

FAA WILDLIFE MITIGATION

2024 UPDATE



Presented to: Office of Airports (ARP) National Consultant Workshop

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**Federal Aviation
Administration**

Compliance vs. Expectation

14 CFR 139.337 (1988 – 2024) FAA Wildlife Regulations

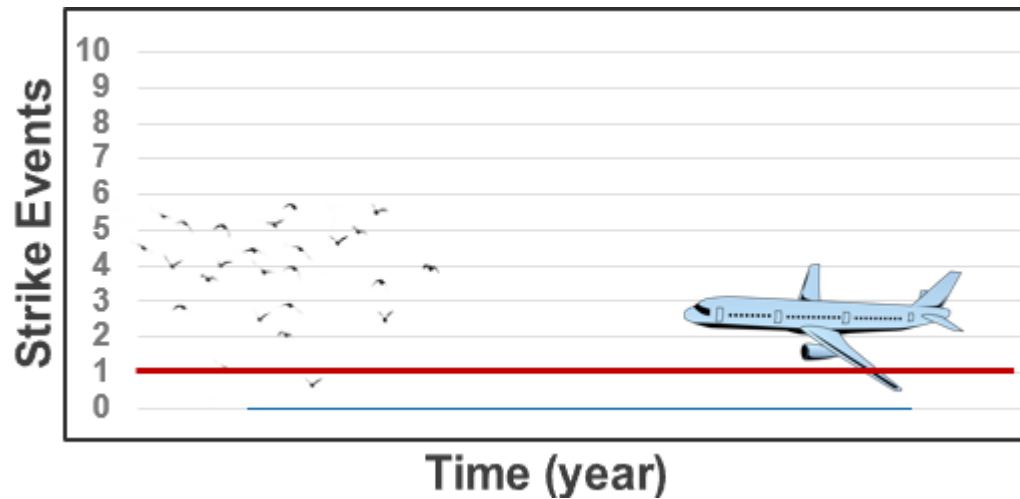
139.337(a) ... each certificate holder shall take immediate action to alleviate wildlife *hazards* whenever they are detected.

Regulations focus on:

- Triggering Events
- Wildlife Hazard Assessments
- Wildlife Hazard Management Plans



Wildlife, Aviation Regulations



- Compliance improves (not guarantees) safety
- Wildlife strikes will still occur
- Compliance isn't a magic number
- Compliance:
Minimum acceptable standards and
maximum enforceable regulations

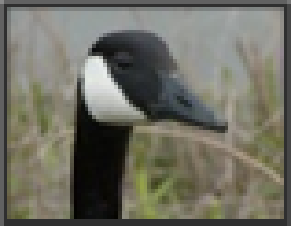
FAA Oversight of Wildlife Hazards

Checks:

- Regulatory guidance
- Data collection
- Outreach / education
- Research
- Partnerships
- Funding



FAA Advisory Circulars



- AC 150/5200-32C, Reporting Wildlife Aircraft Strikes. (August 2024)
- AC 150/5200-33B, Hazardous Wildlife Attractants on or Near Airports (February 2, 2020)
- AC 150/5200-34A, Construction or Establishment of Landfills Near Public Airports.
(January 26, 2006 -- Being updated)
- AC 150/5200-36A Wildlife Biologist Qualifications and Training Curriculumms (January 2019)
- AC No: 150/5200-38, Protocol for the Conduct and Review of WHSVs, WHAS, WHMPS and Continual Monitoring
(August 2018 – Needs quick update to harmonize with AC-32C)



AC No: 150/5200-32C, Reporting Wildlife Aircraft Strikes

- What are new or Principal Changes?
- New minimum size for terrestrial mammals and reptiles (> 1 lb.) and snakes (> 1 foot)
- Recommendation: report carcasses in a timely manner
- FAA address, Business Reply Mail, and Postage Paid identifiers removed from PDF strike report form (FAA Form 5200-7)
 - Recommendation all strike reports be submitted electronically
 - Maintain PDF FAA Form 5200-7 to aid field data collection and remote locations
 - REMINDER: no strike remains mailed to the FAA



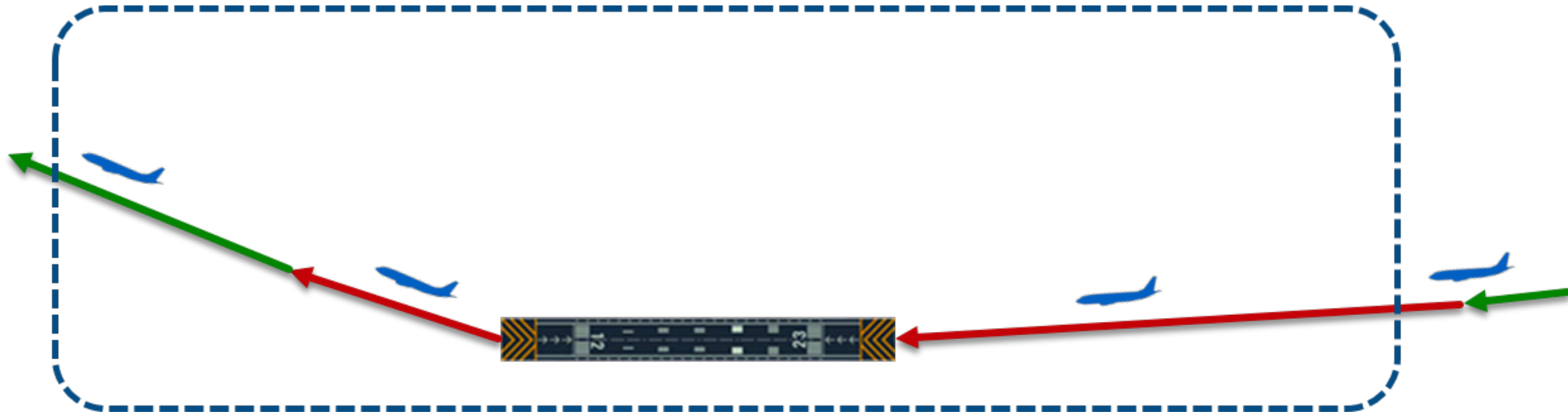
AC No: 150/5200-32C Reporting Wildlife Aircraft Strikes

