

## US AIR FORCE BIRD AIRCRAFT STRIKE HAZARD (BASH) SUMMARY REPORT FOR 1989-1993

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### ABSTRACT

From 1989 through 1993, the Air Force reported 13,427 bird/wildlife strikes to aircraft world-wide. These strikes resulted in the loss of eight aircraft, one pilot fatality and one permanently disabled pilot. The damage estimates exceed \$85 million. Sixty-five percent (6,255) of all reported strikes with known phase of flight occurred in and around the airfield. Two thousand three hundred and ninety four bird strikes (25%) were reported during low-level flight operations and 1,013 (10%) were reported en-route. The fall migratory months of August (11%), September (12.7%) and October (13%) accounted for the greatest number of reported strikes, with April (10.5%) and May (12.2%) reflecting the expected influence of spring migration. Bird strikes were reported from nearly every Air Force installation with Barksdale AFB, Louisiana, reporting 685 strikes followed by Little Rock AFB, Arkansas (500), Vance AFB, Oklahoma (367), Randolph AFB, Texas (313) and Columbus AFB, Mississippi (296) completing the top five. Strikes to all aircraft types were identified with KC-135 aircraft reporting 2,085 strikes followed by C-130 with 1,820 and T-38 with 1,354. The BASH Team identified approximately 35% of the species involved in bird strikes with "sparrows" (515) being the most commonly identified group followed by Horned Larks (334), "swallows" (200), Turkey Vultures (199) and gulls (120). Current research efforts continue to center on the geographic information system (GIS) based Bird Avoidance Model (BAM), the use of small scale marine radar to study bird movements on bombing ranges, and the use of satellite telemetry to study altitude distribution of Turkey Vultures.

2 minutes before losing power and crashing in a wetland area. The pilot ejected without injury.

- In July 1992, a T-38 flying a low-level training mission near Abilene, Texas, struck a Turkey Vulture. The vulture penetrated the windshield striking the pilot in the head. The pilot was killed instantly. The pilot in the rear seat declared an in-flight emergency and landed the aircraft at the nearest installation.

- In December 1992, an F-16 flying a low-level training mission on the Dixie Range, south of San Antonio, Texas, ingested a single Red-tailed Hawk. The engine siezed, and the pilot successfully ejected.

- In June 1993, a T-38 taking off from US Naval Air Station, Dallas, Texas, ingested several Cliff Swallows. The aircraft flew for approximately one minute before crashing in an open field. Both crew members ejected without injury.

- In July 1993, a T-38 practicing touch-and-goes at Reese AFB, Texas, ingested a single Horned Lark. The engine siezed and the instructor pilot initiated an abort, the aircraft failed to engage the barrier properly and left the runway. The student pilot ejected without injury, but the instructor pilot received permanent injuries from the ejection sequence.

**Strikes by Phase of Flight.** Bird strikes occur during all phases of flight. Over the past five years 65% of the reported strikes occurred during airfield phases of flight (Figure 1.). The increase in the percentage of strikes in the airfield environment may reflect an actual increase in airfield bird hazards or a reduction in strikes during low-level flight. With the realignment and closure of installations worldwide and the subsequent reduction in flying it is difficult to determine the underlying causes of this trend. Off-base land use issues such as landfills and wetlands continue to challenge installations with potential increases in local hazards and strike data from these installations support this concern.

**Strikes by Installation.** Strikes were reported from every Air Force installation with a full time flying mission. Ten bases reported 200 or more strikes (Table 1).

Base	Strikes
1. Barksdale AFB LA	785
2. Little Rock AFB AR	500
3. Vance AFB OK	367
4. Randolph AFB TX	313
5. Columbus AFB MS	296
6. Altus AFB OK	257
7. Sheppard AFB TX	247
8. Reese AFB TX	239
9. Luke AFB AZ	210
10. Pope AFB NC	200

Table 1. Installations reporting at least 200 strikes 1989 - 1993

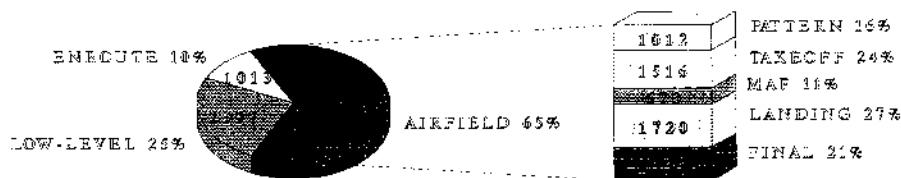


Figure 1. Strikes by Phase of Flight

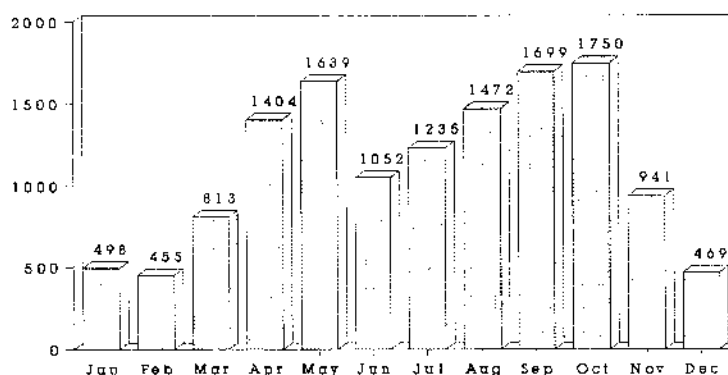


Figure 2. Strikes by Month

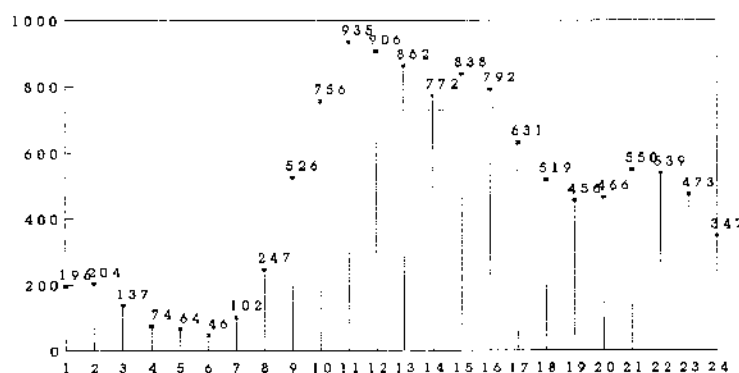


Figure 3. Strikes by Hour of the Day

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