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2026 Airline Bird Strike Reporting and Bird Strike Committee USA R&D Standing Committee Update

Presented by Troy Levanen

Director, Maintenance Operations Safety

Alaska Air Group

Troy Levanen
Director, Maintenance Operations Safety
Alaska Air Group
Certified Aircraft Accident Investigator
Chair, A4A Maintenance Safety Committee
Bird Strike USA Steering Committee
troy.levanen@alaskaair.com
C 360-904-7618

Agenda:

Alaska collaboration with FAA Tech Center and USDA National Wildlife Research Center (NWRC):

- Key strike data findings
- “One Stop Shopping” for wildlife strike reporting

Alaska Airlines Strike Reporting Update:

- Strike Trends for Alaska Air Group – last 5 years
- All New! Phase of flight graph

Bird Strike USA Research and Development (R&D) Standing Committee Updates:

- Pulsing Landing Lights for aircraft
- R&D Committee - Other Items

Plus: High Level Review of N5827 Airbus A330 NTSB Bird Strike Accident at Cincinnati, OH. (CVG)

Note: All presentation data is for B737 and E175 aircraft (no Airbus data yet)

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Alaska collaboration with FAA Tech Center and USDA National Wildlife Research Center (NWRC)

By comparing strikes between Alaska Aircraft Maintenance Records and the FAA Wildlife Strike Database (NWSD), Alaska identified that many strikes were not included in the FAA NWSD.

Then, by looking at **all** Alaska Strikes – in detail – from Alaska Aircraft Maintenance Records over 8 years (2017 to 2024),the USDA NWRC team validated this finding.

Here are High Level Preliminary Findings:

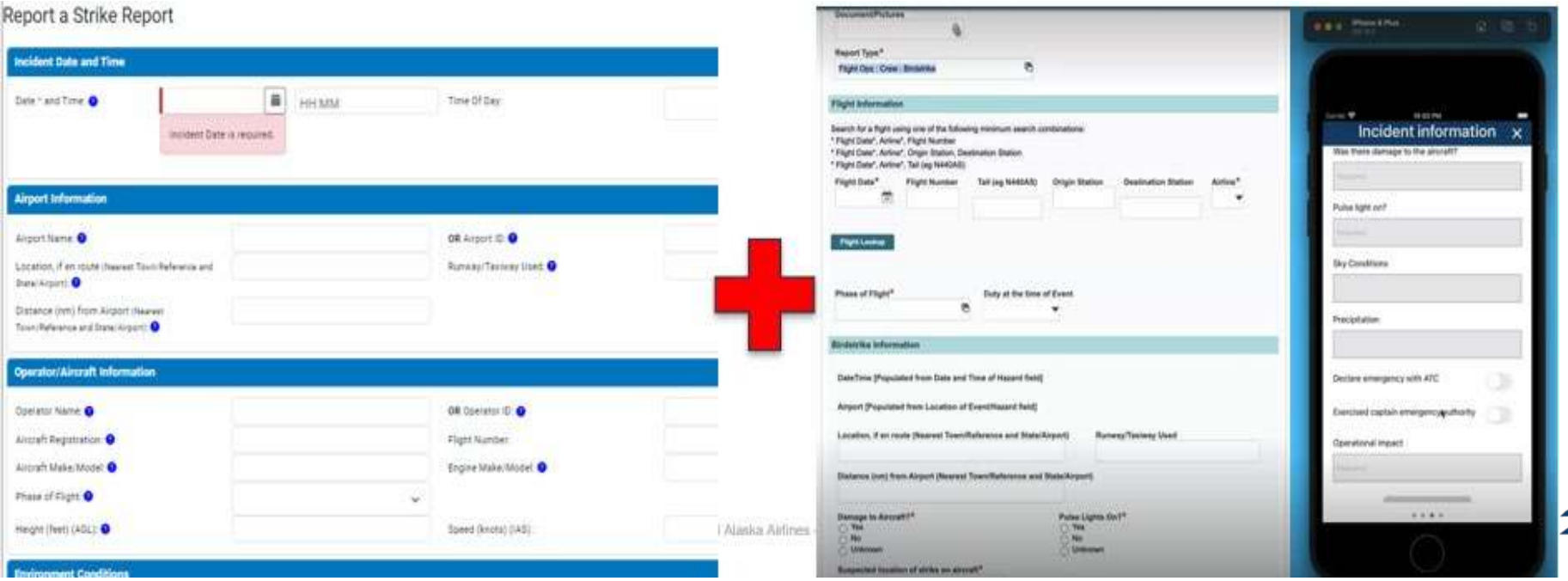
- Only about **35%** of *total* Alaska wildlife strikes were in National Wildlife Strike Database (NWSD)
- But on a positive note, **62%** of *damaging* Alaska strikes were in NWSD
- Another positive: Only **3.4%** of Alaska Strikes were damaging strikes (again, preliminary)

This disparity had led us to partner with the FAA Tech Center to develop a way to **automate airline strike reporting** to capture a greater number of more accurate strikes in the FAA NWSD – **"One Stop Shopping"!**

“One-Stop Shopping for Strike Reporting”
(Automatic strike reporting to the FAA database)

Alaska has automated reporting to the FAA Wildlife Strike Database – 1st US airline to do it!

