

# Measures against Bird Strike

a simple way of proceed



Santa Maria Air Force Base

# Santa Maria AFB

- Ambient conditions
- Previous occurrences
- Adopted measures
- Further actions



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# Ambient Conditions

- Location
- Climate
- Environment



# Location

- Central region of Rio Grande do Sul, the southernmost state of Brazil.
- $29^{\circ} 41'S$   $053^{\circ} 48'W$ .
- Boundaries with:  
Argentina (NW),  
Uruguay (SW),  
Santa Catarina state (N).



# Climate

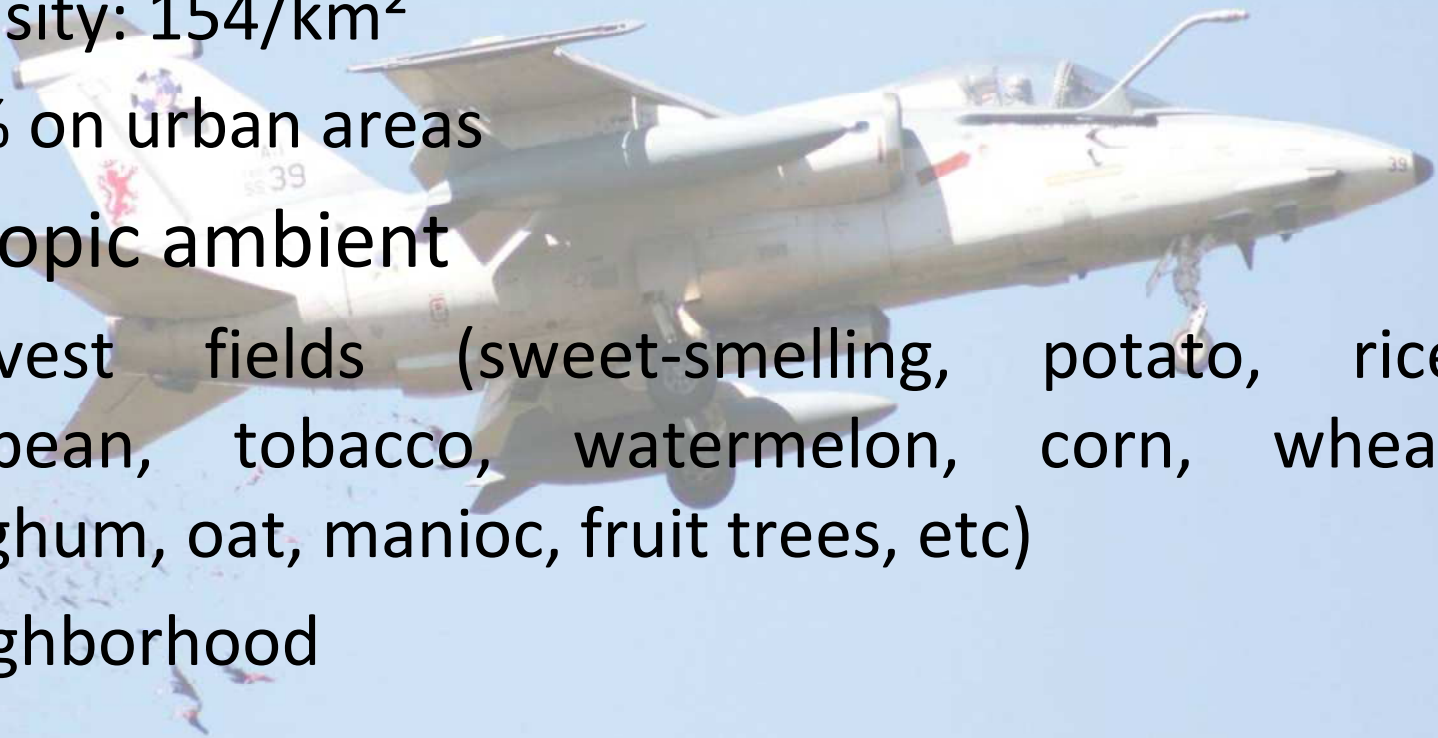
- Humid subtropical.
- Annual average precipitation – 1700 mm.
- Annual average temperature - 18° C.
  - winter: - 3° C / 26° F
  - summer: + 43° C / 110° F
- Called “Missing Land” because during the winter people miss summer and vice versa.



