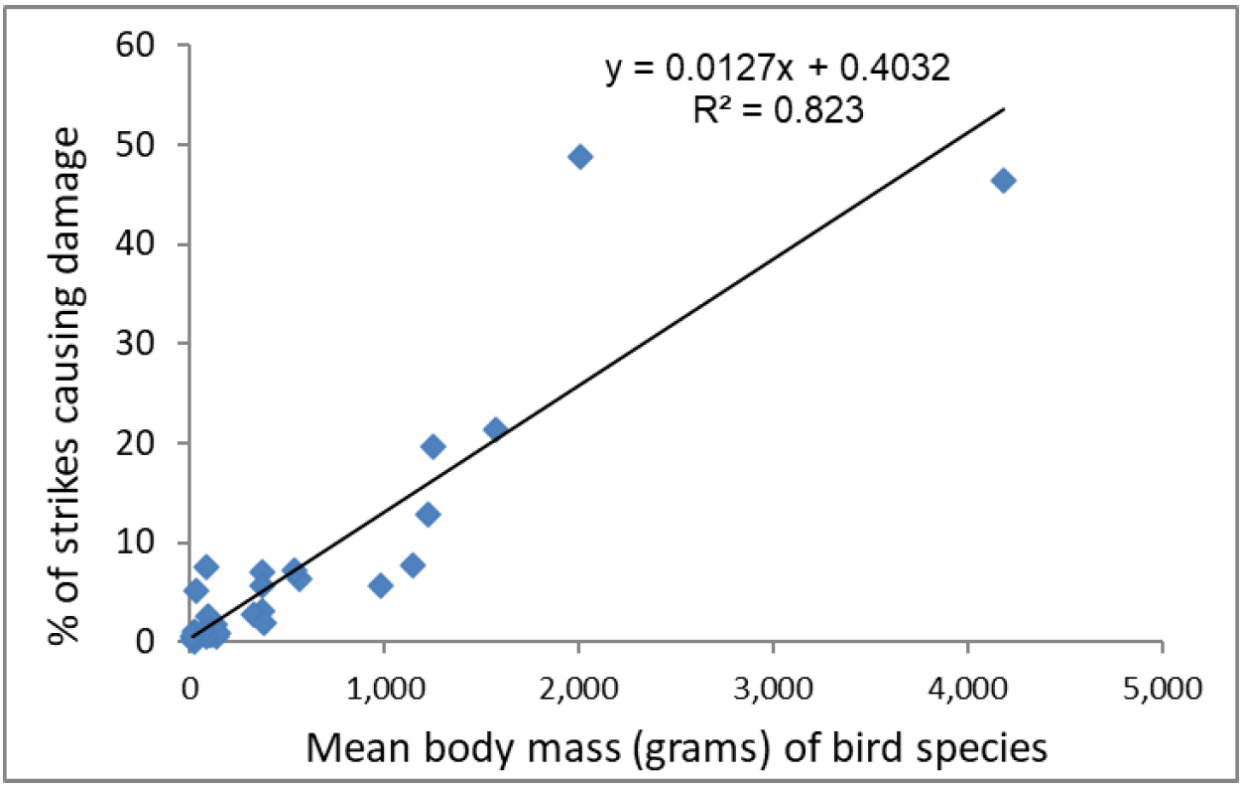
Highlights from the Reports and Research

https://www.faa.gov/airports/airport_safety/wildlife

Table 1. Reported wildlife strikes to civil aircraft in USA and to U.S.-registered civil aircraft in foreign countries, 1990-2023.

	Total	
Year	Strikes	Damage strikes
1990	2,122	372
1991	2,516	400
1992	2,651	365
1993	2,624	399
1994	2,708	459
1995	2,825	498
1996	3,031	503
1997	3,559	575
1998	3,809	588
1999	5,119	705
2000	6,024	765
2001	5,825	648
2002	6,221	669
2003	5,993	631
2004	6,606	630
2005	7,270	609
2006	7,292	603
2007	7,750	568
2008	7,638	527
2009	9,509	609
2010	9,898	603
2011	10,110	547
2012	10,932	627
2013	11,410	616
2014	13,692	592
2015	13,772	624
2016	13,322	598
2017	14,775	680
2018	16,200	724
2019	17,341	766
2020	11,623	491
2021	15,638	667
2022	17,205	700
2023	19,603	709
Total	**296,613**	**20,067**

Relation between mean body mass (Dunning 2008) and likelihood of a strike causing damage to aircraft for the 33 species of birds most frequently identified as struck by civil aircraft in USA, 1990-2023. The linear regression equation explained 82 percent of the variation in the likelihood of damage among the 33 species. For every 100-gram increase in body mass, there was a 1.27 percent increase in the likelihood of damage.