- When a pilot hits “send” on their safety report for a wildlife strike – it automatically generates an FAA Wildlife Strike Database form.
- Reporting is very easy on their normal devices – including on the app shown below.
- At the same time, it sends an auto-ping that the FAA form 5200-7 has been generated to any individuals who are signed on to receive updates at the airport selected and airline selected.
- Key information gained from automated reports are Phase of Flight, Distance from Airport, Airspeed, Altitude, and if there was damage - at what location on the aircraft. This is primarily because the Pilots are the ones submitting the reports.



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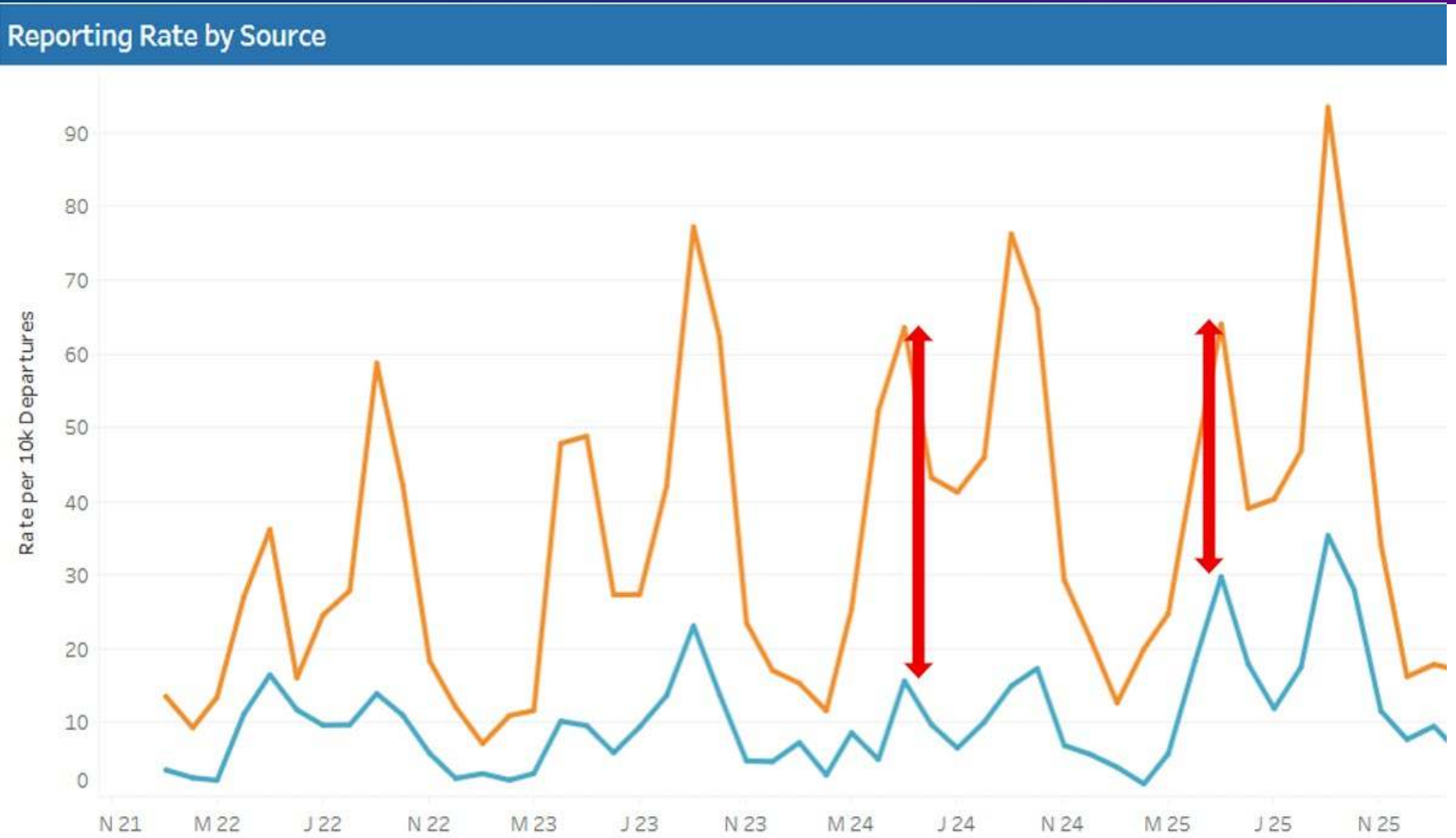
Does the Alaska bird strike graph reflect the results of One-Stop Shopping for Airline Strike Reporting?



