

**AVIATION SAFETY WILD LIFE HAZARD  
MANAGEMENT FORUM BY**

***WORLD BIRDSTRIKE ASSOCIATION  
13-14 DEC 2023***

***WILD LIFE HAZARD MANAGEMENT ON  
INDIAN AIR FORCE AIR BASES***

**BY  
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WG CDR AEROSPACE SAFETY (ORNITHOLOGY)  
AIR HQ , NEW DELHI**

# WILDLIFE HAZARD MANAGEMENT

- INTRODUCTION
- [Jaguar-3 Take Off.MTS](#)



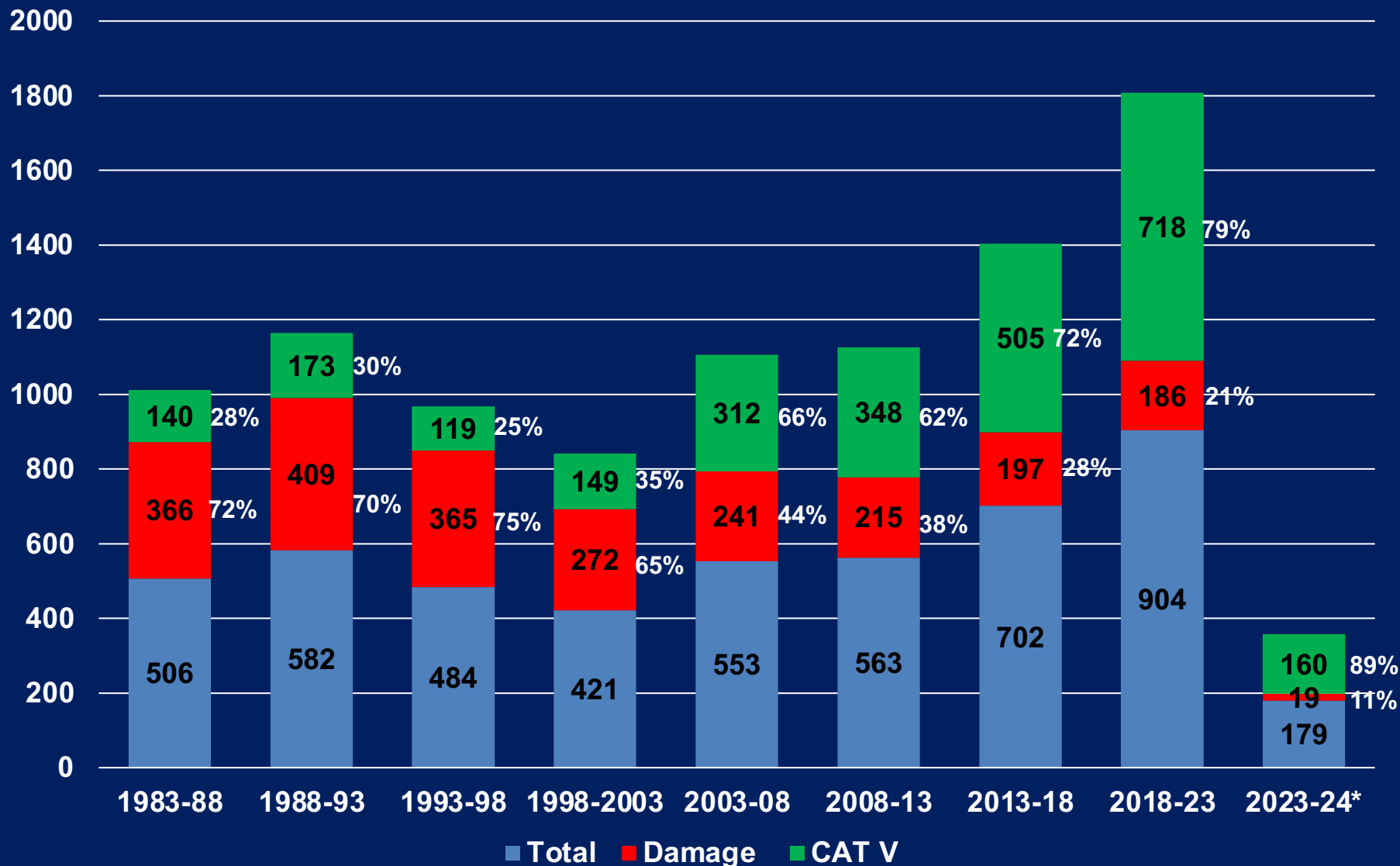
