

(12) Record number of strikes reported to FAA in 2014: Is this good or bad?

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The number of strikes in the USA annually reported to the Federal Aviation Administration has increased from 1,851 in 1990 to record levels of 11,450 in 2013 and 13,700 in 2014. Does this mean, as many news reporters have surmised, that the problem is getting worse in spite of the extensive wildlife mitigation efforts being implemented at airports? Are the mitigation approaches inappropriate and ineffective? Are they exacerbating the problem? What is going on? Actually, these statistics on total strikes, when combined with statistics on strikes that cause damage to aircraft, are positive indicators that significant progress is being made to mitigate the risk. Although the number of reported strikes has steadily increased, it is crucial to note that the overall number of reported strikes with damage has declined since 2000. Whereas the number of reported strikes increased 127 percent from 6,008 in 2000 to 13,700 in 2014, the number of damaging strikes declined 21 percent from 764 to 601. This decline in damaging strikes primarily has occurred in the commercial aviation sector using Part 139-certificated airports. While the number and rate (per 100,000 movements) of all strikes with commercial aircraft has increased 51 and 81 percent, respectively, from 2000 to 2014, the number and rate of damaging strikes has declined 37 and 24 percent, respectively. The damaging strike rate for commercial aircraft in 2014 (0.98/100,000 movements) was the lowest recorded since 1996. Another positive indicator is that the number of high-speed (>80 knots) aborted takeoffs by commercial aircraft after striking wildlife has declined from a high of 39 in 2000 to only 19 in 2014. What all this means is that Part 139 airports, in general, are doing a much better job today than 10 or 20 years ago in reporting all strikes, most of which are with small birds that cause no damage. Mitigation efforts to keep the larger, more hazardous species of wildlife (e.g., waterfowl, raptors) away from airports are showing positive results. The decline in damaging strikes and aborted take-offs is even more impressive when one considers that most species of large birds have increased in numbers over the past 20 years. There is still much work to be done, both in the airport environment and in approach/departure corridors away from airports, to mitigate the risk of damaging strikes. But it is reassuring to know that the integrated Wildlife Hazard Management Plans being implemented at airports throughout the USA are making a real difference in protecting human lives and the aircraft in which they fly.

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Record number of strikes reported to FAA in 2014: Good or Bad??

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**North American Bird Strike Conference,
15–17 Sep 2015, Montreal**

WS Wildlife Services

Protecting People
Protecting Agriculture
Protecting Wildlife

USDA

United States Department of Agriculture
Animal and Plant Health Inspection Service

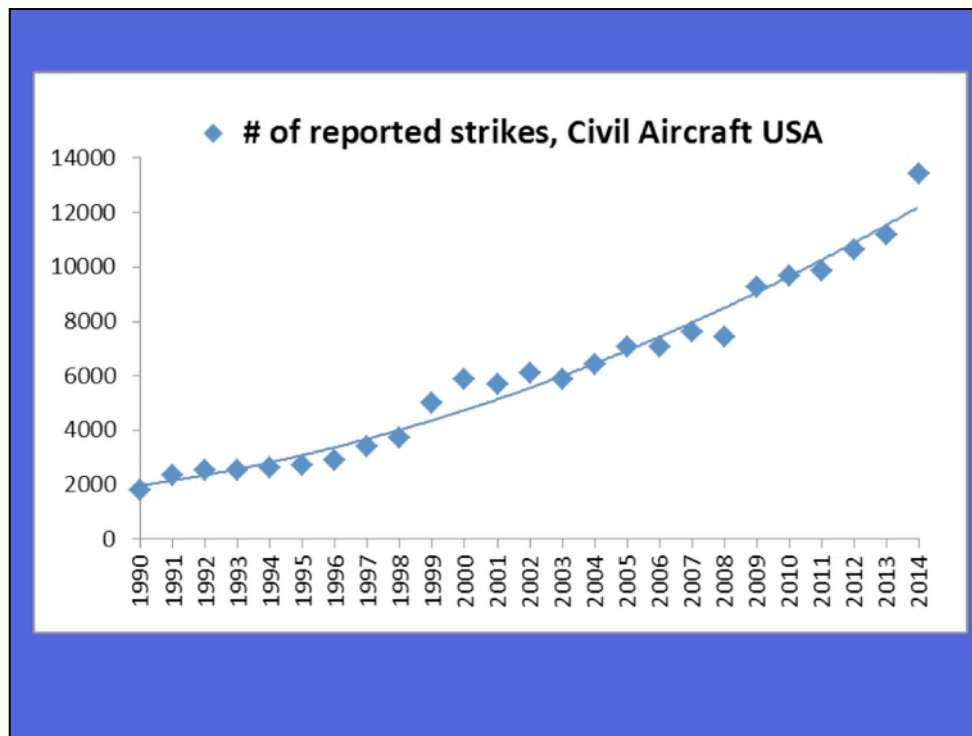
Acknowledgements

U.S. Department of Agriculture, Wildlife Services

U.S. Federal Aviation Administration



Findings and recommendations expressed in this presentation do not necessarily represent the position of the Federal Aviation Administration



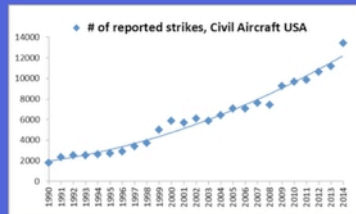
The number of bird and other wildlife strikes in the USA annually reported to the Federal Aviation Administration has increased from 1,851 in 1990 to record levels of 11,450 in 2013 and 13,700 in 2014. Does this mean, as many news reporters have surmised, that the problem is getting worse in spite of the extensive wildlife mitigation efforts being implemented at airports? Are the mitigation approaches, which include the killing of wildlife at airports, inappropriate and ineffective? Are they exacerbating the problem? What is going on? Why are strikes increasing if we are spending all this money to reduce strikes?

