

# Observations from NARREC

Namibia Raptor Rehabilitation and Education Centre

Toxins  
Diagnosis  
Treatment  
Ways forward



# Biocide selection

Available to the Public



# Weapons of Mass destruction

- Organo chlorines
- Organophosphates
- Carbamates
- Strychnine
- Cyanide
- Arsenic
- Neonicotinoids
- Lead
- Veterinary Pharmaceutical products



# Wildlife Poisoned and Information Received

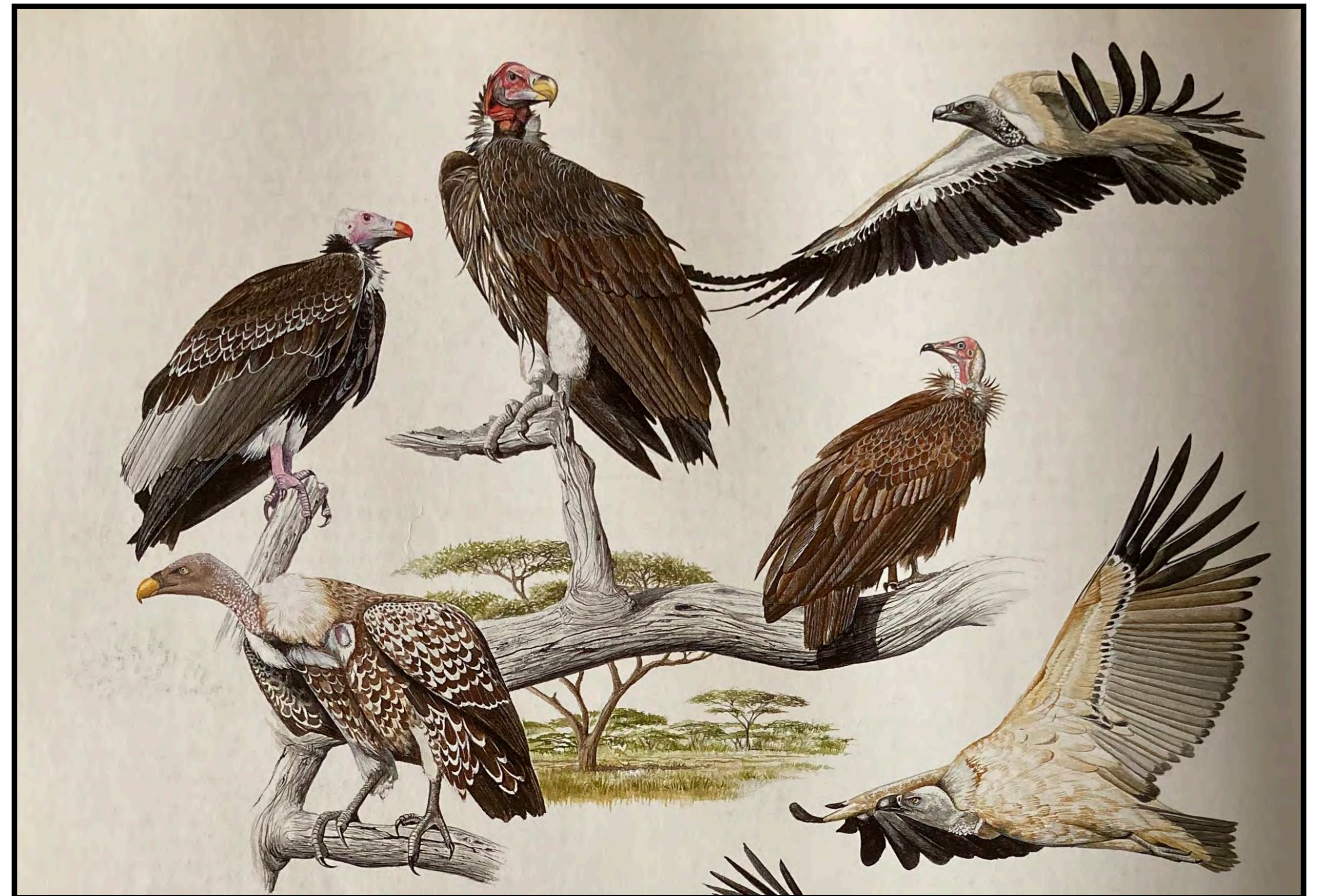


# Vultures

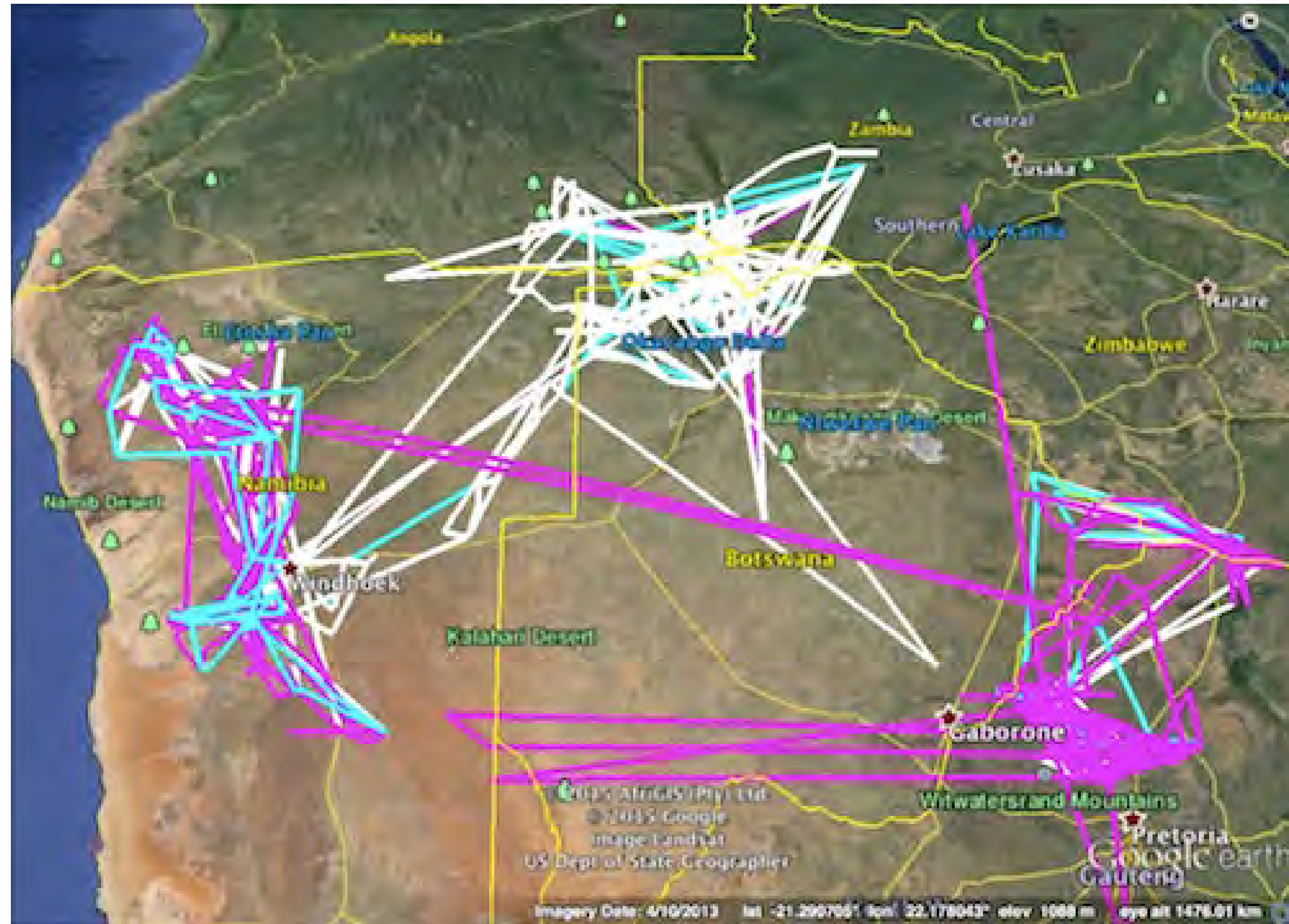
11 species in Africa

7 species in Namibia

- Lappet-faced Vulture - E
- White-headed Vulture - CE
- White-backed Vulture - CE
- Cape Vulture - LE
- Hooded Vulture - CE
- Ruppel's Vulture - CE
- Egyptian Vulture - E



