Wildlife Hazard Management

Experience at Sudan Airports

Mohamed Osman Elatta - Environment Manager - December - 2018

Introduction

- Birds and aircraft are increasingly competing for space in crowed skies
- Not only bird but other mammals on ground

- Wildlife strike annually cost the civil aviation in the (USA) at least $500 million in direct damage and associated costs and over 500,000 hours of aircraft downtime and cost in human lives .

- 74% of wildlife strike occur at or below 500 feet above ground level (AGL).

- 18 of 19 civil and military large transport air craft destroyed because of bird strike between 1960 – 2004 resulted from bird strikes that occur on the airport.

Wildlife strike data base
Reporting wildlife strike

- before a problem can be solved the problem must be first understood.
  the first step on this is the collection and analysis of data from actual wildlife strike events
- Reporting type:
- a. Official
- B. Voluntary
- Report form
- A . design your won form
- b. use ICAO , ACI, standard form

What wildlife strike database contain?

- Number of reported bird and mammal strike /month (frequency).
- Reported time of occurrence (dawn– day– dusk–night)
- Type of wildlife involved (homeless dogs , cats .black kite..)
- Characteristic of strikes :
  % of bird strike with reference to phase of flight ,[barked , taxi , take off run , climb , en–route , decent , approach , landing ,roll]

- Which device should be used ?

Experience at Sudan Airports

- Bird strike report 2017 (Khartoum airport)
- Bird strike report 2018 (Khartoum airport)
- Copy report form used

Bird strike report 2017

Date	Air ways	Reg.	Type of air craft	Damage	Remark
23/08/2017	FLY NAS	A6-FDX	B737-800	No damage	During take-off ATC officer notice bird hit an air plane
07/09/2017	FLY NAS	YX-592	A33	No damage	During take-off ATC officer notice bird hit an air plane
15/09/2017	SUDAN AIR	ST-MKW	AB-320-214	Navigation light glazing panel and strobe light damage	At approach toward KTM airport, R/W 18 the pilot notice a flocks of Birds AROUND THE A/C
24/09/2017	BADR	C5-BDB	B737-500	Damage on Radome	During hold over lagra , A/C had bird strike at 4000 ft
29/09/2017	ETIHAD	A6-DCC	A33	Damage on LP compressor blade	During walk around found bird strike left out bones engine No (1) N(3) cowl
05/10/2017	SAUDIA	HZ-A020	A333	Traces of blood on right wing side slate No (2)	During A/C landing at R/W 18 got bird strike on right wing side

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Bird strike Reports 2018

Date	Air ways	Reg	Type of air craft	Damage	Remark
26/1/2018	Emirates Air ways	EPI	B777	No damage	Bird impacted the nose of air plane as we rotated during takeoff phase
13/02/2018	Jordan aviation	JY- JAL	B767	On engine No (2) Fan blades	During back tracking RWY 36 the pilot notice presence of bird between Twy C and D
22/4/2018	Blue bird	ST-ARH	F50	On top part of LHS windscreen	During rotation bird hit on part of LHS windscreen
16/5/2018	SAUDI ARABIA	HZAQ	A330	No damage	During landing at RWY 18 bird hit NOSE DOM
22/03/2016	Jordan aviation		B762	No damage	during take off ATC officer notice bird hit an air plane

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One bird strike at Nyala Airport

Agencies and organization impacting wildlife hazards at airports:

- Wildlife management is complex mixture of (science , experience and art).
- Agencies :{mission ,role, responsibility } federal agencies(ministry of transportation– CAA – office of airport safety and standards – environmental protection agencies)
- state agencies : (state wildlife management agencies [mission ,role, responsibility]).
- Airports:(airport operator , air traffic control , pilots)
- Bird strike committee
  –role and responsibility :
  1–facilitate the exchange of information .
  2– promote the collection and analysis of accurate wildlife strike data .
  3– promote the development of new technologies for reducing wildlife hazard .

Experience at Sudan Airport

- Federal agencies:
- CAA – DASS:
- Airport :
- Bird strike committee:

REGULTION AND POLICIES (SCAA)

Recognizing hazards wildlife attractants on or near airport:

- land use practices and habitat are **the**

  key factors determining the wildlife species and the size of wildlife population that are attracted to airport environments.

  –Recognition and control of these land uses practices and habitat on or near airport that attract hazardous wildlife are fundamental to affective wildlife hazards management plans .

Separation criteria for hazardous wildlife attractant on or near airport

- It is used for land use practices that attract hazardous wildlife to vicinity of the airport

Separation distance based on

1. Flight pattern (airport served – piston powered or turbine powered aircraft– protection of approch or departure airspace

2– The altitude at which most strike happen.