# WILDLIFE HAZARD MANAGEMENT

- INTRODUCTION
- INTENSITY OF PROBLEM
- PROBLEMATIC SPECIES
- LESSONS LEARNT
- SUCCESS STORIES
- CONCLUSION

# INTENSITY OF PROBLEM

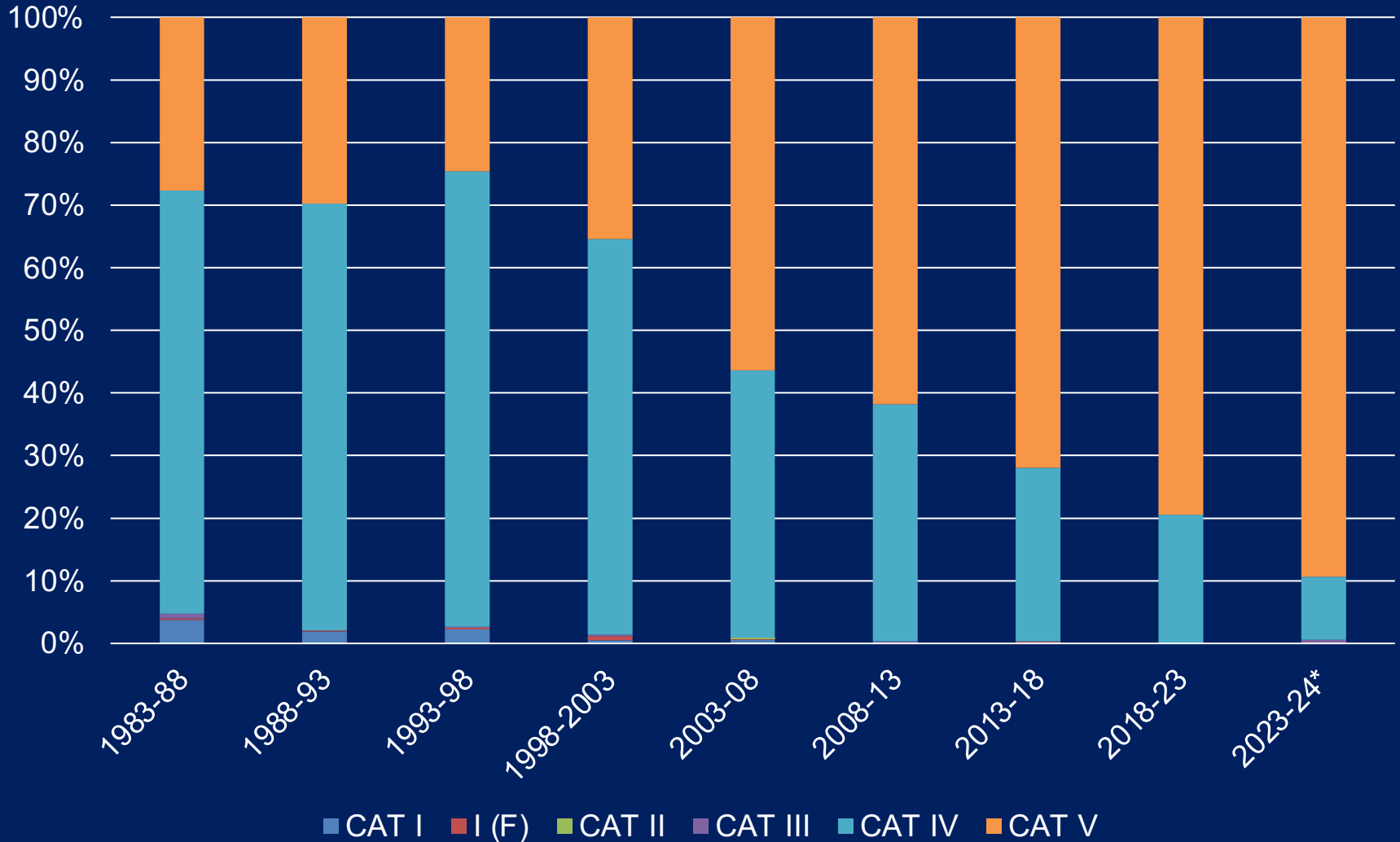
# TREND OF BS ACCIDENTS/INCIDENTS

## 1983-84 TO 2023-24\*



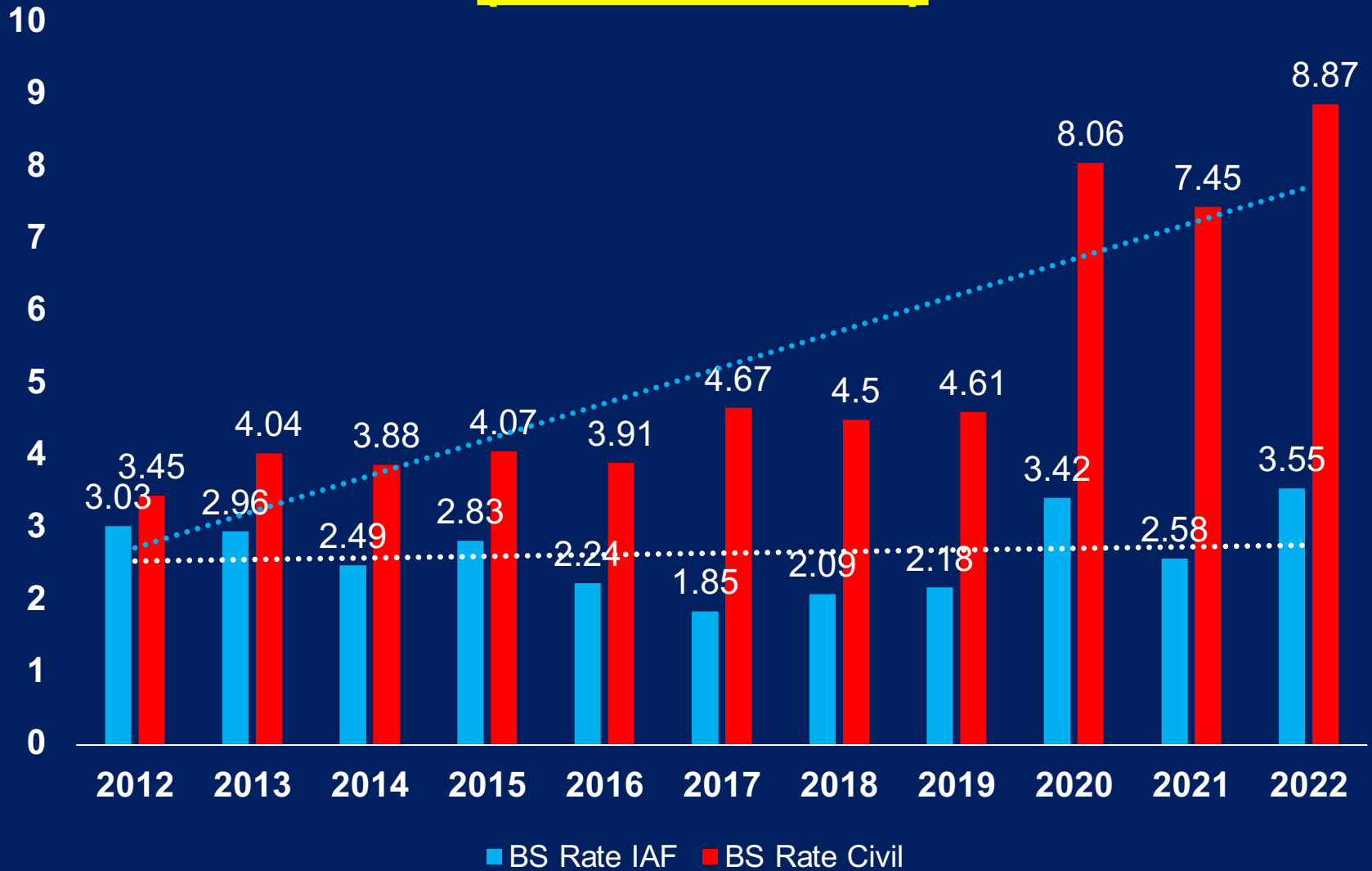
\*as on 31 Oct 23

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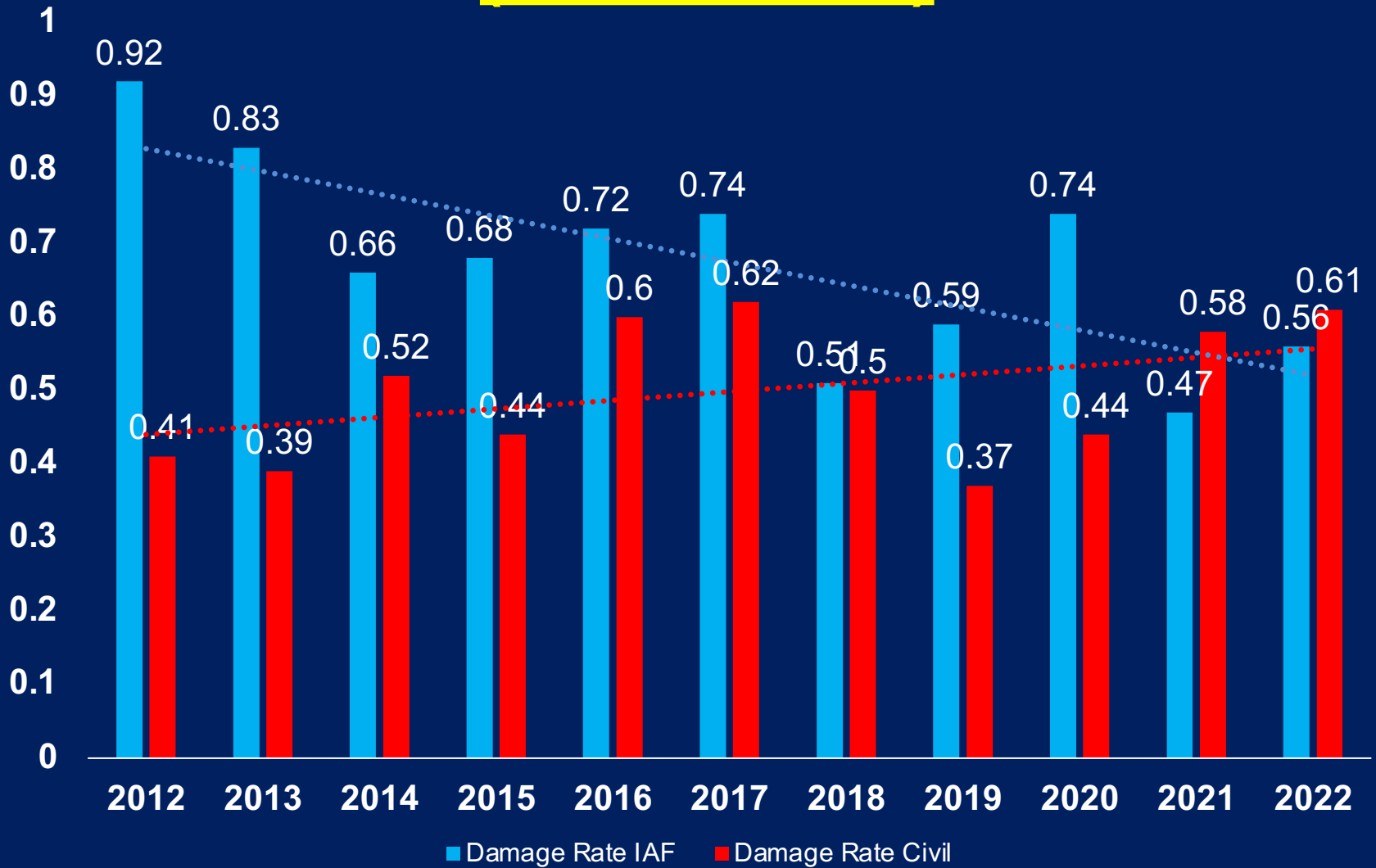


