BASH Awareness Annual Training

NAS Whidbey Island

2 Nov 22

BASH for ALL

- What it is
- Why it’s important
- How to report wildlife sightings

What Is BASH?

- Bird/Animal Aircraft Strike Hazard
- When an aircraft strikes a bird or other animal, also referred to as Wildlife Strikes

Why Is It Important?

- Wildlife strikes cost millions of dollars to aviation every year
  - Estimated at $328 million to civil aviation in the United State in 2021*
  - $59.5M (FY21), $143.9M (FY22) to Navy/Marine Corps aircraft †
- At least 301 people have died from BASH incidents worldwide*
- Wildlife strikes on active runways present a FOD hazard to aircraft
- Knowing when and where the strike occurred and what type of animal was involved can help us assess risk for aircrews and implement mitigation strategies to reduce the risk

*Information from Bird Strike Committee USA meeting July 2022 and

FAA Wildlife Strikes to Civil Aircraft in the United States, 1990-2021 (June 2022)

† Chief of Naval Air Forces (CNAF) BASH Board

Common Animals on Ault Field

What Are We Doing About BASH?

- NAS Whidbey Island has two dedicated USDA personnel to manage wildlife on the airfield: One wildlife biologist, one wildlife technician
  - Several Airfield Services personnel are trained members of the Wildlife Detection and Dispersal Team (WDDT) to assist USDA personnel
- We monitor the species and locations of wildlife and use various measures to reduce the impact of wildlife to aircraft and aircrews
  - Harassment, live trapping, other means
  - Working to get animal resistant fencing installed
- Continually assessing the habitat on the airfield and working to make it less attractive to wildlife

What Can You Do?

- Report all wildlife strikes with as much detail as possible, as soon as possible
- Report wildlife sightings on the airfield
  - If you have an ELMR radio, contact Ground to report it immediately
  - Where you saw the animal, type and number of animals, direction of travel
  - If calling or emailing, include date and time of sighting
- Make your space less inviting to wildlife
  - Keep hangar doors closed to reduce birds nesting and roosting inside
  - Contact USDA if you notice birds nesting in your hangar
  - Keep trash/food waste picked up and trash cans/dumpsters closed
  - Do not feed wildlife, especially near the flight line

Resources

- USDA Wildlife Biologist [redacted] (b) (6) [redacted] @usda.gov
- USDA Wildlife Technician [redacted] (b) (6) [redacted] @usda.gov
- Base ASO LCDR [redacted] (b) (6) [redacted] @us.navy.mil
- Operations Duty Officer, 360-257-2681
  - ELMR Radio Call Sign “Whidbey One”

Questions?

Intermission

- If your unit does not own or maintain aircraft, you are free to go.
- Maintainers and aircrew please remain for the next portion.

BASH for Maintainers

- How to recognize a bird/animal strike after a flight
  - Reported by pilot/aircrew
  - Obvious damage to aircraft without an explanation (possible strike)
  - Blood and body tissues ("snarge"), feathers or other remains
  - Anything that looks odd. Unless you can <u>positively</u> ID it as man-made (grease, sealant, etc.), **take a sample**
- Who to notify of bird/animal strike
  - Aircrew who last flew aircraft ¤ *to recount their route of flight and possible strike location*
  - Maintenance Control ¤ *to order special inspections and notify chain of command/SDO*
  - ASO ¤ *to report the strike and submit the remains (and verify COC is aware of strike)*
  - ODO (if not previously reported to ATC) ¤ *to initiate FOD sweep if necessary*
- Why this is important to complete
  - Identifying that a strike occurred and the type of animal can help us properly assess risks and find mitigation strategies

Collecting Remains—Cardinal Rules

- Rule #1 Use ONLY rubbing alcohol (ethyl/ethanol), NO bleach or other chemicals. Avoid using water if possible.
  - **Use a clean, <u>dry</u> wipe alcohol is not available**
- Rule #2 Pluck feathers, DO NOT CUT!
- Rule #3 Use a different bag for different impact points being sampled.
  - Mark location where each sample is taken from on the bag.
- Rule #4 Make sure the sample is **<u>dry</u>** before SEALING the bag.

