WELCOME

TO



III INTERNATIONAL SCIENTIFIC AND PRACTICAL CONFERENCE "EAGLES OF PALEARCTIC: STUDY AND CONSERVATION"

RAPTORS MOTILITY IN NORTH WEST RAJASTHAN, INDIA (2017-2022)

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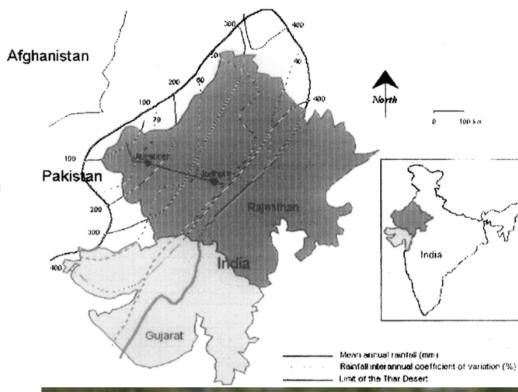
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INTRODUCTION

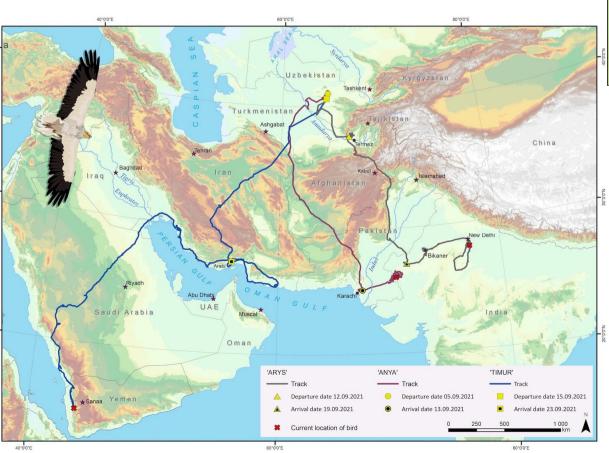
Thar Desert (INDIA) is most important place for world biodiversity including 6 species of vulture population. In south Asia when vulture crisis in has start than a big part of North India and Pakistan maintain vultures population. From India side, Rajasthan and Gujrat and from Pakistan, Sindh and Panjab Prant are actively participating to maintaining population in South Asia.

Despite of species of Gyps vulture restoration project and habitat protection thorough community based livestock management by Pakistan and from India captive breeding programme successfully run Ministry of environment and forest, Government of INDIA (GoI).

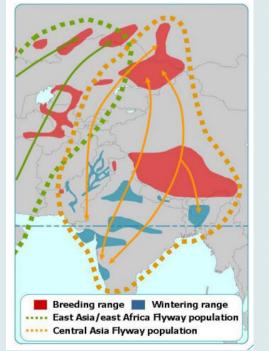




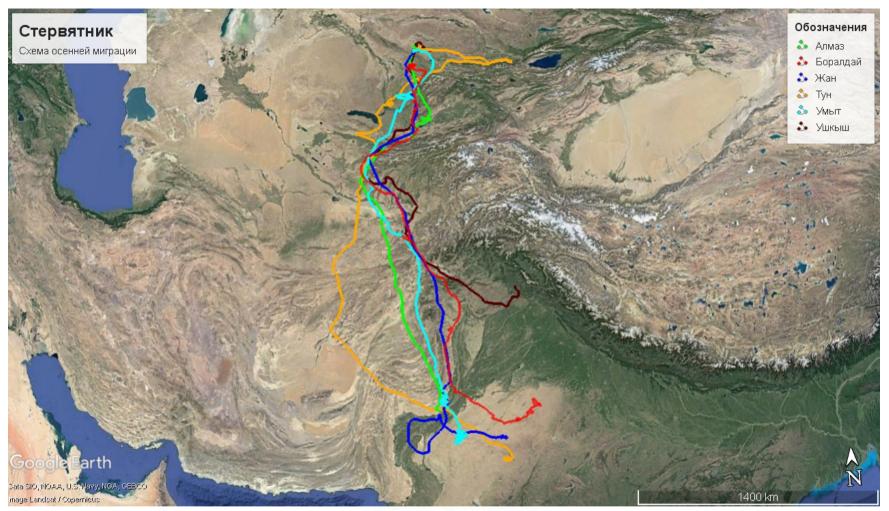
In Asia, the species range fluctuates considerably from year to year, however the overall population trend is likely to be declining.







