

Data Visualization with Tableau

OPTION 2

DATA: FEDERAL AVIATION ADMINISTRATION

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METHODOLOGY

- EXPLORE THE RELATIONSHIPS OF:

- TOTAL DAMAGE COST
- COUNT OF WILDLIFE STRIKES

WITH THESE VARIABLES:

- EFFECT (TO THE AIRCRAFTS)
- WHEN (DID THE STRIKES HAPPENED)
- WILDLIFE (THE VICTIMS...)
- LOCATION (ORIGIN STATE)

- EXTRACT IMPORTANT PATTERNS & TRENDS

- IDENTIFY UNUSUAL PHENOMENON & ASK MORE QUESTIONS

- LAY DOWN GROUNDWORK FOR FUTURE EXPLORATIONS

EFFECT : AMOUNT OF DAMAGE

INITIAL OBSERVATIONS:

1. Substantial damage costs the most money
2. Majority of the strikes doesn't really cause any damage

FURTHER ANALYSIS:

Damage cost for Substantial damage: \$ 224, 781, 934

Frequency: 955

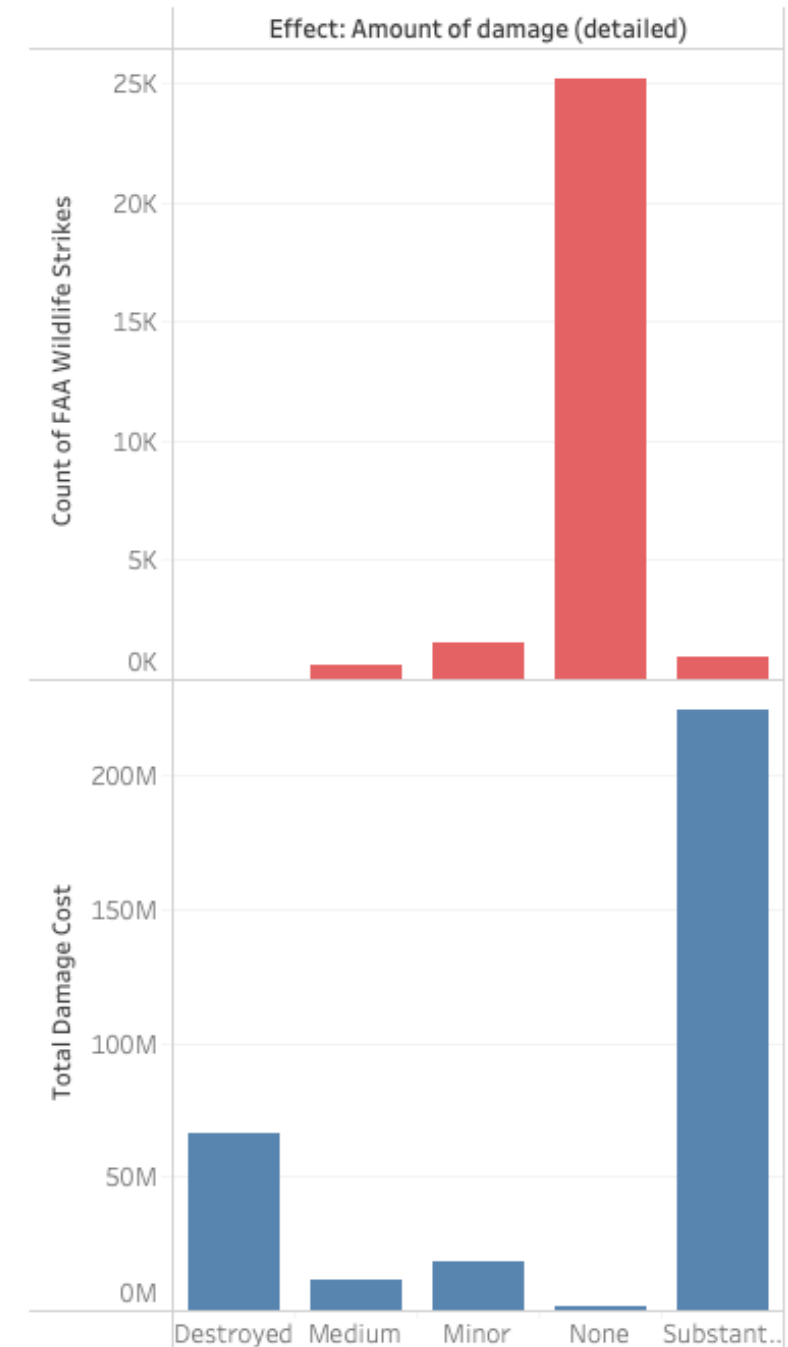
Ratio: \$ 235, 373 per strike

Damage cost for Destroyed: \$ 66, 326, 155

Frequency: 33

Ratio: \$ 2, 009, 883 per strike

DOESN'T HAPPEN OFTEN BUT DESTROYED AIR VESSELS BURN THE MOST GREENS!



