



U.S. Department
of Transportation
**Federal Aviation
Administration**

Advisory Circular

Subject: Reporting Wildlife Aircraft
Strikes

Date: July 31, 2024

Initiated By: AAS-300

AC No: 150/5200-32C

Change:

1 **Purpose.**

This Advisory Circular (AC) explains the importance of reporting collisions between aircraft and wildlife, more commonly referred to as wildlife strikes. It also explains recent improvements in the Federal Aviation Administration's (FAA's) Bird/Other Wildlife Strike Reporting system, how to report a wildlife strike, what happens to the wildlife strike report data, how to access the FAA's National Wildlife Strike Database (NWSDB), and the FAA's Feather Identification program.

2 **Cancellation.**

This AC cancels AC 150/5200-32B, Reporting Wildlife Aircraft Strikes, dated May 31, 2013.

3 **Applicability.**

The FAA provides the standards and practices in this AC as guidance for all public-use airports, aviation industry personnel (e.g., Air Traffic Control, pilots and airline personnel, and engine manufacturers), and others who possess strike information. The FAA strongly recommends that the above aviation representatives and others possessing strike information participate in reporting.

4 **Principal Changes.**

This AC adds language on the size of animals to report if involved in a strike with aircraft and a reminder that airports should strive to collect and report strike-incident carcasses in a timely manner that optimizes identification of the animal and estimation of the incident date. The FAA address, Business Reply Mail, and Postage Paid identifiers have been removed from the updated paper strike report forms (FAA [Form 5200-7](#)). It is now recommended that all strike reports be submitted electronically. New information is available detailing how to prepare wildlife strike collecting kits and how to properly collect wildlife strike remains evidence. Also, a new and updated table has been added that provides a composite ranking and relative hazard score of 100 wildlife species with at least 20 reported strikes with civil aircraft based on three criteria (damage, major damage, and effect-on-flight). A summary of changes:

- a. Paragraph 5:
 - (1) Updated statistics and wildlife strike data.
 - (2) Added language clarifying that significant strikes occurring within the separation distances described in paragraphs 1.2, 1.3, and 1.4 of AC 150/5200-33C, *Hazardous Attractants On or Near Airports*, continue to trigger either Wildlife Hazard Assessment (WHA) regulations in Title 14 Code of Federal Regulations (CFR) § 139.337 (b) or the review and evaluation of a Wildlife Hazard Management Plan (WHMP) in § 139.337 (f).
- b. Paragraph 6:
 - (1) Subparagraph c – Added language on the minimum acceptable size for reporting terrestrial mammals involved in a wildlife/aircraft strike incident.
 - (2) Subparagraph d – Added language on the minimum acceptable size for reporting reptiles involved in a wildlife/aircraft strike incident.
 - (3) Subparagraph e – Added subparagraph stating that any Federal or State listed animals involved in a strike with aircraft should be reported.
- c. Paragraph 7c – Added Note reminding airports to collect and report fresh remains that allow identification of the animal and a reliable estimation of the strike incident date.
- d. Paragraph 8 – Added new language stating that electronic submission of strike reports is the preferred method, and that strike remains should not be sent to the FAA.
- e. Updated Bird / Other Wildlife Strike Report form (FAA Form 5200-7) to reflect the most current online form and to remove FAA address along with the Business Reply Mail and Postage Paid identifiers.
- f. Appendix B – Updated table showing a new composite ranking of hazardous wildlife species.
- g. Appendix C – Added to include Diagram: How to Collect Birdstrike Evidence.
- h. Appendix D – Added to include “Make-Your-Own” Birdstrike Collecting Kits.
- i. Updated the format of the document in this version and made minor editorial changes throughout.

5 **Background.**

- 5.1 The FAA has long recognized the threat to aviation safety posed by wildlife strikes. About 97 percent of all wildlife strikes reported to the FAA involved birds, about 2 percent involved terrestrial mammals, and less than 1 percent involved flying mammals (bats) and reptiles. Overall, from 1990 to 2022, 639 species of birds, 55 species of terrestrial mammals, 46 species of bats, and 34 species of reptiles were identified as struck by aircraft. Waterfowl (ducks and geese), gulls, and raptors (mainly hawks and vultures) are the bird species that cause the most damage to civil aircraft in the United States (U.S.), while European starlings are responsible for the greatest loss of human life. Vultures and waterfowl cause the most losses to U.S. military aircraft. Artiodactyls (mainly deer) and carnivores (mainly coyotes) are the terrestrial mammals with the most

damaging strikes. Although the percentage of wildlife strikes with reported damage has averaged 7 percent for the 33-year period, this number has declined from a peak of 18 percent in 1995 to 4 percent in 2022. Between 1990 – 2022 there have been over 276,000 strikes submitted into the NWSD. Of the 34,261 reports from 1990 – 2022 indicating the strike had an adverse effect on the aircraft and/or flight, 13,220 provided an estimate of the aircraft downtime (1,207,721 hours, mean = 91.3 hours/incident). Regarding monetary losses, 5,014 reports provided an estimate of direct aircraft repair costs (\$929.1 million, mean = \$185,292/incident), and 4,577 reports gave an estimate of other monetary losses (\$134.3 million, mean = \$29,348/incident). Other monetary losses include such expenses as lost revenue, the cost of putting passengers in hotels, re-scheduling aircraft, and flight cancellations. Assuming (1) all 34,261 reported wildlife strikes that had an adverse effect on the aircraft and/or flight engendered similar amounts of downtime and/or monetary losses and (2) that these reports are all of the damaging strikes that occurred, wildlife strikes annually cost the U.S. civil aviation industry, on average, 105,843 hours of aircraft downtime and \$229 million in monetary losses (\$188 million in direct costs and \$40 million in other costs), 1990–2022. For 2022 only, the estimates would be 67,848 hours of downtime and \$385 million in direct and indirect costs.