\*as on 31 Oct 23

# BS RATE COMPARISON (IAF & DGCA)

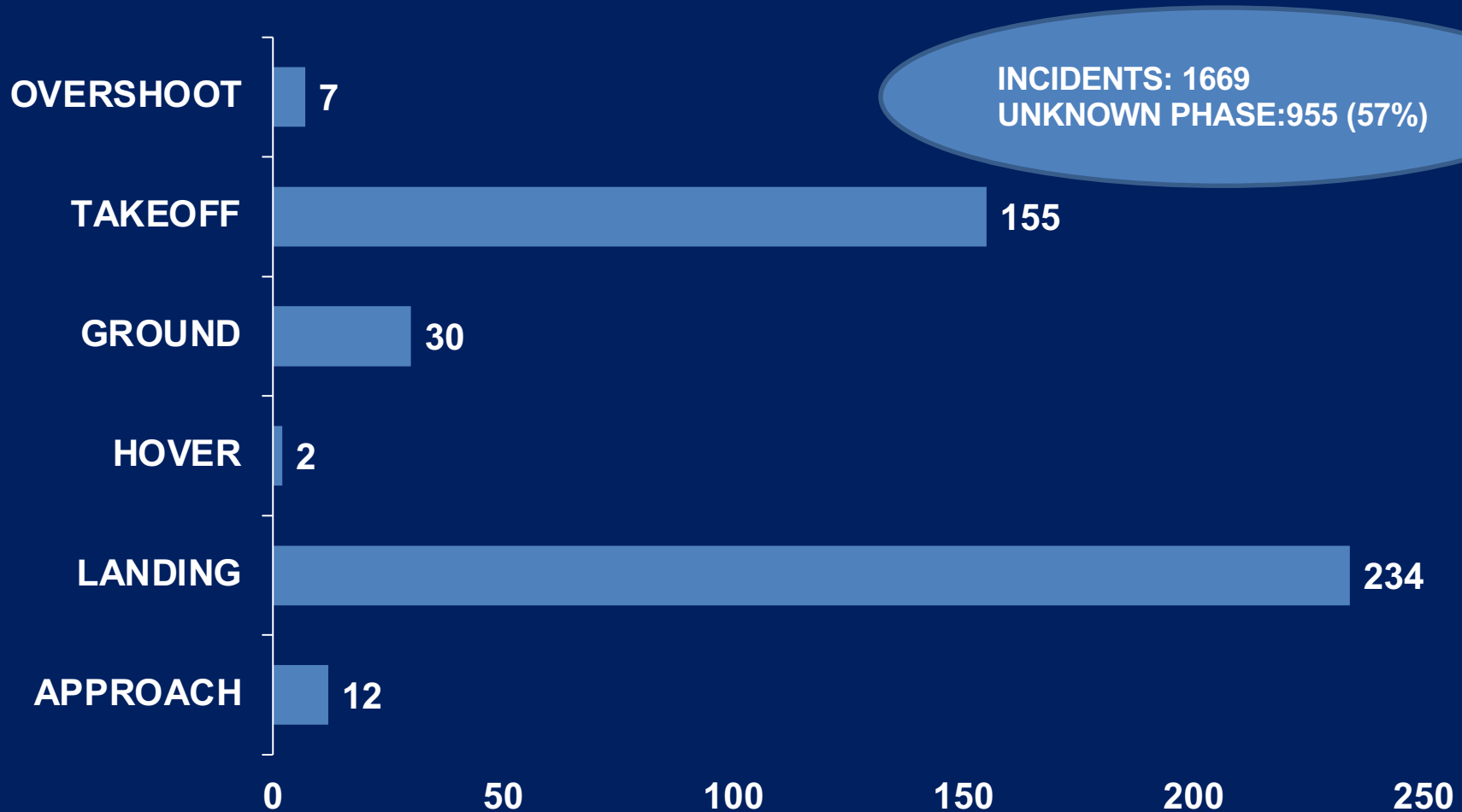


# BS DAMAGE RATE COMPARISON (IAF & DGCA)





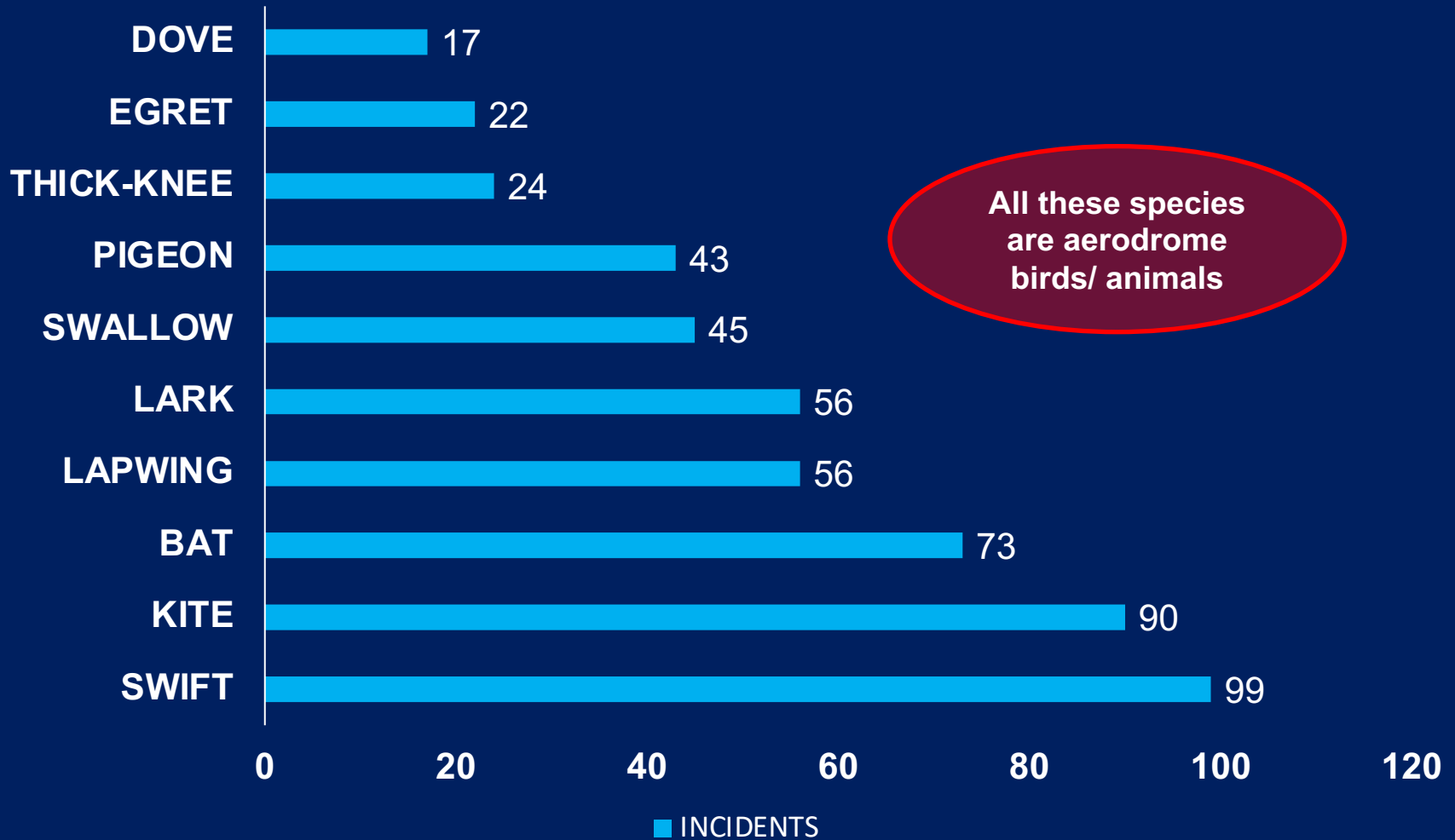
# BS INCIDENTS: PHASE OF FLIGHT (ON AERODROME) (FY 2013-14 to 2023-24\*)



