



National Wildlife Strike Database

Shawn Hershman
Enterprise Engineering Services

NWSD Development Team



**Matt
Nelson**

Lead SW Tester,
Deputy
(present)



**Prakash
Patel**

Lead SW Engineer



**Andrew
Koenig**

SW Engineer



**Drew
Flatley**
System Engineer



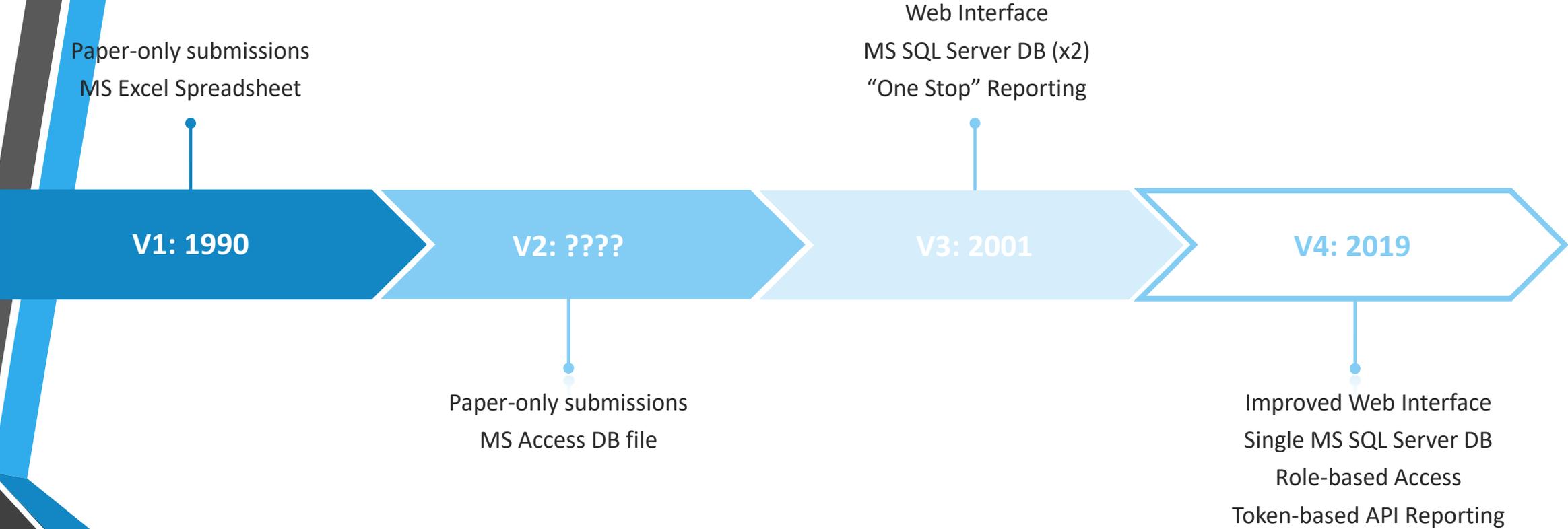
**Shawn
Hershman**

Program Manager



NWSD – A Short History

NWSD – A Short History



NWSD – A Short History

Version 3 – 2001-2019

United States Department of Transportation

Federal Aviation Administration

Search the Database Submit a Strike Report Edit/Print a Strike Report

Update on Available Data in the FAA National Wildlife Strike Database, as of July 3, 2018:

The FAA National Wildlife Strike Database currently includes wildlife strike reports through April 30, 2018. This includes reports that were submitted online and via "paper" 5200-7 forms (Bird / Other Wildlife Strike Report).

The database currently includes wildlife strike reports submitted via Mandatory Occurrence Reports (MOR), supplied by the Air Traffic Organization, through December 31, 2106. The remaining MORs are being analyzed and will be incorporated into the database shortly.

FAA Wildlife Strike Database

The FAA Wildlife Strike Database contains records of reported wildlife strikes since 1990. Strike reporting is voluntary. Therefore, this database only represents the information we have received from airlines, airports, pilots, and other sources.

Search the Database
Report a Strike
Edit/Print a Strike Report

For additional information, please visit the [FAA Wildlife Hazard Mitigation Program](#) site.

The annual wildlife strike report for 2016 titled, "[Annual Report: Wildlife Strikes to Civil Aircraft in the United States \(1990-2016\) \(PDF\)](#)", is now available. This report presents a summary analysis of data from the National Wildlife Strike Database for the 26-year period 1990 through 2016.