# Regional cooperation



## The IUCN assessment of decline over three vulture generations



Reduced by 90%



Reduced by 92%



Reduced by 80%



Reduced by 92%



Reduced by 83%



Reduced by 96%



Reduced by 97%

# The obligate scavengers





# Facultative Scavengers



## Lead

the most toxic heavy metal found worldwide

Food chain contaminant – Batteries / Old paint / Putty / Petroleum products / Solder / Fishing sinkers / Hunting shot / Hunting bullets

**Environmental Clues:** Metal shot and bullets / Contaminated water / Contaminated soil / Hunting Season / Hunting Farm / Livestock Farm Livestock feedlot /Abattoir

**Clinical signs:** Head tremors / Lethargy / Nausea / Anaemia / Blindness

**Treatment:** X-ray / Remove lead / Emetics / Saline laxative / Ringers lactate oral / Chelate with CaEDTA 35mg/kg every 12 hours / Sedation / Vit. B1 / Multi-vitamin / Alapurinol

Endoscopic retrieval and ventriculotomy only for birds able to withstand surgical anesthesia

Conservative aids to eliminate lead pellets: oral administration of mineral oil, corn oil, sodium sulfate (Glauber's salts) or 1% psyllium (*Plantago ovata*) mixture. Activated charcoal (2 $\times$  8 g/Kg) prior to administration of cathartics to bind small particles of heavy metal.

### *Blood Level Concentration*

*subclinical 10  $\mu$ g/dl    clinical >35  $\mu$ g/dl    >100 $\mu$ g/dl acute*

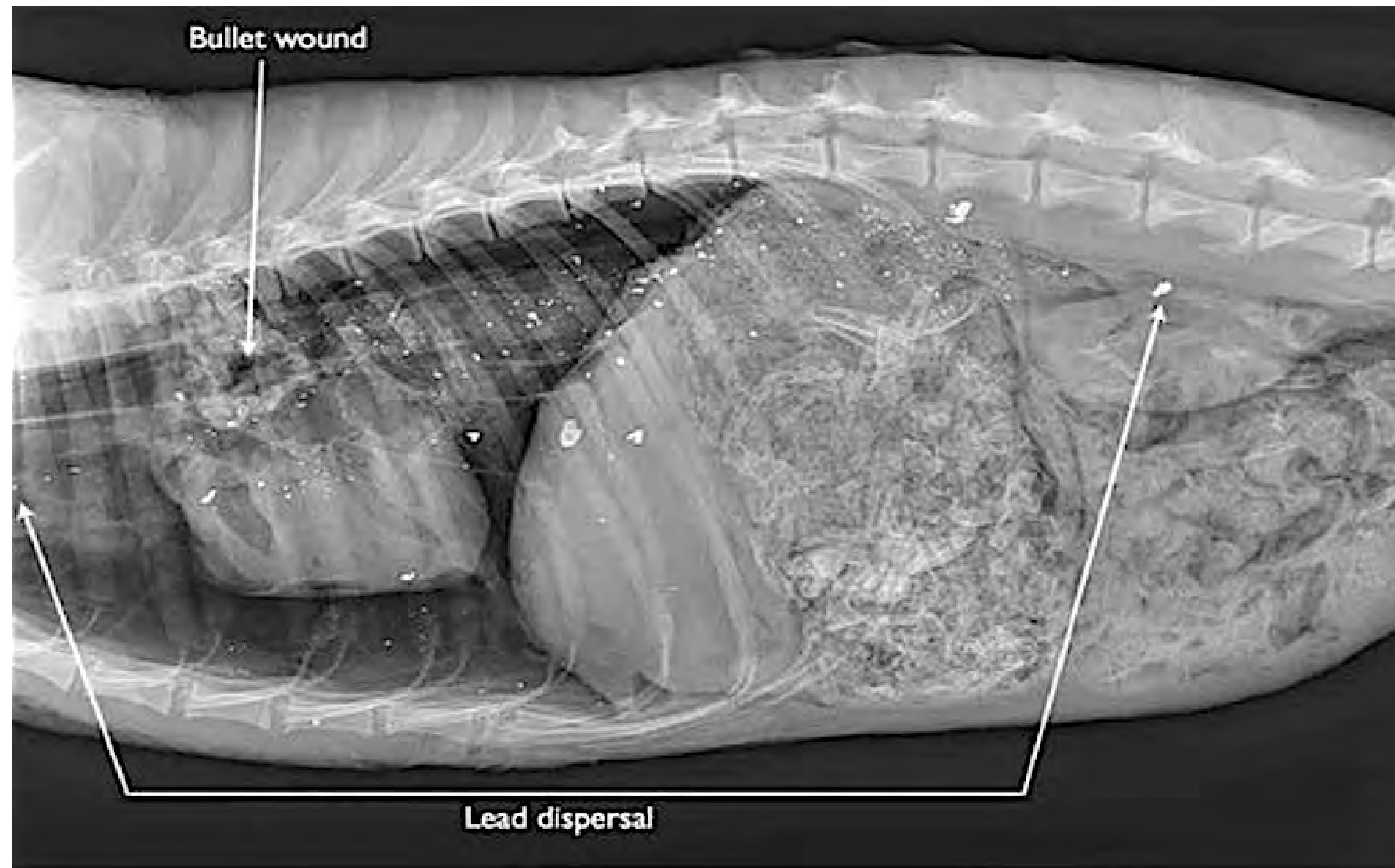
**How Many Times Should a Bullet Kill?**