Orange line = Actual Strikes
(MTX Records)

Blue line = Pilot Safety Reports

- This will closely mirror what is in the FAA Database with the auto-reports.
- There is still work to be done, but the gap is closing with more Alaska pilots filing safety reports for their strikes.
- See “arrow length” in peak of back-to-back spring migrations.
- YOY AUG comparison = 41% more Alaska strikes in FAA DB

This shows that a greater % of Alaska wildlife strikes are now known to the FAA!

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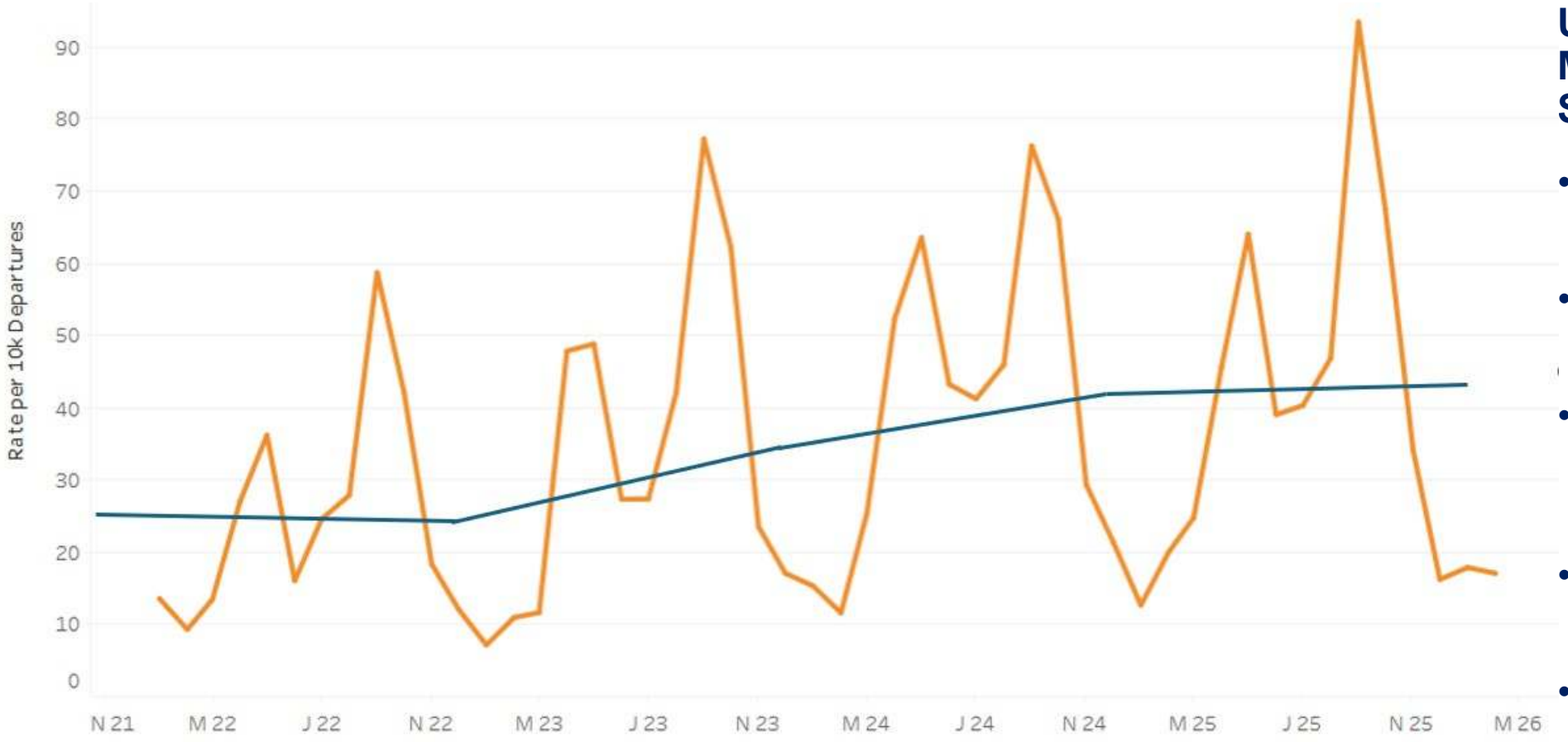
Reporting Update: Strike Rate Trend Graph – Strikes per 10k Departures Alaska/Horizon (Hawaiian not included yet)



Using our Alaska Aircraft Maintenance Records for Strike Rates:

- Can you see the increase in strikes?
- **68% between 2022 and 2024!**
- But good news: Only a slight increase between 2024 and 2025.
- Encouraging, but these are high rates!
- Is this 68+% strike increase the **New Norm?**

2021 = 25 **2022 = 25** **2023 = 34** **2024 = 42** **2025 = 42.5**

Bonus Quiz: Can you spot the Spring and Fall Migrations?