- The following slides cover the sample collection process
  - The full presentation is available upon request (your ASO should have it)

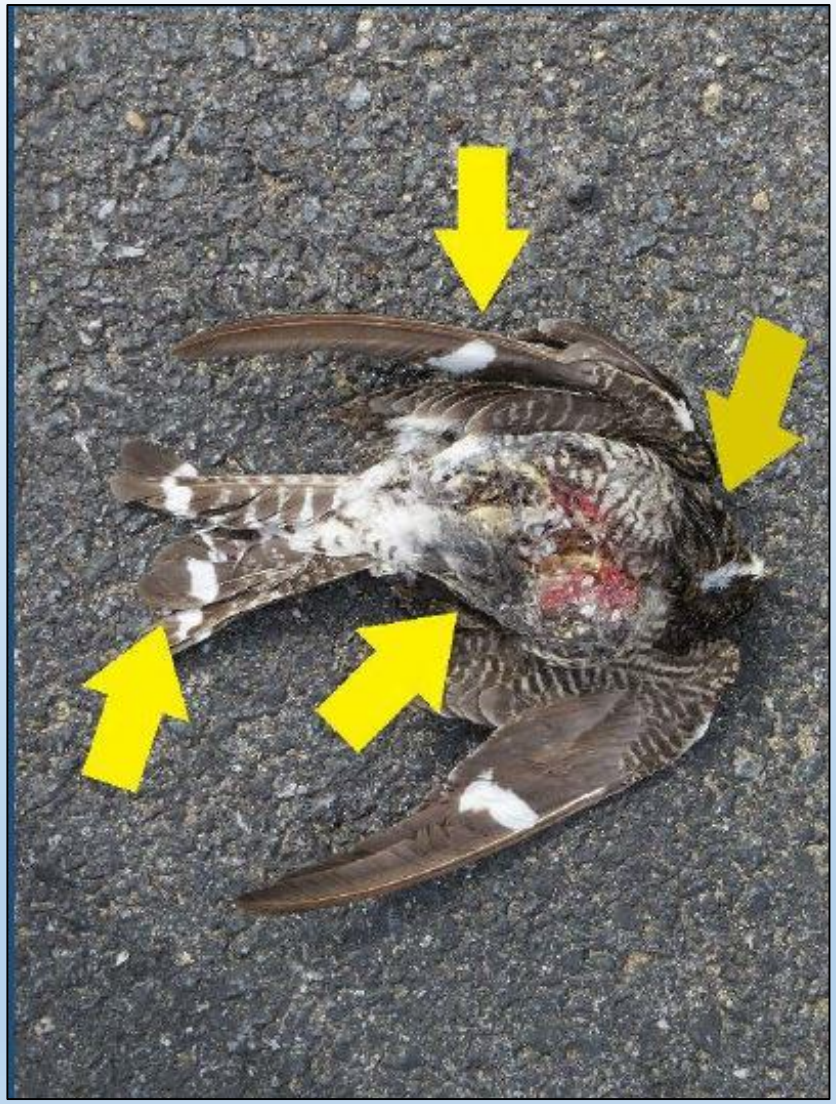
Types of Strike Samples

- **Full Body Type:**
  - Includes complete body or virtually complete body (head, most of torso, at least one wing, and at least one leg)
  - Are generally found on or near runway
- **Full Body Photo Submission:**
  - Collect entire carcass initially, photograph following parts of carcass. Place something of known size in photos. Ruler is best. Photos may cover more than one body part. Photos should include:
    - Head and beak
    - Back
    - Belly
    - Top and underside of wing
    - Tail
    - Feet
  - Submit photos as part of RMI submission by adding photo/s to Manage BASH Files tab
  - Keep body with RMI number in freezer until ID from photos is confirmed
  - Once confirmed, discard carcass in appropriate manner