- 5.2 In contrast to these estimates, a recent analysis by Altringer et al. (2021) using a machine learning approach with cost data from the National Wildlife Strike Database, estimated that wildlife strikes cost the U.S. civil aviation industry a minimum average of \$54.3 million in losses annually over the 1990–2018 period. A follow-up analysis by Altringer et al. (2022) estimated that damaging wildlife strike events generate additional “spillover” costs of around \$25 million (2020 U.S. \$) each year related to delays in subsequent flights. Estimating the economic costs of wildlife strike is complex because of the many variables involved and the skewed nature of reported strikes and costs. More thorough reporting of strike events and associated costs combined with additional analyses are needed to refine the actual costs of wildlife strikes to the aviation industry.
- 5.3 Studies have shown that strike reporting has steadily increased over the past two decades; however, strike reporting is not consistent across all stakeholders (pilots, air carriers, airport operators, air traffic control personnel, etc.) in the National Airspace System. Although larger 14 CFR Part 139 airports and those with well-established wildlife programs have improved strike reporting, there is a wide disparity in overall reporting rates between Part 139 airports and general aviation (GA) airports in the National Plan of Integrated Airport Systems (NPIAS).
- 5.4 While overall reporting rates are much higher for strikes at Part 139 airports than at NPIAS GA airports, there is also a major disparity in reporting rates among Part 139 airports. Larger Part 139 airports, especially those with well-established wildlife hazard management programs, have reporting rates about four times higher on average compared to other Part 139 airports. The pattern of disparity in strike reporting among Part 139 airports is also found in reporting rates for commercial air carriers. However, the FAA believes the current voluntary reporting rate is adequate to track national trends in wildlife strikes, to determine the hazard level of wildlife species that are being struck, and to provide a scientific foundation for the FAA policies and guidance about the mitigation of risk from wildlife strikes.

- 5.5 Ultimately, improvements can be made in the quantity and quality of strike reporting. In addition to the above-mentioned gaps in reporting to the NWSA, there is an overall bias toward the reporting of damaging strikes compared to non-damaging strikes, especially for NPIAS GA airports and certain Part 139 airports. The quality of data within a strike report can also be improved by providing as much information as possible, including species struck and cost of strike.
- 5.6 The FAA has initiated several programs to address this important safety issue, including the collection, analysis, and dissemination of wildlife strike data. The effectiveness of a WHMP to reduce wildlife hazards both on and near an airport and the reevaluation of all facets of damaging/non-damaging strikes from year to year requires accurate and consistent reporting. Therefore, every WHMP should include a commitment to document and report to the NWSA all wildlife strikes that occur within the separation distances described in paragraphs 1.2, 1.3, and 1.4 of AC 150/5200-33C to better identify, understand, and reduce threats to safe aviation. Similarly, the FAA recommends that certificate holders recognize that the “on or near the airport” language in § 139.337 includes the separation distances described in paragraphs 1.2, 1.3, and 1.4 of AC 150/5200-33C. Significant strikes occurring within these separation criteria would continue to trigger either WHA regulations in § 139.337 (b) or the review and evaluation of a WHMP in § 139.337 (f).

6 **Types of Animals to Report if Involved in a Strike with Aircraft.**

- a. All birds.
- b. All bats.
- c. All terrestrial mammals 1 pound (454 grams) or larger (e.g., report rabbits, muskrats, armadillos, Marmots, squirrels, foxes, coyotes, dogs, cats, deer, livestock, etc., but not small mammals such as rats, mice, voles, chipmunks, pocket gophers, moles, shrews, etc.). If in doubt, report the incident with a note in the comment section, and the Database Manager will determine whether to include the report into the NWSA based on body mass.
- d. Reptiles: All alligators, caimans, iguanas, and turtles 1 pound (454 grams) or larger or a minimum 1 foot (30 centimeters) in length. Report snakes 1 foot (30 centimeters) or longer in total length. Biologists or airport employees who discover wildlife struck by an aircraft should use their best judgement when determining whether the animal meets the criteria of one of these categories (e.g., multiple small animals such as diamondback terrapins are involved in a single incident).
- e. Animals that are known to be a Federal or State listed species.¹

¹ As part of an airport's WHMP (where one exists), there may be reporting or other requirements that must be followed when take of Federally listed species occurs, either under the terms of an Endangered Species Act (ESA) Section 7 consultation or under the terms of an ESA Section 10 incidental take permit. These requirements are separate from (and must be complied with separately from) this recommendation to report strikes.