- Under 1000 feet 81%
- Under 3000 feet 92 %

- **Experience at Sudan Airports:**
- Agreement between Khartoum Airport and Green Yard manager (collecting waste before sun rise , reduce the time of irrigation , cut the grass

AIRPORT WILDLIFE HAZARD MANAGEMENT PROGRAM

AIRPORT WILDLIFE HAZARD MANAGEMENT PLAN

- It contain steps
  - wildlife hazard assessment (is the first step).
  - it conducted by a wildlife damage management biologist .
  - HE / SHE provides the scientific basis for the development , implementation and refinement of wildlife hazard management plan .
  - it is a separate document (or may be part of W.H.M plan .

REQUIREMENT FOR WILDLIFE HAZARD ASSESSMENT

- For certified airport

  – it conducted when any of the following event occur on or near the airport :–

  1– An air carrier aircraft experiences wildlife strikes .

  2– An air carrier aircraft experiences substantial damage from striking wildlife ,

  3– An air carrier aircraft experiences an engine ingestion of wildlife .

  4– a wildlife of a size or in number capable of cussing an event describe in 1–3 above .

Requirement for wildlife hazard assessment cont……..

1. The identification of the wildlife species observed .
2. Their numbers .
3. Location.
4. Local movement .
5. daily and seasonal occurrence

In general 12 month assessment in the airport and surrounding areas

- Experience at Sudan airports
- Perform W.H.A (2007)(Khartoum Airport)
- Need to updated

WILDLIFE HAZARD MANAGEMENT PLAN

- when complete W.H.A it send to authorized agents (CAA) .
- Necessary elements of wildlife hazard management plan.
  - The goal of an airports wildlife hazard management plan is to minimize the risk to aviation safety , airport structure or equipment or human heath posed by population of hazardous wildlife on or a round the airport .

Land –use practices that attract wildlife to the airport

1–waste disposal operations

Municipal solid waste landfills should be out side operation area.

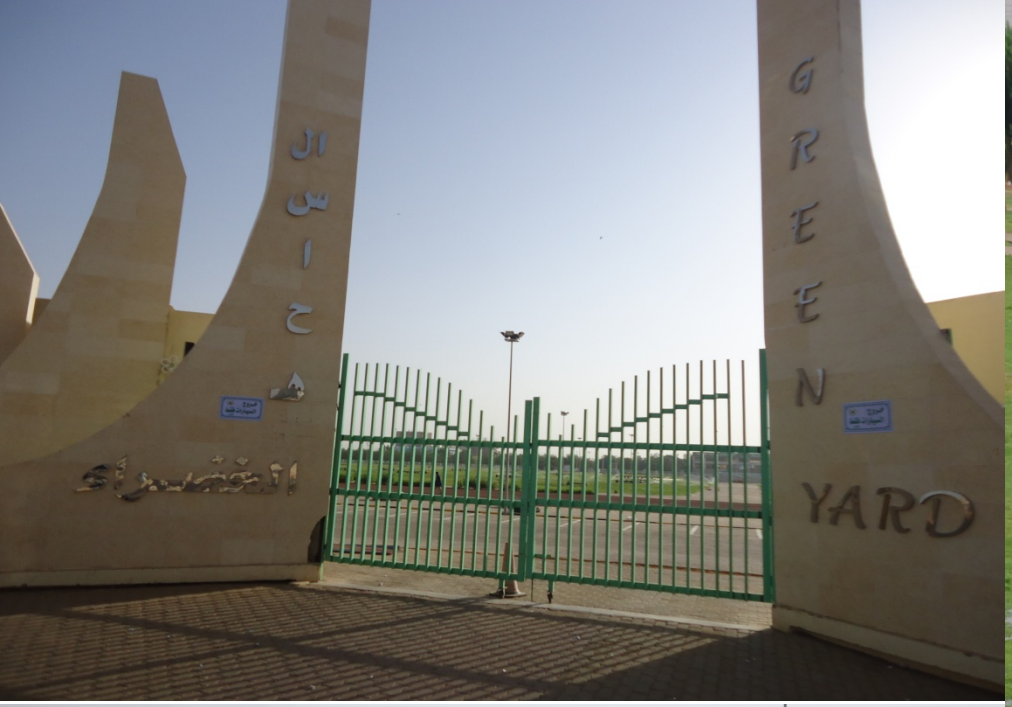
2– trash transfer station .

3– water management facilities (drink water, storm water facilities).

4–existing storm water management facilities (quick removal of surface water so as to reduce standing water).