Examples on how to correctly stage photos for RMI insertion

Types of Strike Samples

- **Full Body Feather Submission:**
  - **If Photo ID by Smithsonian was not possible and further analysis is required.**
  - **Thaw out carcass that you have in freezer.**
  - **Once unfrozen, pluck (or pull-out) but do not cut, feathers from several areas of the body like the photo.**
  - **Collect feathers from the tail, wing, breast, back, and head.**
  - **Include additional feathers that have strong colors and patterns.**
  - **Do not clean off any flesh or blood that may remain attached to feathers.**
  - **Dry feathers and bag in poly bag and ship to Smithsonian for ID.**
  - **Properly discard the rest of the carcass.**

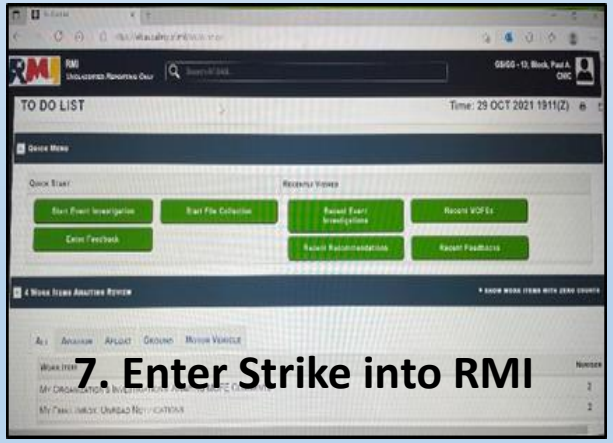


Types of Strike Samples

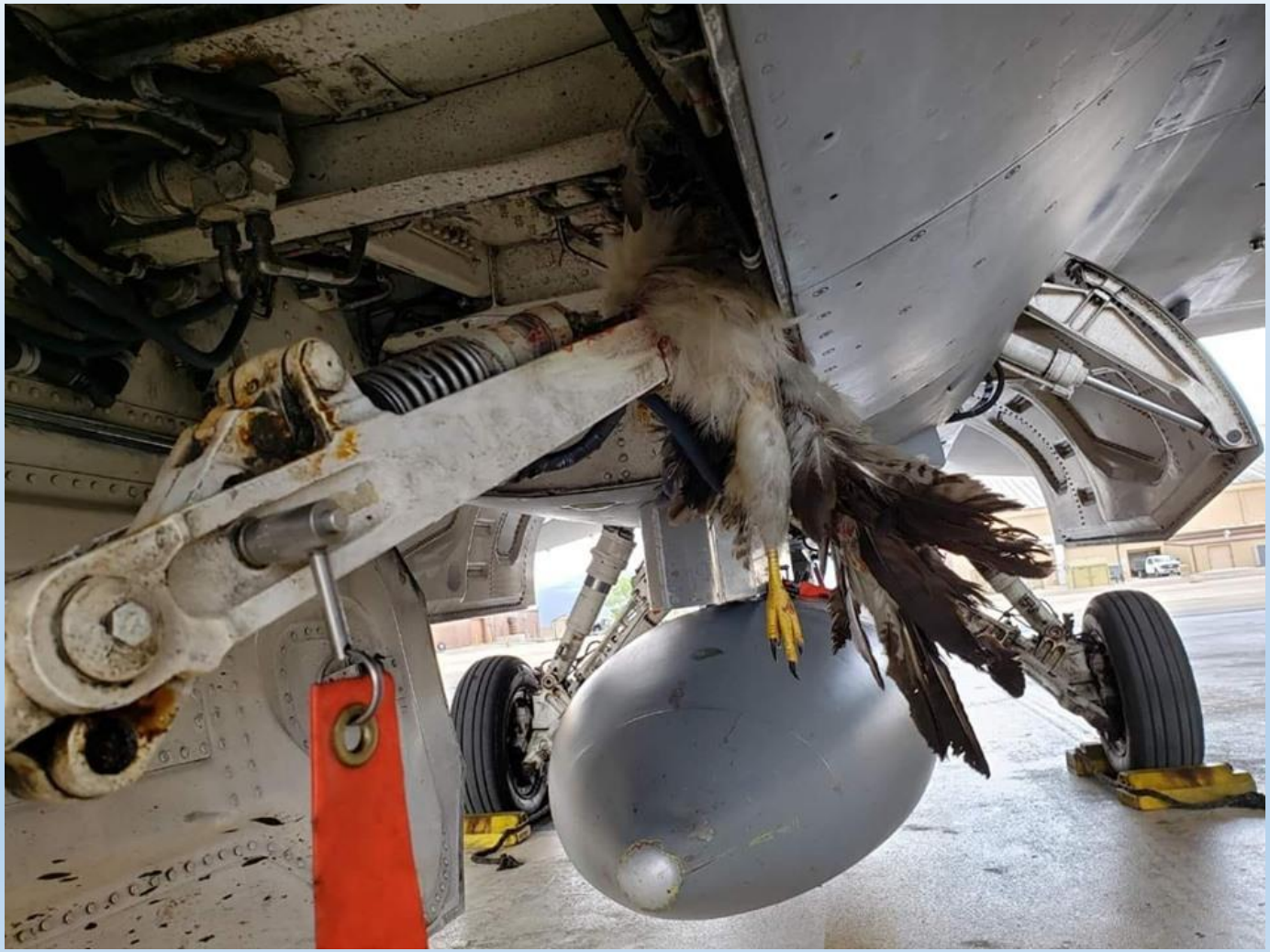
- **Blood, flesh, feather remnants**:
  - Collect feathers, trying to gather many samples of different types as possible. If only a few collect all of them. Place in poly bag.
  - Use alcohol wipes or paper towel and alcohol solution to wipe up blood/tissue sample and place in poly bag
- **Blood only:**
  - Use alcohol wipes or paper towel and alcohol solution to wipe up blood/tissue sample and place in poly bag