What are new or Principal Changes?

- Appendix A – New table: composite ranking and relative hazard score of 100 wildlife species with at least 20 reported strikes with civil aircraft.
- Appendix B – Added “How to Collect Birdstrike Evidence” diagram.
- Appendix C – Added “Make-Your-Own” Birdstrike Collecting Kits.
- Reminder stating Federal or State listed animals involved in a strike should be reported.
- Clarification: triggering events within airport wildlife separation criteria (5 nautical miles or 1,500 feet AGL) should be examined as per Part 139.337(b) and (f)(6), AC-33C and AC-38.



FAA Wildlife Mitigation: Separation Distances



- 5-mile separation criteria (U.S.)
- 10-to-15-degree ascent take-off angle
- 3-degree descent glide slope angle

CertAlerts - Maintain

- CertAlert 16-03, Recommended Wildlife Exclusion Fencing (August 2016)
- CertAlert 23-08, Considerations for Use of Unmanned Aircraft in Support of Airport Wildlife Dispersal (October 3, 2023)



CertAlerts – Review & Update or Cancel

- CertAlert 98-05, Grasses Attractive To Hazardous Wildlife (9/21/1998)
- CertAlert 06-07, Requests by State Wildlife Agencies to Encourage Habitat for State Listed TES and Species of Special Concern on Airports (11/21/2006)
- CertAlert 13-01, Federal and State Depredation Permit Assistance (1/30/2013)



CertAlerts - Cancel

- CertAlert 14-01 Seasonal Mitigation of Hazardous Species at Airports: Attention to Snowy Owls (February 26, 2014)



Wildlife Guidance (somewhere else in FAA)

- AC 150/5220-25, Airport Avian Radar Systems 11/23/10
- AC 150/5200-28G, Notice to Air Missions (NOTAMs) for Airport Operators 5/25/2022
- AC No: 150/5370-10H, Standard Specifications for Construction of Airports 12/21/2018 (Fencing)



Wildlife Guidance – ATO / ATC - 1

- JO_7210.632A, Air Traffic Organization Occurrence Reporting APP. B. (FAA Form 7210-13):
2012 internal mandate to report Bird Strikes via MOR's.
- ATO Order JO 7210.3DD, Facility Operation & Administration (Bird Hazards)
 - ATCT must report bird strikes or significant bird activity to airport management.
 - Coordinate NOTAM issuance with airport re: hazardous wildlife.



Wildlife Guidance – ATO / ATC - 2

- JO 7110.65AA, Air Traffic Control (Bird Activity Information)
 - Issue advisory information on verified bird activity.
 - Relay bird activity information to adjacent facilities



FAA Highlights: Wildlife Strikes (1990 to 2023) - 1



- 19,603 strikes were reported in 2023: Commercial transport (87%), GA aircraft (13%).
- 777 airports reported strikes in 2023: (432 Part 139 airports & 345 GA airports), 2,299 different US airports since 1990.
- Over *300,000* strikes reported to U.S. wildlife strike database over the past *34 years*.

FAA Highlights: Wildlife Strikes (1990 to 2023) - 2

- **U.S. Strikes:** 790 wildlife species since 1990.
 - **Birds:** 651 Species (98% of all strikes)
 - **Terrestrial Mammals:** 56 species
 - **Bats:** 48 species
 - **Reptiles:** 35 species



Strike Data Analysis and Trends

- **Waterfowl, Gulls** and **Raptors** bird species groups cause the most damaging strikes.
- Hooved mammals (mainly **Deer**) and carnivores (mainly **Coyotes**) cause the most damaging strikes of terrestrial mammals.
- **Trends**
 - Improved species identification (over 60%).
 - Decreasing mean body size of birds struck by aircraft.
 - Increase in multiple strike reports submitted per strike event.



< 3,500 ft AGL: 92% of strikes

< 1,500 ft AGL: 82% of strikes
(these strikes are within the 5-mile
separation distance)

< 500 ft AGL: 71% of strikes

Ground Level: 41% of strikes



Wildlife Aircraft Strikes

Strike Data Expectations: Regulator

- Determine hazardous species
- Track national trends
- Provide scientific foundation for regulatory guidance
- Evaluate effectiveness of national program



Strike Data Expectations: Airports

- Identify hazardous species, strike dynamics and high-risk areas
- Mitigate hazardous species and attractants
- Evaluate effectiveness of wildlife management program



Strike Data Expectations: Industry

- Evaluate effectiveness of aircraft components



Metrics: Annual Strike Report 1990 to 2023 (1)