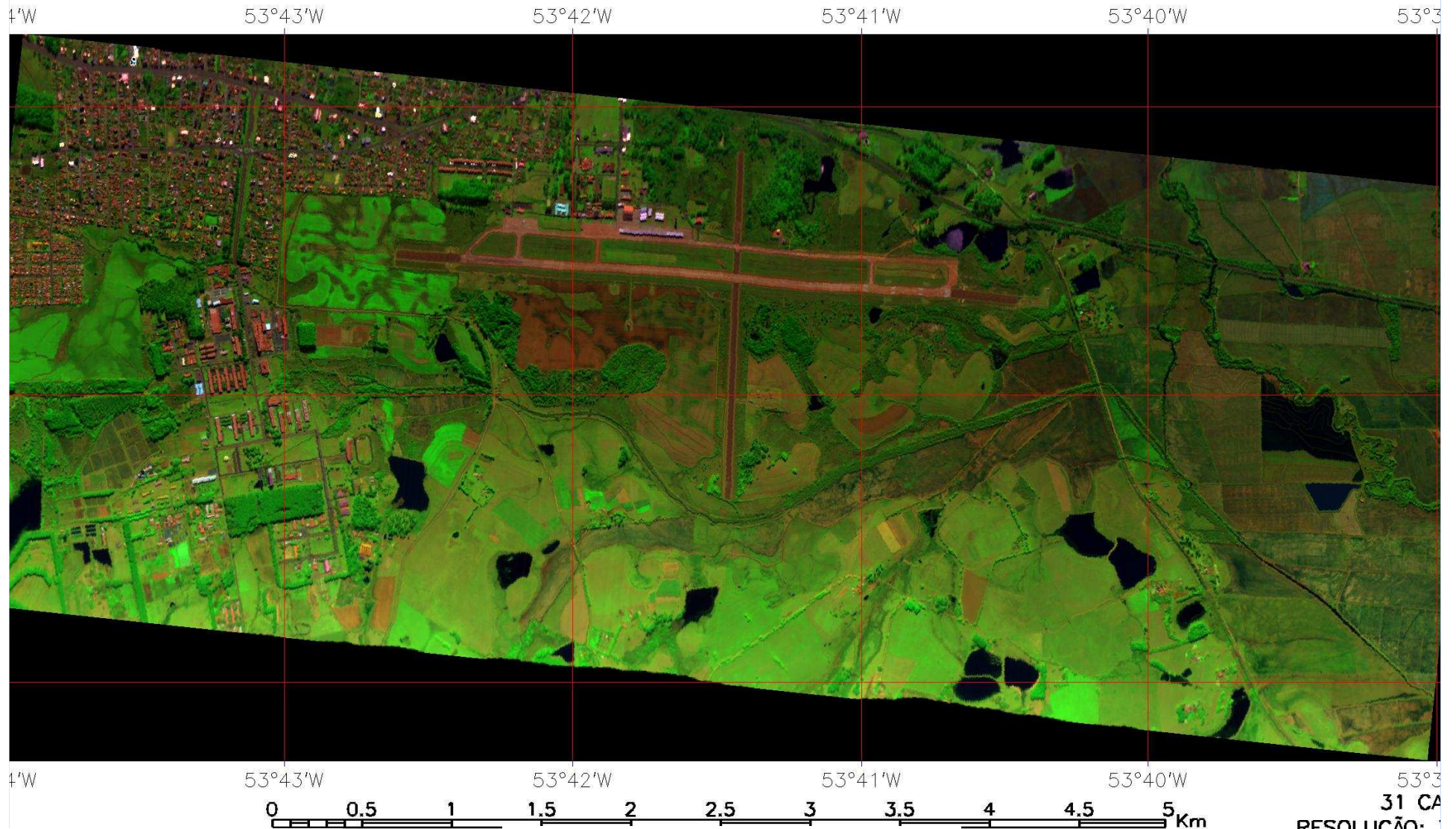


# Environment

- Population: 266,822
  - Density: 154/km<sup>2</sup>
  - 95% on urban areas
- Anthropogenic ambient
  - Harvest fields (sweet-smelling, potato, rice, soybean, tobacco, watermelon, corn, wheat, sorghum, oat, manioc, fruit trees, etc)
  - Neighborhood