- **Dry out all samples before sealing and shipping to Smithsonian to prevent fungal/bacterial growth and sample spoilage.**
- **Enter Strike into RMI**
- **Include RMI Shipping Sheet with shipment.**

How to take a Snarge Sample



Questions?



Intermission

- Maintenance personnel are free to go.

- All aircrew please stay for remainder of brief.

BASH for Aircrew

- Hazardous species in our area
- Altitudes and flight regimes where most bird strikes happen*
- Seasonal changes
- Mitigate strike potential

*Information from Bird Strike Committee USA meeting July 2022 and

FAA Wildlife Strikes to Civil Aircraft in the United States, 1990-2021 (June 2022)

Note that information is from Civil and General Aviation reports and numbers have been combined and averaged for this brief

Hazardous Species at Ault Field

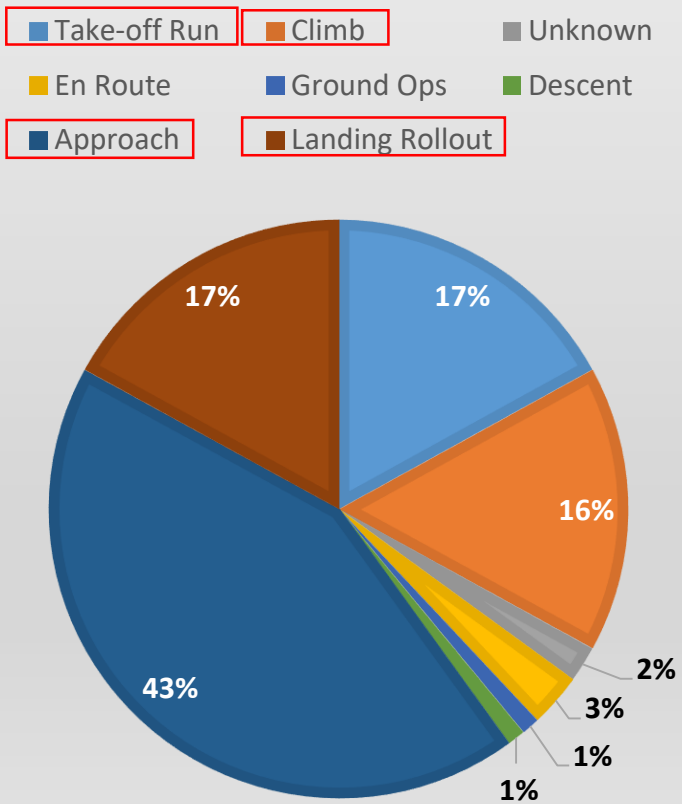
- Year-Round
  - Black-tailed Deer
    - Large mammal, 130-200 lbs
  - Coyote
    - Medium mammal, 15-46 lbs
  - Bald Eagle
    - Large raptor, 9.5 lbs
  - Red Tail Hawk
    - Raptor, 2.5 lbs
  - Northern Harrier
    - Low-flying raptor, 12-19 oz
  - Songbirds/Shorebirds (various)
    - Low-flying, sometimes flocking