EFFECT : IMPACT TO FLIGHT

INITIAL OBSERVATIONS:

Precautionary landing costs the most money

FURTHER ANALYSIS:

Damage cost for Precautionary Landing: \$ 95, 383, 077

Frequency: 1457

Ratio: \$ 65, 465 per strike

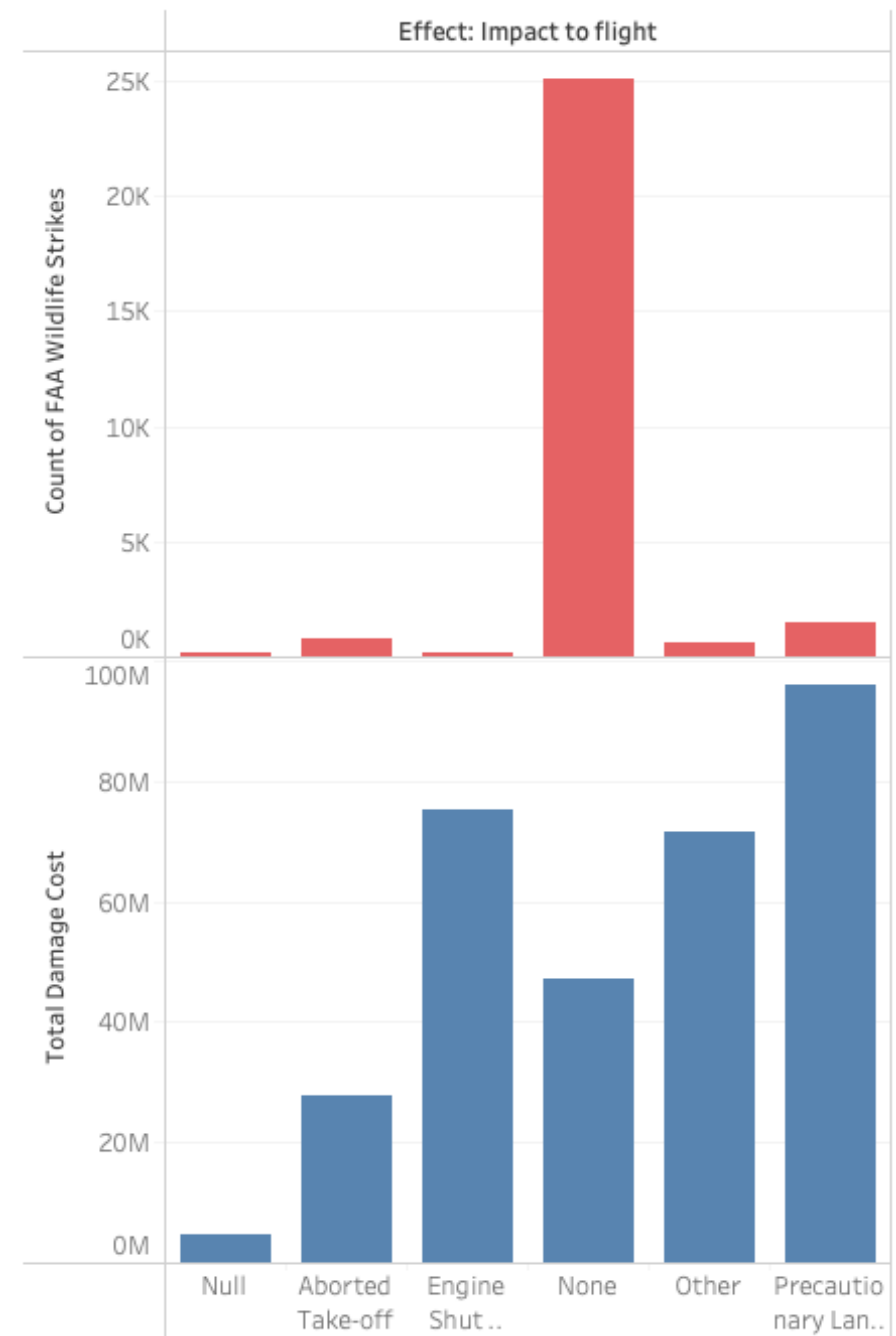
Damage cost for Engine Shut Down: \$ 74, 141, 335

Frequency: 148

Ratio: \$ 500, 954 per strike

QUESTION??

High frequency of strike cause NO impact to the flight but has a significant amount of damage cost - > WHAT IS HAPPENING HERE?