7 **When to Report a Wildlife Aircraft Strike or Negative Effect on Flight to the NWSD.**

A wildlife strike has been identified based on evidence or observation:

- a. A strike between wildlife and aircraft has been witnessed.
- b. Evidence or damage from a strike has been identified on an aircraft.
- c. Bird or other wildlife remains, whether in whole or in part, are found:
 - (1) Within 250 feet (76 meters) of a runway centerline or within 1,000 feet (305 meters) of a runway end unless another reason for the animal's death is identified or suspected.
 - (2) On a taxiway or anywhere else on or off the airport that you have reason to believe was the result of a strike with an aircraft. Examples might be:
 - (i) A bird found in pieces from a prop strike on a taxiway.
 - (ii) A carcass retrieved within 1 mile (2 kilometers) of an airport on the final approach or departure path after someone reported the bird falling out of the sky and a report of a probable wildlife strike.
- d. The presence of birds or other wildlife on or off the airport had a significant negative effect on a flight (i.e., aborted takeoff, aborted landing, high-speed emergency stop, or the aircraft left pavement area to avoid collision with wildlife).

Note: Airports should endeavor to collect and report fresh (not desiccated or decayed) remains that, in the judgment of observer was struck by an aircraft. Carcasses (or remains reported as a wildlife/aircraft strike) should ultimately allow identification of the species (or at least genus) and a reliable estimation of the strike incident date.

8 **How to Report a Bird/Wildlife Strike.**

The FAA encourages pilots, airport operations, aircraft maintenance personnel, Air Traffic Control personnel, engine manufacturers, or anyone else who has knowledge of a strike to report it to the NWSD. The FAA makes available an online reporting system at the Airport Wildlife Hazard Mitigation web site (<https://www.faa.gov/go/wildlife>) or via mobile devices at <https://www.faa.gov/mobile> so that all strikes can be reported electronically. Electronic submission of strike reports is the preferred method but the Bird/Other Wildlife Strike Report Form (FAA [Form 5200-7](#)) within this AC may be necessary in remote areas or when submission of electronic strike reports is unavailable. Paper copies of FAA [Form 5200-7](#) may also be obtained from the appropriate Airports District Offices (ADO), Flight Standards District Offices (FSDO), and Flight Service Stations (FSS) or from the Airman's Information Manual (AIM). It is important to include as much information as possible on the strike report.

Note: Instructions with addresses for sending remains to the Smithsonian Institution Feather Identification Lab are discussed in paragraph [12](#), "Instructions for Collecting and Submitting Bird/Wildlife Remains for Identification". DO NOT SEND BIRD REMAINS TO THE FAA.

9 **The FAA's National Wildlife Strike Database Management and Data Analysis.**

9.1 The FAA NWSD Manager edits all strike reports to ensure consistent, error-free data before entering a single, consolidated report into the database. This information is supplemented with non-duplicated strike reports from other sources. About every 2-4 weeks, the FAA posts an updated version of the database on the web site. Annually, the FAA sends a current version of the database to the International Civil Aviation Organization (ICAO) for incorporation into ICAO's Bird Strike Information System (IBIS) Database. Also, the FAA prepares and makes available a report summarizing wildlife strike results from 1990 through the most current year online at https://www.faa.gov/airports/airport_safety/wildlife/.

9.2 Analyses of data from the FAA NWSD have proved invaluable in determining the nature and severity of the aviation wildlife strike hazard. The database provides a scientific basis for identifying risk factors, justifying and implementing corrective actions at airports, and judging the effectiveness of those corrective actions. Appendix A depicts the composite ranking (1 = most hazardous, 100 = least hazardous) and relative hazard score of 100 wildlife species with at least 20 reported strikes with civil aircraft based on three criteria (damage, major damage, and effect-on-flight). Data were derived from the FAA NWSD, 2010 – 2022. The database is invaluable to engine manufacturers, aeronautical engineers, and wildlife biologists as they develop new technologies for the aviation industry. Each wildlife strike report contributes to the accuracy and effectiveness of the database. Moreover, each report contributes to the common goal of increasing aviation safety and reducing the cost of wildlife strikes.

10 **Access to the FAA National Wildlife Strike Database.**

On April 24, 2009, the FAA made the NWSD available to the public. The FAA began systematically analyzing wildlife strike data in the 1990s for use by the FAA's Office of Airports, academia, and researchers as a means of improving airport safety and reducing wildlife hazards. The NWSD web site (<https://www.faa.gov/go/wildlife>) was retooled to make it more user-friendly and to allow more advanced data mining. The site has search fields that enable users to find data on specific airports, airlines, aircraft, and engine types, as well as damage incurred, date of strike, species struck, and state without having to download the entire database.