- Seasonal
  - Swans (November-February)
    - Trumpeter- 23 lbs
    - Tundra- 13.7 lbs
  - Geese
    - Year-round, **more here in fall**
    - Canada- 9.8 lbs
    - Snow- 7.4 lbs
  - Ducks/other Waterfowl
    - Varies, < 1 lb-4 lbs

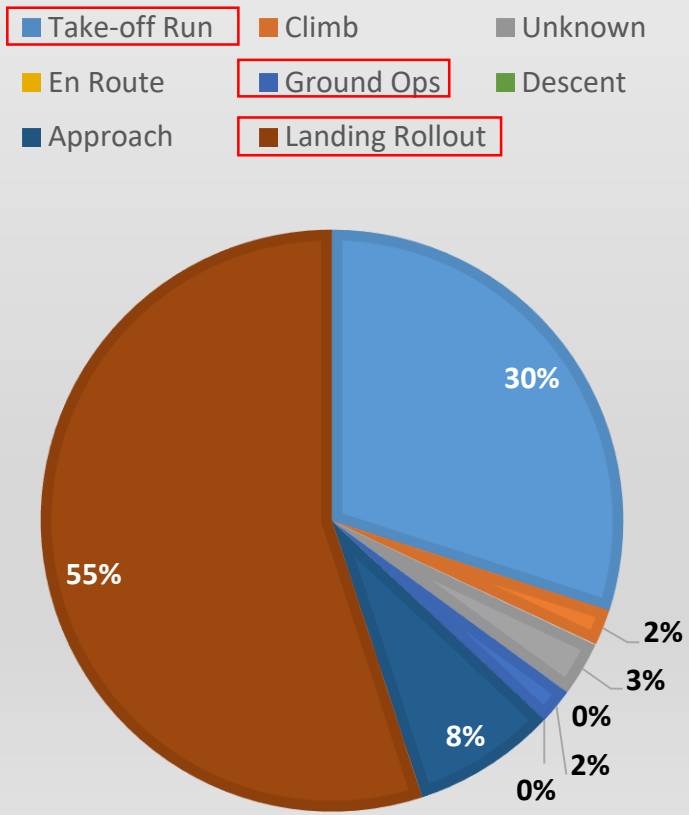
- These large birds often fly in formation
- Impacting a group of heavy birds can be catastrophic