Cr: Vladimir Dobrev



Partners and sponsors of the project:





BRCC

Biodiversity Research & Conservation







VANISHING VULTURES

High mortality hinders India's plans of stabilising its vulture population

53% drop in India's vulture population since 2003

40,387

32,251

34,950

2015 18,645

The fatal four

DICLOFENAC

was banned for veterinary use in 2006 to arrest the shrinking vulture population

ACECLOFENAC

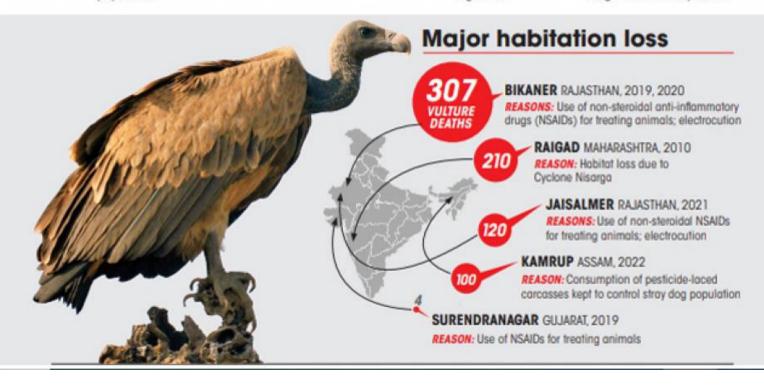
gets converted into diclofenac within hours of administration to cattle

NIMESULIDE

causes visceral gout and renal failure in vultures within 30 hours of ingestion

KETOPROFEN

causes death in vultures within 48 hour after ingestion due to heightened toxicity levels



Drug name	Threat / safety	Known effect				
Meloxicam	Confirmed Safe	Tested and shown to be safe for vultures (Swarup D. et <i>al.</i> 2007)				
Tolfenamic acid	Confirmed Safe	Recently tested and results show it is also safe. (Chandramohan et al. 2022)				
Carprofen	Toxic at high doses	Shown to be at toxic levels for vultures in cattle tissues around the injection site (Fourie <i>et al.</i> 2015)				
Flunixin	Toxic	Shown to be toxic to <i>Gyps</i> vultures in Spain and Italy with dead wild birds showing gout & flunixin in tissues. But not fully safety-tested on vultures. (Zorrilla et al. 2014, Eleni et al. 2019)				
Nimesulide	Confirmed Toxic	Banned in many countries due to safety issues in humans and banned in India for under 12s. Fast becoming popular in India & Nepal. Confirmed cases of dead wild vultures with gout and nimesulide but no diclofenac (Nambirajan et al. 2021) and safetytrials demonstrate toxicity. (Galligan et al. 2022).				
Aceclofenac	Confirmed Toxic	Metabolises into diclofenac in cattle so equivalent effect to diclofenac (Galligan <i>et al.</i> 2016, Sharma 2012)				
Ketoprofen	Confirmed Toxic	Trials carried out on Gyps vultures showed toxicity at concentrations found in treated cattle in India (Naidoo <i>et al.</i> 2009). National ban in Bangladesh 2021.				
Diclofenac	Confirmed Toxic	Confirmed highly toxic in 2003 (Oaks <i>et al.</i> 2004), and banned as veterinary drug in Bangladesh, Cambodia, India, Iran, Nepal, Oman, Pakistan and Socotra.				