Project Manager: Mike DiPilato

Version: 3.1.6, Updated: June 5, 2018

United States Department of Transportation

Federal Aviation Administration

Search the Database Submit a Strike Report Edit/Print a Strike Report

Submit a Wildlife Strike Report

To complete a Wildlife Strike Report:

- In the form below, complete as many fields as possible.
- At the bottom of the form, click **Submit Strike Report**. You will see a confirmation page with a Strike Report Confirmation number and a link to your report. Note the confirmation number so you can view, edit, or print your report in the future.
- On the confirmation page, click the link and then print a copy of your report.
- If you are reporting a bird strike, please submit bird remains for identification. [Please click here for instructions on how to collect remains.](#)

Form Approved OMB No. 2120-0045

1. Name of Operator/Carrier	2. Aircraft Make/Model	3. Engine Make/Model
Type in a few letters contained within the Operator name or OperatorID. Add more if/as req'd. If found, click that Operator Name from the listing so that appear in the entry box. If not found, type in the Operator Name and if known, the 3/4 letter Operator ID.		
4. Aircraft Registration	5. Date of Incident	6. Local Time of Incident
	mm / dd / yyyy	NA NA NA
6A. Flight Number	6B. Wildlife/Bird Remains:	
	<input type="checkbox"/> Collected <input type="checkbox"/> Sent to Smithsonian	
7. Aircraft Name/ID	8. Species/Taxonomy Used	9. Location of Impact