11 **Bird/Wildlife Identification.**

11.1 Accurate species identification is critical for wildlife-aircraft strike reduction programs. The identification of the exact species of bird struck (e.g., ring-billed gull, Canada goose, mallard, mourning dove, or red-tailed hawk as opposed to gull, goose, duck, dove, or hawk) is particularly important. This species information is critical for airports and biologists developing and implementing wildlife hazard management programs at airports because a problem that cannot be measured or defined cannot be solved. Wildlife biologists must know what species of wildlife they are dealing with in order to identify local attractants and to make proper management decisions within the framework of the Migratory Bird Treaty Act and state and local regulations. The FAA, the U.S. Air Force, the U.S. Navy, and the U.S. Department of Agriculture – Wildlife Services work

closely with the Feather Identification Lab at the Smithsonian Institution, Museum of Natural History, to improve the understanding and prevention of bird-aircraft strike hazards. Birdstrike remains that cannot be identified by airport personnel or by a local biologist can be sent (with FAA Form 5200-7) to the Smithsonian Museum for identification. Remains may also be submitted to the Smithsonian for verification of the field identification and for long-term storage of the evidence.

- 11.2 Birdstrike identification using feathers, DNA, or other body parts or materials from birds involved in bird-aircraft strikes will be provided free-of-charge to all U.S. airport operators, all U.S. aircraft owners/operators (regardless of where the strike happened), and to any foreign air carrier if the strike occurred at a U.S. airport. (This does not include shipping.)

12 **Instructions for Collecting and Submitting Bird/Wildlife Remains for Identification.**

- 12.1 Please observe the following guidelines for collecting and submitting feathers or other bird/wildlife remains for species identification. These guidelines help maintain species identification accuracy, reduce turn-around time, and ensure a comprehensive FAA National Wildlife Aircraft Strike Database². Many airports have found it beneficial to construct strike reporting kits for use by airport personnel and aircraft operators. Having pre-made kits available improves strike reporting and encourages the sampling of strike remains. A kit suitable for collecting remains from most strikes could include the following materials stored in a 1-quart, re-sealable plastic bag: (1) collection instructions, (2) a pre-packaged alcohol hand-wipe for softening/removing tissue/blood (“snarge”³) off of the aircraft, (3) a Whatman FTA® collection card for preserving blood/tissue for DNA identification, and (4) a pair of disposable gloves⁴.

- a. Collect and submit remains from known/suspected birdstrikes or strike remains that involved an unknown animal from each impact location as soon as possible and send to the Feather Lab (Smithsonian). If remains are known to be other than those of birds, please contact the Smithsonian before mailing them at (202) 633-0801. Collect remains using the criteria listed in item c below. If you cannot send the remains as soon as possible, refrigerate or freeze them in a sealed plastic bag until you can mail them.

- b. Provide complete information about the incident.

- (1) Fill out FAA Form 5200-7 – Bird/Other Wildlife Strike Report.

- (i) Print a copy of FAA Form 5200-7 in this AC or download a copy at <https://www.faa.gov/go/wildlife>.
- (ii) File a report online and print a copy to send with the remains.

² Please see Appendix C, How to Collect Birdstrike Evidence, for quick reference.

³ Snarge is the term used for the residue and feathers left on an aircraft after an animal (typically a bird) collides with it.

⁴ Appendix D, Birdstrike Collecting Kits, provides additional guidance for “make-your-own” birdstrike collecting kits.

- (2) Mail the report with feather material (see addresses on following page).
 - (3) Provide your contact information if you wish to be informed of the species identification.
- c. Collect as much material as possible in a clean plastic/Ziplock® bag. (Please, do not send whole birds.)
- (1) Pluck/pick a variety of many feathers representing color or patterns from the wings, tail, and body.
 - (2) Do not cut off feathers. This removes the downy region needed to aid in identification.
 - (3) Include any feathers with distinct colors or patterns.
 - (4) Include any downy “fluff”.
 - (5) Include beaks, feet, and talons if possible.
 - (6) Where only a small amount of snarge material is available, such as scrapings from an engine or smears on wings or windshields, send all of it.
 - (i) **Dry material** – Scrape or wipe off into a clean re-sealable bag or wipe the area with pre-packaged alcohol wipe or spray with alcohol to loosen material then wipe with clean cloth/gauze. Include the alcohol wipe or piece of cloth in the bag. (Do not use water, bleach, or other cleansers – they destroy or degrade DNA.)
 - (ii) **Fresh material** – Wipe the area with alcohol wipe and/or clean cloth/gauze or apply fresh tissue/blood to an optional Whatman FTA® DNA collecting card.
 - (7) Do not use any sticky substance such as tape or post-it notes to attach feathers.
 - (8) Collect remains from each impact location and place them in separate, labeled bags. Indicate the location on aircraft from which each sample came (i.e., windshield, radome, etc.) on the bag.
 - (i) Please send whole feathers (tip and base) whenever possible as diagnostic characteristics are often found in the downy barbules at the feather base. Wings, as well as breast and tail feathers, should be sent whenever possible. Beaks, feet, bones, and talons are also useful diagnostic materials. Even blood smears can provide material for DNA analysis. Do not send entire bird carcasses through the mail. However, photographs of the carcasses can be very useful supplemental documentation.
 - (ii) If you send fresh blood/tissue samples frequently for DNA identification, you may want to consider getting Whatman FTA® DNA cards. The material is sampled with a sterile applicator and placed onto the surface of the card that “fixes” the DNA in the sample. For more information about ordering these items, contact the Feather Lab. Otherwise, if you only occasionally send blood/tissue samples, consider using a paper towel

soaked with alcohol or an alcohol wipe to collect this type of material. Ethanol is the preferred type of alcohol.