WHEN : TIME OF DAY

INITIAL OBSERVATIONS:

Most of the accidents happened during the day

FURTHER ANALYSIS:

Damage cost during the Day: \$ 217, 016, 954

Frequency: 20, 602

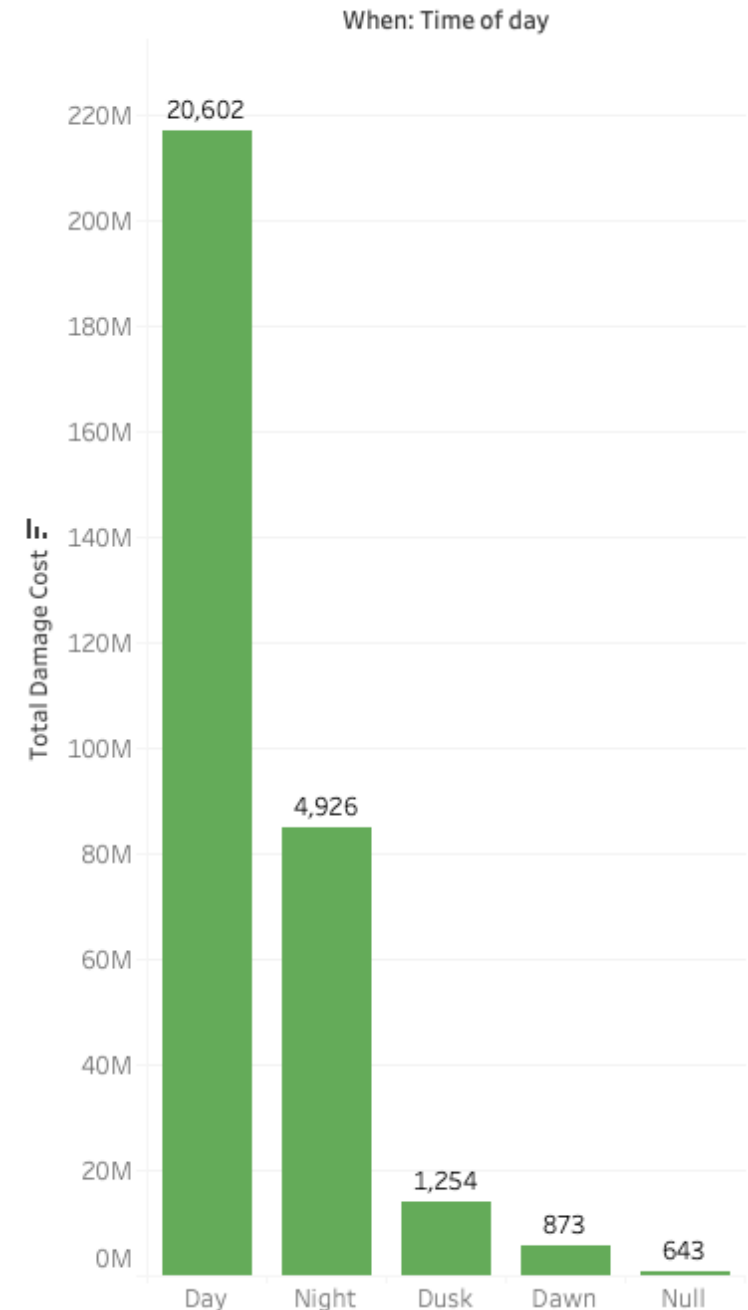
Ratio: \$ 10, 533 per strike

Damage cost for Engine Shut Down: \$ 85, 011, 028

Frequency: 4,926

Ratio: \$ 17, 257 per strike

MAKE SENSE BECAUSE THERE ARE MORE FLIGHTS DURING THE DAY ->
HIGHER CHANCES IN ENCOUNTERING A WILDLIFE STRIKE



WHEN : PHASE OF FLIGHT

INITIAL OBSERVATIONS:

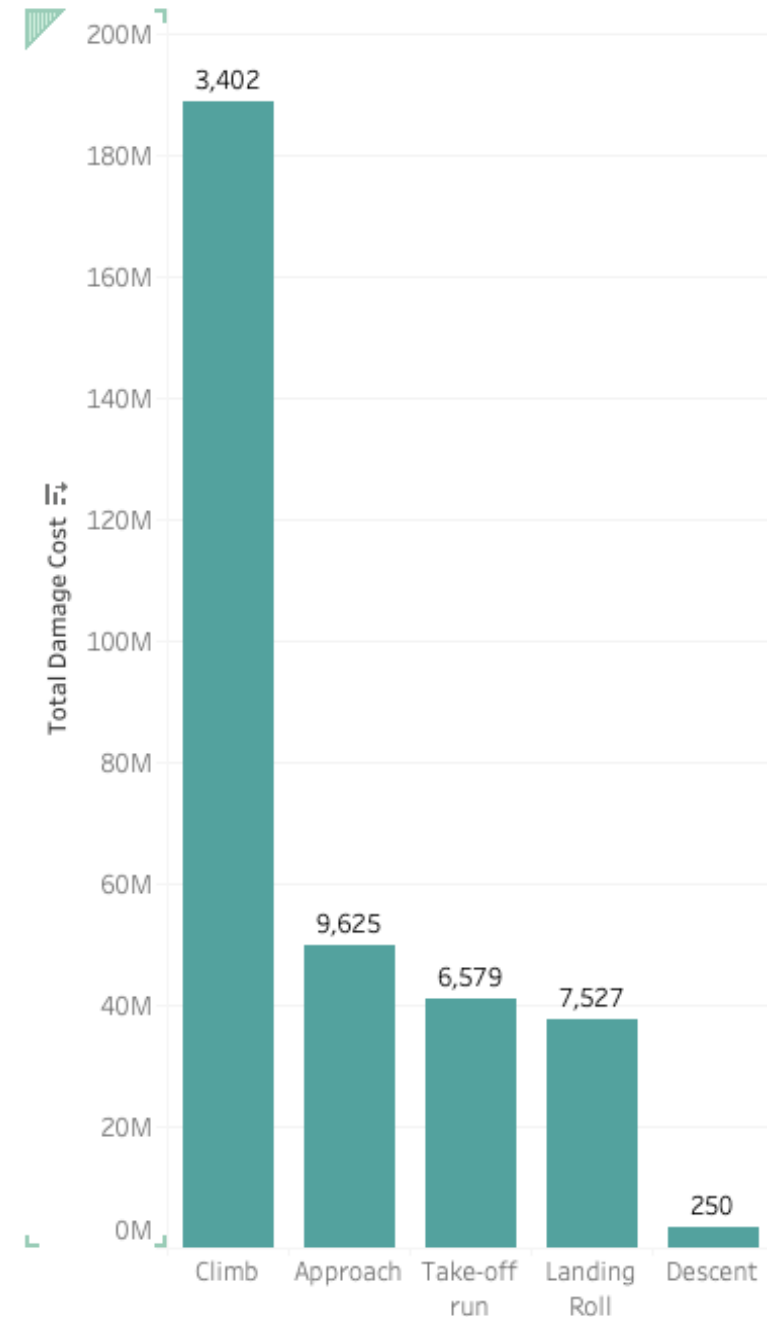
1. Accidents that happened during the climbing phase contributes to the highest damage cost
2. The highest frequency of encountering a strike is during the approaching phase

QUESTION??

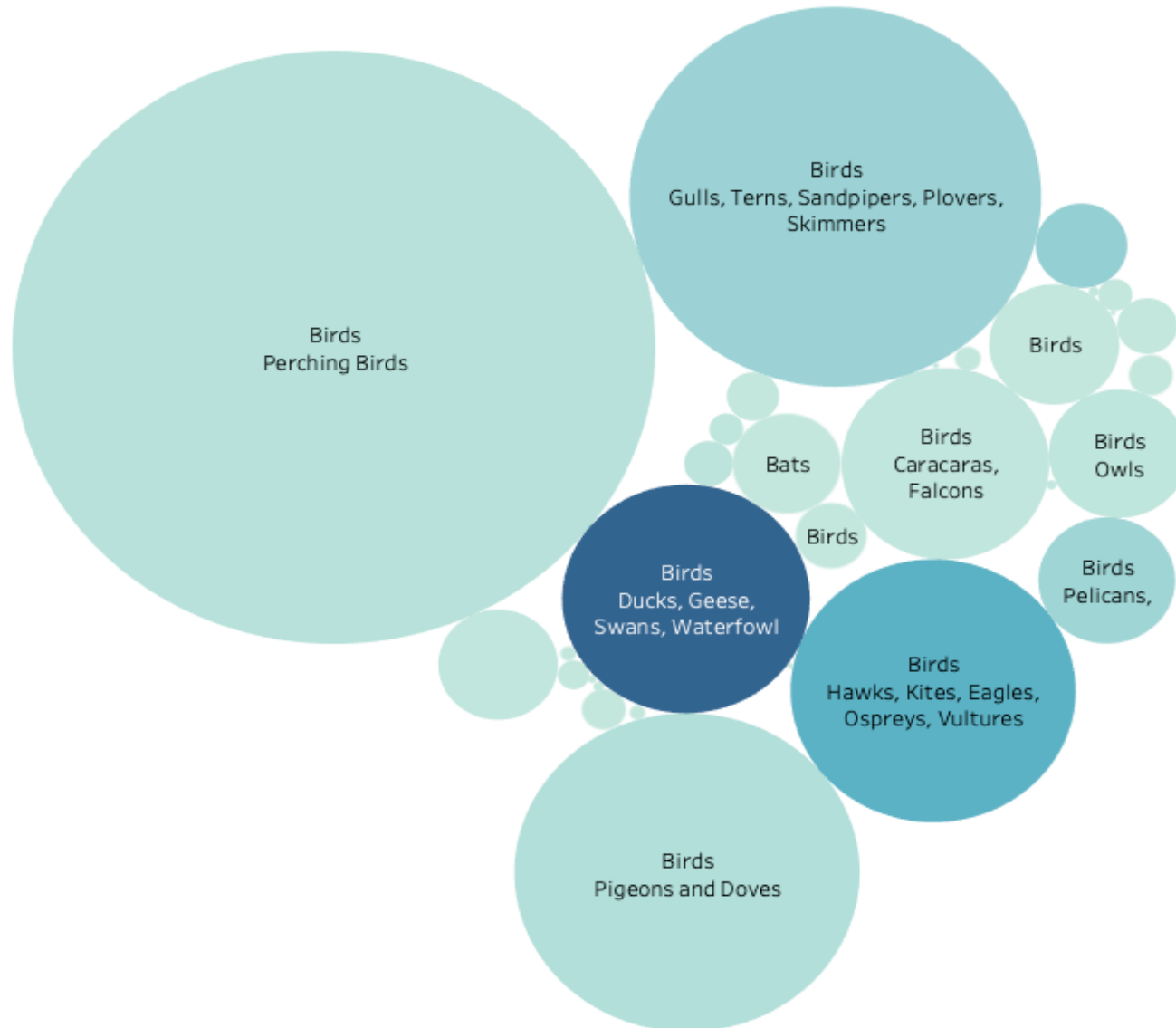
What is it about the climbing phase that is causing so much damage?