# Santa Maria AFB



Flight height: 5000 ft

Date: Jul 19<sup>th</sup> 2007

31 CA  
RESOLUÇÃO: 1  
R-30 G-20

black=water/light green=plants/medium green=bushes/dark green=small trees/brown=bare soil



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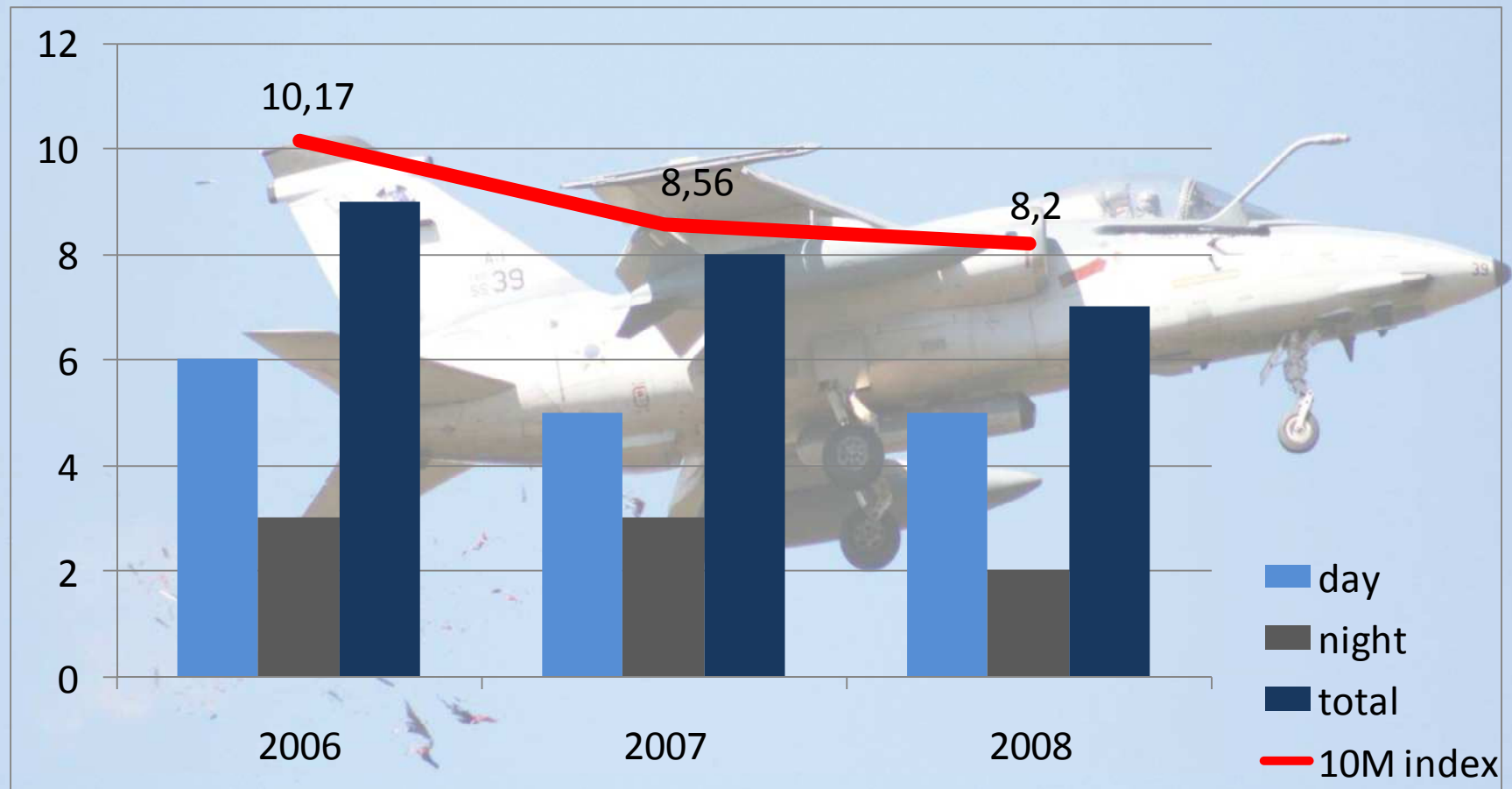
# Previous Occurrences