- (iii) Additional information on sending bird remains to the Smithsonian is available at <https://www.faa.gov/go/wildlife>.

- d. Mail the Bird/Other Wildlife Strike Report and collected material to the Smithsonian’s Feather Identification Lab. The lab will forward the report to the National Wildlife Strike Database Manager.

Method Sent	Address
Express Mail Service	Feather Identification Lab Smithsonian Institution NHB, E600, MRC 116 10th & Constitution Ave NW Washington DC 20560-0116 (This can be identified as “safety investigation material,” overnight priority/damaging strikes).
U.S. Postal Service	Feather Identification Lab Smithsonian Institution PO Box 37012 NHB, E600, MRC 116 Washington DC 20013-7012 (Regular/non-damaging strikes, not recommended for priority cases.)

12.2 The species identification turn-around time is usually 24 hours from receipt if sufficient material is submitted and unless the sample is submitted for DNA analysis. DNA results usually take 6 to 10 days. Once processed, the lab sends the reports and species identification information to the Database Manager for entry into the FAA National Wildlife Strike Database. Persons wishing to be notified of the species identification must include contact information (e-mail, phone, etc.) on the report.

12.3 For more information contact the FAA National Wildlife Biologist at (202) 267-8731 or the Smithsonian’s Feather Identification Lab at (202) 633-0801.

13 Use of Metrics.

Throughout this AC, U.S. customary units are used followed with “soft” (rounded) conversion to metric units. The U.S. customary units govern.

14 Where to Find this AC.

You can view a list of all ACs at https://www.faa.gov/regulations_policies/advisory_circulars/. You can view the Federal Aviation Regulations at https://www.faa.gov/regulations_policies/faa_regulations/.

15 **Feedback on this AC.**

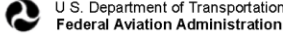
If you have suggestions for improving this AC, you may use the Advisory Circular Feedback form at the end of this AC.

A handwritten signature in black ink, appearing to read "John R. Dermody". The signature is fluid and cursive, with a large initial "J" and "D".

John R. Dermody
Director of Airport Safety and Standards

APPENDIX A. BIRD/OTHER WILDLIFE STRIKE

Whenever possible, submit data online using the Wildlife Strike Database. The fillable PDF form [Form 5200-7, Bird and Other Wildlife Strike Report (shown below)] is intended only for cases where entering the data via the database is impractical.



OMB CONTROL NUMBER 2120-0045
EXPIRATION DATE: 6/30/2026

Bird and Other Wildlife Strike Report

Incident Date and Time

Date (required):

Time (HH:MM, 24-hour format):

Time of Day: Choose

Airport Information

Airport Name:

or Airport ID:

Location, if Enroute (Nearest Town or Reference and State or Airport):

Runway or Taxiway Used:

Distance (nm) from Airport (Nearest Town or Reference and State or Airport):

Operator and Aircraft Information

Operator Name:

or Operator ID (3-letter code):

Aircraft Registration (N number. Example. N367DL):

Flight Number:

Aircraft Make and Model:

Engine Make and Model:

Phase of Flight: Choose

Height (feet) (AGL):

Speed (knots) (IAS):

Environment Conditions

Sky Condition: Choose

Precipitation: Fog Rain Snow None

FAA Form 5200-7 (08/2024) SUPERSEDES PREVIOUS EDITION

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APPENDIX B. COMPOSITE RANKING OF HAZARDOUS WILDLIFE SPECIES

Composite ranking (1 = most hazardous, 100 = least hazardous) and relative hazard score of 100 wildlife species with at least 20 reported strikes with civil aircraft based on three criteria (damage, major damage, and effect-on-flight). Data were derived from the FAA National Wildlife Strike Database, 2010 – 2022.

Species with >= 20 strikes (2010-2022)	Composite rank⁵	Relative hazard score⁶	Damage rank⁷	Major damage rank⁸	Percent with damage⁹	Percent with effect on flight¹⁰	Total strikes reported
White-tailed deer	1	100	1	2	86.7	62.4	379
Snow goose	2	82	4	1	60.9	55	23
Mule deer	3	76	2	3	72.2	41.7	20
Black vulture	4	63	3	11	68.5	33.3	126
Canada goose	5	54	9	12	48.9	37	518
Sandhill crane	6	52	6	5	52	23.3	60
Greater white-fronted goose	7	52	5	8	59.1	20	23
Turkey vulture	8	51	8	13	49.6	32.5	415
Double-crested cormorant	9	51	14	9	41.5	36	61
Gadwall	10	48	10	10	46.9	26.1	33
Bald eagle	11	46	12	20	43.3	33	219
Ruddy duck	12	44	13	7	42.9	22.2	21
American wigeon	13	43	7	14	50	17.9	31

⁵ Composite ranking (1 = most hazardous, 100 = least hazardous).

⁶ Relative hazard score (see footnote 5) was scaled down from 100, with 100 as the score for the species with the maximum mean hazard level and thus the greatest potential hazard to aircraft.