Question: **Do European strike rates compare to this?**

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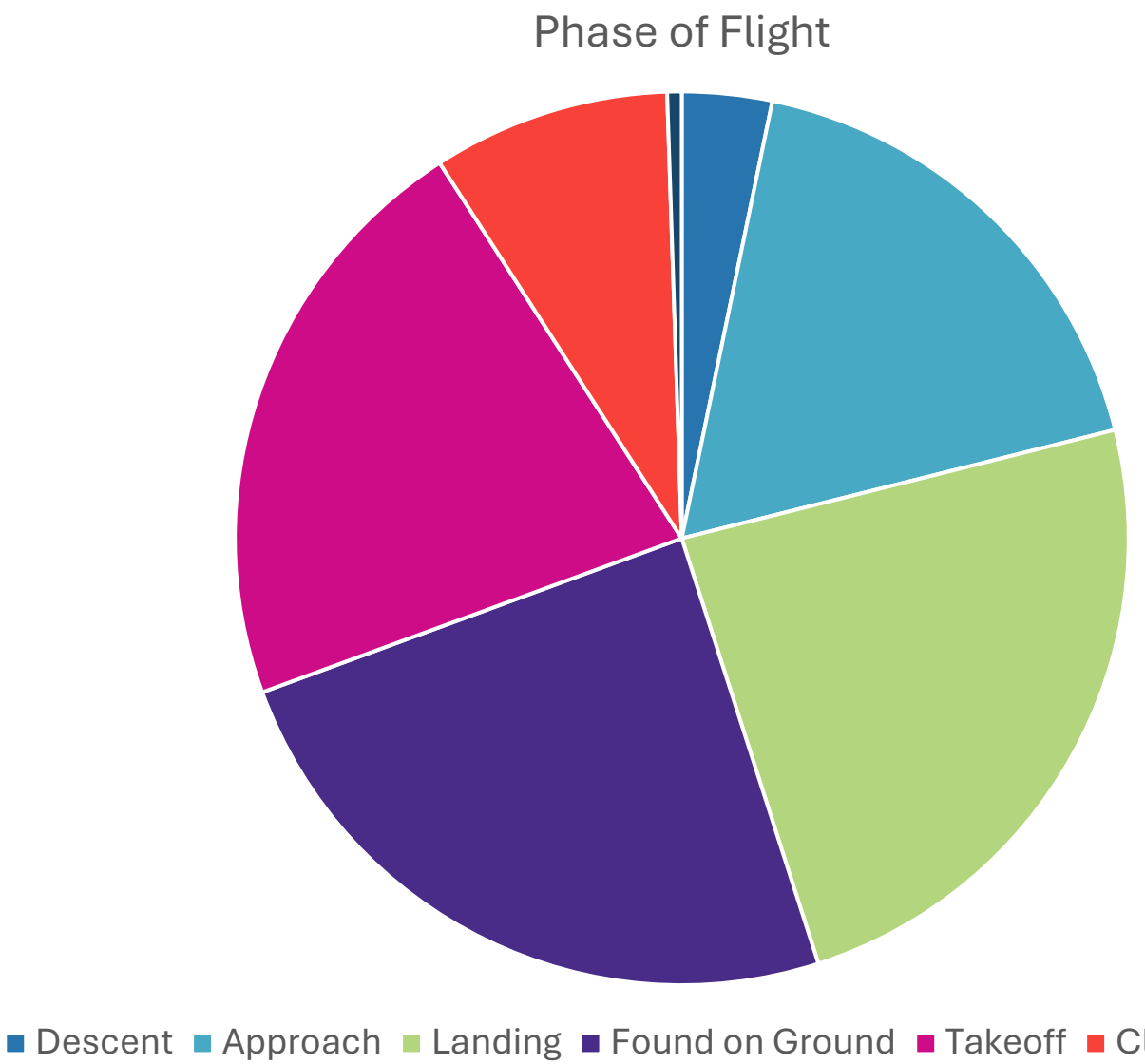
Reporting Update: Phase of Flight –Alaska/Horizon

(Hawaiian aircraft not included yet)



By developing the one-stop shopping, we can now use the AAG Pilot Safety Reports, to capture the ever important – and elusive - "Phase of Flight".

Here is what we found:

- 3.3% - Descent
- 17.9% - Approach
- 24% - Landing
- 24.4% - Found on ground (walkarounds)
- 21.5% - Takeoff
- 8.6% - Climb
- .3% - Cruise
- Note that this is still on a 1/3 sample (see next slide)