- Metric 1. Percentage of damaging strikes = 3.6%
- Metric 2. Damaging strike trends within 5 miles or 1,500 feet AGL from an airport is declining
- Metric 3. Number of Triggering Event strikes within 5 miles or 1,500 feet AGL from Part 139 airports
- Metric 4. Strikes and Damaging Strikes reported per 100K operations for Part 139 airports are 39.03 and 1.45

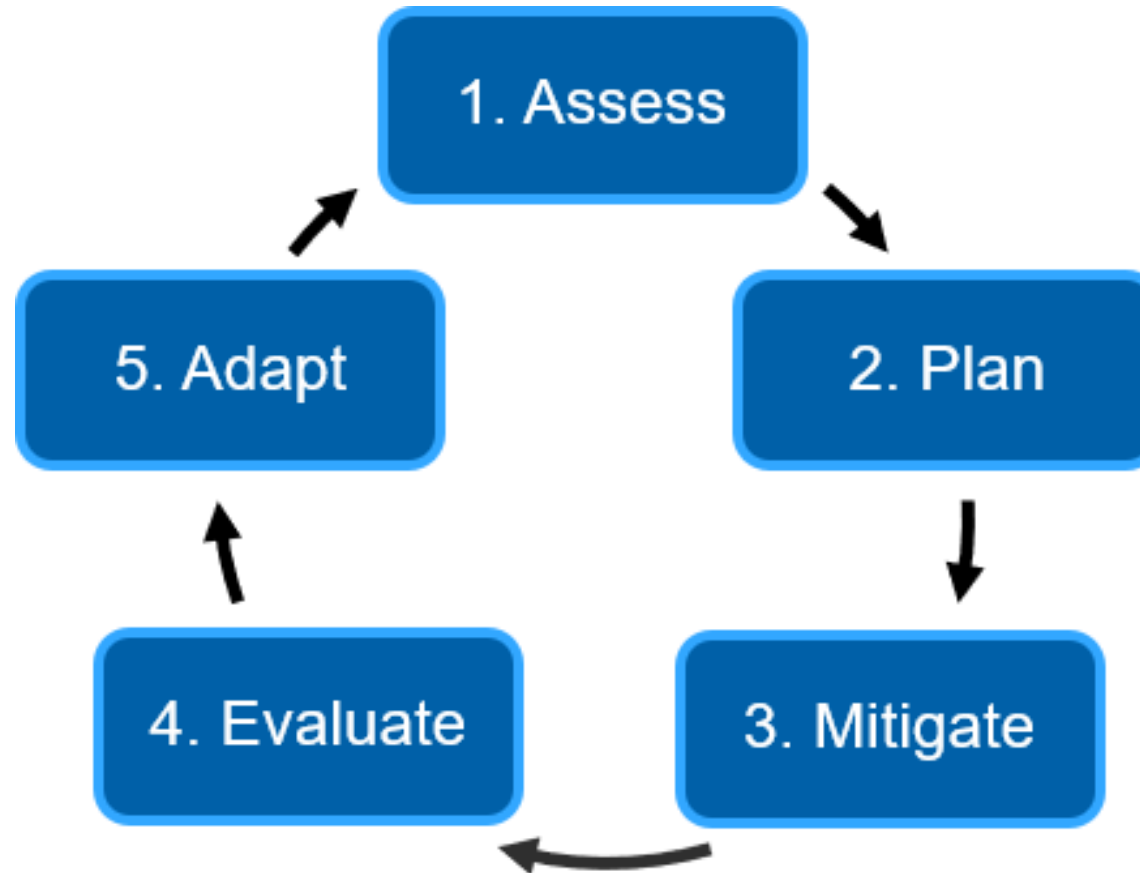


Metrics: Annual Strike Report 1990 to 2023 (2)

- Metric 5. Strikes and Damaging Strikes reported per 100K operations for GA airports: 2.64/100K and 0.36/100K in 2023
- Metric 6. Number of Part 139-certificated and GA airports with reported wildlife strikes in 2023: 777 (432 and 345, respectively), 2,299 total (34 years)
- Metric 7. Species identification: 60%+
- Metric 8. Monitor mean body mass of birds struck by aircraft: Declining.
Why?



Wildlife Hazard Management (WHMP) Plan Cycle



WHMP Step 1: Assess

- Wildlife Hazard
- Assessment
- Site Visit
- Continual Monitoring



WHMP Step 2: Plan

Wildlife Hazard Management Plan (WHMP) -- for example:

- Responsibilities
- Habitat / Wildlife Mitigation & Monitoring
- Communication
- Training
- Resources, and more



WHMP Step 3: Mitigate

- **Proactive:**
 - Modify
 - Exclude
- **Reactive:**
 - Harass (disperse)
 - Removal (nonlethal or lethal)



WHMP Step 4: Evaluate

- Data Collection
- Data Analysis
- Trends
- Gaps
- Metrics
- KPIs
- Wildlife Hazard Working Groups
- “Compliance vs. Excellence”



