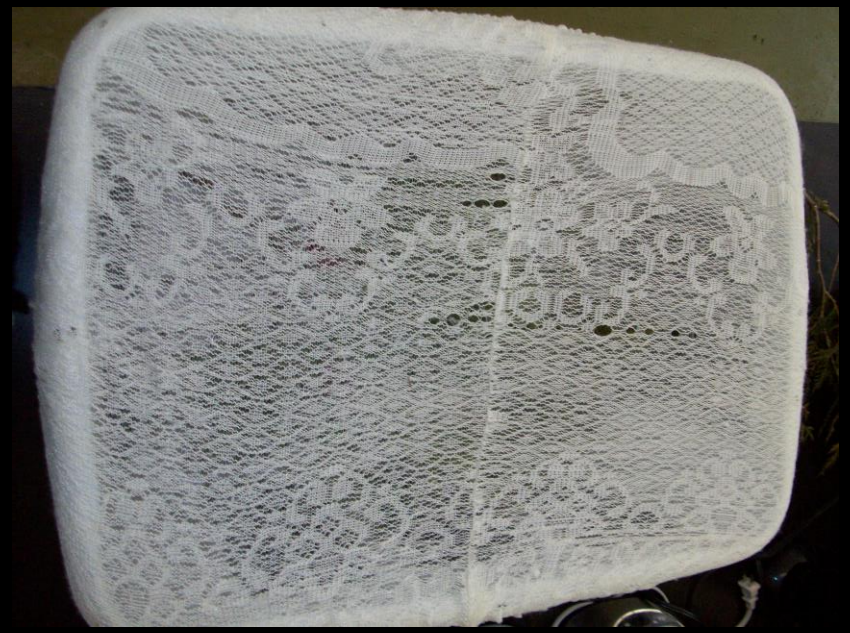
- Development a specialized veterinary internship program to gather and compile data for one full migration cycle (spring and fall admissions)
  - Responsible for oversight of program patients
  - Ensure data consistency

Intern Duties

- Intake of incoming birds
- Assign treatment plan as per protocol
- Administer daily meds
- Daily re-assessment and charting
  - Corneal injuries monitored for healing daily

Surprise!

- Routine corneal checks noted a ***daily*** variation in the shape, severity and location of stain uptake in the most birds
- Study parameters were re-assessed
- Both eyes were stained on patients during their daily care/re-assessment regardless of their initial diagnoses
- Housing was re-examined for injury potential
  - Caging exceeded minimum standards and was believed to be ideal for these birds
  - Modified ‘bird baskets’
    - *laundry baskets with soft screen protection on lid and exposed side panels*
  - Reptariums
  - Natural perching, branches for habitat enrichment and solid (light colored) visual barriers blocking human traffic areas



INTERESTING!

Observations…

- Caging, furnishings and habitat enrichment were modified – NO change
- Higher stress birds appeared to have the most erratic changes in the daily description of the corneal stain

Actions taken...

- Handling was reduced
  - Medications were reduced as well, against standard treatment recommendations for corneal injuries
  - It was immediately apparent that damage was less extreme
- Birds were moved to glass aquariums
  - Again trauma was consistently reduced across the board
  - In almost every patient, corneal damage noted on admission healed without the addition of new trauma

Case number	Species	Eye(s) affected	Complications	Outcome	Days of tx	Tx	Ulcer on admit	Housing
16-4149	AMRE	OU	head trauma	DIC	2	Tobrex	Undertermined	
16-3892	BAWW						Y	
16-3727	BAWW	OS	OS lower lid swo	h	5	Tobrex	y	
16-3892	BAWW	OU	od hyphema & re	h	8,7	bnp(tobradex	y	a
16-3858	BBWA	OD	dislocated shoul	Euth	2	BNP	Y	A/B/r/osa
16-4346	BCCH	n	os periorbital sw	h	1,2	tobrex, maxit	n	b
16-3828	BLBW							
16-3853	BLBW							
16-4182	BLBW	od periorbital swelling		euth	2	maxitrol	n	
16-3853	BLBW	os/od/ou	reinjury	h	2,2,5	bnp/cilox	y	a/b
16-3828	BLBW	n	os mild squint	h	2	tobrex	n	
16-4249	BLPW	OS squinty/periorbital swelling		dic	1	tobrex	n	a
16-4340	bpwa	n	OD periorbital sw	h	1,2	tobrex/maxit	n	
16-4160	BRCR	OD	head trauma	DIC	1	BNP	Y	B
16-4070	BRCR	OS		DIC				B
16-4160	BRCR	OS		DIC		BNP		
16-4319	BRCR	OU		DIC	3	TOBREX	y	a
16-4254	BRCR	OU/os/od/os/ou	os nystagmus	dic	1,6	BNP	y	
16-4338	BRCR	os		dic	1	bnp	n	a
16-4442	BRCR	OU/OS		H	3,3	TOBREX/BNP	Y	B
16-4442	BRCR	ou/os		h	6	bnp	y	
16-3838	BTBW	OD		H	3	BNP	Y	A

Species *in Care*			Corneal Ulcer at Admission	Corneal Injury in Care
BAWW	3	Black and white warbler	3	1
BLBW	5	Blackburnian warbler	3	1
BLPW	1	Blackpoll warbler	0	1
BRCR	8	Brown creeper	8	1
BTBW	11	Black throated blue warbler	9	4
BTNW	3	Black throated green warbler	2	1
CAWA	3	Canada warbler	2	Both birds got conjunctivitis
COYE	4	Common yellowthroat	3	2
DEJU	10	Dark eyed junco	8	6
DOWO	1	Downy woodpecker	1	1
GCKI	22	Golden crowned kinglet	17	4
GRTH	3	Gray cheeked thrush	3	0
HETH	10	Hermit thrush	9	8
LISP	1	Lincoln sparrow	1	unclear

Species *in Care*			Corneal Ulcer at Admission	Corneal Injury in Care
MAWA	9	Magnolia warbler	7	8
NAWA	6	Nashville warbler	4	2
NOPA	2	Northern parula	2	1
OVEN	7	Ovenbird	4	2
PHVI	2	Philadelphia vireo	1	0, however both birds in care 1 day
RCKI	9	Ruby crowned kinglet	6	1
TEWA	10	Tennessee warbler	6	2
WBNU	5	White breasted nuthatch	4	3
WTSP	4	White throated sparrow	4	0
YBSS	5	Yellow bellied sapsucker	4	2

PRELIMINARY SUMMARY

- 144 birds in study group
- 111 had corneal damage at admission 77.1%
- 51 had corneal damage in care overall 35.4%
  - Time in care would need to be a factor
  - Many fatalities are in the first few days of care

CONCLUSION

- The primary injury resulting from window collisions is ocular/corneal trauma
  - Skull morphology in these species *may* be significant
- High stress migratory adult songbirds commonly injure their corneas in captive housing
- Care should be taken when housing and catching these high stress birds
- Responsible treatment protocols should include this information
- There is definitely more work to be done on this topic

These birds are in trouble, they need all the help they can get!