5– livestock production

Synergistic effects of surrounding land uses(hay field–lake).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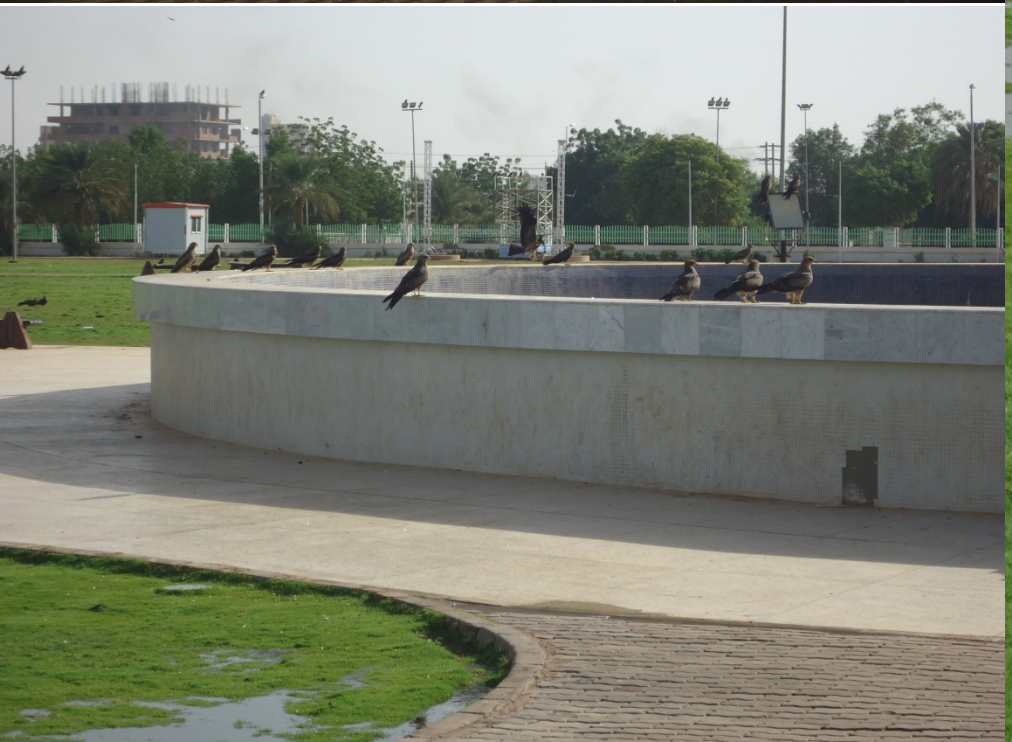