POSSIBLE ACTION:

More preventative actions for climbing phase



WILDLIFE CATEGORY

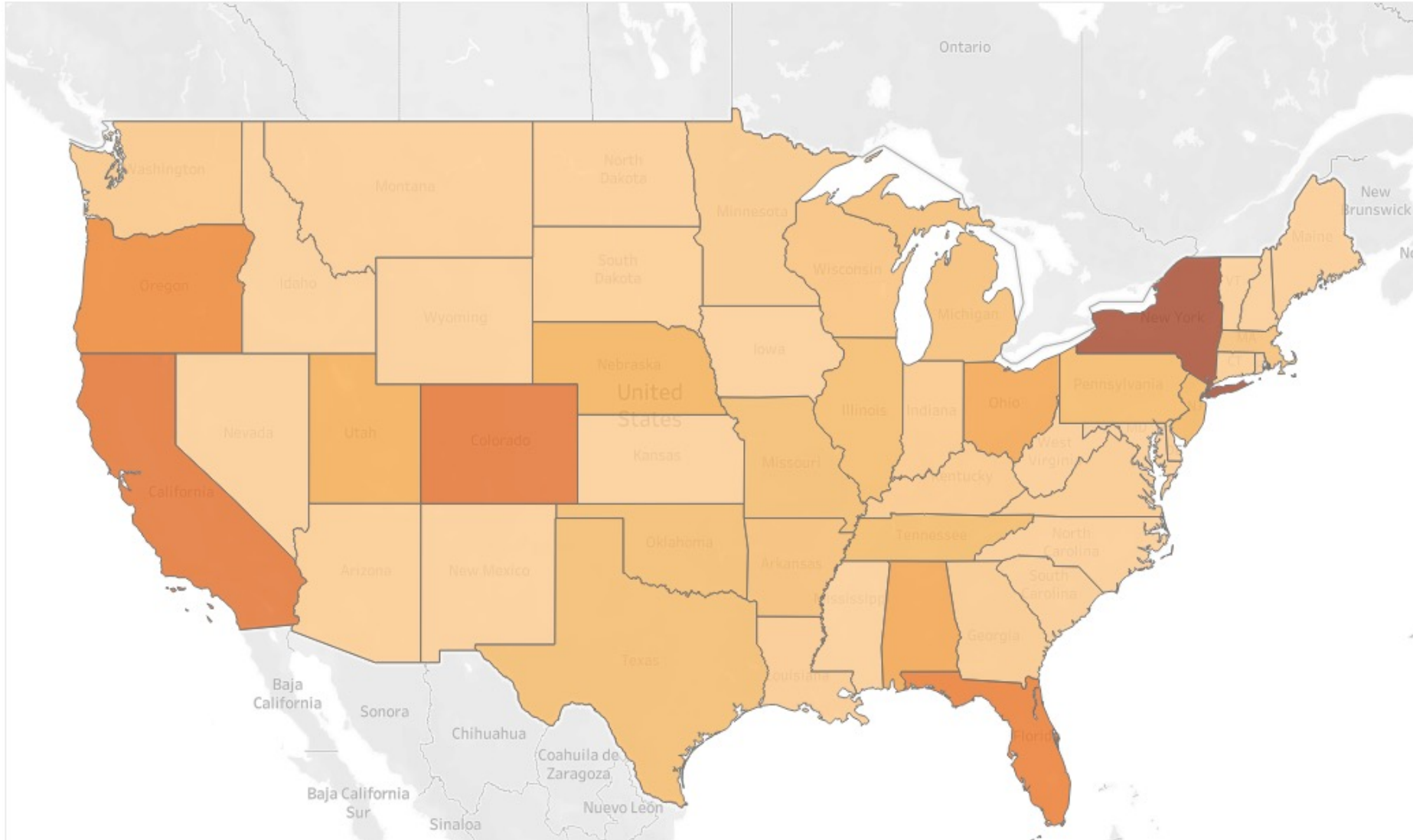


BIRDSSS :/

1. PERCHING BIRDS
HAVE THE HIGHEST
FREQUENCY
2. DUCKS... CAUSED
THE MOST
DAMAGE IN COST

LOCATION: ORIGIN STATE (1/2)