Where Do Most Strikes Occur?
Phase of Flight

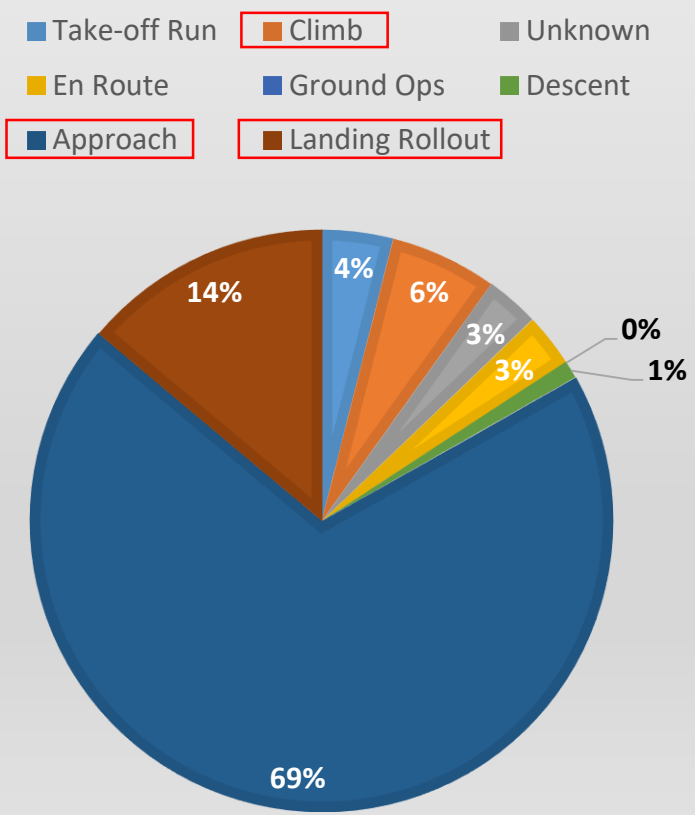
BIRD STRIKES



TERRESTRIAL MAMMAL STRIKES



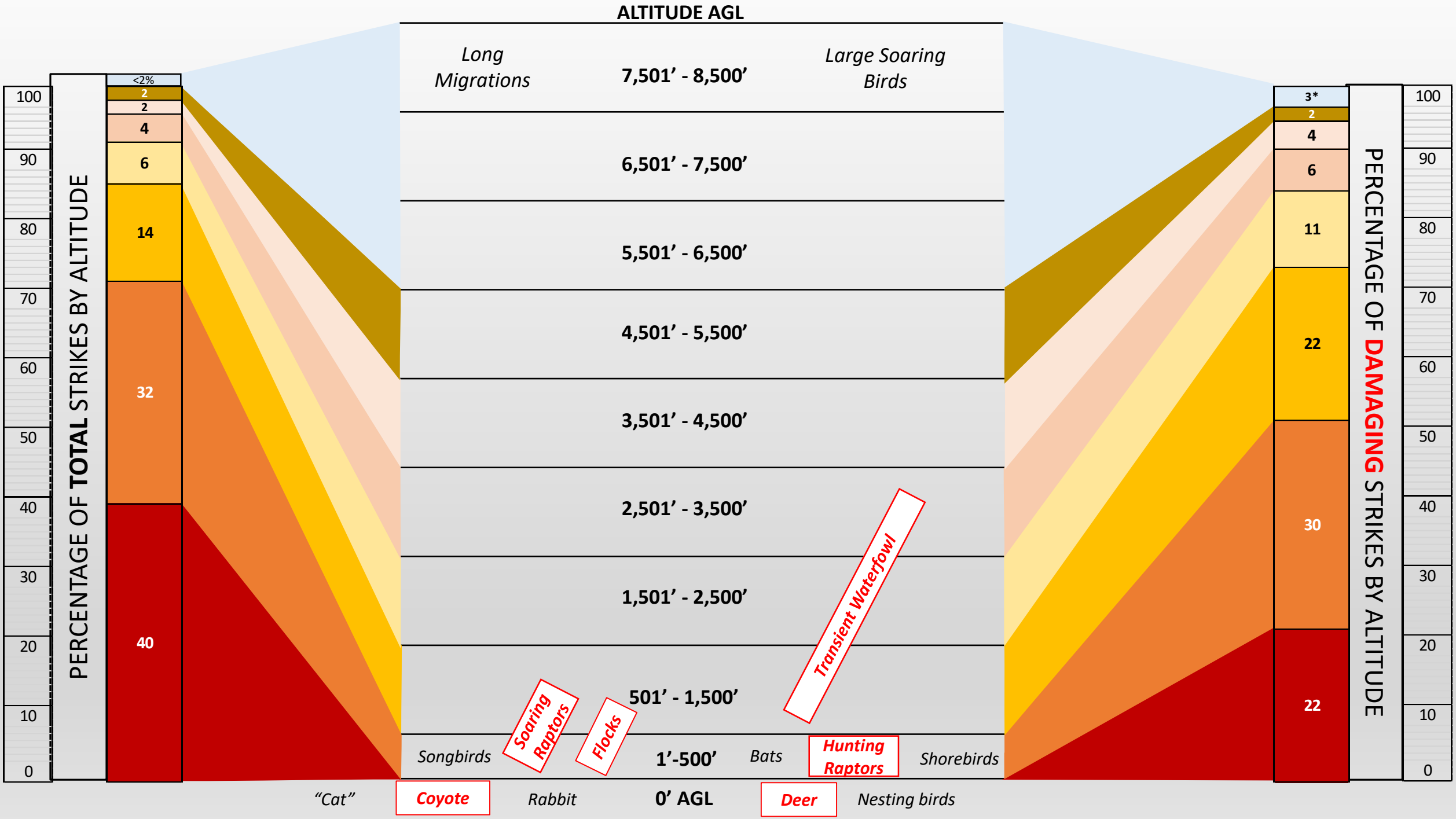
BAT STRIKES



Where Do Most Strikes Occur? Altitude

- 72% of strikes occurred <u>at or below 500’ AGL</u>
  - Approach phase is majority of all bird and bat strikes
- 40% of strikes occurred <u>at ground level</u>
  - Takeoff run and landing rollout
- Biggest birds are typically between 500’-3,500’ AGL
  - Smaller birds are majority of strikes below 500’
  - Many big birds are below 500’ while hunting
- Larger birds tend to cause more damage than smaller birds
  - Flocks of small birds can still inflict severe damage

- Dolbeer’s Rule: *Above 500’ AGL, for every 1,000’ of altitude* ***GAIN****, the probability of strike* ***DECLINES*** *by 34%!* Higher altitudes are *generally* safer!