NWSD – A Short History

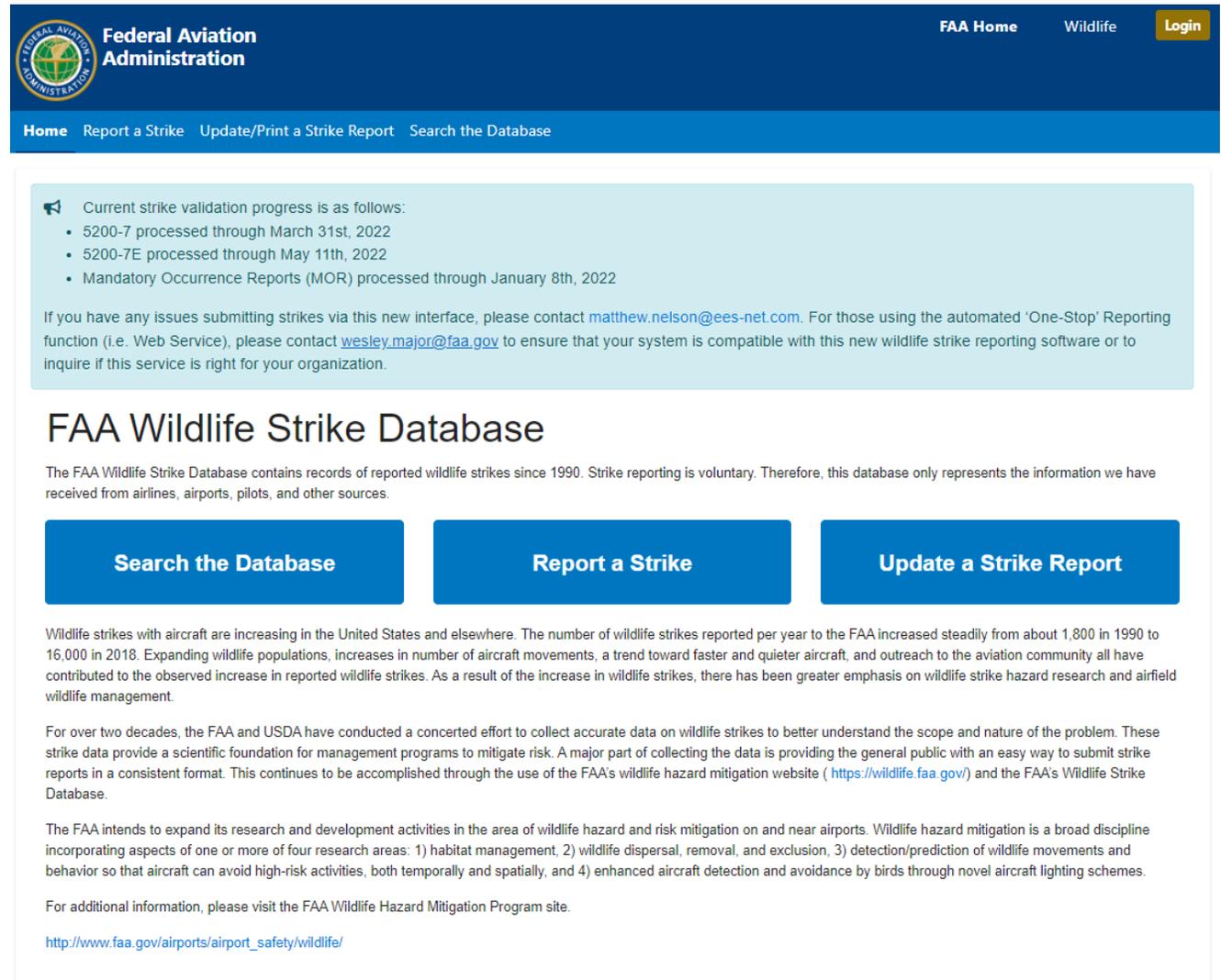
Version 3 – 2001-2019

- Online web submission capability
- Microsoft SQL Server DB (x2)
- USDA printed and RE-TYPED every strike report*
- “Cleaned up” by ERAU
- Returned to GDIT in MS Access file
- Published to SEPARATE “search” database
- Published updates never returned to “entry” database
- Publishes were done in batches
- “One Stop” web API for automatic data sharing from airport or operator systems

* - GDIT later provided USDA with pre-populated Access file to save (at least) 80% of typing!

NWSD – A Short History

Version 4 – August 2019



The screenshot shows the FAA Wildlife Strike Database website. At the top is the Federal Aviation Administration logo and navigation links for 'FAA Home', 'Wildlife', and 'Login'. Below this is a secondary navigation bar with 'Home', 'Report a Strike', 'Update/Print a Strike Report', and 'Search the Database'. A light blue notification box contains a speaker icon and text about current strike validation progress, listing dates for 5200-7, 5200-7E, and Mandatory Occurrence Reports (MOR). Below the notification is a paragraph of contact information. The main heading is 'FAA Wildlife Strike Database', followed by a descriptive paragraph. Three large blue buttons are arranged horizontally: 'Search the Database', 'Report a Strike', and 'Update a Strike Report'. Below these are three paragraphs of text providing background information on wildlife strikes, data collection efforts, and future research plans. The final paragraph includes a URL for more information.

Federal Aviation Administration [FAA Home](#) [Wildlife](#) [Login](#)

[Home](#) [Report a Strike](#) [Update/Print a Strike Report](#) [Search the Database](#)

🔊 Current strike validation progress is as follows:

- 5200-7 processed through March 31st, 2022
- 5200-7E processed through May 11th, 2022
- Mandatory Occurrence Reports (MOR) processed through January 8th, 2022

If you have any issues submitting strikes via this new interface, please contact matthew.nelson@ees-net.com. For those using the automated 'One-Stop' Reporting function (i.e. Web Service), please contact wesley.major@faa.gov to ensure that your system is compatible with this new wildlife strike reporting software or to inquire if this service is right for your organization.

FAA Wildlife Strike Database

The FAA Wildlife Strike Database contains records of reported wildlife strikes since 1990. Strike reporting is voluntary. Therefore, this database only represents the information we have received from airlines, airports, pilots, and other sources.

[Search the Database](#) [Report a Strike](#) [Update a Strike Report](#)

Wildlife strikes with aircraft are increasing in the United States and elsewhere. The number of wildlife strikes reported per year to the FAA increased steadily from about 1,800 in 1990 to 16,000 in 2018. Expanding wildlife populations, increases in number of aircraft movements, a trend toward faster and quieter aircraft, and outreach to the aviation community all have contributed to the observed increase in reported wildlife strikes. As a result of the increase in wildlife strikes, there has been greater emphasis on wildlife strike hazard research and airfield wildlife management.

For over two decades, the FAA and USDA have conducted a concerted effort to collect accurate data on wildlife strikes to better understand the scope and nature of the problem. These strike data provide a scientific foundation for management programs to mitigate risk. A major part of collecting the data is providing the general public with an easy way to submit strike reports in a consistent format. This continues to be accomplished through the use of the FAA's wildlife hazard mitigation website (<https://wildlife.faa.gov/>) and the FAA's Wildlife Strike Database.