Bird strikes on the rise at LaGuardia Airport, nationwide, FAA data show

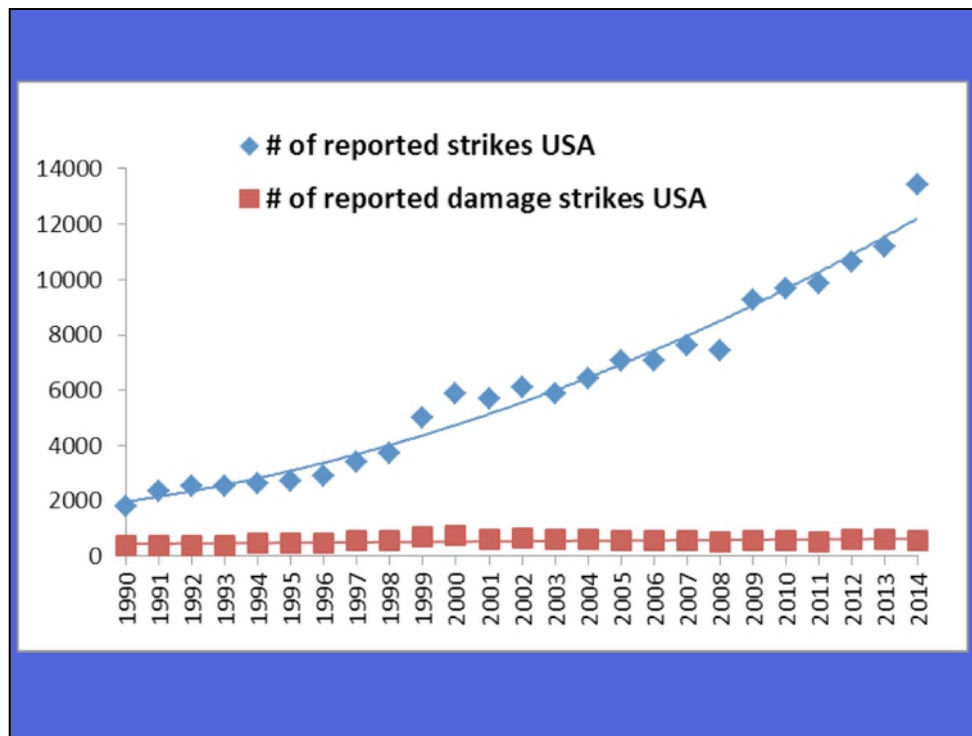
NewsDay

June 27, 2015 By CANDICE RUUD candice.ruud@newsday.com

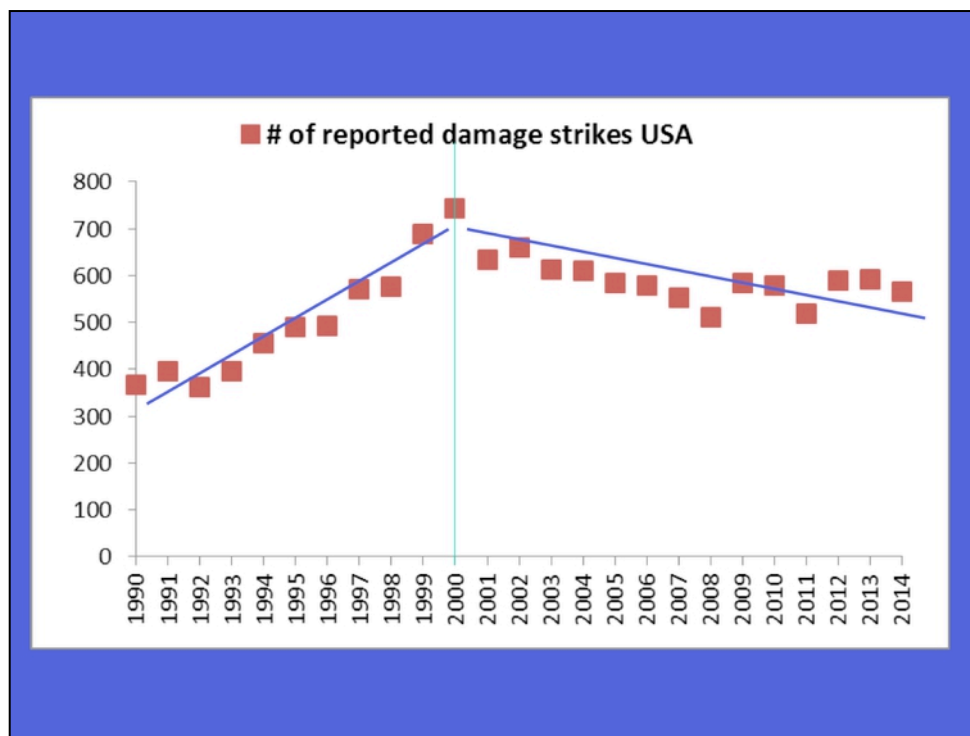
Reported bird strikes at airports around New York City and nationwide **are on the rise despite efforts** by airport operators and industry groups to address the safety issue.



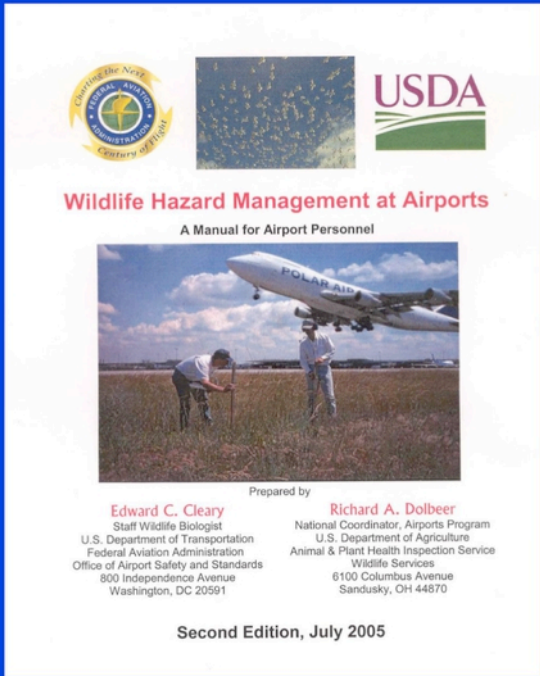
As demonstrated by this recent headline in a major USA newspaper, many news reporters and critics of wildlife control efforts at airports just look at these raw numbers of reported strikes and have surmised that the problem is getting worse in spite of the extensive wildlife mitigation efforts being implemented at airports?