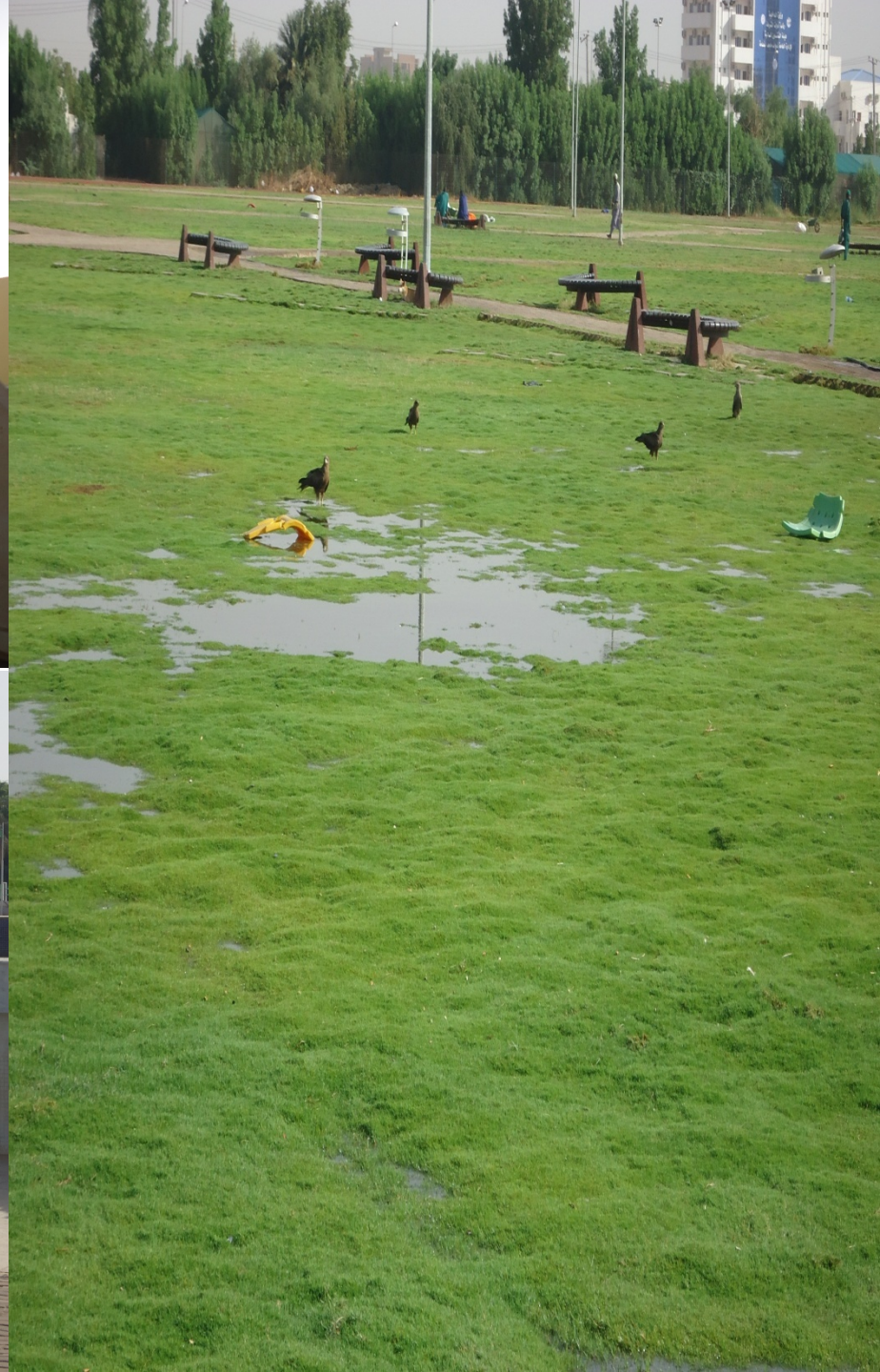

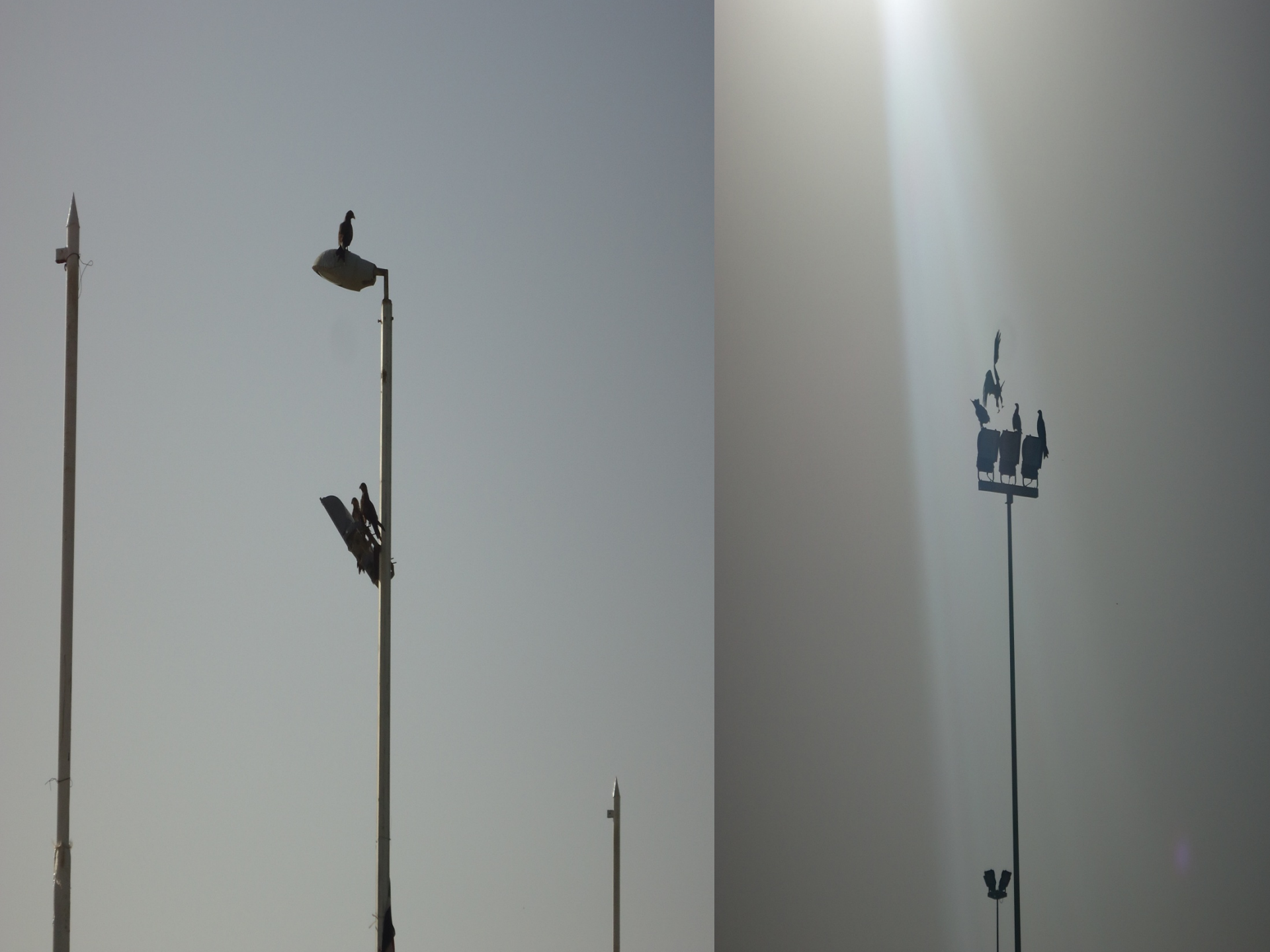

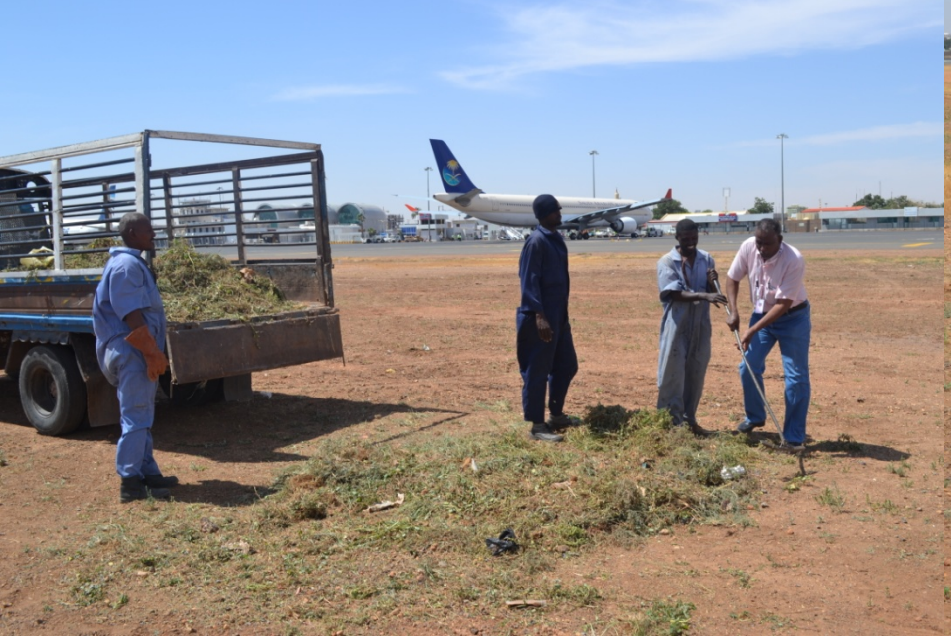

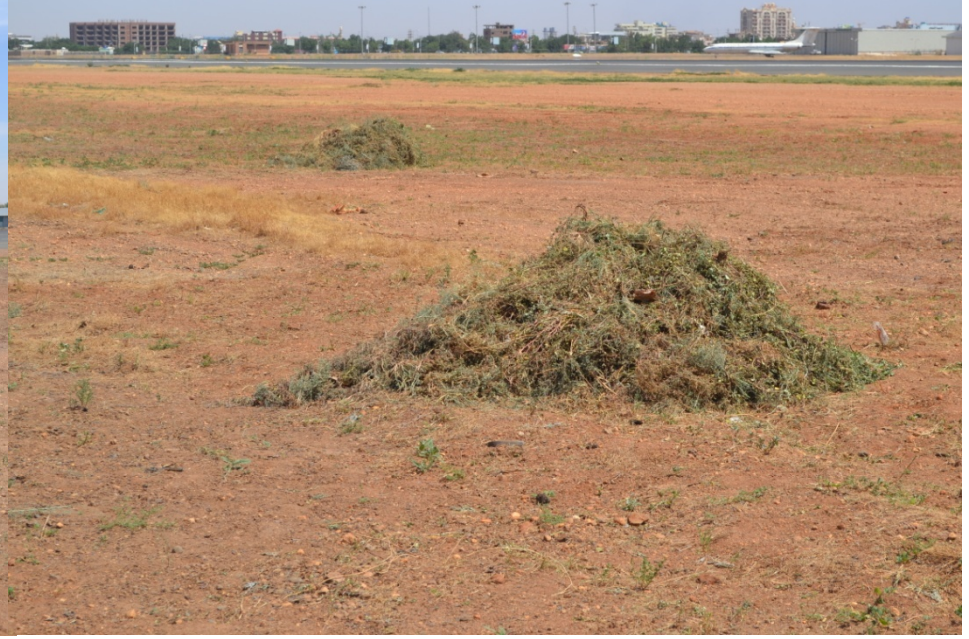