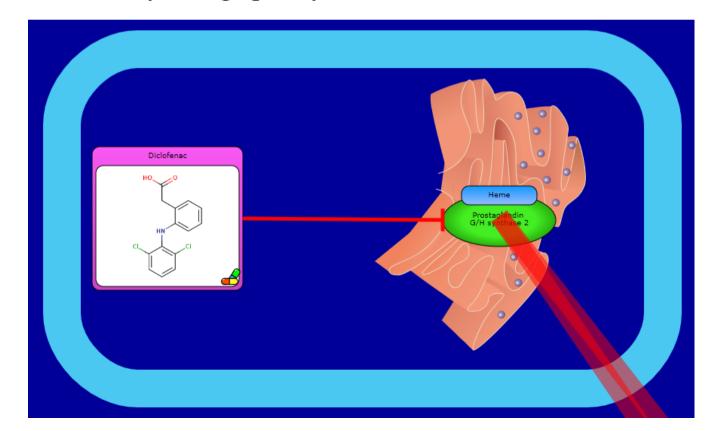
ROLE OF DRUG FOR ANIMAL TREATMENT

Veterinary nonsteroidal anti-inflammatory drugs (NSAIDs) are commonly used to control fever, pain, and other signs of inflammation in animals. Inflammation is the body's response to irritation or injury and results in redness, warmth, swelling, and pain in the inflamed area. NSAIDs reduce these signs by affecting the production or function of certain substances, mainly prostaglandins, that are made by the body and involved in inflammation.

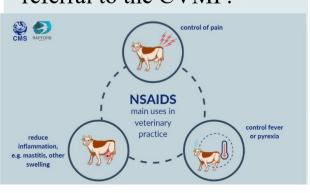
A group of (NSAIDs) used to treat livestock are known to be toxic to various scavenging raptor species, causing catastrophic declines in vulture populations of Asia. The drugs are toxic to the 08 species of vultures of the genus Gyps, but some are known to be **toxic** also for **other vulture species and eagles** of the genus **Aquila**.

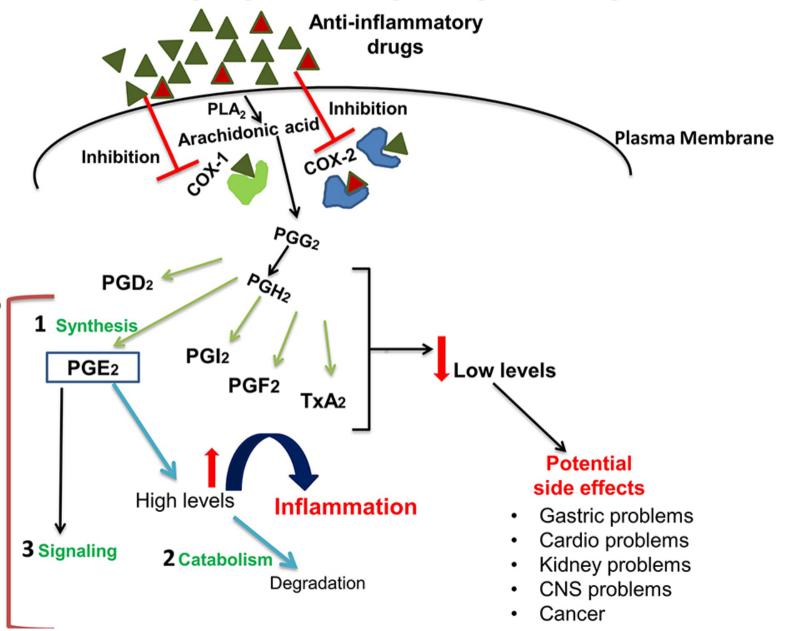
All 15 migratory old world vulture species are threatened and listed in Appendix I or II of the CMS and most are globally threatened.