Actually, these statistics on total strikes, when combined with statistics on strikes that cause damage to aircraft, are positive indicators that significant progress is being made to mitigate the risk. Although the number of reported strikes has steadily increased because airports are being more diligent in reporting all strikes, it is crucial to note that the overall number of reported strikes with damage has declined since 2000.



If you look at just the damage strikes from previous slide on a different scale, you can clearly see that although the number of reported strikes has increased by 129% since 2000 (previous slide), the overall number of reported strikes with damage has declined significantly by 24%.



Wildlife Hazard Management at Airports
A Manual for Airport Personnel

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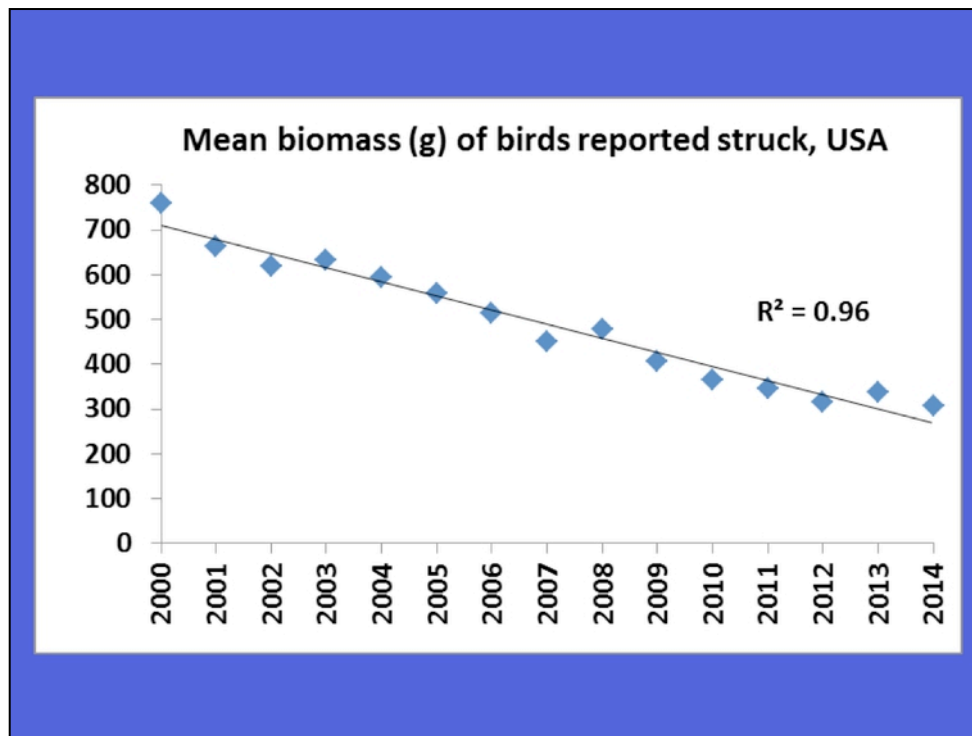
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Second Edition, July 2005

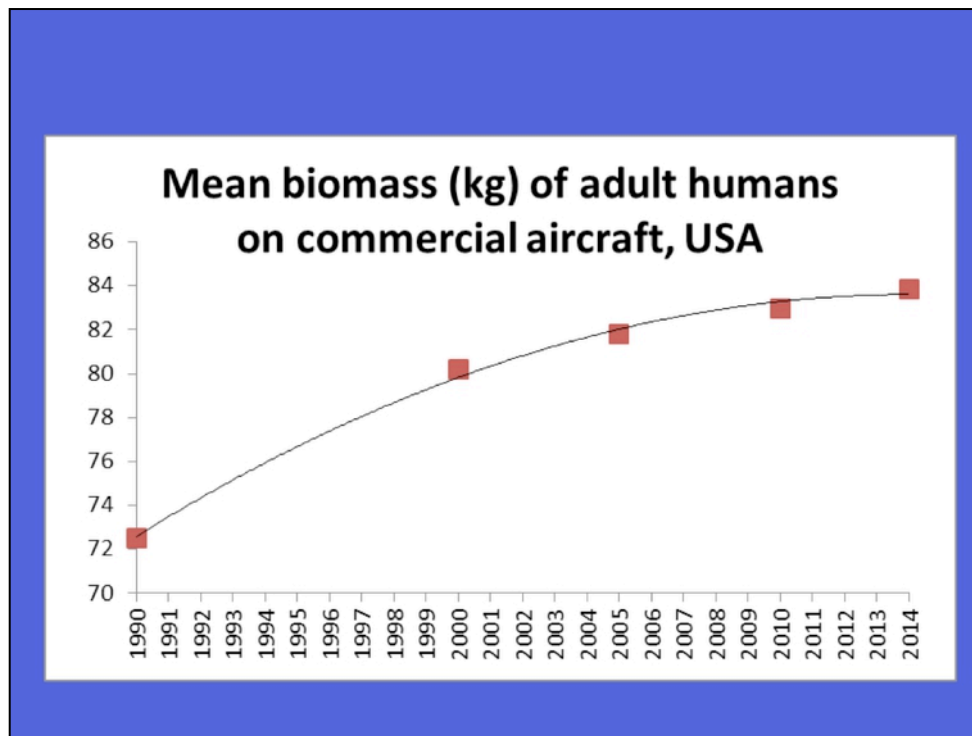
First edition published in Dec 1999 and distributed in 2000 to:

- 1) all Part 139 airports,**
- 2) all FAA Airport Certification Inspectors,**
- 3) USDA and private-sector biologists**

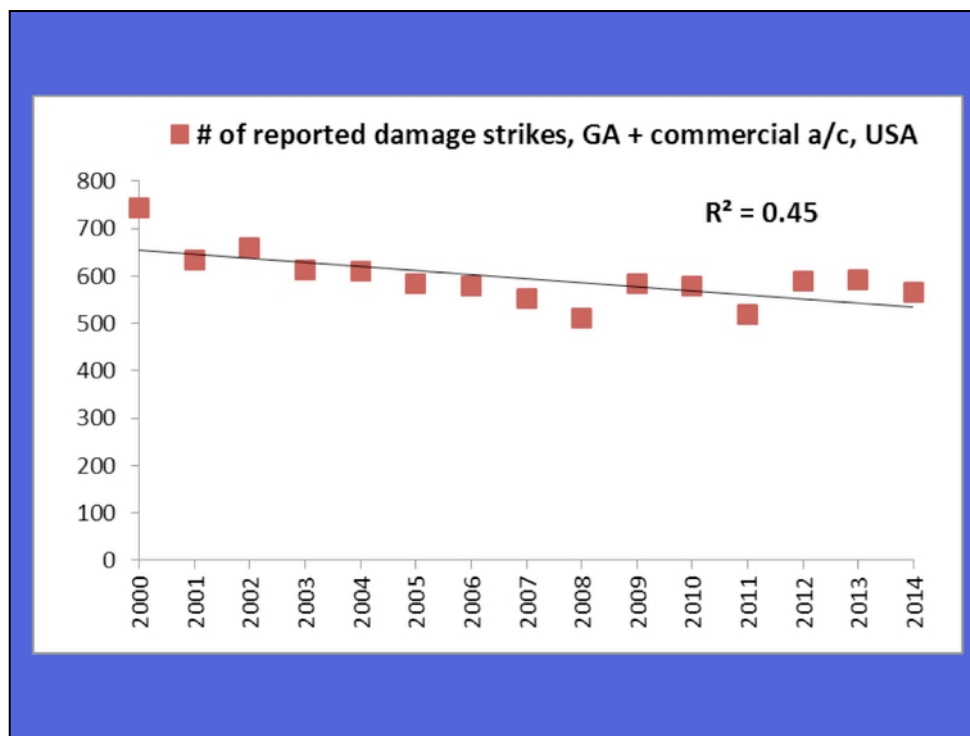
This decline coincided with the widespread distribution of the first comprehensive manual on managing wildlife hazards at airports



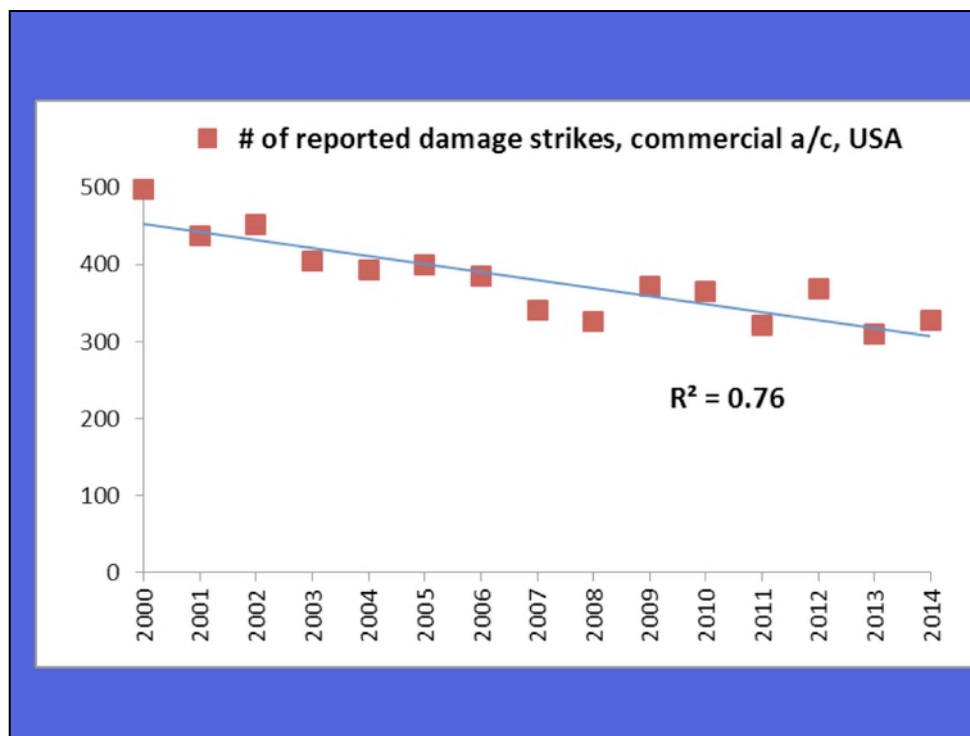
Birds are not actually getting smaller in USA! We are just doing a much better, more diligent job of reporting all strikes today, especially for smaller birds that do not cause any damage. This is why we are seeing a big jump in reported strikes. This big increase in reported strikes, combined with the decline in damage strikes, is just an indicator that airports are doing a better job of implementing their WHMPs.