⁷ Aircraft incurred at least some damage (destroyed, substantial, minor, or unknown) from strike.

⁸ Aircraft incurred damage or structural failure, which adversely affected the structure strength, performance, or flight characteristics, and which would normally require major repair or replacement of the affected component, or the damage sustained made it inadvisable to restore aircraft to airworthy condition.

⁹ Percent of strikes where aircraft incurred at least some damage (destroyed, substantial, minor, or unknown) from strike.

¹⁰ Effect on flight (EOF) includes Aborted takeoff, engine shutdown, precautionary landing, or other negative effect on flight.

Species with >= 20 strikes (2010-2022)	Composite rank⁵	Relative hazard score⁶	Damage rank⁷	Major damage rank⁸	Percent with damage⁹	Percent with effect on flight¹⁰	Total strikes reported
Lesser scaup	14	42	11	6	45	15.8	21
Wild turkey	15	41	18	27	33.3	34.6	63
Brown pelican	16	39	24	4	26.1	22.2	23
Northern pintail	17	38	15	17	37.5	23.5	82
Osprey	18	34	17	24	34.7	20.5	219
Great blue heron	19	32	20	28	31.8	21.2	171
Glaucous-winged gull	20	30	22	43	30.8	20.4	66
Coyote	21	29	42	46	13.3	36.4	368
Mallard	22	28	30	25	22.9	22	258
Yellow-crowned night-heron	23	27	35	29	18.2	26.3	23
Common raven	24	27	32	16	20	20.8	27
Swainson's hawk	25	27	26	23	25	18.2	75
Rough-legged hawk	26	27	19	18	32.1	8.6	40
Northern shoveler	27	27	16	60	35.1	12.5	37
Red-tailed hawk	28	26	27	30	24.6	17.8	1252
Great horned owl	29	26	21	32	31.2	11.6	86
American coot	30	26	23	34	27.4	15.8	64
Snowy owl	31	25	29	15	23.2	13.9	112
Red-shouldered hawk	32	25	31	33	20.7	20	35
Great black-backed gull	33	25	25	31	26.1	13.6	24
Western gull	34	22	28	21	23.4	10.4	52
Herring gull	35	21	37	35	17.8	16.9	376
Franklin's gull	36	21	39	63	14.3	23	68
Green-winged teal	37	20	33	22	20	10	36
Cooper's hawk	38	18	36	62	17.8	14.9	56