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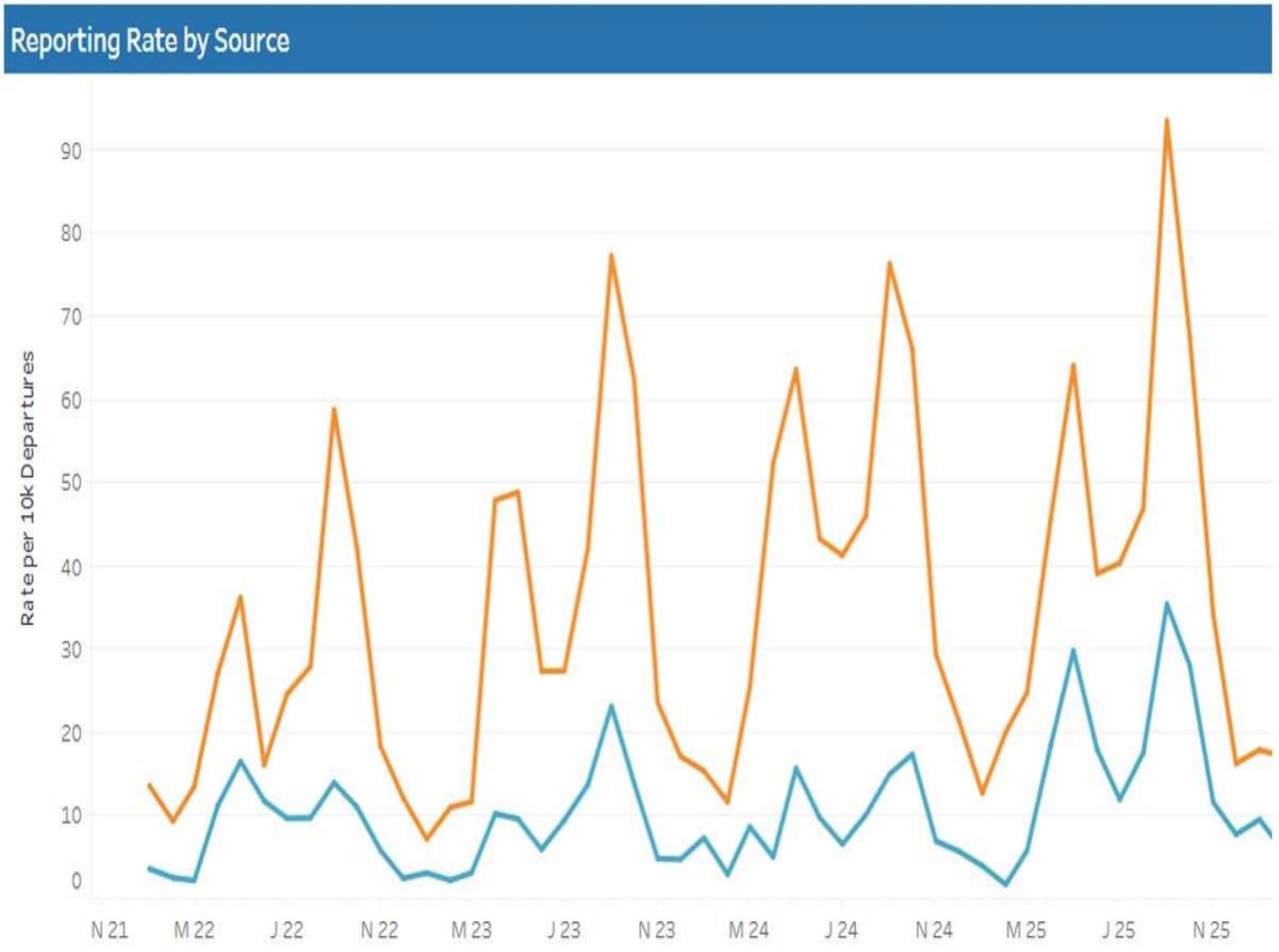
Part 2 Phase of Flight –Alaska/Horizon

(Hawaiian aircraft not included yet)



Blue line is the one that represents the reports that we can use to capture **"Phase of Flight".**

Considering the previous pie chart, here are some notes:

- Descent/Approach/Landing = 45.2%
- Takeoff/Climb/Cruise = 30.4
- Using the same ratio for the remaining strikes (found/reported on ground = 24.4%) we could speculate this:
- That **61.5% of strikes occur on descent/approach/landing**
- And that the remaining 38.5 % occur on takeoff/climb/cruise

Thoughts? Are you surprised?

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Pulsing Landing Lights for Aircraft

Alaska has pulsing landing lights on all 737 aircraft. Do they work a wildlife deterrent?

Because we have had the pulsing lights installed for so long, we don't have good strike data *before* the lights were installed on the 737 fleet. But….

- Within Alaska Air Group data, at Horizon Air - who does not have pulsing lights – the E175 strike rates are much higher than on the Alaska 737. For example, over **43% higher in 2026 YTD**.
- In another more "apples to apples" example, Southwest does not have pulse lights. Data shows Alaska strike rates 25% to 40% lower than Southwest at common airports – with both operating 737 aircraft.
- Horizon Air previously operated Bombardier Q400 aircraft with pulsing lights – with significantly lower strike rates.