The risk of a bird strike causing aircraft damage increases as the body mass of the animal increases. The occurrence of multiple bird strikes in a single incidence is not identified.

Table 12. Number of reported bird strikes to general aviation aircraft[1] by height above ground level (AGL), USA[2], 1990-2023. See Figure 8 for graphic analysis of strike data from 501 to 12,500 feet AGL[3]

Height of strike (feet AGL)	All reported strikes			Strikes with damage		
	34-year total	% of total known	% cum-ulative total[4]	34-year total	% of total known	% cum-ulative total[4]
0	8,765	37	37	845	16	16
1-500	7,952	33	70	1,738	32	47
501-1500	4,018	17	87	1,534	28	76
1501-2500	1,590	7	93	649	12	87
2501-3500	717	3	96	296	5	93
3501-4500	334	1	98	153	3	96
4501-5500	164	<1	99	67	1	97
5501-6500	108	<1	99	51	1	98
6501-7500	84	<1	99	32	1	98
7501-8500	45	<1	100	21	<1	99
8501-9500	28	<1	100	14	<1	99
9501-10500	35	<1	100	19	<1	99
10501-11500	7	<1	100	3	<1	100
>11500[5]	39	<1	100	26	<1	100
Total known	**23,886**	**100**		**5,448**	**100**	
Unknown height	**5,782**			**886**		
Total	**29,668**			**6,334**		

[1] Private, Business, and Government/Police aircraft (see Table 6); Strikes in which height of strike was reported but type of operator was unknown were excluded from analysis.

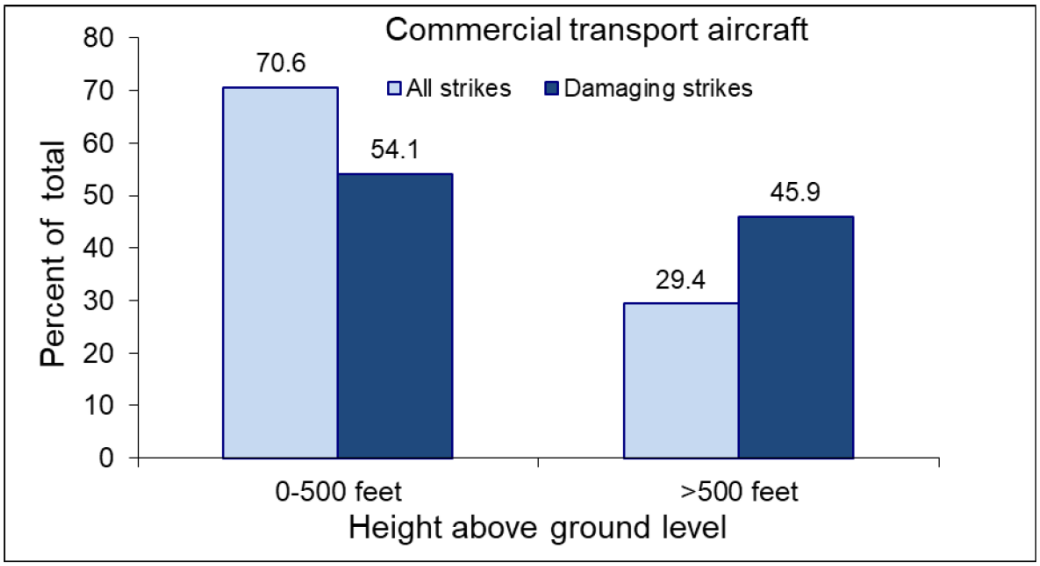
[2] Includes strikes to U.S.-registered aircraft in foreign countries.