The FAA intends to expand its research and development activities in the area of wildlife hazard and risk mitigation on and near airports. Wildlife hazard mitigation is a broad discipline incorporating aspects of one or more of four research areas: 1) habitat management, 2) wildlife dispersal, removal, and exclusion, 3) detection/prediction of wildlife movements and behavior so that aircraft can avoid high-risk activities, both temporally and spatially, and 4) enhanced aircraft detection and avoidance by birds through novel aircraft lighting schemes.

For additional information, please visit the FAA Wildlife Hazard Mitigation Program site.

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

NWSD – A Short History

Version 4 – August 2019

- Operates with a single database, captures and saves each version of a strike report
- **Status = NEW:** displayed to USDA
- **Status = WORKING:** displayed to USDA
- **Status = PUBLISHED:** displayed to public
- **Status = DELETED:** no longer displayed, but not actually deleted – recoverable
- Available to public as soon as USDA publishes

NWSD – A Short History

Version 4 – August 2019

- All edits are based on most recent published data, no need to redo previous updates for publishing
- Maintains airport, runway, and species data for quicker, consistent data entry by users
- Implements consistent data collection rules for data accuracy and formatting
- Tracks revision history
- Token-based Web API to assure data is received from authorized submitters
 - EES works with submitters to assure data is submitted in correct format
- Provides real-time data statistics and visualizations

Version 4 has allowed the backlog to decrease from MONTHS to WEEKS/DAYS

(Been as low as 0!)

NWSD – Existing Public Functionality

Submit a Strike

- Notification email sent

Edit a Strike

- Valid strike report number required
- Generates new revision of the strike report
- New notification email sent

Search the Database

- Can enter search parameters and receive listing of matching strike reports
- Can download results in Excel (.csv) format (optional compression)
- Access file containing all strike data is uploaded to NWSD weekly



Role-based Access

NWSD – Role-based Access

- Version 4 presents different views for different user roles
 - Varying levels of access to the data
 - More concise and customized user interface
 - Applicable subset of data presented to any user
- Current roles
 - ADMIN
 - USDA
 - Smithsonian
- Additional roles under consideration...

NWSD – Role-based Access

Smithsonian View

Update a Strike Report

2020-11-03-
<https://wildlife.faa.gov/print?StrikeReportNum=2020-11-03-1>

Strike Report Information Print View Full View

Incident Date: Nov 3, 2020 Airport: SACRAMENTO MATHER ARPT - CA
Operator: US COAST GUARD Aircraft Registration: HC-27J2713

Smithsonian Information

Collected Sent to Smithsonian

Wildlife/Species Identification: Smithsonian Wildlife Identification Comments:

Selected Wildlife/Species Identification:

Upload Strike Report Image

No file chosen

Name	Status	Action
pic11.jpg	✓	<input type="button" value="👁"/>
pic10.jpg	✓	<input type="button" value="👁"/>
pic9.jpg	✓	<input type="button" value="👁"/>

USDA View

Update a Strike Report

2022-07-11-
<https://wildlife.faa.gov/print?StrikeReportNum>

Incident Date and Time

Date * and Time: 2022-04-08 Time Of Day: Day

Airport Information

Aircraft ID: KTYS OR Airport Name: MC GHEE TYSON ARPT - TN
Location, if en route (Nearest Town/Reference and State/Airport): Runway/Taxiway Used:
Enroute State:

Operator/Aircraft Information

Operator ID: OR Operator Name:
Aircraft Registration: Flight Number:
Aircraft Make/Model: Engine Make/Model:

Aircraft:
AMA: EMA:
AMO: EMO:

Phase of Flight:

Height (feet) (AGL): Speed (knots) (IAS):