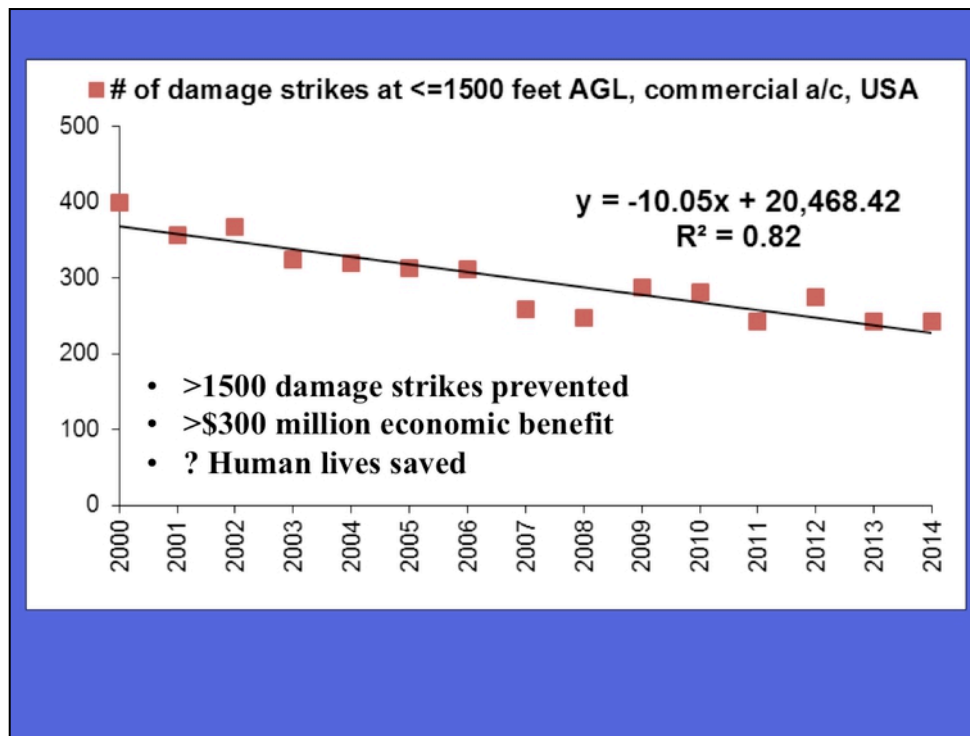
This is a slide meant to interject some humor! It is not relevant to presentation.
The reported birds being struck may be getting smaller but on the other hand,
humans are definitely getting larger!



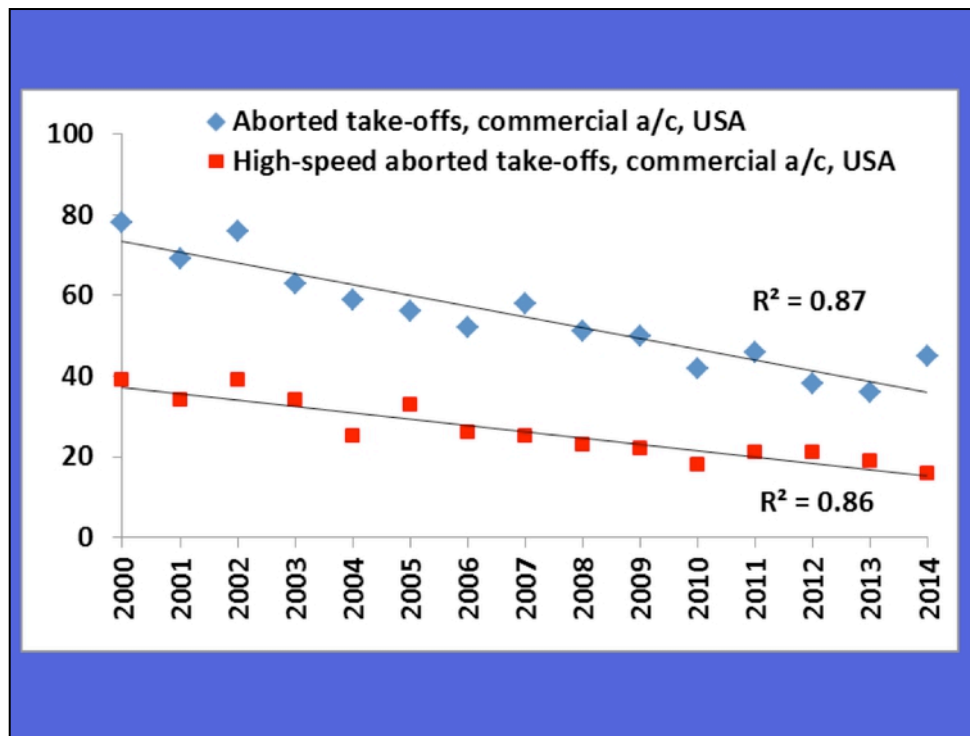
From 2000-2014, there has been a highly significant (anything with $R^2 \geq 0.37$ is significant at 0.01 level of probability) decline in damage strikes when all civil aircraft are included (Commercial + GA aircraft).



From 2000-2014, there has been an even greater decline (anything with $R^2 \Rightarrow 0.37$ is significant at 0.01 level of probability) in damage strikes when only commercial aircraft (which mainly use Part 139 airports certificated for passenger service) are examined.



And there has been an still greater decline (anything with $R^2 \Rightarrow 0.37$ is significant at 0.01 level of probability) in damage strikes when only commercial aircraft (which mainly use Part 139 airports) involved in strikes in airport environment (≤ 1500 feet) are examined. Strikes away from airport are excluded in this graph. On average there has been a reduction in damaging strikes of about 10/year each year over the last 15 years (each year about 10 fewer damage strikes than in previous year; thus, 150 fewer in 2014 than in 2000 and 1500 fewer total, 2001-2014). Look at linear equation ($Y = -10.05x$ where $x = \text{year}$)



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Number of reported strikes and strikes with damage in 2000 and 2014, all civil aircraft, USA

Year	# reported strikes	# strikes w/ damage
2000	5,880	743
2014	13,438	566
% Change	+129%	-24%



This is for all (Commercial + GA) aircraft.