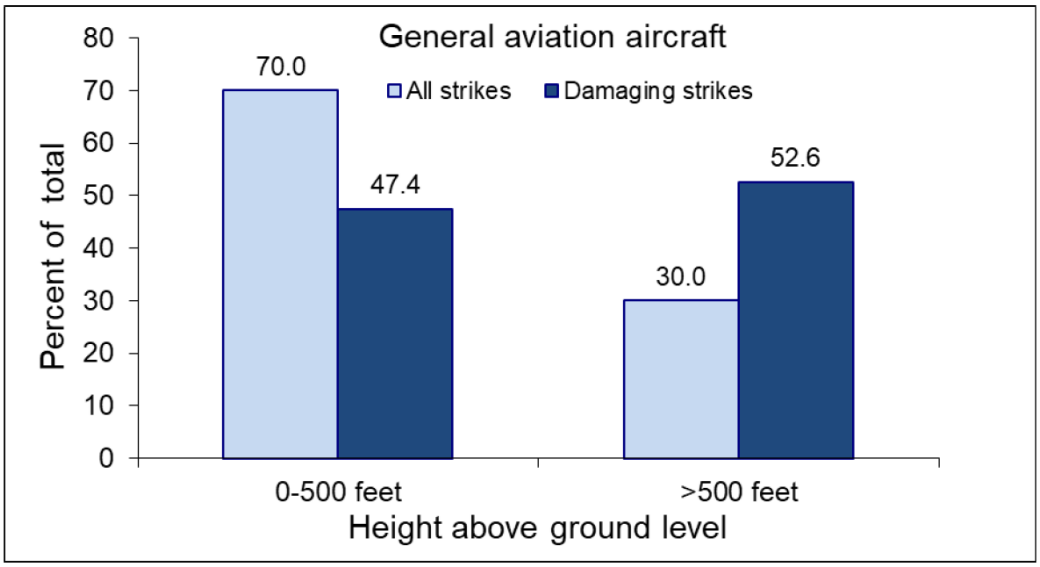
AIRPORTS –

Presence of wildlife on and near airports creates a hazard to operating aircraft. The FAA estimated that nearly 75% of civil aviation wildlife strikes occur near airports.

Wildlife strikes, mainly from birds, cause severe damage to operating aircraft and in some cases lead to loss of life.

All airports—GA and commercial—have a legal responsibility to provide a safe aircraft operating environment.





The risk of aircraft bird strikes and damage strikes is approximately identical between Commercial and General Aviation aircraft at altitudes below and above 500' (AGL).

Table 8. Number of Part 139-certificated airports[1] and general aviation (GA) airports with reported wildlife strikes and number of strikes reported for these airports, civil aircraft, USA, 1990–2023 (see Figure 5)[2].

	Part 139 airports		GA airports		All USA airports	
Year	Airports	Strikes	Airports	Strikes	Airports	Strikes
1990	235	1,779	99	163	334	1,942
1991	260	2,116	96	198	356	2,314
1992	255	2,256	107	228	362	2,484
1993	256	2,266	100	218	356	2,484
1994	264	2,294	111	246	375	2,540
1995	260	2,382	120	209	380	2,591
1996	257	2,591	111	196	368	2,787
1997	283	3,011	124	201	407	3,212
1998	290	3,219	146	269	436	3,488
1999	303	3,807	147	260	450	4,067
2000	310	4,487	155	281	465	4,768
2001	315	4,433	158	300	473	4,733
2002	305	4,765	158	314	463	5,079
2003	305	4,644	154	331	459	4,975
2004	306	5,254	178	324	484	5,578
2005	321	5,546	176	330	497	5,876
2006	319	5,969	146	275	465	6,244
2007	324	6,569	167	334	491	6,903
2008	329	6,628	166	315	495	6,943
2009	362	8,015	239	460	601	8,475
2010	373	8,293	226	474	599	8,767
2011	361	8,441	238	511	599	8,952
2012	384	8,925	264	588	648	9,513
2013	377	9,129	282	628	659	9,757
2014	393	11,010	291	719	684	11,729
2015	404	11,088	275	701	679	11,789
2016	401	10,772	272	796	673	11,568
2017	420	11,747	286	833	706	12,580
2018	418	12,813	307	880	725	13,693
2019	420	13,493	352	967	772	14,460
2020	411	9,196	307	966	718	10,162
2021	429	12,348	330	1,044	759	13,392
2022	431	13,452	314	956	745	14,408
2023	432	15,152	345	1,070	777	16,222
Total	**516**	**237,890**	**1,783**	**16,585**	**2,299**	**254,475**