Total Cost of Damage per State



TOTAL DAMAGE COST

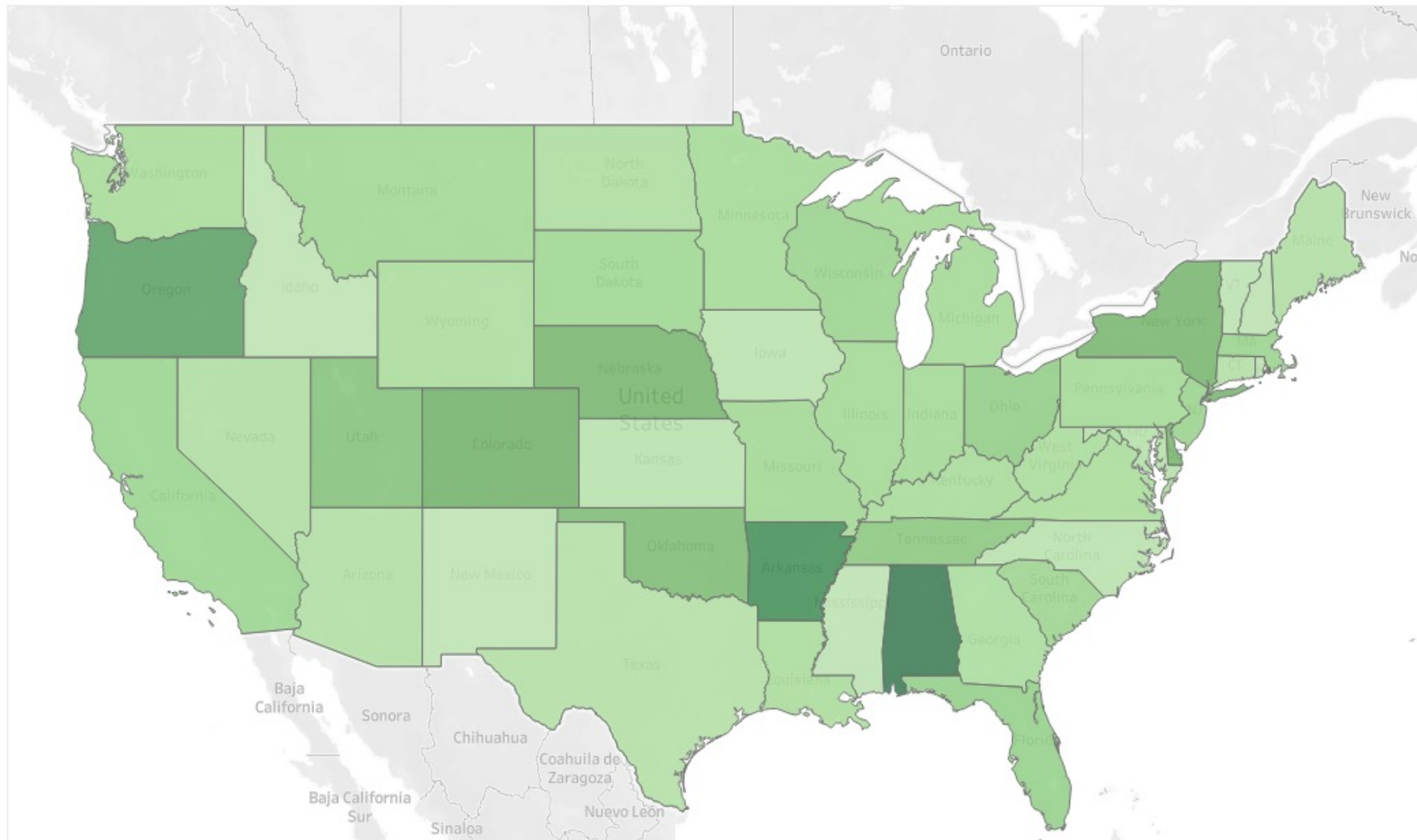
HIGHEST: NEW YORK
~ \$ 50.3 MILLION
2140 STRIKES

SECOND: COLORADO
~ \$ 30.1 MILLION
1146 STRIKES

THIRD: CALIFORNIA
~ \$ 29.6 MILLION
3026 STRIKES

LOCATION: ORIGIN STATE (2/2)

Cost-Strike Ratio per State



NEXT STEP: LOOK INTO THESE STATES
- OTHER COMPOUNDING FACTORS
Ex. Regular air vessel maintenance etc.