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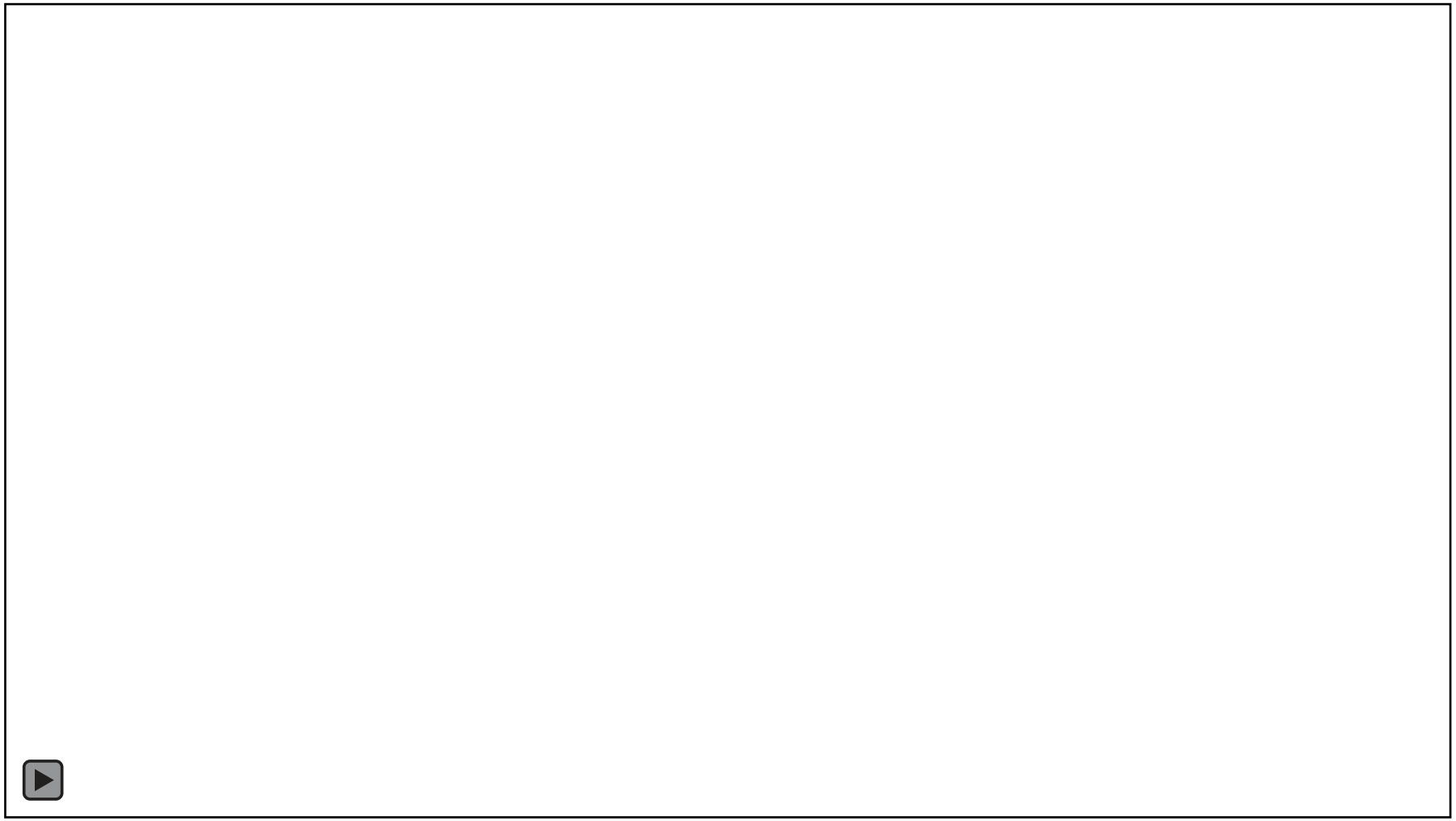
Pulsing Landing Lights for Aircraft (cont.)



Try this video!

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Project: Tuned Landing Lights for Aircraft

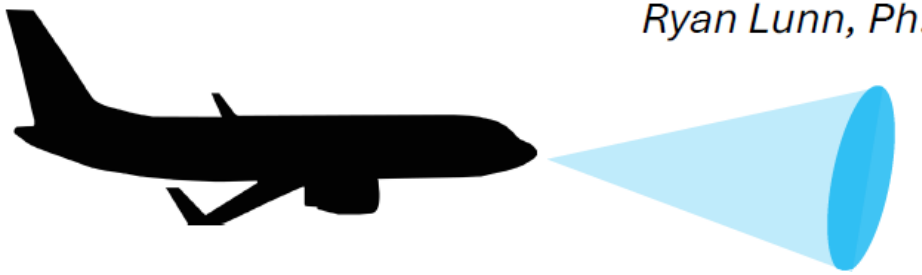
Dr. Ryan Lunn of Purdue University partnered with the USDA and US Navy recently on a project to see how aircraft lighting affected Canada Geese. The outcome? The lights make a difference.