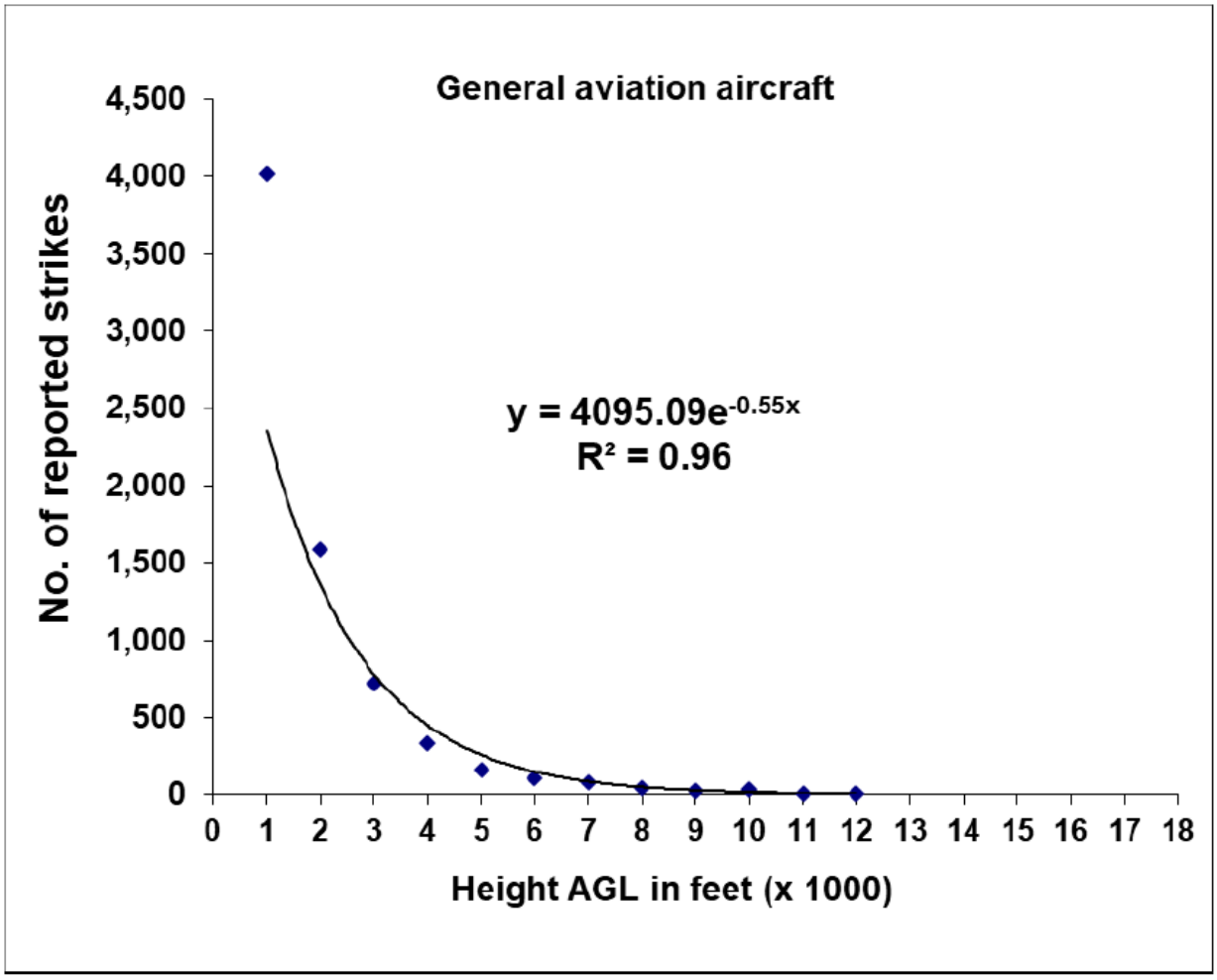
[1] There were 517 airports in USA certificated for passenger service under CFR Part 139 in January 2024 (FAA 2024*b*).

[2] In addition, 5,069 strikes involving USA-registered aircraft were reported from 336 foreign airports in 113 countries (236 strikes at 92 airports in 55 countries in 2023). Furthermore, 5,486 strikes (5,441 bird and 45 bat strikes) were reported in which aircraft was en route (Table 10). An additional 31,515 strikes were reported in which either evidence of strike was discovered on aircraft after landing but phase of flight where strike occurred could not be determined or an airport was not named on reporting form.

The FAA sponsors research directed at the wildlife aircraft strike problem. However, that research primarily directed to certificated airports which is not directed specifically at GA airports.