- Crash historical
- Involved species
- Flight profile





# Crash Historical



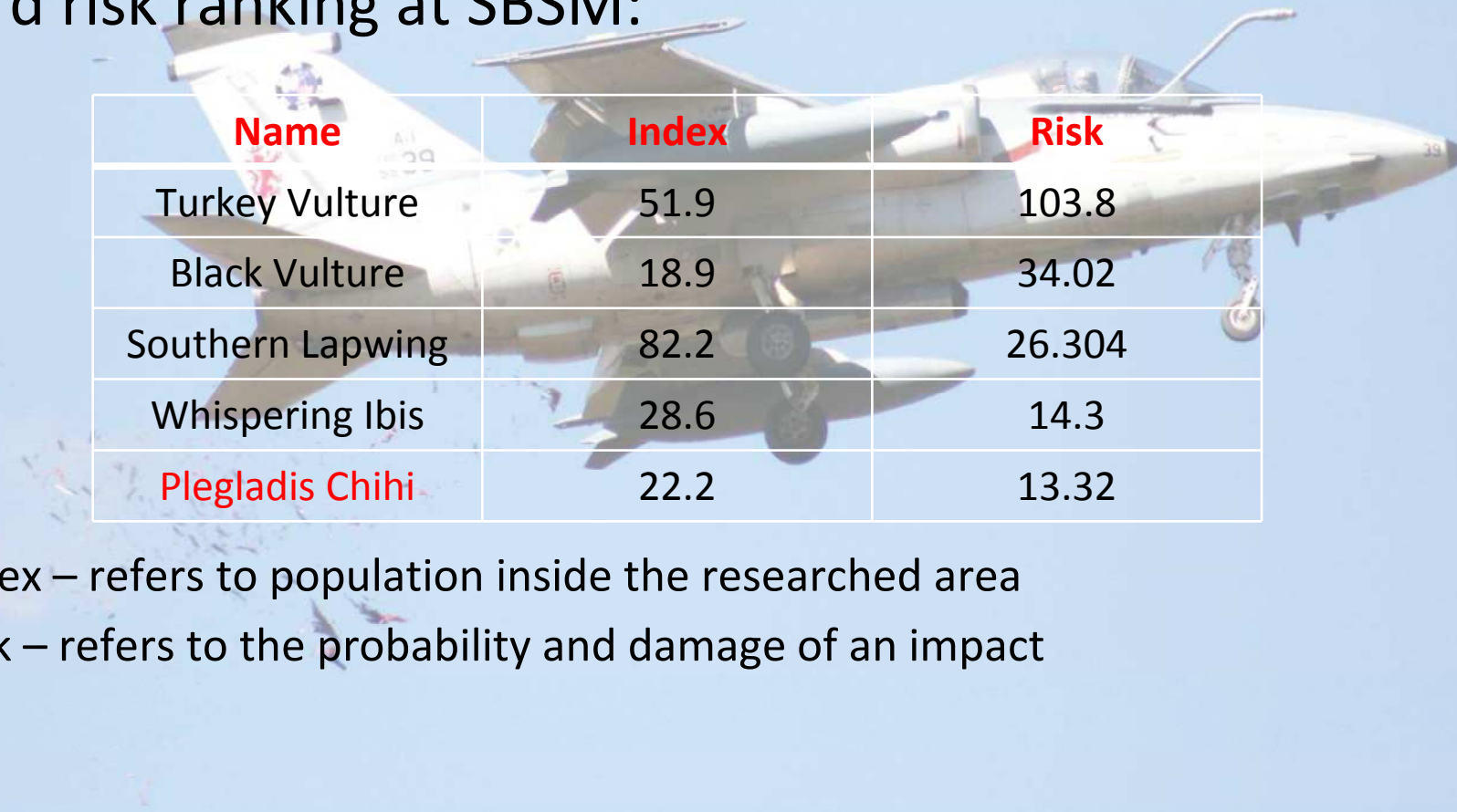




# Involved Species

Volunteer Biologist Research (Mr. Francesco Della Flora)

Bird risk ranking at SBSM:

A fighter jet, possibly an F/A-18 Hornet, is shown in flight against a clear blue sky. Below the jet, a large flock of birds is visible, appearing as a dense cloud of small specks. The jet's tail features a logo and the number '39'.