\*as on 31 Oct 23

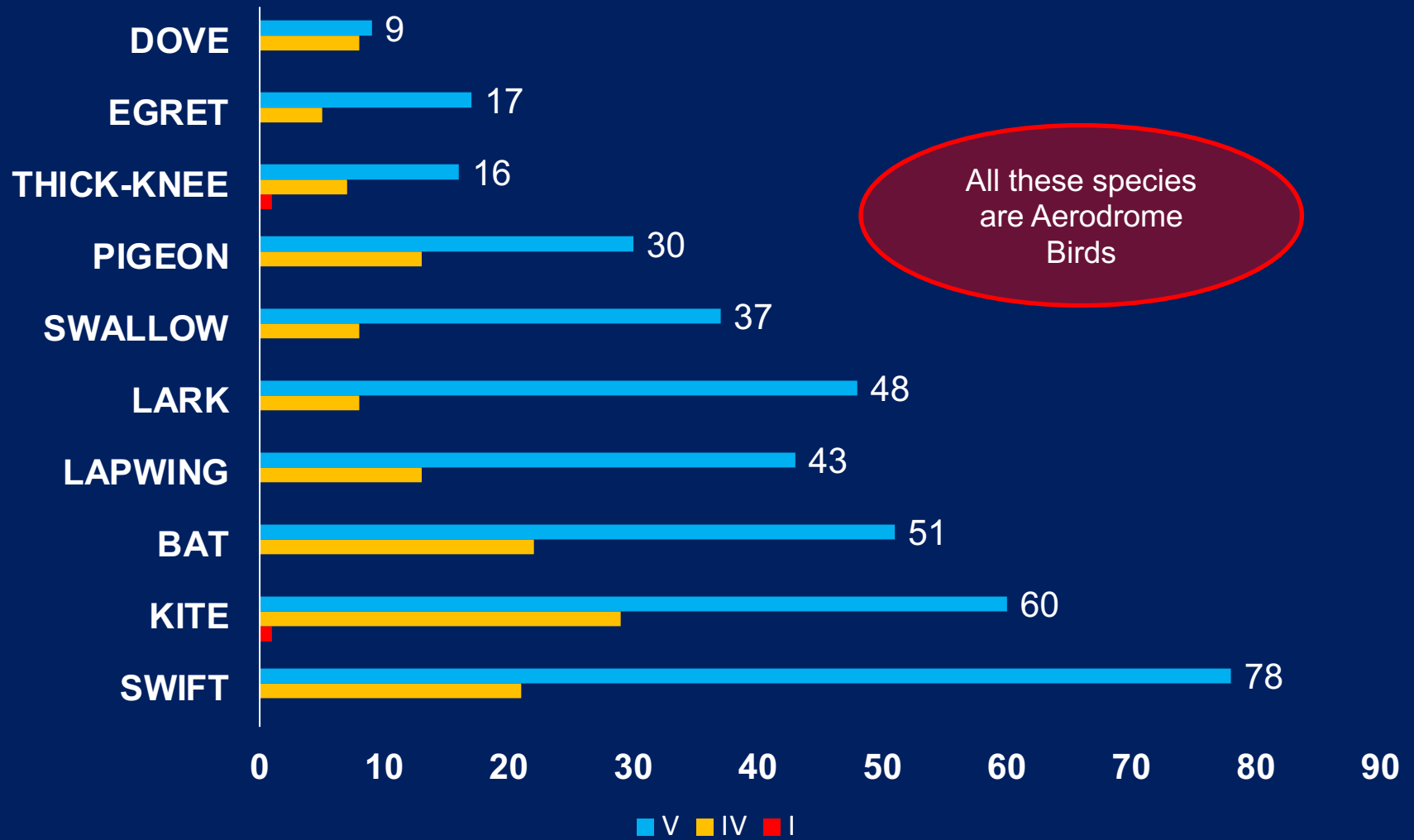
# PROBLEMATIC SPECIES

# TOP 10 SPECIES INVOLVED IN BS: IAF (FY 2013-14 to 2023-24\*)



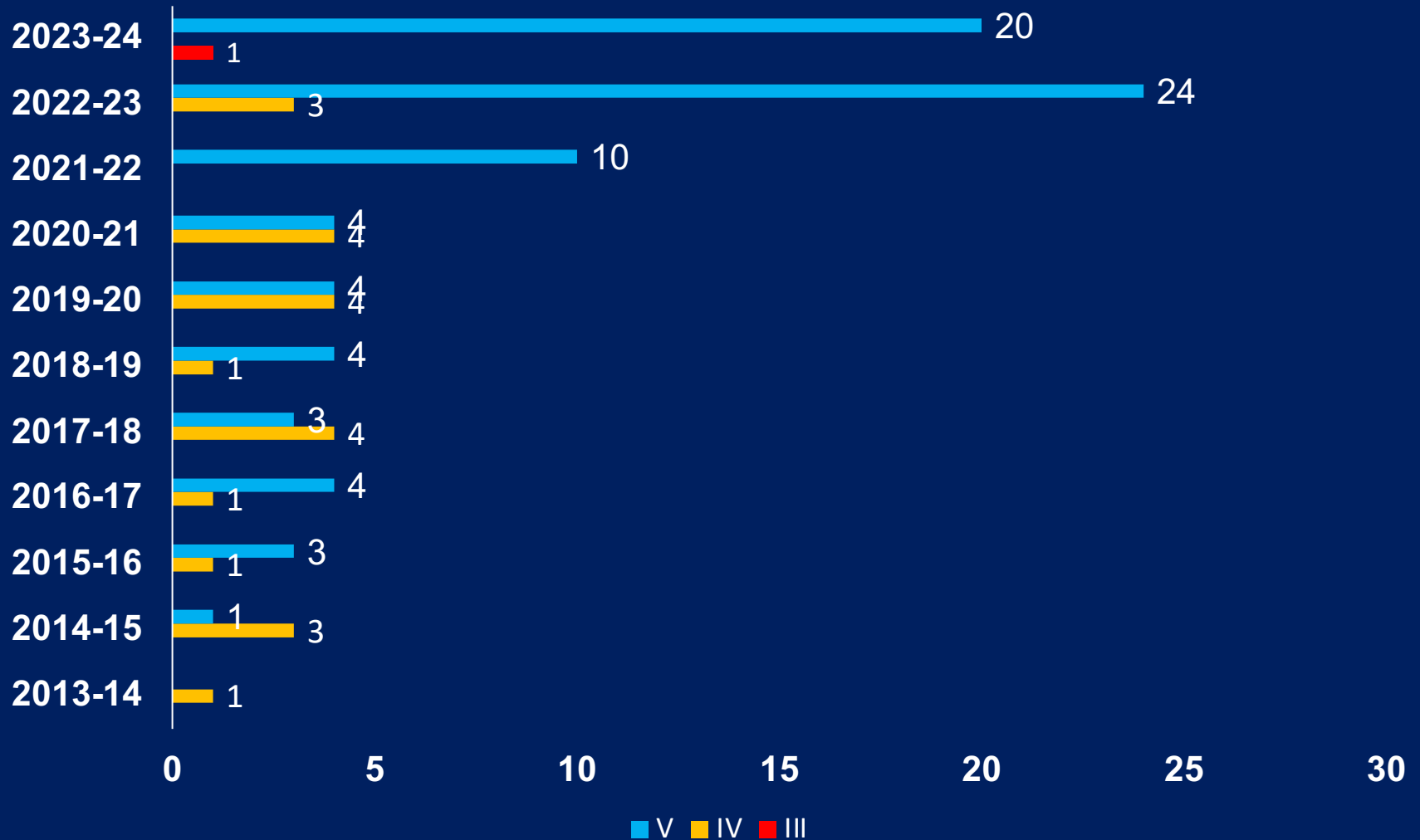
\*as on 31 Oct 23

# TOP 10 SPECIES INVOLVED IN BS: IAF (FY 2012-13 to 2022-23\*)



\*as on 31 Oct 23

# BS CAUSED BY BATS: IAF (FY 2012-13 to 2023-24\*)

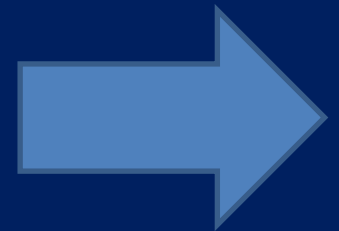


\*as on 31 Oct 23

**LESSONS LEARNT &**  
**SUCCESS STORIES**

# LESSONS LEARNT & SUCCESS STORIES

- AEMC & SWM
- LONG GRASS POLICY
- GRADING AND ALLOCATION OF RESOURCES (FORMULA DEVELOPED)
- IDENTIFICATION OF SPECIES INVOLVED IN BS THROUGH DNA BARCODING TECHNOLOGY FROM 2011
- TRAINING AND NICHE EXPERTISE DEVELOPMENT
- BAT STUDIES, ENTOMOLOGY STUDIES, BNME
- DOCTORAL STUDIES LEADING DEFINITE CONCLUSIONS
- DOG WALKING MODULE- MUDHOL HOUND



# AEMC & SWM

➤ Agra



# GARBAGE NEXT TO RAILWAY LINE



# GARBAGE NEXT TO RUNWAY



# CHALLAN FOR GARBAGE THROWING

FORM No. 30  
SPECIAL SUMMONS TO A PERSON ACCUSED OF A PETTY OFFENCE  
See Section 206

To गुड्डू डी/० नामाकुम गाफ भैंस के वाई वीके  
(Name of the accused)

of पता- दौलत राम गली के अन्दर शाहीज अणारा  
वार्डा- शाहीज जिला अणारा Address

Whereas your attendance is necessary to answer a charge of  
a petty offence धारा 299/550 नगर पालिका अधिनियम 1916 (State  
रुपयित धारा 577 नगर निगम सत्ता अधिनियम-1994  
shortly the offence charged) you are hereby required to appear in  
persons (or by pleader before)

(Magistrate) of \_\_\_\_\_ on the \_\_\_\_\_ day of \_\_\_\_\_ 20 or if you  
desire to plead guilty to the charge without appearing before the  
magistrate to transmit before the aforesaid date the plea of guilty in  
writing and the sum of Rupees \_\_\_\_\_ as fine, or if  
you desire to appear by pleader and to plead guilty through such  
pleader to authorise such pleader in writing to make such a plea of  
guilty on your behalf and to pay fine through such pleader, Here in fail  
not.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 20

Seal of Court \_\_\_\_\_ Signature \_\_\_\_\_