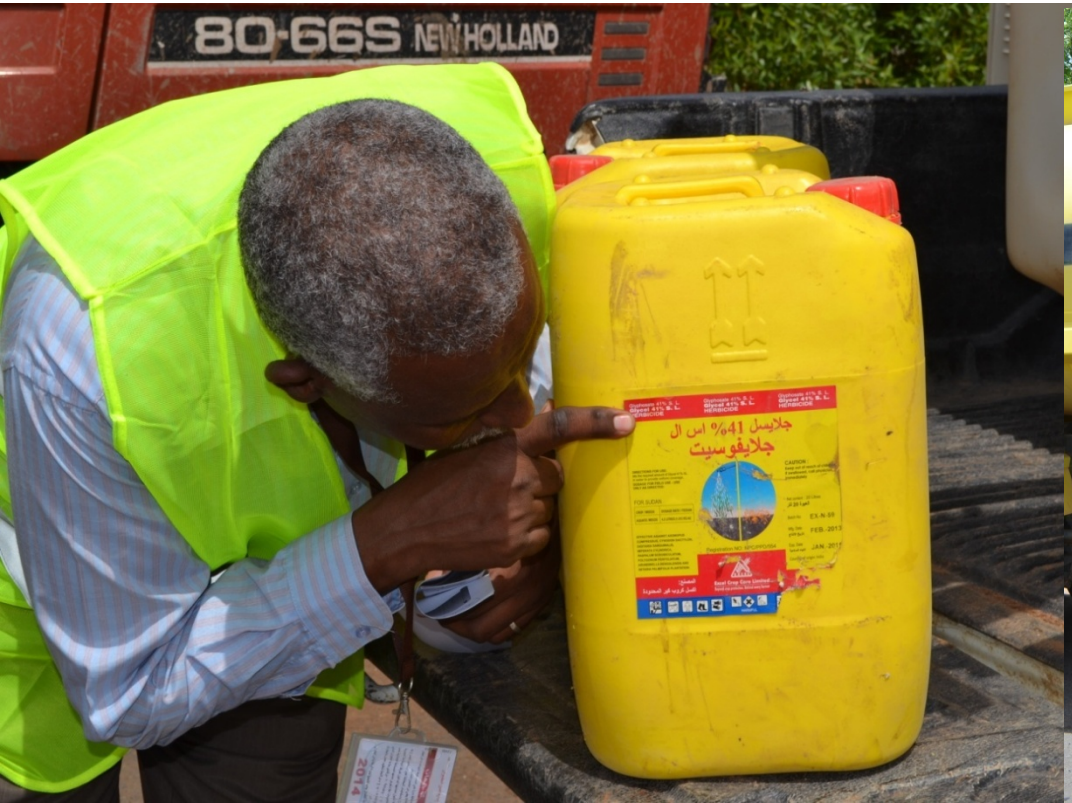
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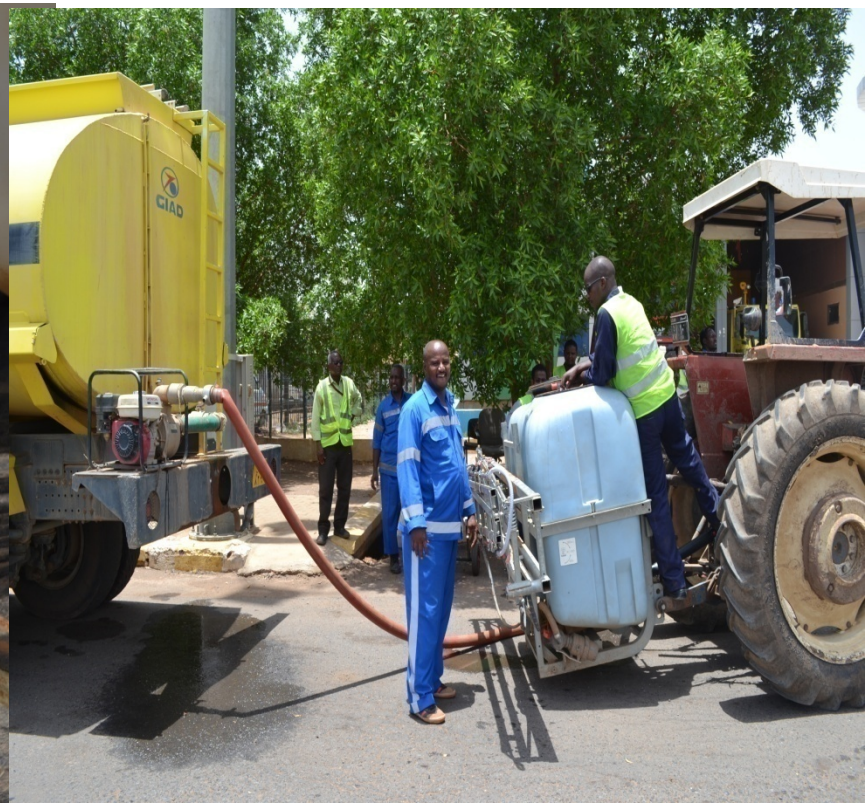
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Glyphosate Used to treat grass at Damazine Airport

WILDLIFE CONTROL TECHNIQUES

- ✓ Firearms

a) need will trained personnel .