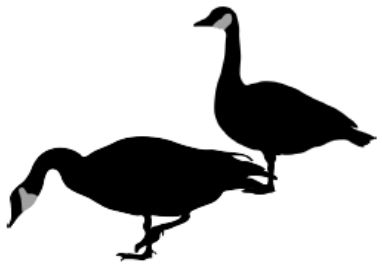
PURDUE UNIVERSITY USDA

A Bird's Eye View & Light Onboard Aircraft: Responses of Canada Geese to a Naval Aircraft with Onboard Lighting Tuned to Their Eye

02/18/2026

Ryan Lunn, Ph.D





- Ryan's study, using drones with lights on them in both steady state and pulsing, showed that the geese reacted to the oncoming drones much sooner with the lights on, and even sooner yet with the lights on and pulsing.
- See the next few slides for high level details.

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Project: Tuned Landing Lights for Aircraft (cont.)

Methods

Demonstration Arena

n = 119 Trials

- 43 Light-off
- 46 Light-on Steady
- 30 Light-on Pulsing (2 Hz)

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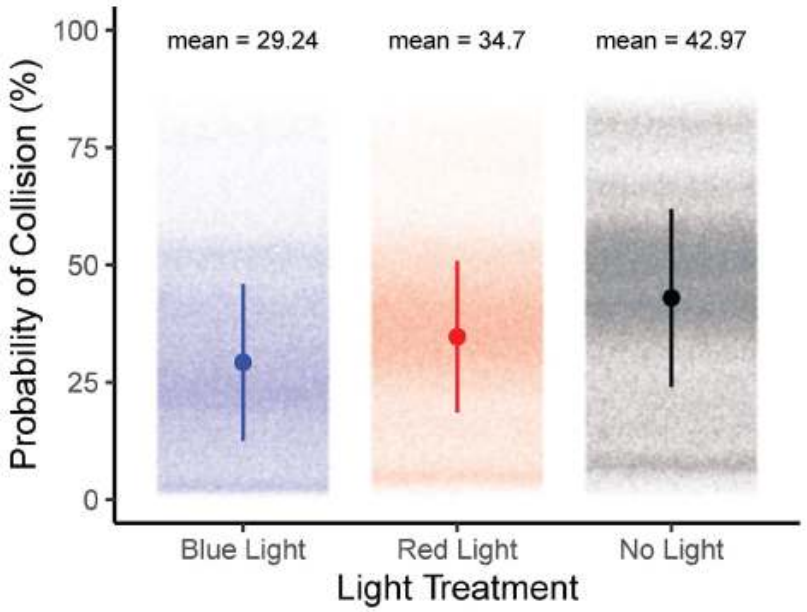
Project: Tuned Landing Lights for Aircraft (cont.)

Take Homes:

Light tuned to the avian eye has a real possibility of mitigating loss of lives and economic damage.



34-year period geese & airplane collisions have cost 189.7-million (5.57 million per year)

An 32% or 19% reduction in the probability of collision could have saved 26.56 or 15.18 million respectively

One of Ryan's Take Home slides is shown here.

- I visited with Ryan last night and he wanted to let you know that he is available to answer questions and provide much more detail on this project as requested.
- Please let me know if anyone has any questions for Ryan.

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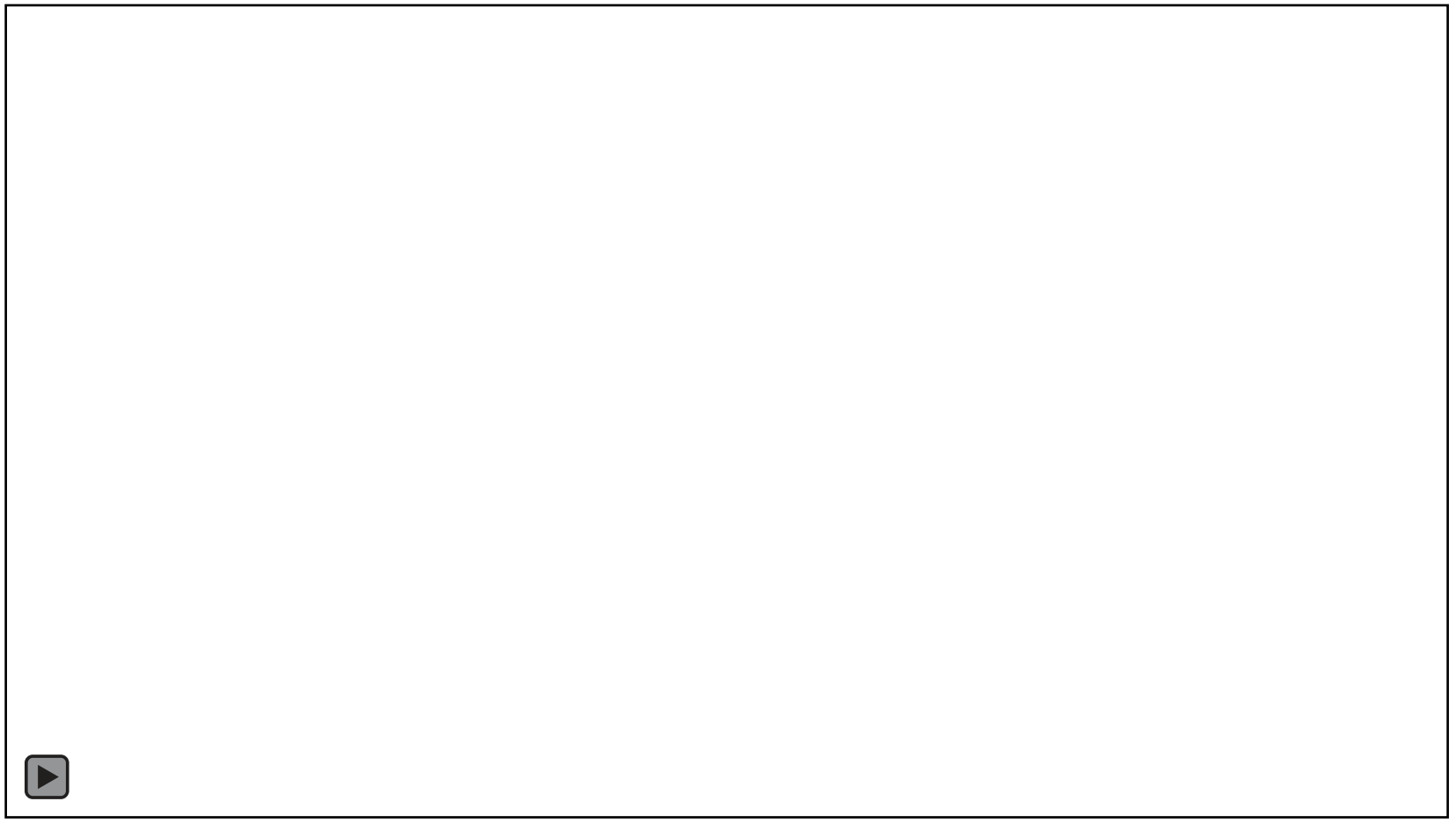
Project: Tuned Landing Lights for Aircraft (cont.)