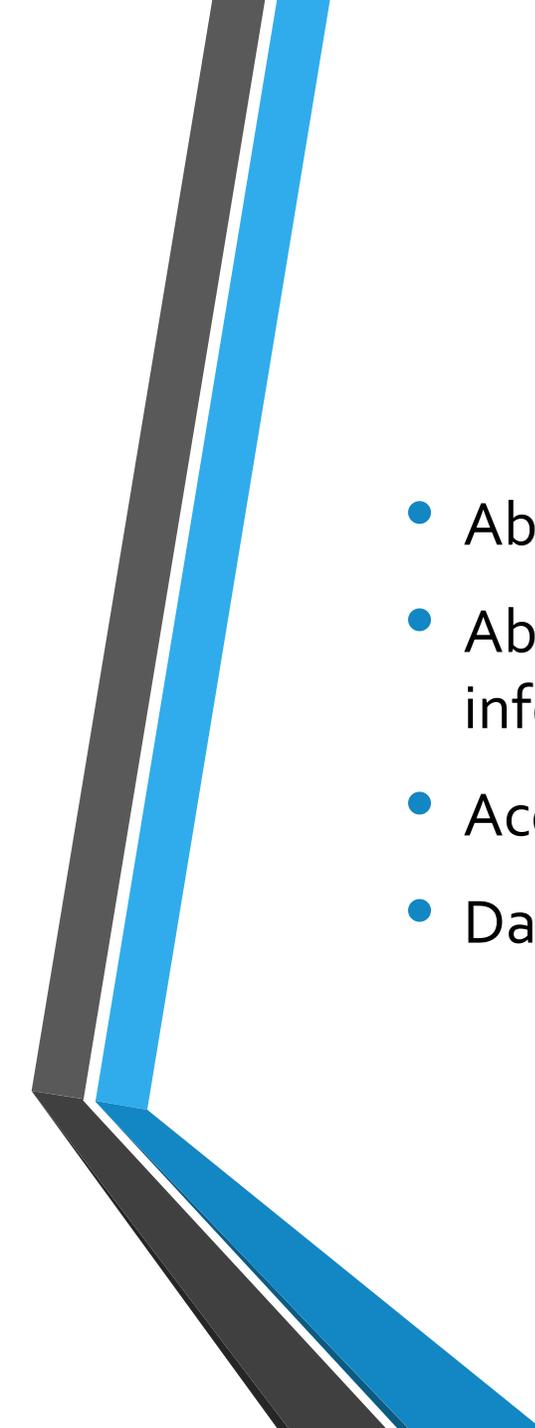
Distance (nm) from Airport (Nearest Town/Reference and State/Airport):

Role-based Access – USDA

- Listing of NEW strike reports
- WORKING (saved) strike reports
- Expanded search capabilities
- Publication authority
- Potential Duplicate review
 - System-identified
 - Merging capability
- MOR upload and review
- Access to Managed Tables
 - Species
 - Airports
 - Operators
 - Engine Manufacturers
 - Email notification listings
 - Reporting Personnel

Role-based Access – Smithsonian

- Listing of reports that have “Sent to Smithsonian” checked
 - Also access to all reports
- Concise SI-specific edit form highlighting species identification
 - Also access to full form
- Hand scanner compatible QR code included on mailed strike reports included with collected remains (snarge)



Role-based Access – ADMIN

- Ability to add users to the system
- Ability to add Web API users and automatically email token information
- Access to all USDA and SI capabilities
- Dashboard visualizations of real-time data and statistics

Potential New Roles

FAA

- Access to all ADMIN visualizations and reports, but no update capability (read-only)

USER

- Access to airport or operator specific data
- Airport-specific dashboard
- Expanded search capabilities
- Expanded access to data fields
- Email notifications that include reporter information (currently implemented)



Token-based Web API

Token-based Web API

- Allows YOUR internal reporting system to automatically submit reports to NWSD
 - No need for multiple reporting of strikes
- Allows your system to request various reports from NWSD – two-way communication
- Old “One Stop” system allowed for VERY LITTLE data validation or formatting
- Online API is provided, outlining available REQUEST and RESPONSE formats
 - SW developer works with submitter to assure messages are formatted properly
- NWSD offers a QA portal, with a separate token, to test message formatting before submitting strikes to production DB

Token-based Web API

What is a token??

- A security token is a digital device that provides two-factor authentication for a user to prove their identity in a login process
- Like a password
- Each Web API user is issued a NAME and a TOKEN
- Every Web API request includes the NAME and TOKEN values
- If the NAME/TOKEN pair does not match, the request is rejected

Token-based Web API

What do I need to do that??

- Just Internet access
- *Deep techie details...*
 - Capability for your system to generate RESTful Web Service requests and receive responses
 - Able to build and submit .json (preferred) or .xml formatted messages
 - README file available and distributed with token information
 - *SW developer can answer more detailed questions*

Token-based Web API

How do I get one?!?