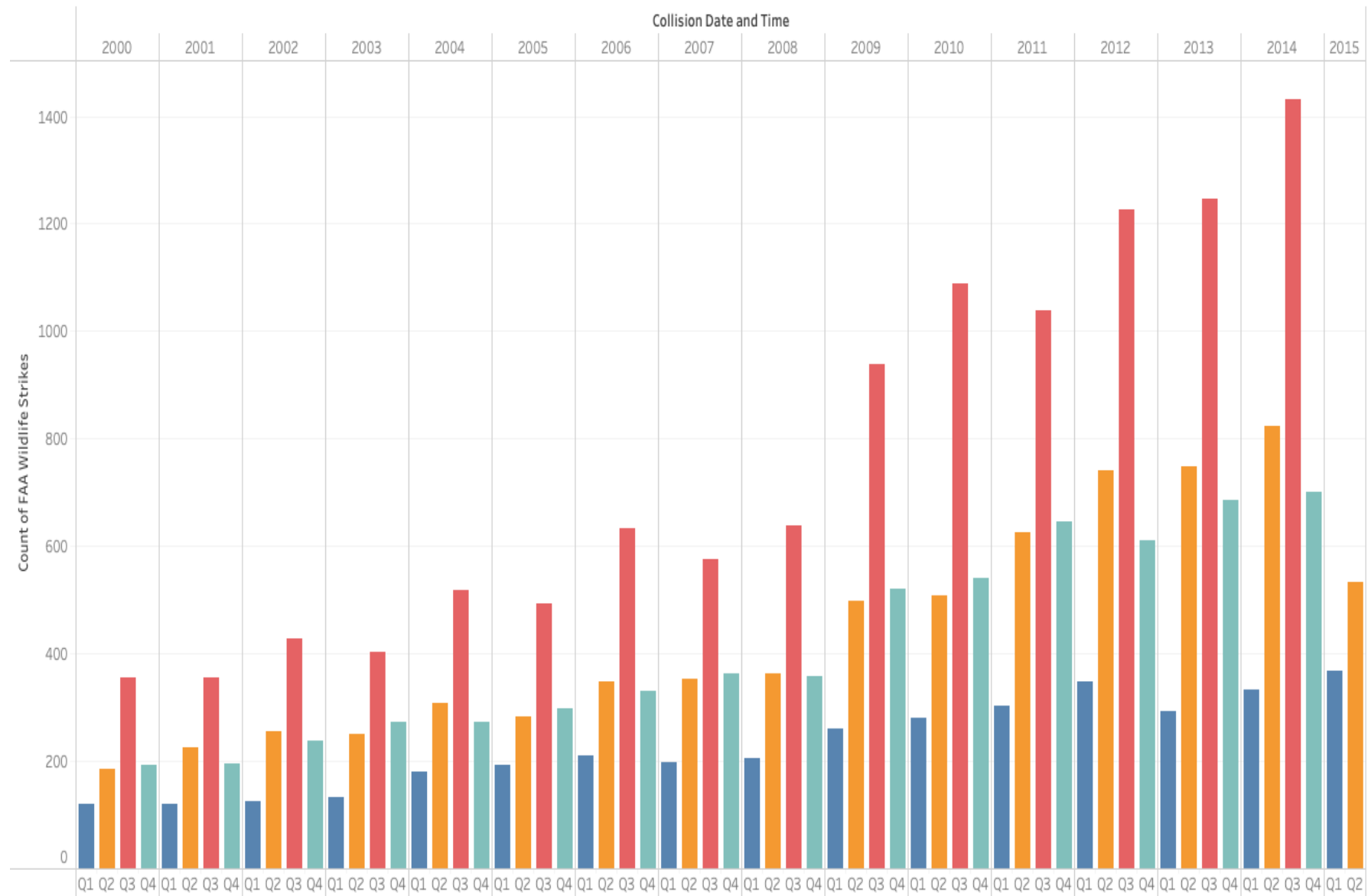
COST PER STRIKE

NEW YORK
~ 23.4 K
2140 STRIKES

HIGHEST: ALABAMA
~ \$ 51 K
279 STRIKES
* 13% of NY's strike

SECOND: ARKANSAS
~ \$ 44 K
140 STRIKES
* 6.5% of NY's strike

FREQUENCY OF STRIKE OVER TIME



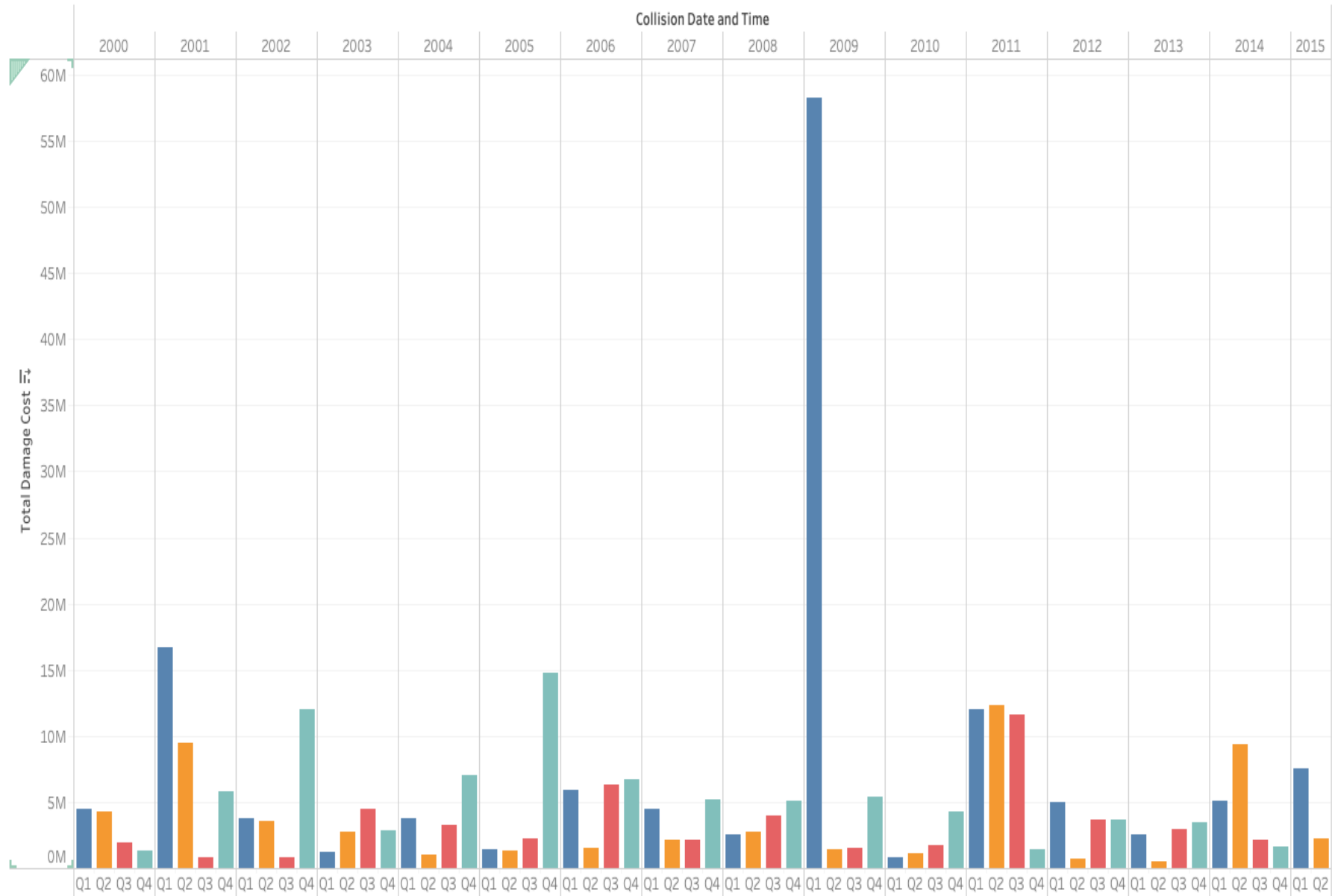
1. STEADY INCREASE IN
FREQUENCY

2. Q3 HAS THE
HIGHEST COUNT OF
STRIKES

- WHY?

THE TOTAL DAMAGE
COST HAVE TO BE
INCREASING AT THE
SAME TIME

TOTAL DAMAGE COST OVER TIME



DOES NOT FOLLOW
THE TREND
ACCORDING THE
FREQUENCY
- WHY IS THAT?

SPIKE IN 2009 Q1
- MIGHT BE AN ISOLATED
INCIDENT?

NEXT STEPS

- EFFECT (TO THE AIRCRAFTS)

- STUDY THE WHY & HOW OF THE SUBSTANTIAL/DESTROYED CASES AND MAKE IMPROVEMENTS

- WHEN (DID THE STRIKES HAPPENED)

- PREVENTATIVE MEASURES IN CLIMBING PHASE

- WILDLIFE (THE VICTIMS)

- FURTHER STUDY THE WILDLIFE HABITAT NEARBY

- LOCATION (ORIGIN STATE)

- EXPLORE IF THERE ARE DIFFERENCES IN REGULAR AIRCRAFT CHECKUP

- MIGHT ALREADY BE FAULTY TO BEGIN WITH

CHALLENGES

- OVERLOADED WITH INFORMATION
 - STARTED TO SORT OUT VARIABLES
- IDENTIFYING THE BIGGER PICTURE
 - BUSINESS PERSPECTIVE? MONEY THEN
- MAKE SENSE OF THE NUMBERS/TRENDS
 - WHAT DO THEY MEAN
- FIND OUT MORE IN-DEPTH INFORMATION
 - FURTHER ANALYSIS (RATIO)

QUESTIONS HAVE BEEN ANSWERED, MORE QUESTIONS APPEAR