Name	Index	Risk
Turkey Vulture	51.9	103.8
Black Vulture	18.9	34.02
Southern Lapwing	82.2	26.304
Whispering Ibis	28.6	14.3
Plegladis Chihi	22.2	13.32

Index – refers to population inside the researched area

Risk – refers to the probability and damage of an impact

# Flight Profile

- Mostly low level navigation profile
  - AMX light fighter bomber
  - Bell Helicopter UH-1 Iroquois “Huey”
- Military air-carriers
- Civilian Let 410
  - 8 daily flight regional airliner





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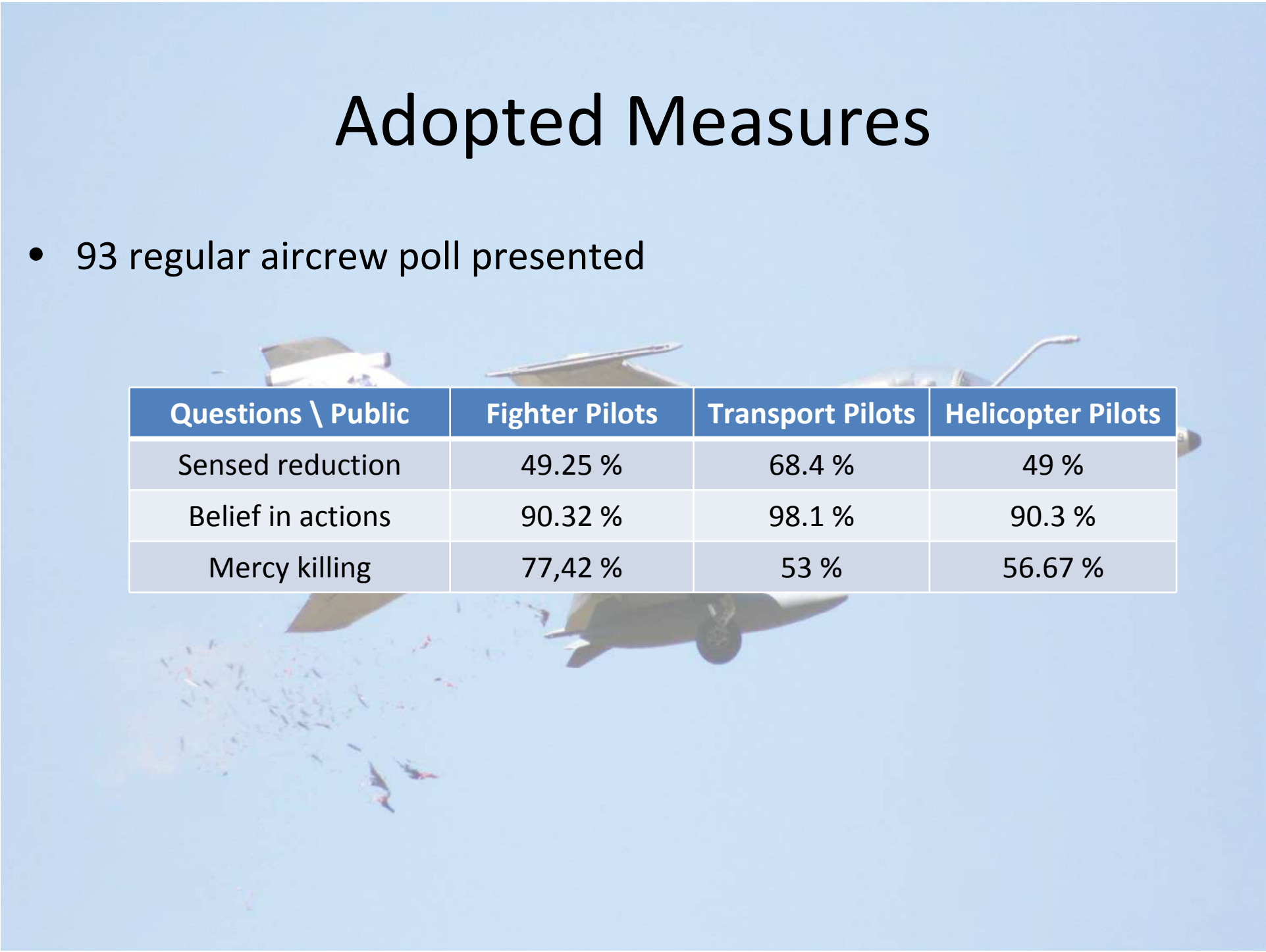