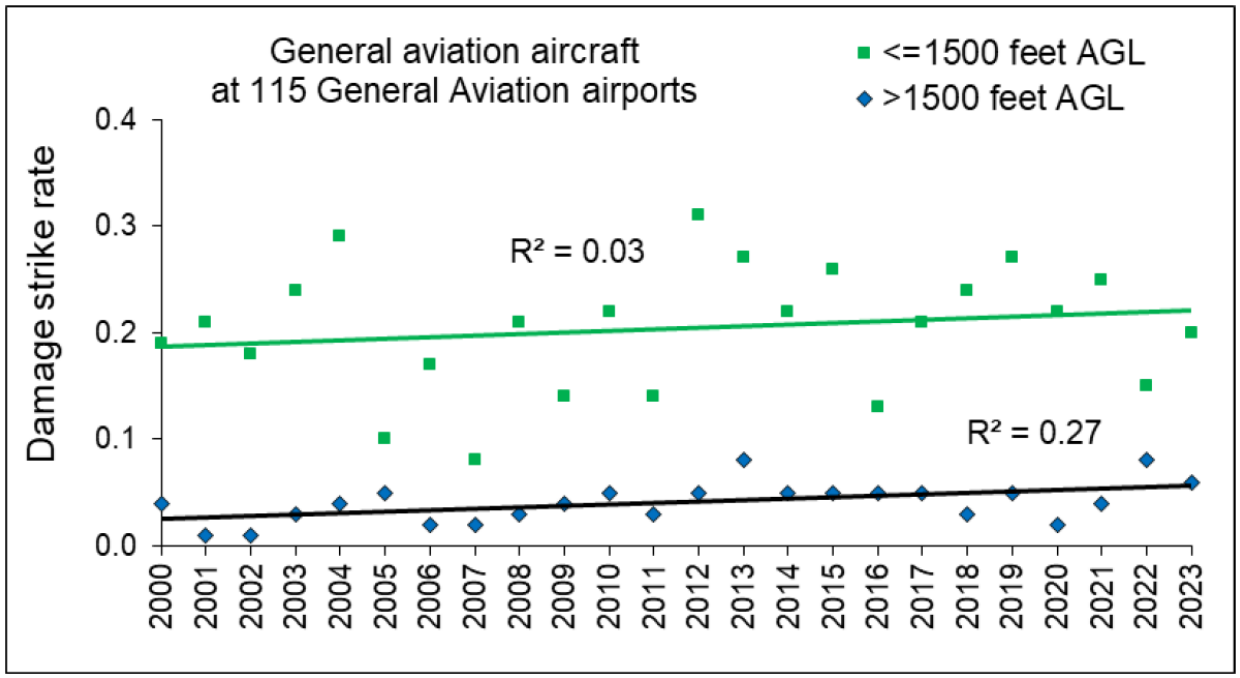
In a FAA survey sent to a random selection of approximately half (1,120) of the general aviation (GA) airports in the Federal Aviation Administration's National Plan of Integrated Airport Systems (NPIAS); (41%) of responding GA airports reported having had at least one wildlife strike and that 61% indicated that wildlife was seen often.

Number of reported bird strikes with **general aviation (GA) aircraft** (bottom graph) in USA by 1,000-foot height intervals above ground level from 501—1,500 feet (interval 1) to 11,501—12,500 feet (interval 12) for GA aircraft, 1990-2023. These graphs exclude strikes at <500 feet. Above 500 feet, the number of reported strikes declined consistently by 42 percent for each 1,000-foot gain in height for GA aircraft.



The risk of a bird strike occurrence and aircraft damage increases for aircraft flights that at lower altitudes (AGL). Note: Data is not adjusted for flight times at different altitudes.

The damage strike rate between 2000 – 2023 reported by **general aviation (GA) aircraft** reported at 115 USA general aviation airports; (number of reported damaging strikes per 100,000 aircraft movements) occurring at < and >1500 feet above ground level (AGL) for all wildlife species. The R2 values greater than 0.16 and 0.26 indicate significant confidence values of the trendlines at the 0.05 and 0.01 levels of probability, respectively (Steele and Torrie 1960).



Approximately equal risk of occurrence of a bird strike occurrence for aircraft flight altitudes above or below 1500' (AGL). Note: Data is not adjusted for flight times at different altitudes.

A. Low Altitude Flights -
   - FAA Wildlife Strike Database analysis (all planes and airports) of the altitude at which bird strikes happen - (81% occur at under 1,000 ft AGL and 92% occur at under 3,000 ft AGL).

B. Cross-Country Flight time vs flight movements -
   - FAR Part 61.1, Definitions. "Cross-country time" is defined as any time in an aircraft, flown by a licensed pilot, that lands at a point other than the departure airport and requires using various navigation techniques.
   - For the airline transport pilot (ATP) certificate, the cross-country distance is set to the "standard" 50 nm.
   - FAA allows military pilots applying for licenses to count any flight 50 miles from their point of departure.

- An aircraft movement is defined as a take-off, landing or simulated approach by an aircraft.

C. Unique Flight Missions –
   - Agricultural chemical application
   - Wild fire fighting
   - Pipeline inspection and surveying
   - Medical emergency transport
   - Back country flights
   - Search and Rescue flights
   - Bush Flying: remote areas, no proper airfields or landing strips, or rough terrain.