Number of reported strikes and strikes with damage in 2000 and 2014, Commercial civil aircraft, USA

Year	# reported strikes	# strikes w/ damage
2000	5,206	497
2014	12,106	328
% Change	+133%	-34%



This is for all Commercial aircraft (GA aircraft excluded).

Number of reported strikes and strikes with damage in 2000 and 2014, Commercial civil aircraft at ≤ 1500 feet AGL, USA


Year	# reported strikes	# strikes w/ damage
2000	4,728	403
2014	11,072	245
% Change	+134%	-39%



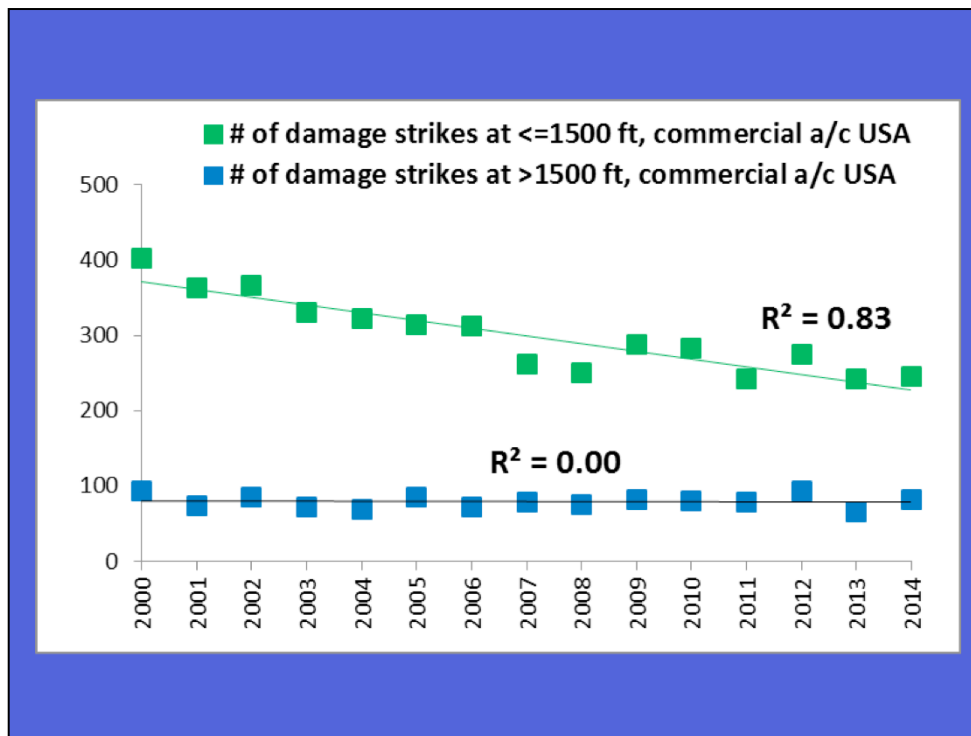
This is for Commercial aircraft in airport environment. Results are even more impressive! This demonstrates that nationally, the implementation of WHMPs at Part 139 airports over the past 15 years has made a big difference in reducing damaging strikes! The results would be even more impressive if the strike reporting rate had been the same in the early 2000s as it is today (i.e., we have fewer unreported damaging strikes today than we did 15 years ago).

% change in number of reported strikes and strikes with damage in 2000 and 2014, USA		
Class of aircraft	# reported strikes: 2000-2014	# strikes w/ damage: 2000-2014
Commercial & GA	+129%	-24%
Commercial only	+133%	-34%
Commercial \leq 1500ft AGL	+134%	-39%

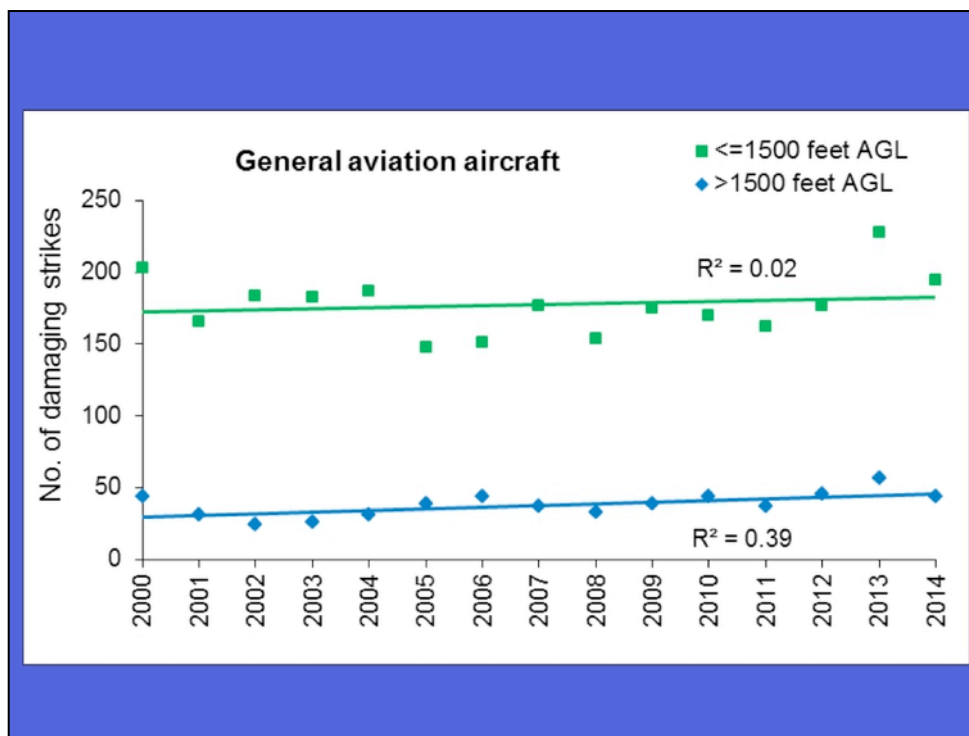
59% reduction in high-speed aborted take-offs!