WHMP Step 5: Adapt

- Prioritization of Resources
- Funding
- Personnel
- Mitigation Techniques



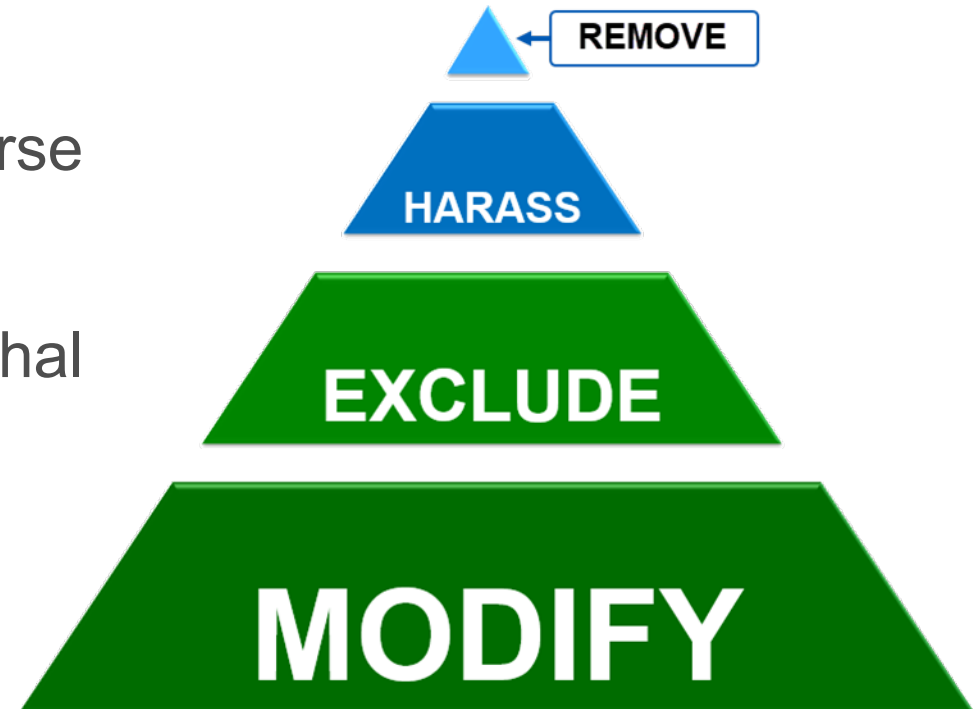
Airport Wildlife Management Measures

Proactive

- **Modify** habitats
- **Exclude** access

Reactive

- **Harass** – disperse
- **Remove**
(nonlethal or lethal)



Hazard vs. Risk

Hazard: Something that has the potential to harm you.



Risk: Likelihood of a hazard causing harm.



Wildlife Hazard vs. Risk

- **Wildlife hazard:** Severity ranking of the animal.
- **Wildlife risk:** Severity coupled with probability.



Hazard vs. Risk Examples

High Hazard species

Risk level: **Low**



High hazard species

Risk level: **High**

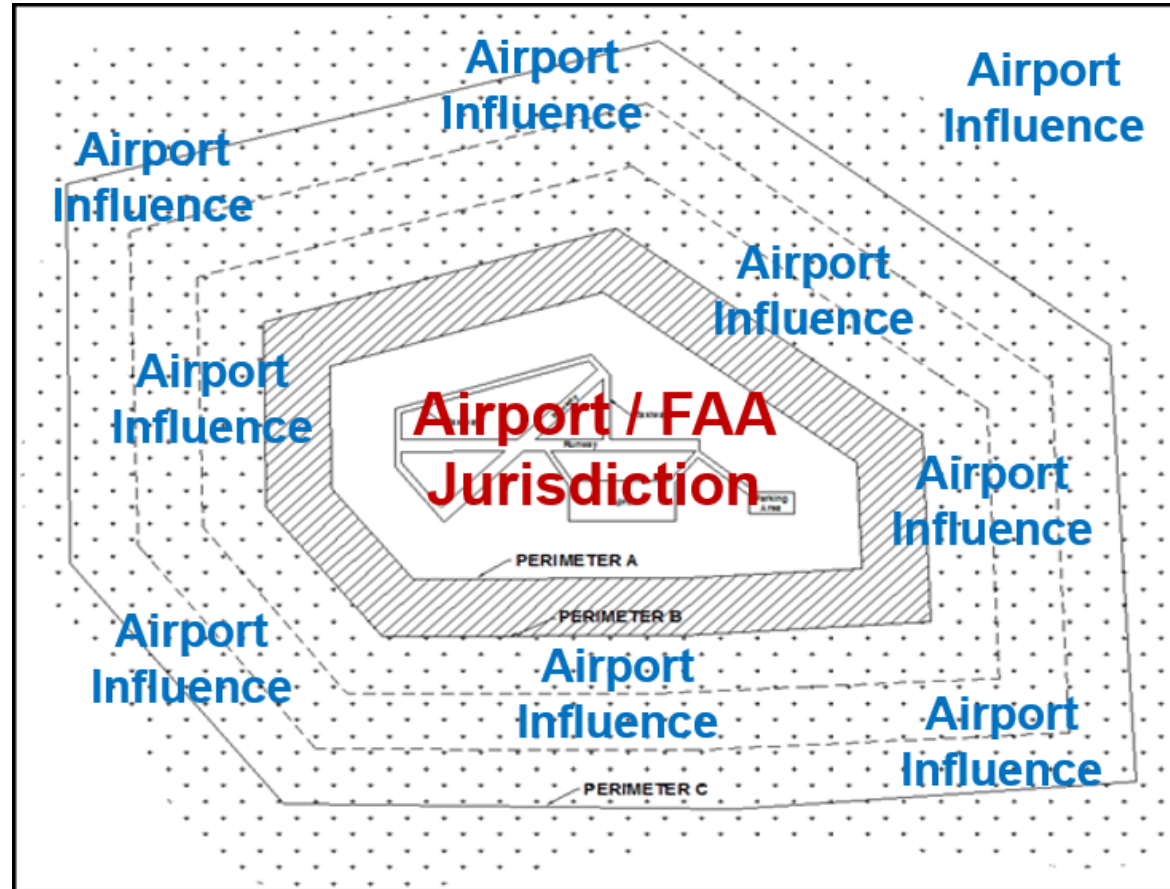


There are No Fences for Birds!