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not.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 20

Seal of Court \_\_\_\_\_ Signature \_\_\_\_\_

# AEMC & SWM

➤ Rajakpalya

# MINIMUM 200 BIRDS OVER THE VILLAGE



# MINIMUM 200 BIRDS OVER THE VILLAGE



# CAT FISH FARMING PONDS



# LONG GRASS POLICY

## ➤ DECCAN PLATEAU

➤ Bidar

➤ AFA

➤ Hakimpet

➤ Tambaram

➤ Yelahanka



# TRAINING AND NICHE EXPERTISE DEVELOPMENT

- Total 31 Basic Ornithology Courses conducted. 900 men trained
- Aerospace Safety functionaries trained through
  - BNHS
  - SACON
  - SWAYAM

# BAT STUDIES & ENTOMOLOGY STUDIES

- Entomology study conducted PAN IAF for identification of insects in airfield those attract birds and judicious and ecological use of insecticides.
- Identified threat posed by Bats through DNA bar-coding identifications and initiated Bat studies for most affected bases.

# DOCTORAL STUDIES LEADING TO DEFINITE CONCLUSIONS

- Ph.D by WG CDR (DR) S SRINIDHI
- **TITLE- “ASSESSMENT OF MANAGEMENT STRATEGIES OF THE BIRD HAZARDS TO AIRCRAFT IN SELECT INDIAN AIR FORCE AIRFIELDS”**

# TAKE-AWAYS FROM OUR EXPERIENCE

TECHNOLOGY FOR DETECTION, DATA  
MANAGEMENT AND PREDICTION

HAZARD MANAGEMENT THROUGH  
ECOLOGY.

## TAKE AWAY

**BIRDS STRIKES CANNOT BE  
REDUCED TO ZERO, BUT IT  
CAN BE RESTRICTED TO THE  
MINIMUM ACCEPTABLE  
VALUE**

**THANK YOU  
&  
JAI HIND**





# ASSESSMENT OF MANAGEMENT STRATEGIES OF THE BIRD HAZARDS TO AIRCRAFT IN SELECT INDIAN AIR FORCE AIRFIELDS

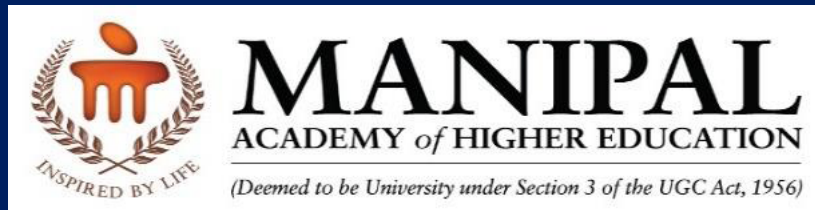
**WG CDR (DR) SRINIDHI S**

(MANIPAL ACADEMY OF HIGHER EDUCATION)

SUPERVISOR

**DR P PRAMOD**

SENIOR PRINCIPAL SCIENTIST





# ASSESSMENT OF MANAGEMENT STRATEGIES

## Objective

*Record and scientifically gauge the effect of different methods employed for bird hazard management by different airports in India*

## Research Questions:

1. What is the extent of spread of activity counts of Black Kites from its regular feeding sites?
2. Whether the lapwings are more active and occupy runway more during the full moon nights and the nights closer to it?