# Adopted Measures

- Diurnal inspections inside the operational area (made by aviators)
- Nocturnal inspections on runways (made by firefighters)
- Weekly inspections on perimeter fences (riding on horses)
- Fireworks (applied under demand of aircrew or air controllers)
- Use of Border Collie dogs twice a day (at researched critical hours)
- Cutting plant management (about 12 inches / 30 centimeters)
- Cut off perch trees (especially jack pines and eucalyptus)
- Installation of experiment Optical Barrier against Birds
- Use of anti perching obstacles on fences
- Use of fishing lines over rest areas
- Meeting with local organizations and ANAC's Biologist
- Disclosure of the problem in local and state media

# Adopted Measures

- 93 regular aircrew poll presented



Questions \ Public	Fighter Pilots	Transport Pilots	Helicopter Pilots
Sensed reduction	49.25 %	68.4 %	49 %
Belief in actions	90.32 %	98.1 %	90.3 %
Mercy killing	77,42 %	53 %	56.67 %

# Optical Barrier against Birds

before installation



09.03.2008 12:28





23.09.2008 08:26





23.09.2008 08:11











20 vultures in this photo



# DIÁRIO DE SANTA MARIA

Um Jornal da FMS

QUARTA-FEIRA  
11/07/2007  
ANO 6 NÚMERO 1.026

R\$ 0,75

www.diariosm.clicrbs.com.br

MAIS



**A VENDA**

Aluga como a da foto e movel do Hotel Gloria serão vendidos hoje. **Página 13**



**PUNÇÃO**

Seriado faz no colono. A Voz, que brinquedo chegou na cidade. **Página 17**



**NOVA DECORA**

Bel Gas, amigo de Buddy Guy, entre hoje. Vozes com sua banda no Rio. **Página 2**



**VENO UCHON**

No colono Zoro, Francisco Daniel. São das crianças nomeadas. **Página 10**

PROJETO DE LEI

## Terrenos e calçadas em dia ou prejuízo no bolso

Projeto proposto pela Câmara de Vereadores pretende sanear a situação - a multa para quem não cumprir a lei que exige a conservação e a limpeza de calçadas e terrenos em Santa Maria. A proposta, de autoria do vereador André Cláudio Bahr (PP), prevê que a multa não será aplicada se o terreno estiver em dia.

Em 60 dias, o valor da multa será reduzido na primeira aplicação. Se aprovada, a medida entrará em vigor ainda este ano e ajudará no trabalho da prefeitura, que adverte que a fiscalização é prejudicada porque a multa mensal é muito baixa. O assunto foi discutido

em reunião pública realizada na Câmara. Muitos moradores reclamaram do péssimo estado de calçadas e de ter de se meter ao lado de terrenos baldios, que servem de local para poluição de lixo e outros para o trânsito de lixo. **Página 8 e 9**