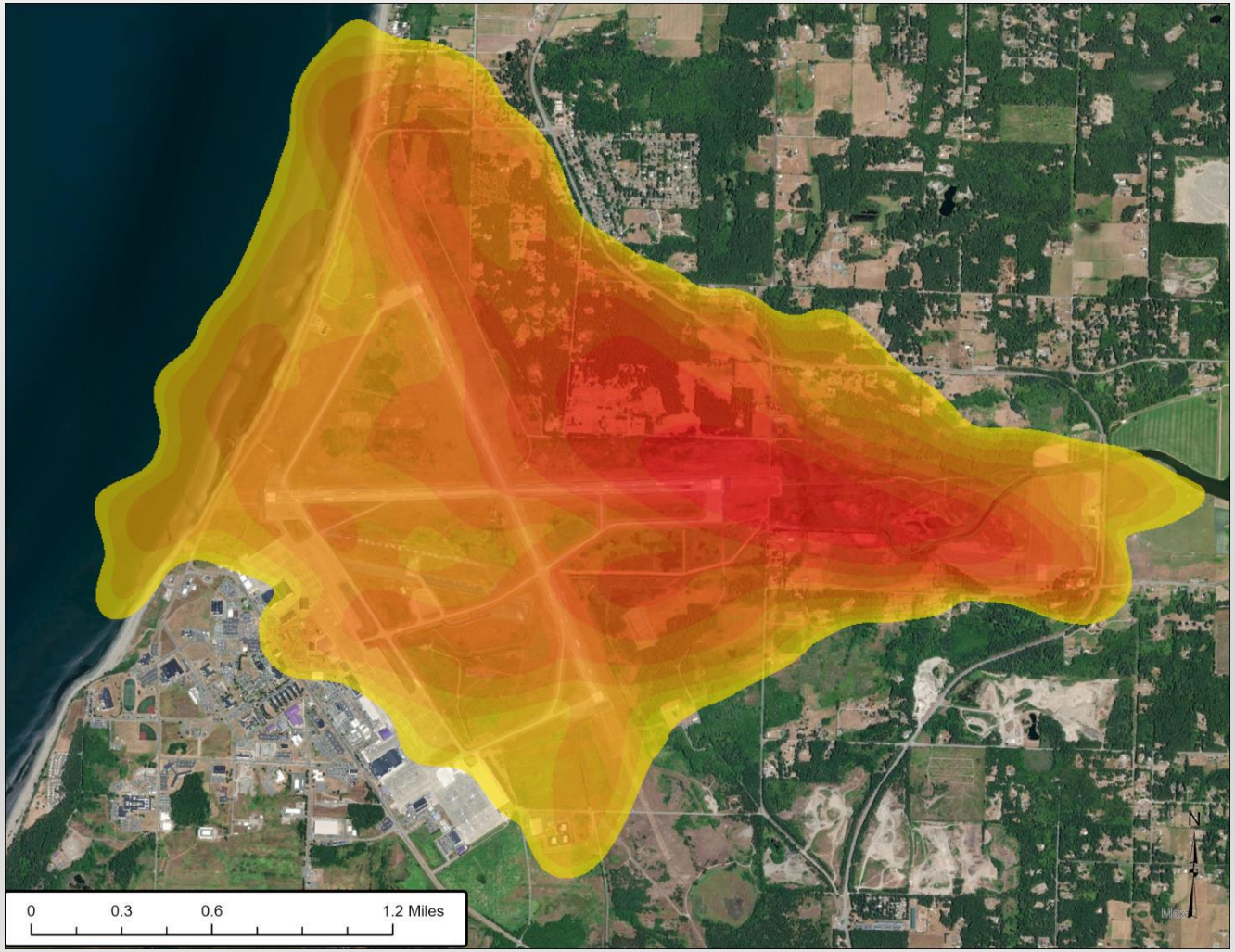

ALTITUDE AGL
PERCENTAGE OF TOTAL STRIKES BY ALTITUDE
<2%
2
2
4
6
14
32
40
100
90
80
70
60
50
40
30
20
10
0
Long Migrations
Large Soaring Birds
7,501' - 8,500'
6,501' - 7,500'
5,501' - 6,500'
4,501' - 5,500'
3,501' - 4,500'
2,501' - 3,500'
1,501' - 2,500'
501' - 1,500'
1'-500'
0' AGL
Transient Waterfowl
Soaring Raptors
Flocks
Hunting Raptors
Songbirds
Bats
Shorebirds
"Cat"
Coyote
Rabbit
Deer
Nesting birds
PERCENTAGE OF DAMAGING STRIKES BY ALTITUDE
3*
2
4
6
11
22
30
22
100
90
80
70
60
50
40
30
20
10
0

Seasonal Effects

- Ault Field is under the Pacific Flyway used by many migratory birds
  - Fall migration typically October through November
  - Spring migration typically March through April
  - Migration varies due to climate and weather patterns
- Resident waterfowl present year-round may show a seasonal increase in population due to migratory individuals
  - Typically reside at Cranberry Lake and migrate down to coast during morning twilight, along runway 14 approach path, turn east toward runway 25 approach and spend the day feed between The Farm Stand and Dugualla Bay.
  - The opposite path is typically flown at evening twilight to return for roosting.
  - Predominant species observed is Trumpeter Swan **(very large bird)**

Seasonal Effects

- Image does not depict overall numbers of birds transiting, but the "**observed mass**" due to the large size of species observed during the months of Oct-Dec
- Overwintering birds contribute to the population observed until the spring migration



Seasonal Effects

- Generally, more strikes occur during the summer months