# BLACK KITE ACTIVITY RANGE

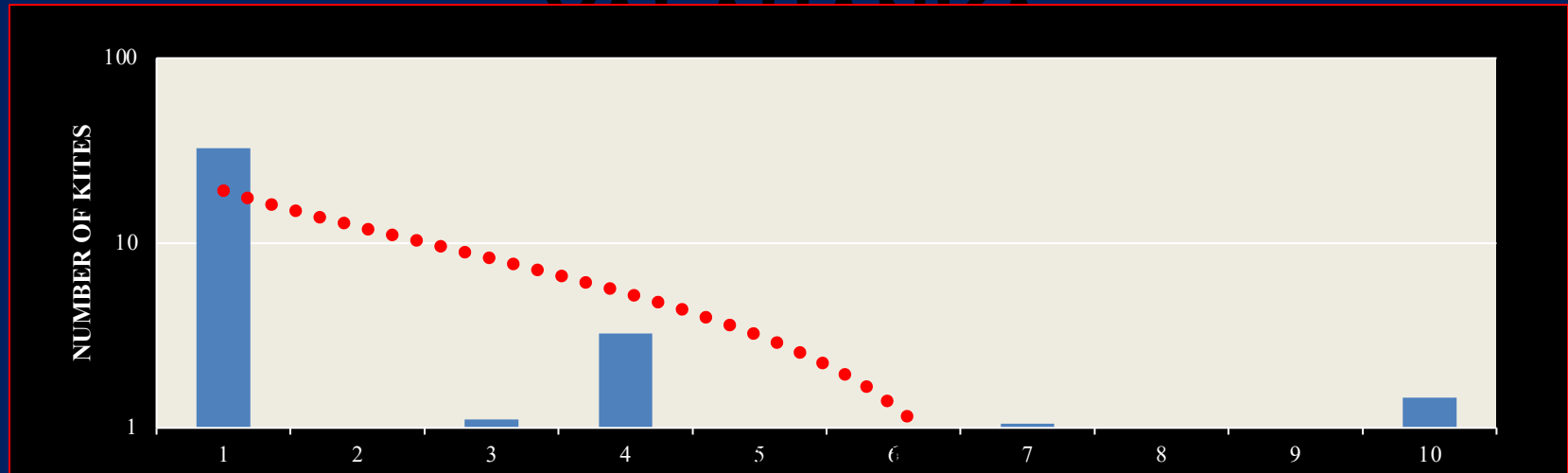
- Black Kite- most hazardous bird for aviation in India.
- Black Kites are known to congregate over garbage dumps/ meat markets/ fish farms (Source location).
- Large number of them congregate over source location. But their activity count comes down with the distance.

# BLACK KITE ACTIVITY RANGE

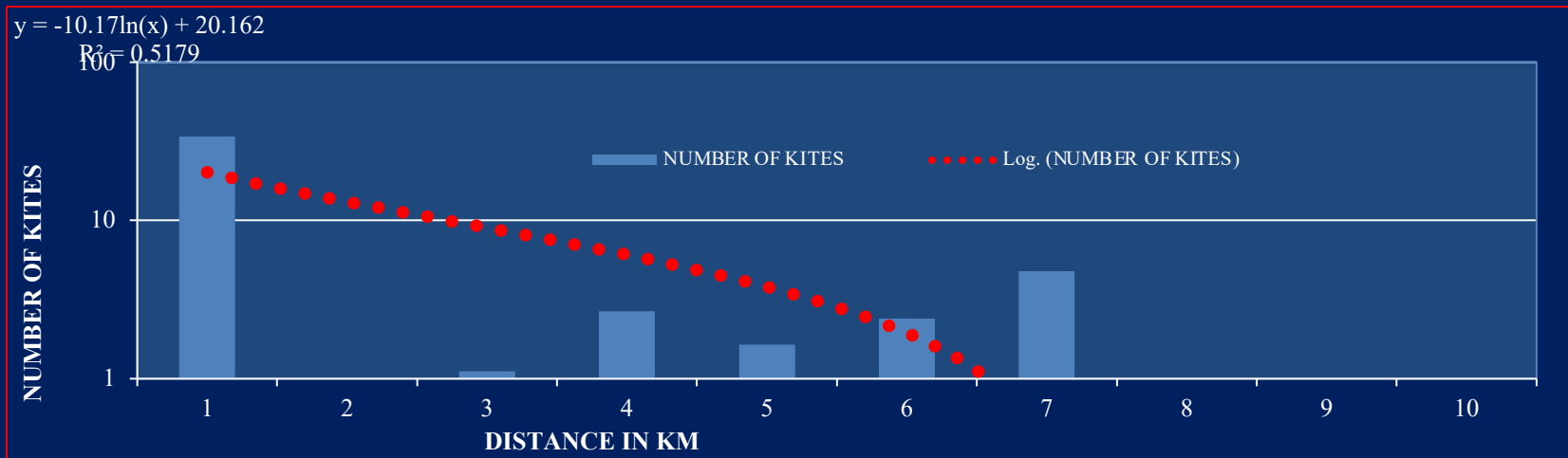
- Indian Aircraft Rule (1937)- Rule 91.
- No bird attractants are to be thrown within a distance of 10 km from airport
- The Rule came under question considering the vintage
- The concern was, whether the Rule caters for the current quantum of garbage and is there a requirement to increase the distance?