See short video here of the test process with Alaska at LAX:



- Alaska also partnered with Ryan and his team to test pulsing lights on the 737 Next Gen and the 737 Max aircraft at LAX.
- The aircraft have different lights. While they both pulse, the NG uses a solid bulb, and the Max uses an LED light array. They also have different “pulse” rates.
- We will use the results of the testing to compare this project with the USDA NWRC strike data project to show if there is a difference in wildlife strike rates between the different aircraft.
- Stay tuned!!

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Project: Tuned Landing Lights for Aircraft (cont.)

Next Steps

Intensity

Color

Aircraft Placement

Beam Angle

Beam Dispersion

Saturation

Pulsing Frequency

Ambient light Intensity

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Pulsing Landing Lights for E175 Aircraft (cont.)

Pulse Light Vendor (Precise flight) is finishing STC for pulsing landing lights on E175 aircraft type

- The goal is to get it on an E175 fleet and compare BEFORE and AFTER data for strike rates. This will give us the first true “apples to apples” comparison.
- The FAA has approved the STC, and EASA approval is in-work now.
- The lights will likely be installed first on the LOT and Horizon Air E175 fleets.
- Stay tuned!

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R&D Standing Committee Update – other items

- Red and Green lights – We want to compare our Alaska strike data to see if it shows higher strike rates on the red light side of the aircraft. Is it a thing at Alaska?
- In the future we will be looking at the effects of Blue-Purple UV light spectrum on wildlife/aircraft lights.
- Engine Data – We are working with Engine OEM's to compare worldwide fleet data against Alaska/NWSD.
- Sound – We are researching "sound" – from jet engines in the future. How many decibels at what distance at what power setting? On different aircraft/engine types. We can then compare this to the data from the records. What can birds hear? Note: Our 737 is approximately 10% louder than our E175.

- SEATAC airport will be starting with a new radar system in 2027. We will be able to study AAG rates at SEATAC *before* and *after* to show what strike rate improvements this might bring to SEATAC.

- **What other ideas does anyone have?**

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Speaking of Canada Geese…. N5827 NTSB Accident

- **A330 (Amazon Prime Cargo) flight flown by Hawaiian/Alaska struck a flock of Canada Geese on Takeoff at Cincinnati, OH (CVG) on 1/28/2026**.
- The NTSB preliminary report was available on 2/25/2026.
- **Significant damage to both engines** – including total loss of one engine – as well as flight controls and landing gear areas.
- Takeoff thrust to no power in 4 seconds! Despite significant flight deck smoke and one engine shut down, the flight returned safely to CVG where it blew one fire bottle on the ground for fire indication.
- At least 8 Canada Goose carcasses were found on runway by CVG teams. Snarge samples confirmed it was Canada Geese
- Preliminary **damage estimates are over $60 million USD** - and the aircraft was **out of service over 4 months!**
- Note that the Airbus A330 does not have pulse lights. And also, that Canada Geese were the subject of Dr. Ryan Lunn's study.
- See photos next page.

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Photos: N5827 NTSB Accident at CVG (A330)

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Questions?

Any ideas for R&D Projects?

Any collaboration ideas going forward?

Thank You!