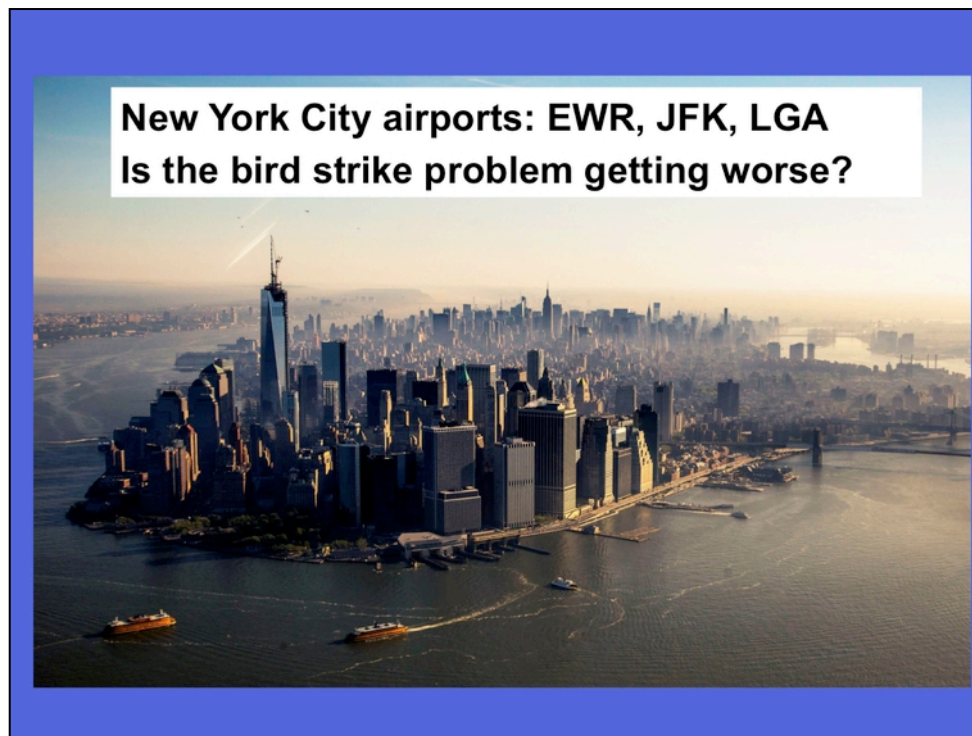
Just a summary of the 3 previous tables (slides).



Damage strikes for commercial aircraft outside the airport environment (not covered by airport Wildlife Hazard Management Plans [WHMPs]) have not declined. This graph points out need for other mitigation methods to reduce strikes outside airport environment-see Joe Barnes talk on aircraft lighting tomorrow. (anything with $R^2 \geq 0.37$ is significant at 0.01 level of probability)



Damage strikes for GA aircraft within and outside the airport environment have not declined. Points out need for better WHMPs at GA airports and for other mitigation methods-see Joe Barnes talk tomorrow). (anything with $R^2 \geq 0.37$ is significant at 0.01 level of probability)



OK, we have talked about the decline in damage strikes nationwide for commercial aircraft, 2000-2014. What about strikes at NYC airports? Is it true, as the NewsDay article stated, that the bird strike problem is getting worse at NYC airports.

Bird strikes on the rise at LaGuardia Airport, nationwide, FAA data show

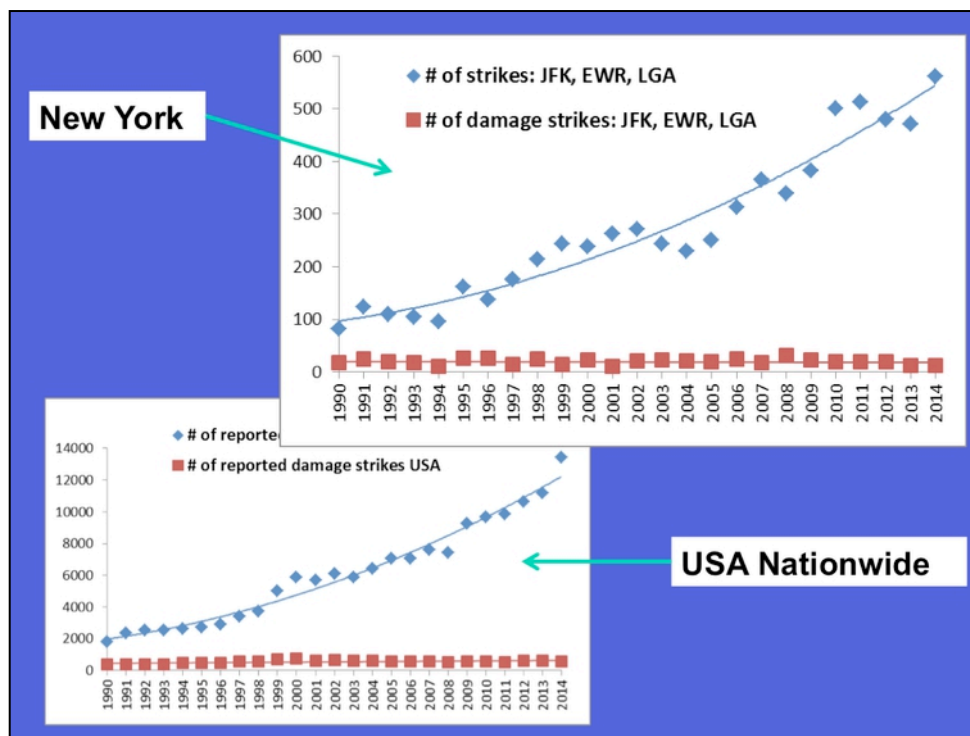
NewsDay

June 27, 2015 By CANDICE RUUD candice.ruud@newsday.com

Reported bird strikes at airports around New York City and nationwide **are on the rise despite efforts** by airport operators and industry groups to address the safety issue.