- When is a risk unacceptable?
- Is it explained in your WHMP?



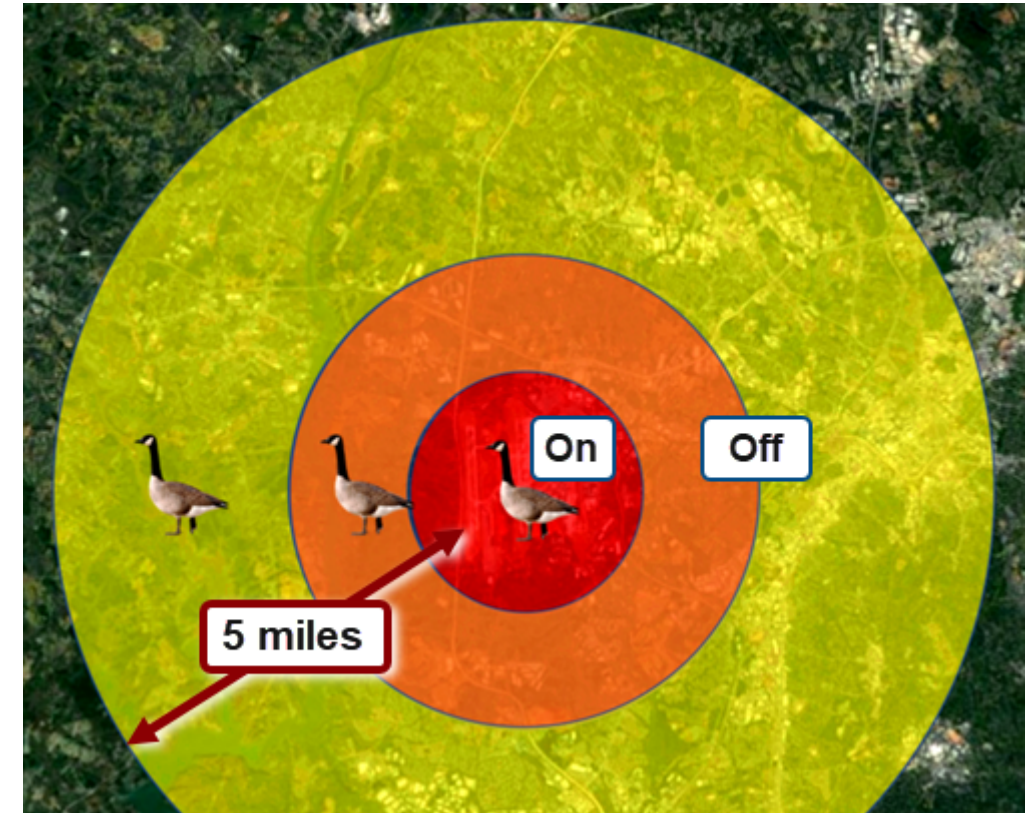
Airport & FAA Jurisdiction vs. Airport Influence



Risk Action Thresholds

Dependent on:

- Species
 - Numbers
 - Location
 - Time of Day
 - Season
 - Attractant
 - Operations
- **On-airport:** Focus on proactive & reactive mitigations
 - **Off-airport:** Focus on proactive mitigations