# BLACK KITE ACTIVITY RANGE-

VALSAD AIRFIELD

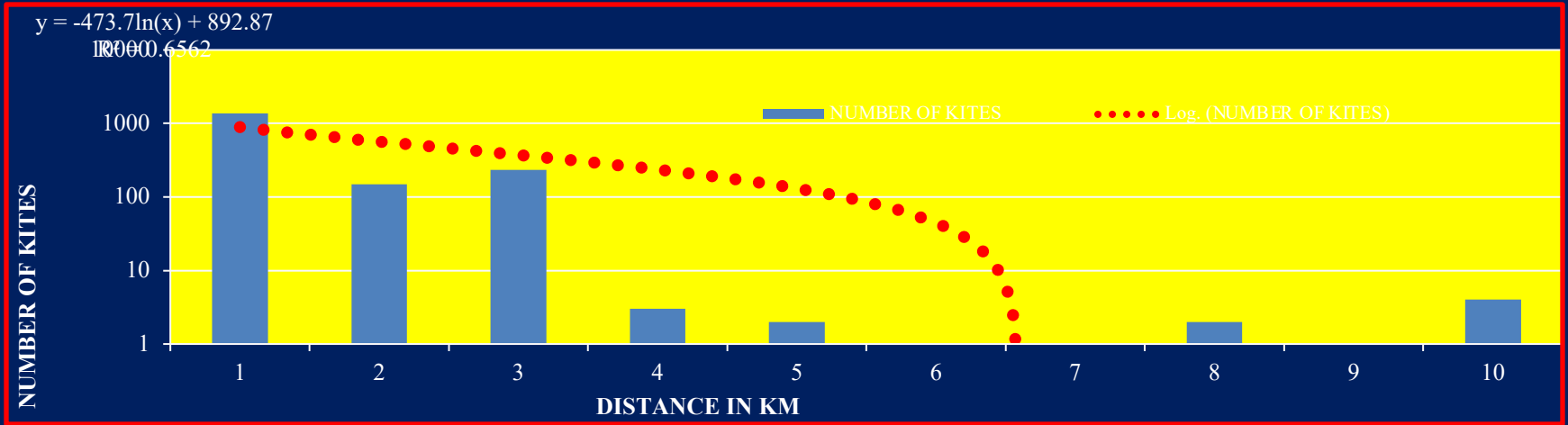


Control axis

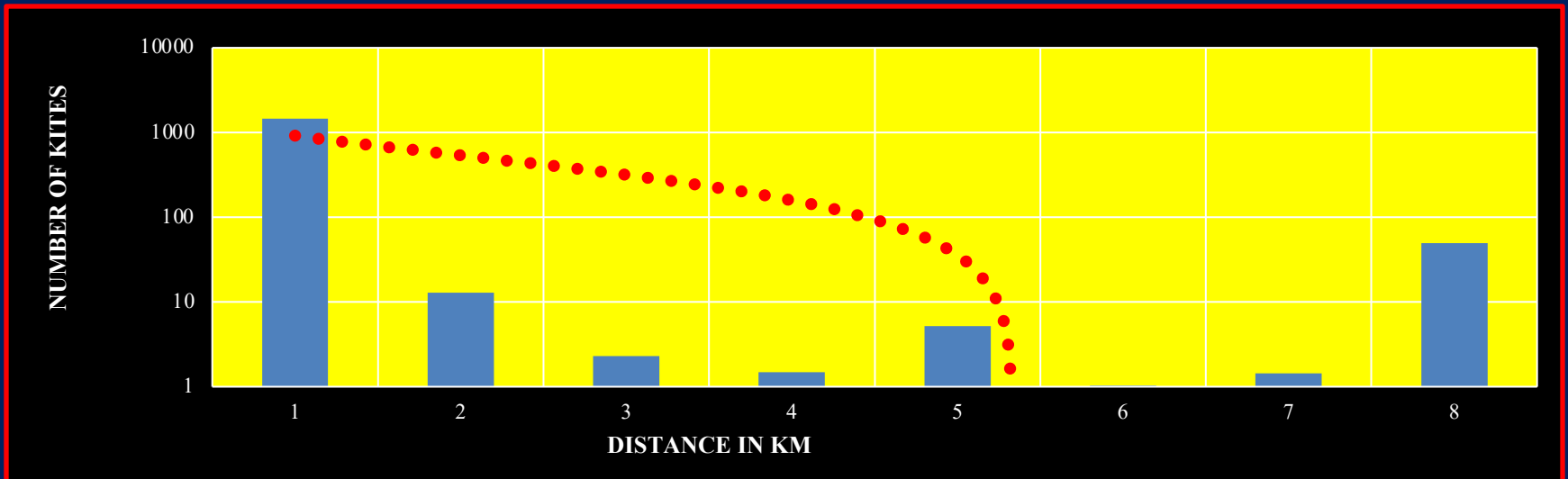


Airfield axis

# BLACK KITE ACTIVITY RANGE- HINDAN

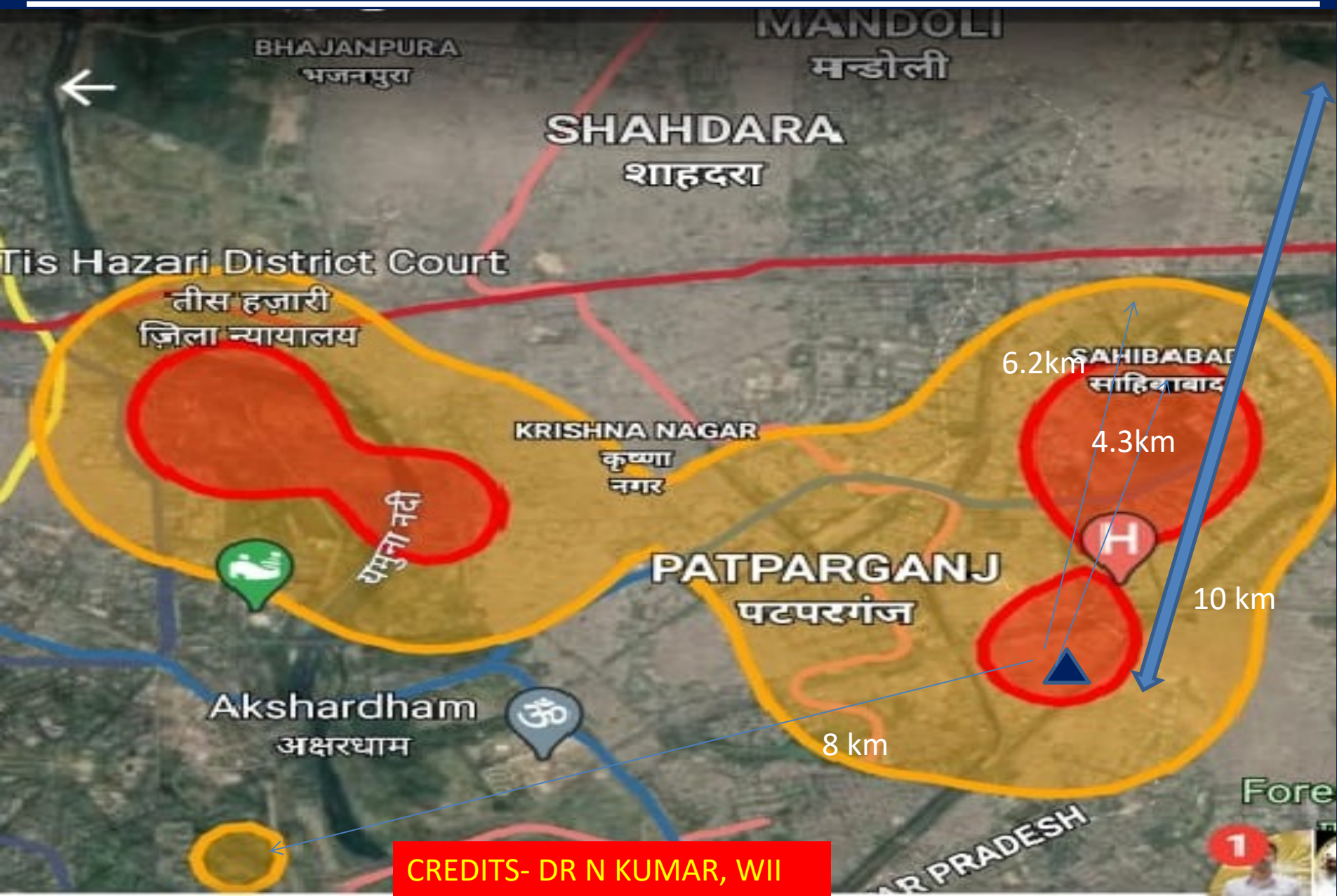


## UPH AIRFIELD AXIS



## NZM RLY STN AXIS

# KITE ACTIVITY RANGE THROUGH GPS TAGS



# KITE ACTIVITY RANGE-CONCLUSIONS

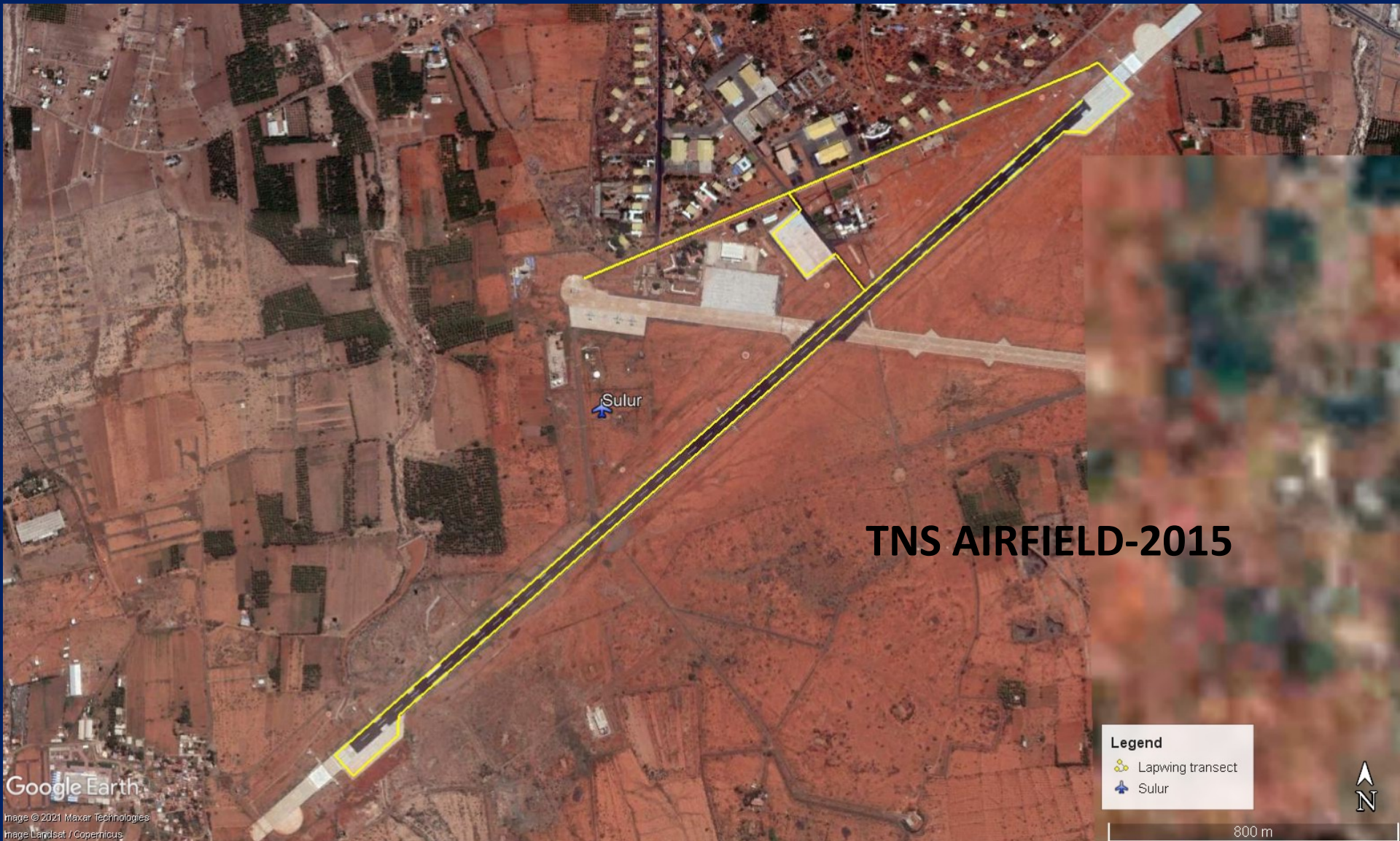
- Kite activity comes down significantly as it moves away from the source up to 7km.
- 10km is a safe distance, provided no other feeder/ roosting site come up in-between.
- A large number of migratory Kites were seen during the winters.