A repeat of an earlier slide just to refresh your memory. Are bird strikes on the rise at NYC airports and is this a bad thing as implied by the news article.



The pattern of strikes and damage strikes for NYC airports is identical to the national pattern (note difference in scale of y axis; NYC about 1/200th of number nationally).

**Number of reported strikes and strikes with damage in
2000 and 2014, civil aircraft: JFK, LGA, EWR**

Year	# reported strikes	# strikes w/ damage
2000	239	23
2014	562	13
% Change	+135%	-43%



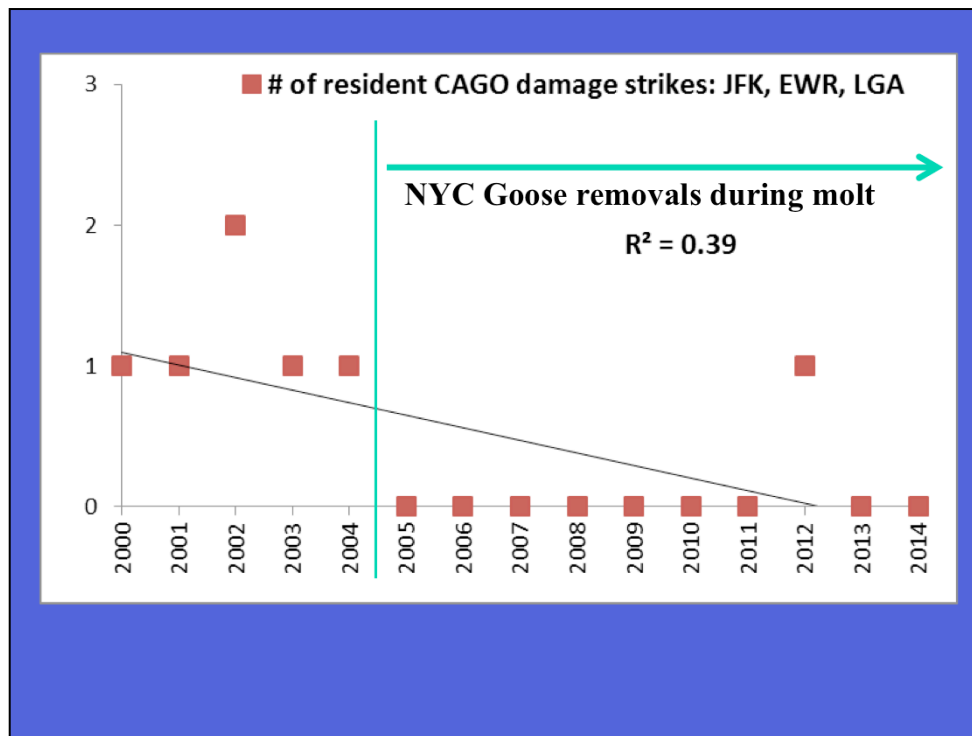
The decline in damage strikes is even more dramatic than the national trend. This is all strikes including strikes with aircraft at >1500 feet on approach or departure from the airports (outside the airport's WHMP).

**Number of reported strikes and strikes with damage
at ≤ 1500 feet in 2000 and 2014, civil aircraft:
JFK, LGA, EWR**

Year	# reported strikes	# strikes w/ damage
2000	206	16
2014	433	8
% Change	+110%	-50%



The decline in damage strikes is even more dramatic when we exclude strikes with aircraft at >1500 feet on approach or departure from the airports (outside the airport's WHMP).



Have goose removals during the mid-summer molt season at NYC public parks reduced strikes by resident Canada geese. Yes, in spite of what many critics say. Damage strikes by resident Canada geese at JFK, EWR, LGA during April-September (at all height levels) have declined from 6 in 2000-2004 (1.2/year) to only 1 in 2005-2014 (0.1/year). The first resident goose round ups for NYC metro area occurred at Riker's Island next to LGA in June 2004.

To recap: this is what the headline said:

Bird strikes on the rise at LaGuardia Airport, nationwide, FAA data show

NewsDay

June 27, 2015 By CANDICE RUUD candice.ruud@newsday.com

Reported bird strikes at airports around New York City and nationwide **are on the rise despite efforts** by airport operators and industry groups to address the safety issue.



And this is what the headline should have said:

**Damaging bird strikes decline at LaGuardia
Airport, nationwide, FAA data show**

NewsDay

June 27, 2015 By

Damaging bird strikes at airports around New York
City and nationwide **are on the decline because of
successful efforts** by airport operators and industry
groups to address the safety issue.



Conclusions

The implementation of Wildlife Hazard Management Plans at Part 139 airports in the USA have resulted in:

- a) A major increase in reporting of all known wildlife strikes, most of which are with small birds that cause no damage.
- b) An overall reduction of damaging strikes in the airport environment since 2000.

This reduction in risk has occurred in spite of increasing populations of many hazardous bird species.

However, these successful mitigation efforts at Part 139 airports have done little to reduce strikes outside the purview of airport WHMPs or at many GA airports.

•Conclusions

When evaluating Wildlife Hazard Management Plans and discussing strike data with the news media, Airport Operators should:

- a) Focus on damage strikes and not total strikes (total strikes can be a positive indicator that the airport is doing a thorough job of documentation).
- b) Separate strikes that occur at >1500 feet AGL on approach/departure from airport with strikes within airport environment.

•Conclusions

The FAA now has an “Airport Wildlife Strike Summary and Risk Analysis Report” for each Part 139 airport in USA that is updated annually.

This report:

- a) separates out damage strikes from all strikes and strikes at ≤ 1500 and >1500 feet AGL.
- b) can help Airport Operators and FAA Airport Certification Inspectors in evaluating the WHMP and presenting the results to the News Media

<http://wildlife.faa.gov/>

Thank You for listening!

Questions?