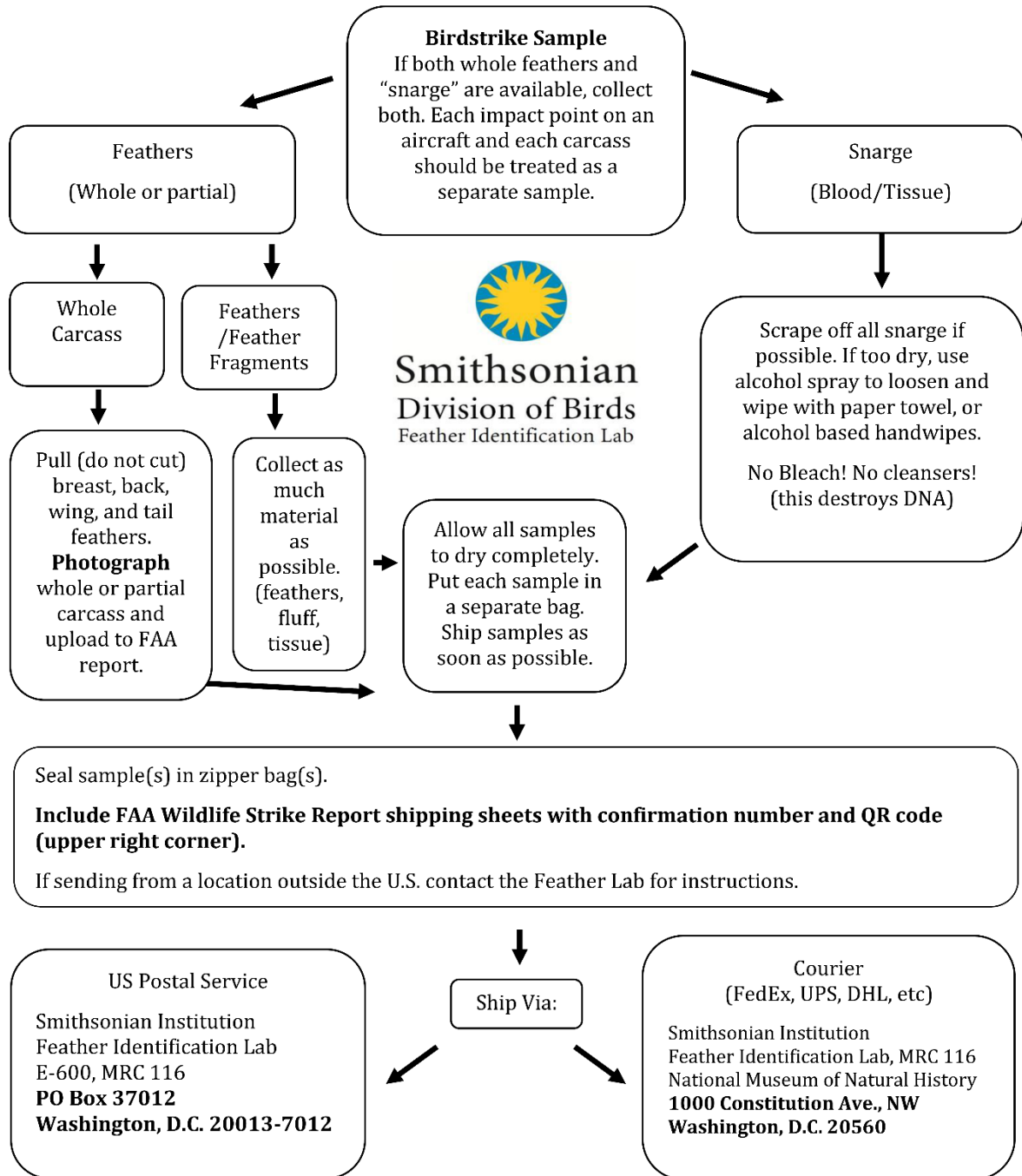
Species with >= 20 strikes (2010-2022)	Composite rank⁵	Relative hazard score⁶	Damage rank⁷	Major damage rank⁸	Percent with damage⁹	Percent with effect on flight¹⁰	Total strikes reported
California gull	39	18	40	41	13.8	16.1	98
Peregrine falcon	40	18	38	38	16.5	12.7	150
Cattle egret	41	16	45	48	10.3	18	291
American crow	42	15	43	47	12	13.8	166
Rock pigeon	43	15	48	45	9.8	15.8	965
Ring-billed gull	44	14	46	39	10.1	13	506
Dunlin	45	14	53	26	6.9	12.7	63
Red fox	46	14	75	81	3.4	21.1	104
American woodcock	47	13	41	19	13.3	4	31
Great egret	48	13	44	40	6.5	9.3	52
Woodchuck	49	12	83	86	2.3	19.4	50
Northern harrier	50	11	47	64	10	9.7	38
Merlin	51	11	49	36	7.9	8.6	44
Ferruginous hawk	52	11	34	61	19.1	0	27
Burrowing owl	53	10	55	42	6.5	9.5	53
Eurasian collared dove	54	9	63	72	5	11.8	23
Lapland longspur	55	9	89	92	2	13.6	54
Zebra dove	56	9	87	90	2.1	13.2	106
Laughing gull	57	8	59	53	5.5	8.5	212
American golden-plover	58	7	52	44	7	3.7	67
Barn owl	59	7	56	50	6.4	4.7	387
Purple martin	60	6	76	49	3.4	7.1	105
Wilson's snipe	61	6	61	70	5.3	5.9	40
Raccoon	62	6	60	69	5.4	5.7	43
Black-bellied plover	63	6	62	71	5.3	5.6	64
Snow bunting	64	6	88	91	2.1	8.7	171

Species with >= 20 strikes (2010-2022)	Composite rank⁵	Relative hazard score⁶	Damage rank⁷	Major damage rank⁸	Percent with damage⁹	Percent with effect on flight¹⁰	Total strikes reported
Lincoln's sparrow	65	6	112	112	0	10.5	24
European starling	66	6	72	52	3.5	6.3	1644
Mourning dove	67	6	74	55	3.4	6.6	2685
White-winged dove	68	6	50	37	7.7	0	46
Short-eared owl	69	6	77	51	3.4	5.9	141
Cave swallow	70	5	54	66	6.7	2.9	41
Boat-tailed grackle	71	5	79	83	2.9	6.5	39
Bonaparte's gull	72	5	113	113	0	9.1	22
Pacific golden-plover	73	5	70	78	3.8	5.1	286
Yellow bittern	74	5	114	114	0	8.7	29
Black-crowned night-heron	75	5	66	74	4.6	4	27
Common myna	76	5	78	82	3	5.2	68
American robin	77	5	65	56	4.6	3.2	325
American kestrel	78	4	97	57	1.6	6	1805
Common grackle	79	4	69	77	3.9	3.9	66
Western meadowlark	80	4	96	98	1.7	5.8	562
Red-winged blackbird	81	4	107	107	0.8	6.6	159
Eastern meadowlark	82	4	81	54	2.7	4.2	913
Vesper sparrow	83	4	51	65	7.1	0	21
Big brown bat	84	4	115	115	0	6.9	36
Eurasian skylark	85	4	116	116	0	6.7	50
Semipalmated plover	86	4	117	117	0	6.5	32
Western sandpiper	87	3	71	79	3.5	2.6	124
Chipping sparrow	88	3	57	67	6.1	0	33