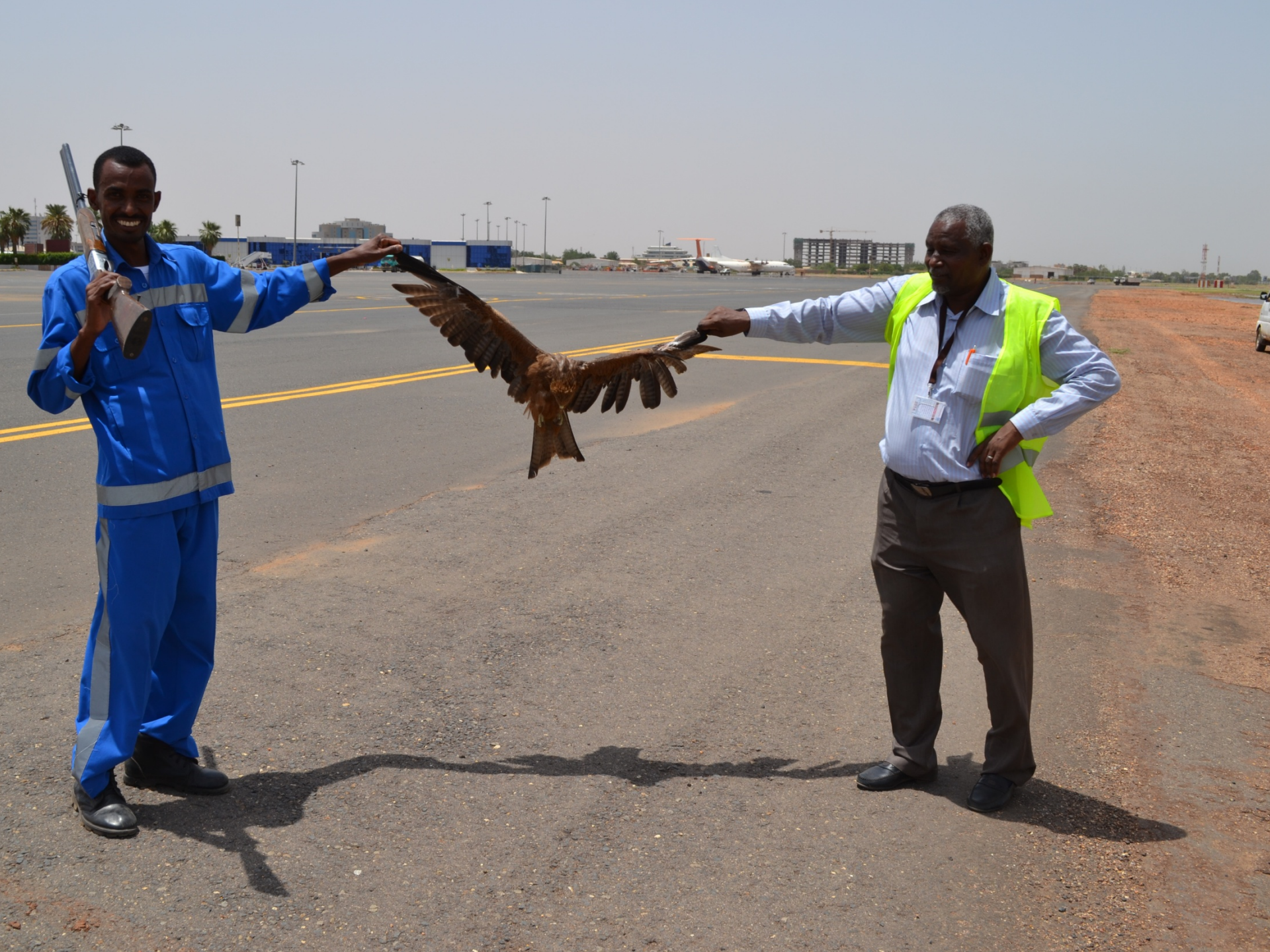
b) need authorization .

c) use alone or to reinforce repellent techniques .

- ✓ Pyrotechnics

a) Need training.

b) use correct pyrotechnics for each situation and wildlife species and to minimize habituation.



- ✓ Record keeping and strike reporting:
- ✓ W.H.M.P have develop a system to :

1) Document the daily activities of W.C.P
2) Long information about wildlife number and behaviour on the airport.
3) Record all wildlife strikes with aircraft

- This information is essential to document the effort being made by the airport in reducing wildlife hazard .
- It is extremely useful during evaluation of wildlife hazard management plan.

- Experience at Sudan Airports
- Wildlife Hazard Management Plan(part of airport certification manual)(Khartoum , Portsudan , Obied) Airports

Wildlife control strategies and techniques at airports :

- The first step in solving any wildlife damage problem is to answer the flowing 9 questions for each species :

1) What are the wildlife doing that make the control at their number or damage necessary?
(the type of the activity that need to be control wildlife determine :

A. severity of the problem.

B. The type of control method used .

2) Which species of wildlife that causing the problem ?
(deferent species required deferent management techniques .)

3)Why are the wildlife in the airport ?

– are they attracted to the airport for :

a) Food .
b) Water .
c) Shelter .
d) Flying over the airport from naight time roosting sites to day –time feeding site .

(answer determine the most appropriate control method to use).

4) What are the daily and seasonal movement patterns' of the wildlife among feeding , , roosting , nesting areas

(time , seasons , location , critical to aviation safety) .

5) What are the legal status of the problem species ?

(species have no equal legal protection).

6) What effective and legal management method are available ?
7) How selective are the control method ?
(control target wildlife).
8) How much will it cost to apply the selected control methods ?
9) What are public attitudes to word the problem (hazard) that wildlife species (poss.) (influence the tap of management used .

Wildlife control strategies

1) Aircraft flight schedule modification .
2) Habitat modification of exclusion .
3) repellent and harassment techniques .
4) Wildlife removal .