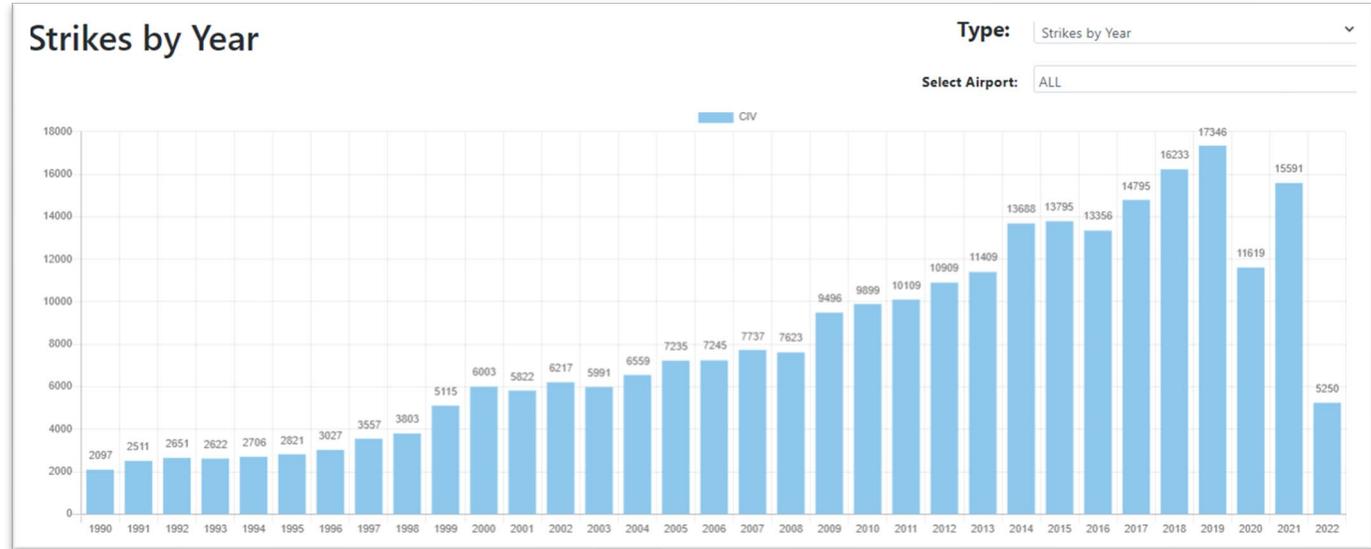
- Email Wesley Major
- “Contact Us” link at the bottom of every NWSD page