Species with >= 20 strikes (2010-2022)	Composite rank⁵	Relative hazard score⁶	Damage rank⁷	Major damage rank⁸	Percent with damage⁹	Percent with effect on flight¹⁰	Total strikes reported
Common yellowthroat	89	3	58	68	6.1	0	35
Spotted dove	90	3	118	118	0	6	74
White-tailed jackrabbit	91	3	119	119	0	5.9	31
Killdeer	92	3	94	58	1.8	3.7	1874
Northern rough-winged swallow	93	3	92	95	1.8	3.6	60
Semipalmated sandpiper	94	3	98	99	1.6	3.3	69
Gray catbird	95	3	100	101	1.5	3.4	70
Evening bat	96	3	64	73	4.8	0	22
Ruby-crowned kinglet	97	3	120	120	0	4.8	24
Upland sandpiper	98	3	84	87	2.3	2.3	59
Savannah sparrow	99	3	101	102	1.5	3.2	244
Chestnut munia	100	3	67	75	4.6	0	27

APPENDIX C. DIAGRAM: HOW TO COLLECT BIRDSTRIKE EVIDENCE

How To Collect Birdstrike Evidence



(Revised Feb 2023)

APPENDIX D. BIRDSTRIKE COLLECTING KITS

“MAKE-YOUR-OWN” - BIRDSTRIKE COLLECTING KITS

Birdstrike Collecting Kits are affordable to make and easy to assemble. Having pre-made kits available improves birdstrike reporting and encourages the sampling of birdstrike remains. It is helpful to assemble the contents into individual bags or envelopes and keep a supply in field vehicles or office supply cabinets for quick access. Below is a list of recommended items to include in your birdstrike collecting kits. Mix and match as budgets permit.

MATERIALS

Re-sealable plastic bags

A variety of sizes for various amounts of debris; re-sealable bags help contain liquids and keep odors to a minimum.

Permanent Markers

Permanent markers are water resistant and used for writing data (date, time, aircraft, etc.) directly on the bag of remains.

Alcohol Wipes

Pre-packaged alcohol hand-wipes can be used to wipe “snarge” off aircraft. Alcohol is better than water at preserving DNA, preventing mold growth, and is more sanitary for humans. Ideally, use ethanol (also called ethyl alcohol) 70% or higher concentration if available. Alcohol content should be a minimum of 40% or greater. Alternatively, use a spray bottle with 70% alcohol to spray the area before wiping with paper towels.

*Do not use wipes with bleach or other cleansers; they destroy DNA.

FTA® Micro Card and Sterile Applicators

If you send a lot of fresh blood/tissue samples for DNA identification, you may want to look into getting Whatman FTA® DNA cards. The material is sampled with a sterile applicator and placed onto the surface of the card that “fixes” the DNA in the sample. For more information on ordering these items contact the Feather Lab.

***Note:** If you only occasionally send blood/tissue samples, a paper towel with alcohol, or alcohol wipe is still a good option for this type of material.

Miscellaneous Items for Birdstrike Collecting

- Kitchen shears – good for cutting feet, wings, bills (but DO NOT CUT FEATHERS)
- Tongue depressors
- Tweezers
- Cotton swabs/cotton-tipped applicators

Extra Safety Items

- Hand sanitizing gels
- Latex Gloves
- Protective Eyewear/Safety Glasses
- Face Masks (if avian flu is a concern). The CDC recommends NIOSH rated N95 face masks. (These may be referred to as respirators. There is a disposable version of these masks by 3M that looks similar to the regular “cup” style face masks.)

REMINDERS

- Always encourage proper hygiene & provide personnel easy access to cleaning/hygiene supplies.
- Do not cut off the fluffy down at the bottom of feathers.
- Do not use water, bleach or other cleansers on samples, this destroys DNA.
- Be sure personnel are briefed on proper carcass disposal protocols.
- Stay informed to the status of the HPAI H5N1 avian flu virus.
- If sending from overseas contact Feather Identification Lab for instruction.

HEALTH AND SAFETY RESOURCES

The following websites have excellent coverage on current avian flu and zoonotic disease info:

U.S. Geological Survey Wildlife Health Center

<https://www.usgs.gov/centers/nwhc>

Centers for Disease Control and Prevention

<https://www.cdc.gov/flu/avianflu/>

The American Ornithologists' Union Ornithological Council

<https://birdnet.org/wp-content/uploads/2020/11/Avian-Influenza-Fact-Sheet-2020.pdf>

Advisory Circular Feedback

Paperwork Reduction Act Burden Statement: A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number. The OMB Control Number for this information collection is 2120-0746. Public reporting for this collection of information is estimated to be approximately 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, completing and reviewing the collection of information. All responses to this collection of information are voluntary FAA Order 1320.46D Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, Barbara Hall, 800 Independence Ave, Washington, D.C. 20590.

If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by (1) mailing this form to Manager, Airport Safety & Operations Division, Federal Aviation Administration ATTN: AAS-300, 800 Independence Avenue SW, Washington DC 20591 or (2) faxing it to the attention of the Office of Airport Safety and Standards at (202) 267-5383.

Subject: AC 150/5200-32C

Date: _____

Please check all appropriate line items:

An error (procedural or typographical) has been noted in paragraph _____ on page ____.

Recommend paragraph _____ on page _____ be changed as follows:

In a future change to this AC, please cover the following subject:

(Briefly describe what you want added.)

Other comments:

I would like to discuss the above. Please contact me at (phone number, email address).

Submitted by: _____

Date: _____