- Aircraft flight schedule modification:

  (not to depart during 20 minute period at sun rise or sun set)

- Habitat modification:

means changing the environment(at airport and surrounding area) to make it less attractive or inaccessible to the problem wildlife(reduce, food , cover and water)

- Food : for airport landscaping avoid plants that produce fruits and seeds desired by birds
- Cover: avoid dense vegetation ..
- Water : water act as magnet for birds –eliminate all standing water at airport to the greatest extent possible .

- Experience at Sudan Airports
- Habitat modification

- Repellent techniques

Are designed to make the area or the resources desired by wildlife unattractive or make the wildlife uncomfortable or fearful

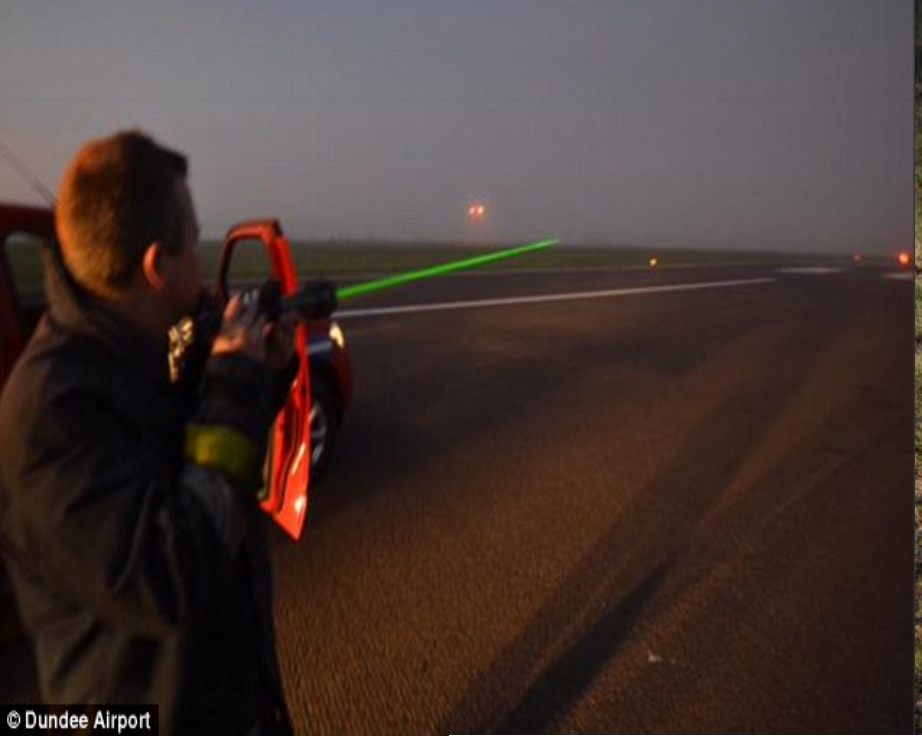
Repellents work by affecting the animal sense by chemical , auditory or visual means

Habituation or acclimation of bird and mammals to most repellent devices or techniques is the major problem .

- Critical factors to be recognised in deploying repellents are :
- The are no "silver bullets" that will solve all problems
- Likewise, there is no standard protocol or set of procedures that is best for all situations
- Repelling is an art as much as science .
- The most important factor ; is having motivated , trained , appropriately equipped personnel who understand the wildlife situation in their airport

- Each wildlife species is unique and will often response differently to various repellent techniques even in a group of closely related species .
- Habituation to repellent techniques can be minimized by:
- ✓ Using each technique sparing and appropriately when the target wildlife is present

- Using a verity of repellent techniques is an integrated fashion
- Reinforcing repellents with occasional lethal control (with necessary permits in place) directed at abundant problem species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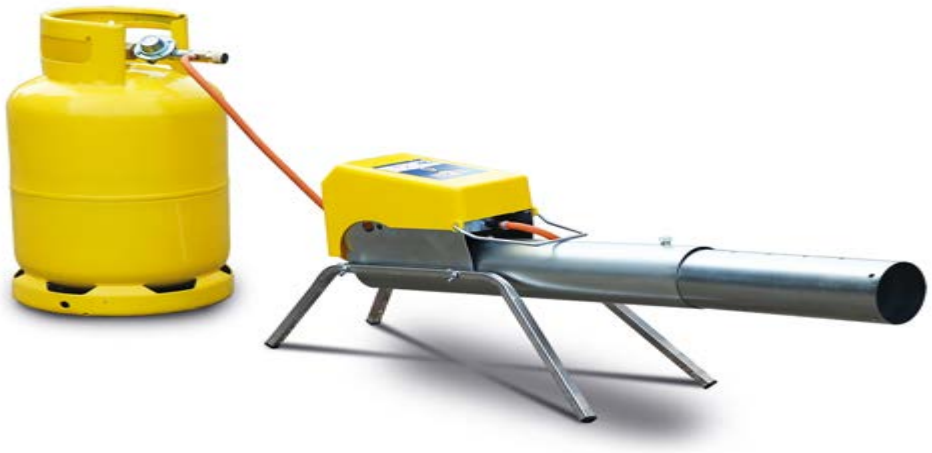

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