  - Average of 6-12 reported per month, with a marked increase in bat strikes
- Beginning early fall (typically October), may see dense flocks of European Starlings numbering in the thousands on the airfield
  - Average weight around 3 ounces x number of birds in flock = *a lot of mass*

Mitigation Strategies

- Minimize time in high risk flight regimes and altitudes
  - Climb out and descend through 0’-3,500’ AGL as quickly as possible
  - ➢Approach airspeeds limit this ability
  - ➢VFR tower/break patterns are entirely within this envelope
- Avoid flying through areas of high bird density (runway 25 and 14 approaches during fall/winter months)
  - ➢We cannot control winds to pick a better runway, but…
  - ➢When conditions permit, request runway 7 or 32
- Schedule ops to avoid peak bird activity (twilight hours)
  - ➢Ops should look at BMNT and EENT when writing the flight schedule

BASH Reporting

- If you believe you may have struck a bird or animal, **let ATC know**
  - If you have a malfunction or emergency, they will help clear airspace around you and get a clear deck for you
- If you believe you may have struck an animal on or above the runway, **let ATC know** immediately
  - The runway will need to be swept for remains (FOD hazard)
  - We have procedures to search for and collect any remains, document the location, and provide information to your ASO for reporting
  - You will be asked if you require assistance; we're here to help
- If you see animals on the airfield, **let ATC know** immediately
  - We will dispatch USDA or WDDT to disperse the wildlife

Questions?