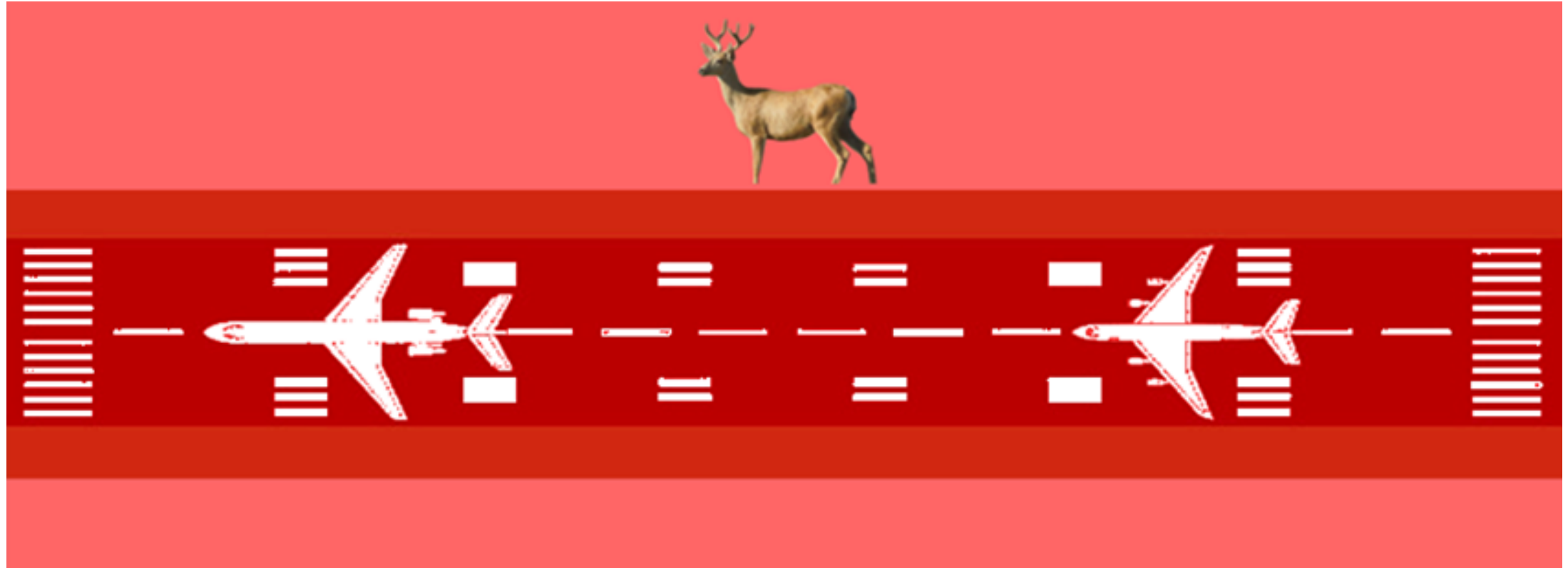
Threshold for Action

Where is tipping point between acceptable and *unacceptable* risk?

- European starlings on airfield 50 vs. 500 vs. 5,000.
- Deer outside perimeter fence vs. inside perimeter fence.
- Canada geese on airfield vs. off airfield.
- Vulture(s) soaring 500 feet AGL vs. 2,000 feet AGL at different ends of a runway.
- Rock pigeons or doves in airfield grass vs. perched on airfield signs vs. perched on perimeter fence.

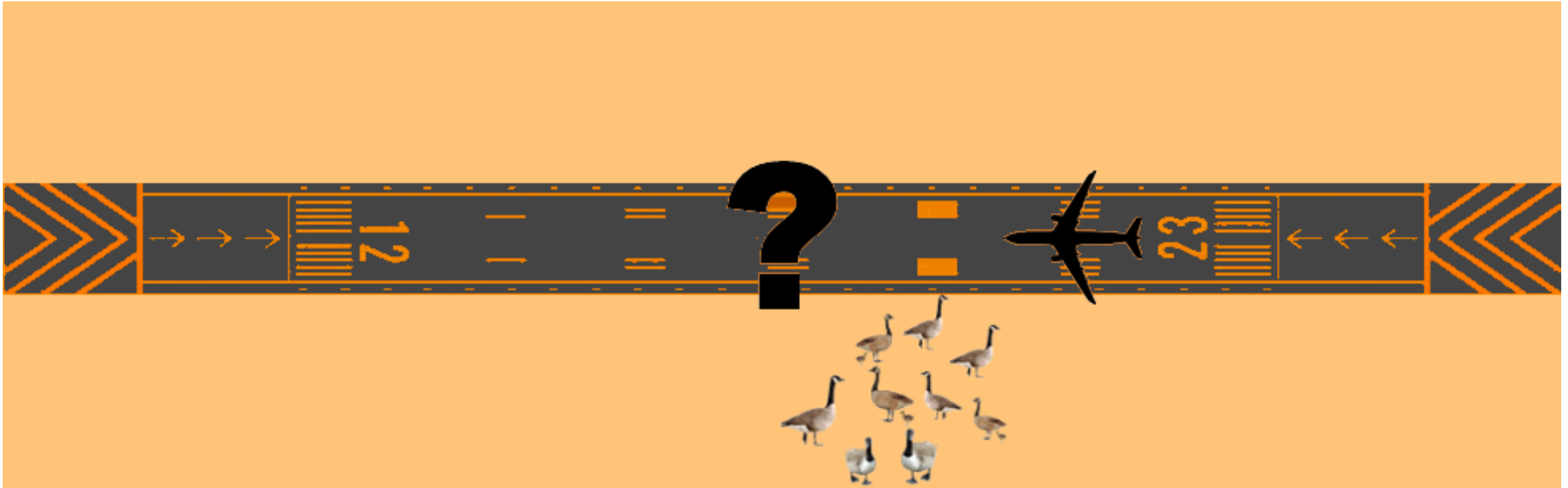


Threshold for Action – High Risk Mammal



Communicate? Hold? Mitigate? Depart or Land?

Threshold for Action - Bird



Communicate? Hold? Mitigate? Depart or Land?