# RESTRICTIONS ON OPERATIONS ON NIGHTS AROUND FULL MOON NIGHTS

- Restrictions are imposed on operations on nights around full moon nights to minimise the strikes with Lapwings.
- 'Presence of Lapwings on runway' was taken as a parameter.
- The counting of number of lapwings observed was carried out from vehicle on runway and Taxi tracks at a military airfield with a mounted scanner light (length-7 km).



# LAPWING NIGHT ACTIVITY COUNT TRANSECT



TNS AIRFIELD-2015

**Legend**

- Lapwing transect
- Sular

800 m

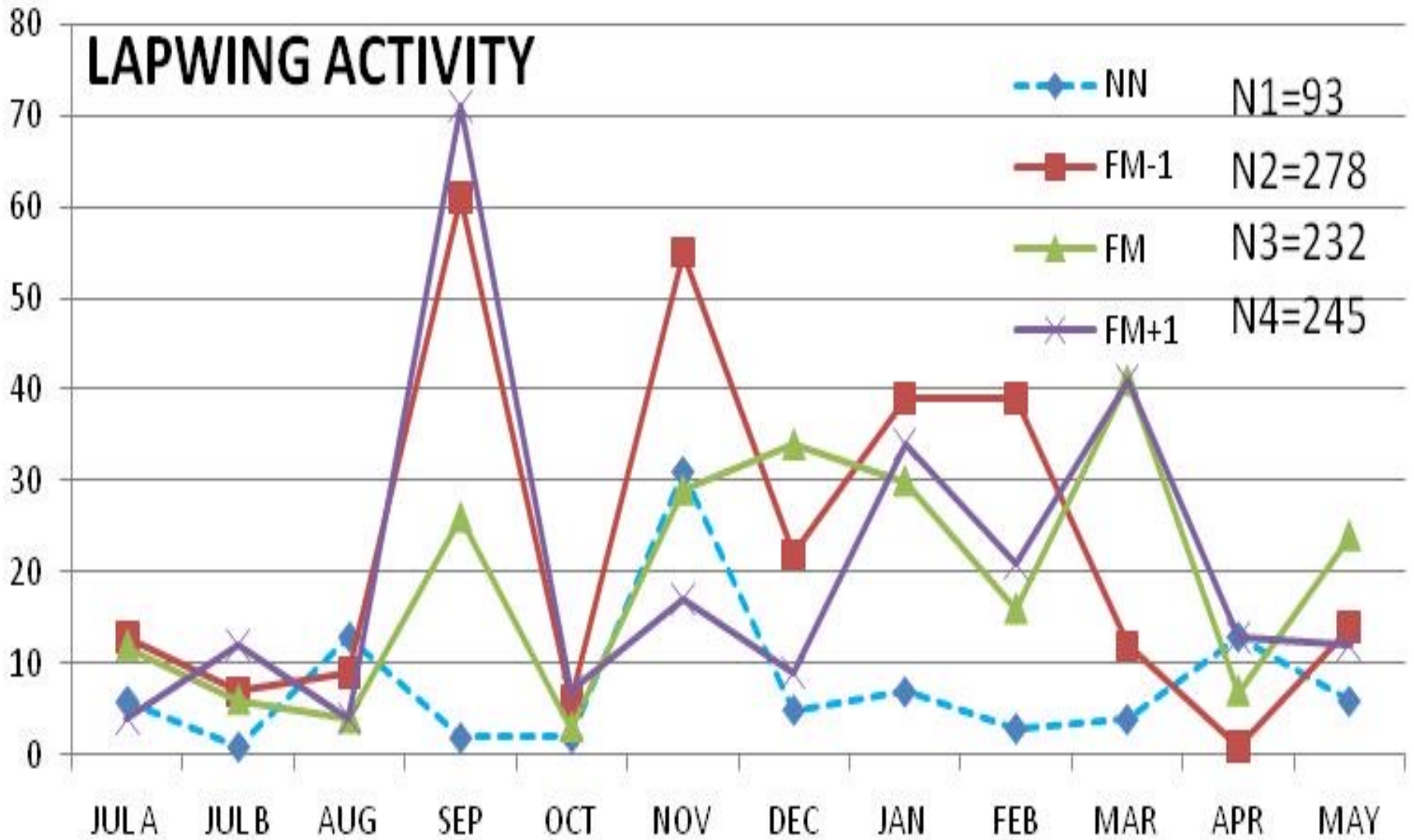


# RESTRICTIONS ON FULL MOON NIGHTS

- Yellow-wattled Lapwing (*Vanellus malabaricus*)



# FULL MOON NIGHT - PRESENCE OF LAPWINGS ON RW



**THANK YOU  
&  
JAI HIND**





**QUESTIONS IF ANY ?**