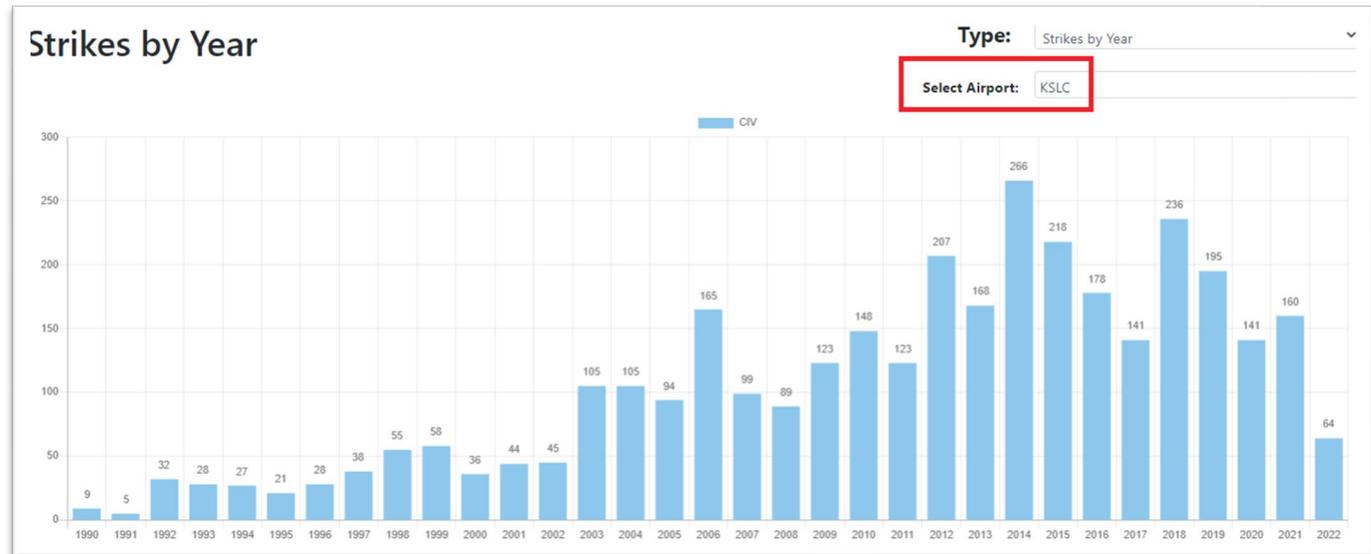
Visualizations

Strikes by Year

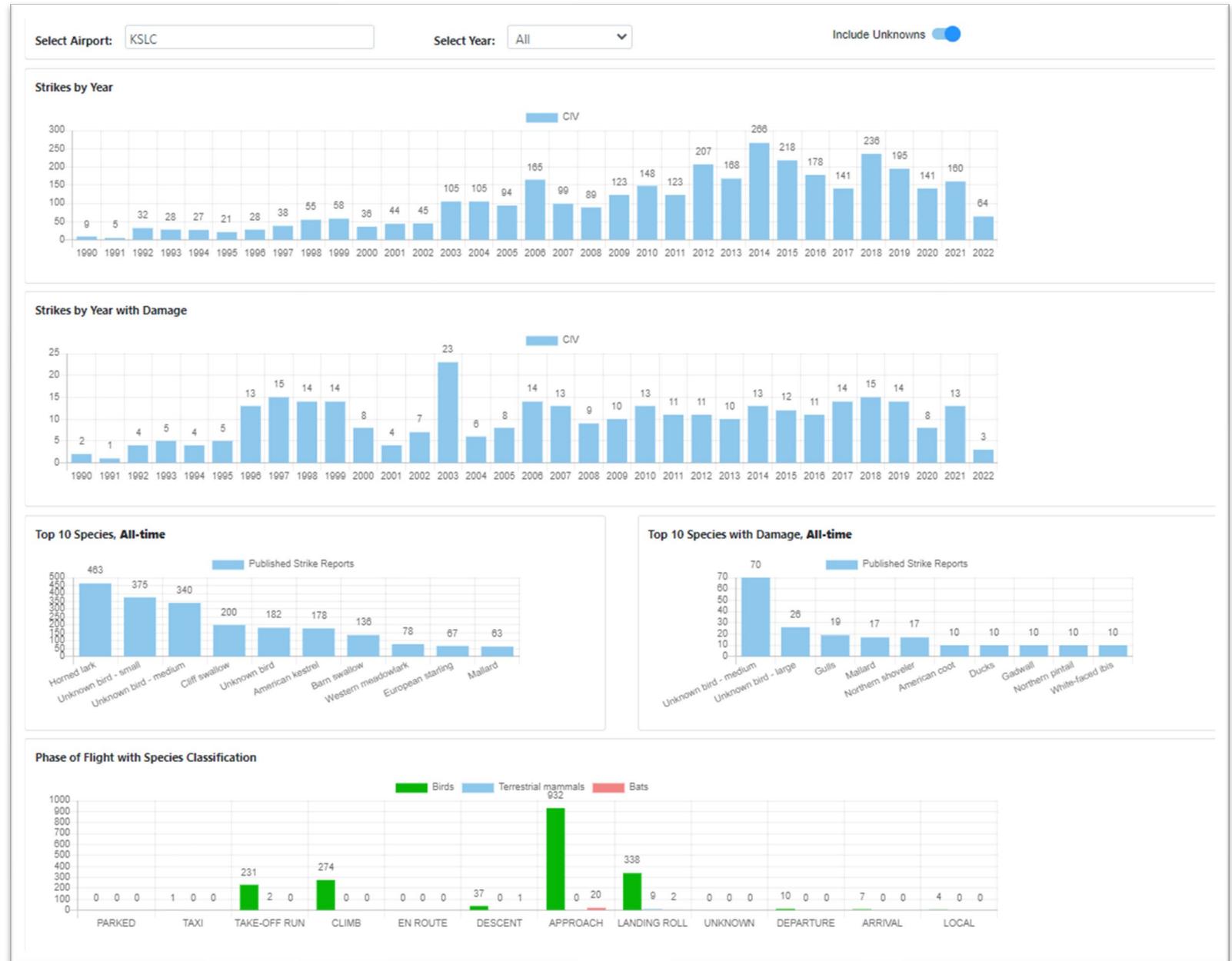
All Airports:



Filtered on KSLC:



Airport Dashboard (new)



What's Next??

- Development team is excited to explore updates that help YOU!
- Please don't hesitate to recommend new ideas
- Visualizations?
- Reports?