Risk Assessment Matrix

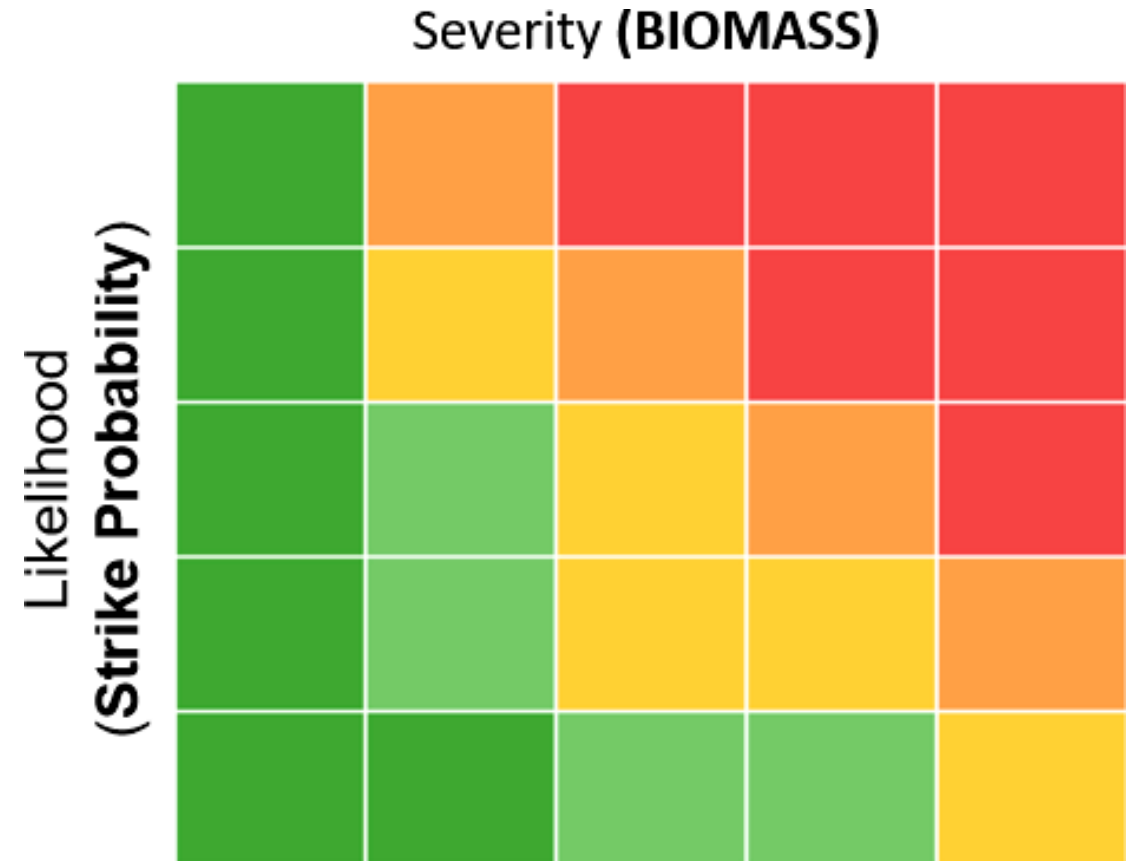
| Likelihood | Severity: Negligible | Severity: Minor | Severity: Moderate | Severity: Significant | Severity: Severe |
|---------------|-------------------------|--------------------|-----------------------|--------------------------|---------------------|
| Very likely | Low to Medium | Medium | Medium High | High | High |
| Likely | Low | Low to Medium | Medium | Medium High | High |
| Possible | Low | Low to Medium | Medium | Medium High | Medium High |
| Unlikely | Low | Low to Medium | Low to Medium | Medium | Medium High |
| Very unlikely | Low | Low | Low to Medium | Medium | Medium |

Risk matrix example: Likelihood x Severity = Risk level

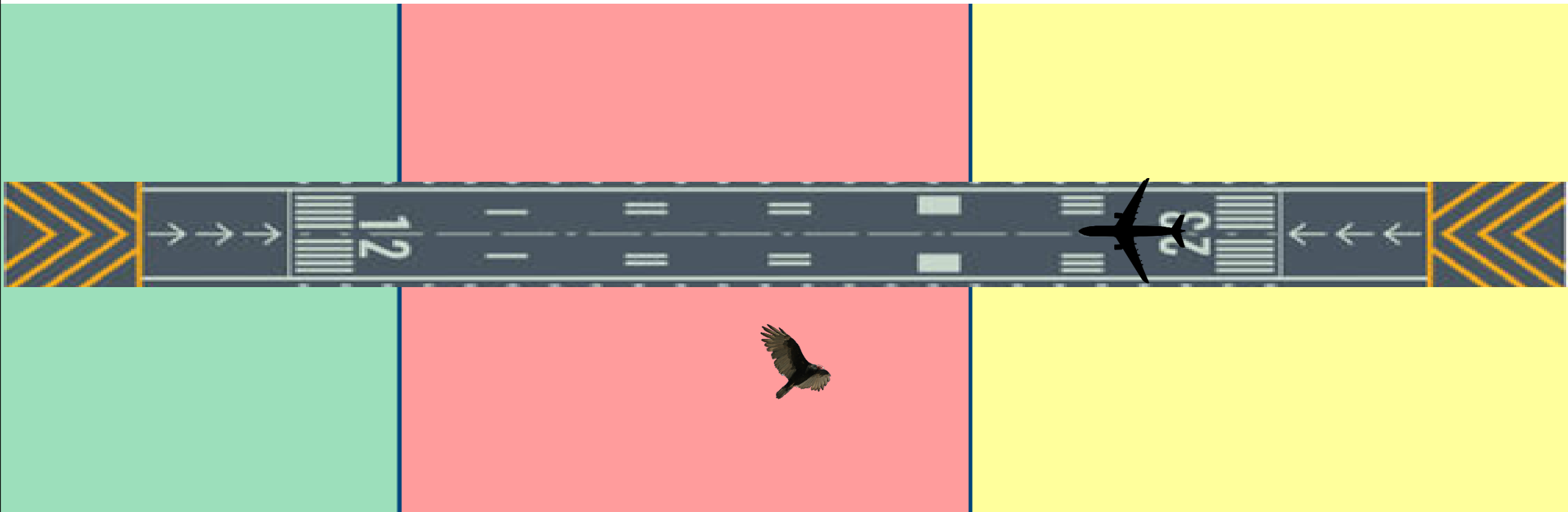


Action Matrix for Wildlife Decisions

Where is tipping point between acceptable and **un**acceptable risk?