OWEN GIBSON - 001507



### CUIDADO, QUERO-QUEROS NA PISTA

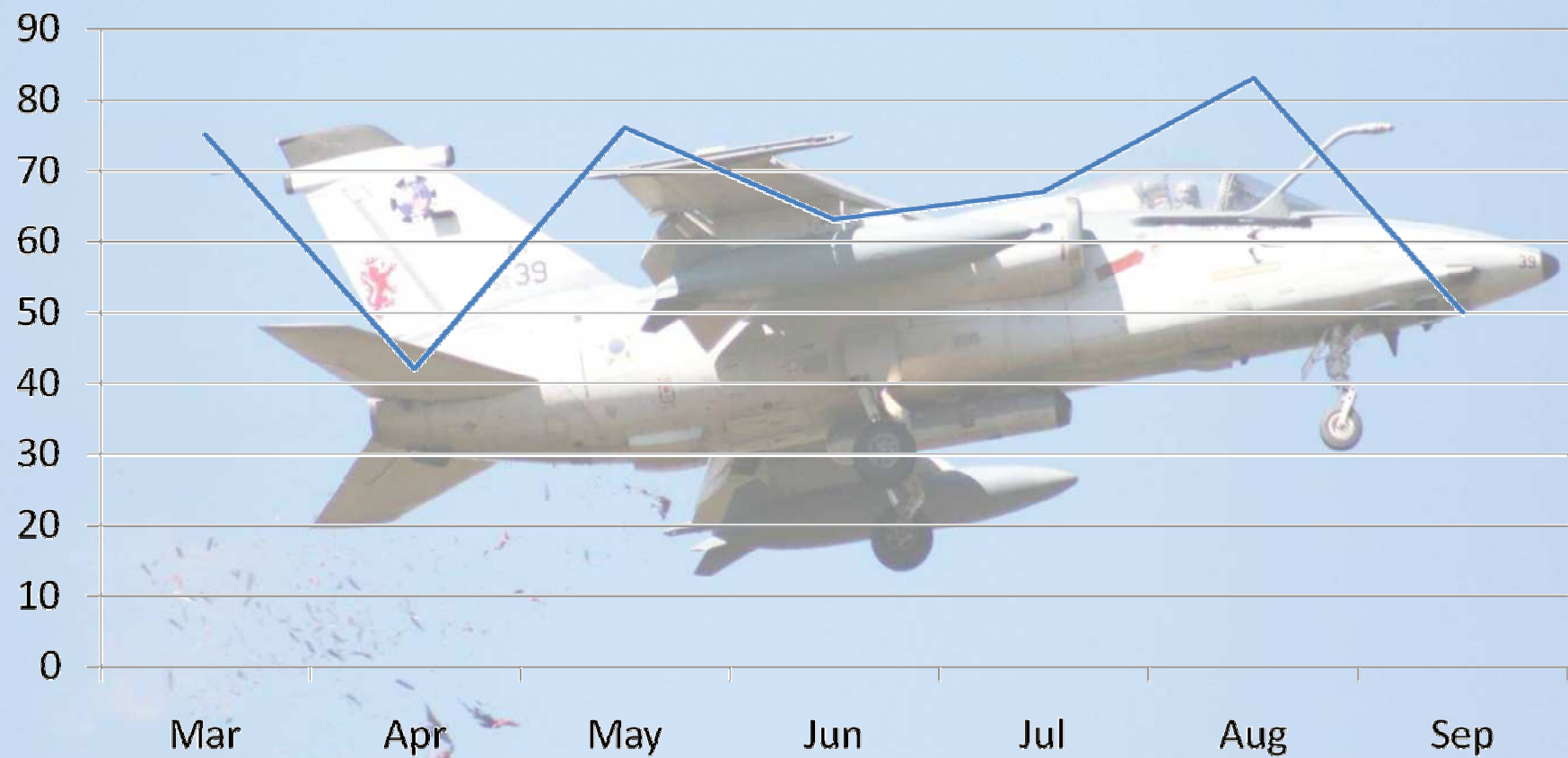
A quantidade de pássaros cresceu muito na Base Aérea de Santa Maria, o que representa uma ameaça ainda maior aos povos e ecologistas. Milhares chegaram a contar 200 aves num

espaço de 4 quilômetros quadrados, enquanto o no final e início, no máximo, oito. O choque de um deles contra um prédio em movimento pode gerar impacto de até 4 toneladas, além de um risco

grande de acidente. Para tentar diminuir o perigo, dois cachorros da raça border collie, conhecidos como ovelheiros, estão sendo treinados para atuar como "espantinhos". **Página 11**



## Reduction percentage comparison between 07-08 (Firefighter's nocturnal inspections)





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# Further Actions

- Nocturnal grass cutting
- Bird Strike Control Local Committee
- Aerodrome management plan to avian fauna (SBSM)
  - Biologist



# Bibliography

- Aerodrome Management Plan to Avian Fauna (SBMN – Manaus) – Sanaiotti, 2007.
- Avian perching deterrents on ultrasonic sensors at airport wind-shear alert systems – Avery & Genchi, 2004.
- Bird Strike Control Manual to INFRAERO airports, 2006.
- Resolution #4, Environmental National Council – IBAMA, 1995.
- Ground Management Manual around Aerodromes – ANAC, 1994.
- Normative Instruction # 72 – IBAMA, 2005.
- Bird Hazard Report as a Safety Tool – Mendonça, 2008.

Thanks a lot for your attention!



# Santa Maria AFB



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