Lead is Fatal both from Primary killing and as Secondary Toxicity  
Globally the most toxic heavy metal

*Blood Level Concentration*

subclinical 10  $\mu\text{g}/\text{dl}$     clinical  $>35 \mu\text{g}/\text{dl}$     acute  $>100\mu\text{g}/\text{dl}$

Dispersal of lead in a carcass





Blinded - Toxic Optic Neuropathy

DD - Lead / NSAID / head Trauma

Blood for diagnostics

Ringers Lactate / Charcoal / Allopurinol

Essentiale / Meloxicam/ Enrofloxacin

Chelation - Ca EDTA



# Primary and Secondary Victims of Lead Shot

All raptor species are susceptible to lead ingestion and lead intoxication

Birds using feedlots and Hunable bird species



Migrant species targeted for food and misguided recreation

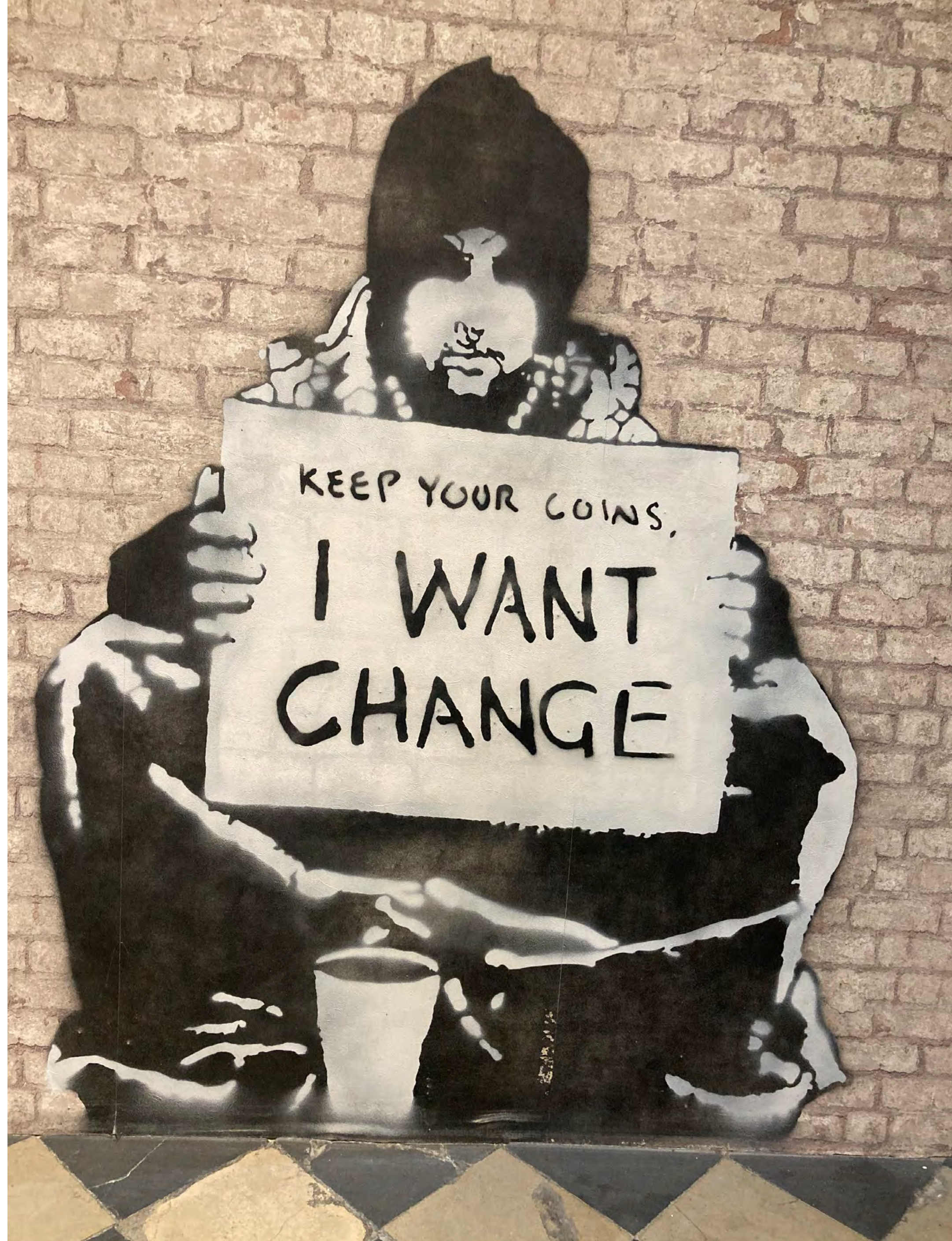


City and garden birds



River and riverine areas





Manufacturers  
Marketers  
Distributors  
Consumers  
Farmers

International Hunters  
Local Hunters  
Hunter Associations

Local Government Ministries:  
Health and Social Services  
Environment Forestry and Tourism  
Agriculture Water and Land Reform

Legislators

General public  
Professional Public  
Veterinarians  
Animal Health Technicians

Education  
Primary Secondary Tertiary

# Vulture Restaurants





## NEVER USE A CARCASS that has.....

- Immobilisation and Euthanasia
- Painkillers and Anti-inflammatories
- Ascaricides and Parasiticides