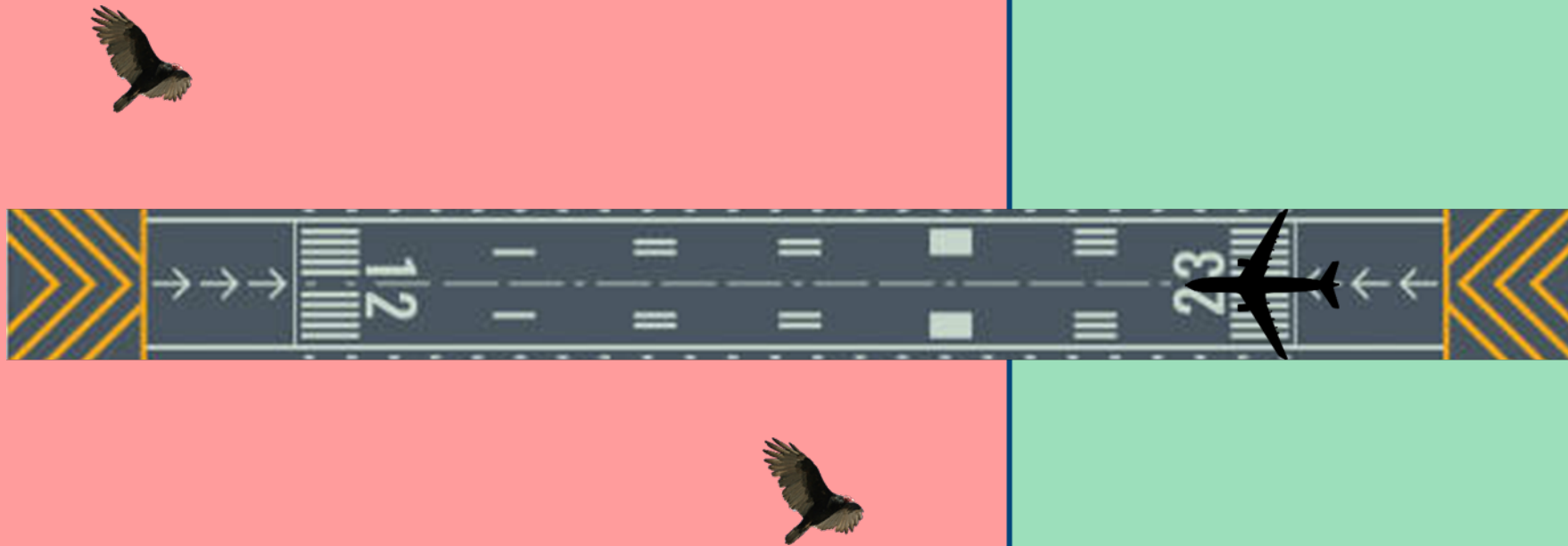


Threshold Response - Bird



Communicate? Hold? Mitigate? Depart or Land?

Threshold Response - Birds



Communicate? Hold? Mitigate? Depart or Land?

Wildlife Can Affect Multiple Airport Areas



Sandy Wright & Richard Dolbeer

Excellence in Strike Reporting Award Winners

| Year | Part 139 Airports | GA Airports |
|------|--|---|
| 2014 | DALLAS / FORT WORTH (DFW) | MORRISTOWN (MMU) |
| 2015 | LAGUARDIA (LGA) | VAN NUYS (VNY) |
| 2016 | MINNEAPOLIS / ST. PAUL (MSP) | CENTENNIAL (APA) |
| 2017 | PORTLAND (PDX) | HENDERSON FIELD - MIDWAY ATOLL (MDY) |
| 2018 | SEATTLE / TACOMA (SEA) | PAGE FIELD (FMY) |
| 2019 | Charlotte Douglas (CLT) | Kalaeloa Airport - John Rodgers Field (JRF) |
| 2020 | Chicago O'Hare (ORD) | Dekalb/Peachtree Airport (PDK) |
| 2021 | Hartsfield-Jackson Atlanta Airport (ATL) | Prescott Regional Airport, Ernest A. Love Field (PRC) |
| 2022 | Newark Liberty Airport (EWR) | Quonset State Airport (OQU) |
| 2023 | Boston Logan Airport (BOS) | Chicago Executive Airport (PWK) |



FAA Wildlife Research Projects

- \$30+ million invested between 2009 and 2023
- 112+ USDA NWRC & 13 ACRP wildlife / aviation studies were FAA funded since 2009
- Detection / Monitoring Systems, UAS's, Pulse Lighting,
- Climate Change & Migration, Trends re: Small/Large Birds struck



AIP Wildlife-Related Funding

- \$400+ million invested between 2009 and 2023
- Projects include WHA's, WHMP's, Perimeter Fencing, wetland removal or creation, etc.



Wildlife Program Priority List 2024, 2025 - 1

- Outreach program targeting GA airports
- AC-32 (updated); AC-38 and AC-34 (scheduled updates)
- One-stop “synchronized” reporting for airlines and airports
- Public Dashboard for Strike Database
- Gap Analyses (Airports & Airlines)



Wildlife Program Priority List 2024 to 2025 - 2

- Proposed CertAlerts: Wildlife notifications (NOTAMs, ATIS, PIREPs), Class IIIB Lasers
- Assist FAA Policy and Research re: AAM, VTOLs and UAS
- Model to estimate strike costs (USDA NWRC staff Research Economist)
- Multi-Agency MOA



Report All Wildlife Strikes!