- Antibiotics
- Lead shot

Check on how the animal died as birds are highly sensitive to contaminants - poisons and some veterinary drugs.

**NEVER USE A CARCASS** from an animal that has died under **anaesthetic or an immobilizing drug or been euthanized** (killed by injection).

**AVOID** any pentobarbitone; *Euthanase®* and *Euthapent® M99®*, *Zoletil®*, *Dormicum®*.

**DO NOT USE CARCASSES** that have died within a week of the last treatment with **painkillers and anti-inflammatories e.g.:** *Finadyne®*, *Cronyxin®*, *Pyroflam®*, *Ketofen®*, *Tomanol®*, *Phenylarthrite®*, *Equipalazone®*, *Fenylbutazone®*.

**DIPS:** Skin animals that have died within 5 days of being dipped for external parasites. Pour on and injectable parasiticides may be toxic to birds if the animal dies within 72 hours after treatment, e.g. *Front-line®*, *Dectomax®*. Avoid carcasses that were recently treated for tick-bite fever (Redwater).

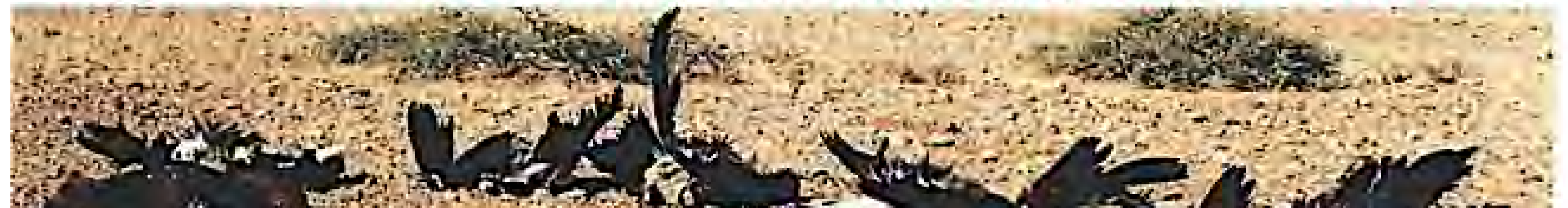
**LEAD SHOT:** Lead is highly toxic and shot/bullets should be removed.

**ANTIBIOTICS:** If an animal was treated with antibiotics 72 hours before dying, the carcass is presumed safe. An animal that has died within 24 hours after being injected with a long acting antibiotic, can be used, **PROVIDING** the muscle mass at the injection site, the liver and the kidneys are removed.

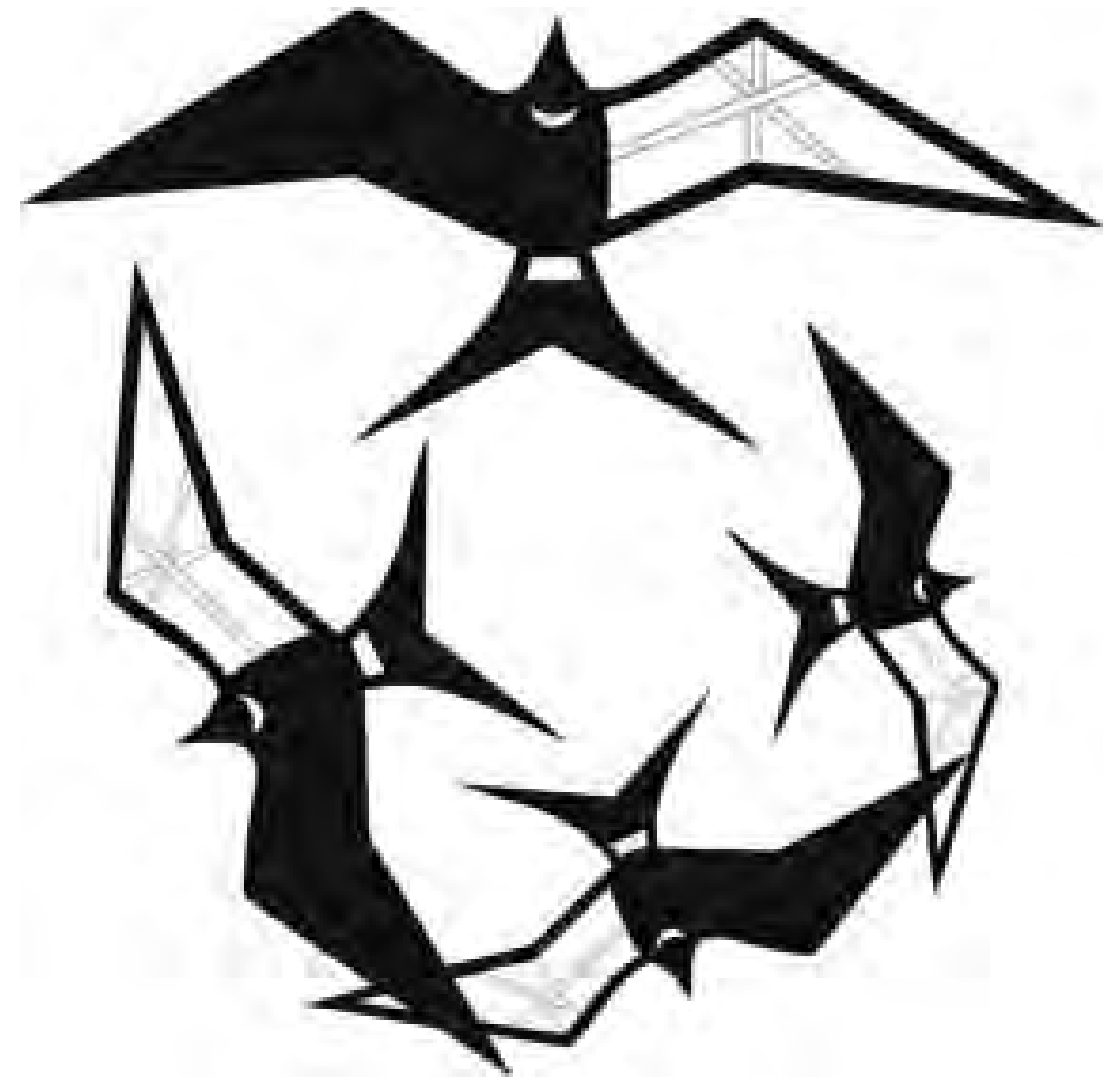
If it is not possible to avoid antibiotic carcasses, destroy the liver and kidneys, these organs contain the highest concentrations of these drugs.

**Carcasses that are dangerous for birds are best burnt but can be buried under ash or lime or under a dense cover of cut bush.**

**BURN ANY CARCASS FOUND BLEEDING FROM THE NOSE AND/OR RECTUM.**







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