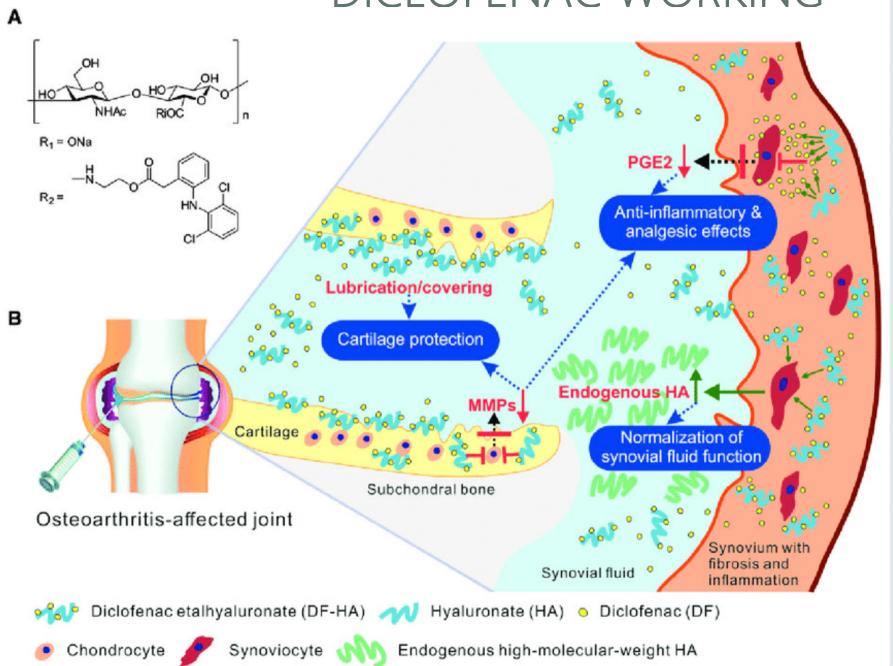
Diclofenac has been in use since 1974 to treat several problems in cattle such as pain during calving, lameness, mastitis, and swelling. The drug was also used to treat diverse problems such as dysmenorrhea, ocular inflammation, rheumatoid arthritis, osteoarthritis, ankylosing spondylitis, and actinic keratosis etc.



In accordance with Article 30(3) of Regulation (EC) No 726/2004, the European Commission can request the CVMP to draw up a scientific opinion on any scientific matter related to the evaluation of medicines for use in animals. Upon receipt of the opinion the European Commission decides if there is a need for further regulatory action at EU or national level and can initiate follow-up procedures if necessary, usually in the form of a referral to the CVMP.



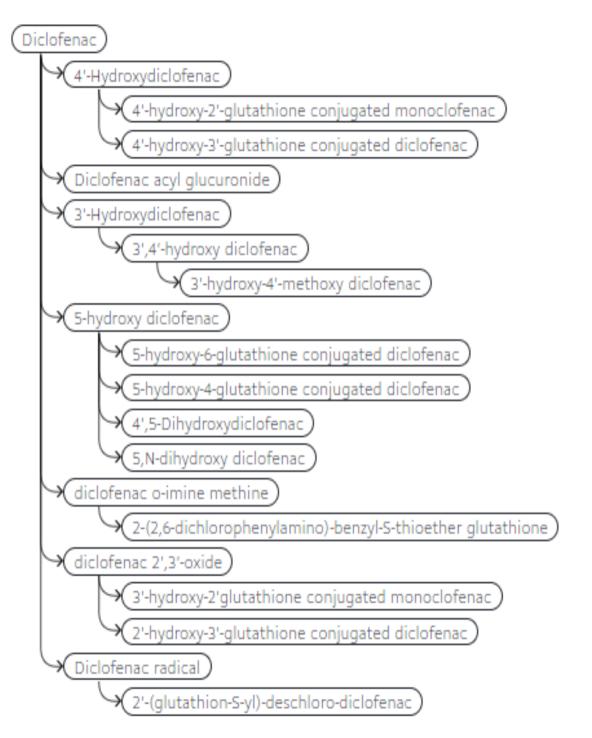






Diclofenac binds extensively to plasma albumin. The area under the plasma concentration-time curve (AUC) of diclofenac is proportional to the dose for oral doses between 25 to 150mg. Substantial concentrations of drug are attained in synovial fluid, which is the proposed site of action for NSAIDs.

Route of elimination: Diclofenac is mainly eliminated via metabolism. Of the total dose, 60-70% is eliminated in the urine and 30% is eliminated in the feces.



Structures of ketoprofen, tris, L-lysine, and L-arginine

Nimesulide is a relatively COX-2 selective, non-steroidal anti-inflammatory drug (NSAID) with analgesic and antipyretic properties.

NEED BAN FOR STOP RAPTOR MORTALITY

DICLOFENAC BAN IN INDIA

F.No. 18-03/2006-DC

The Drug Controller General (India)

Directorate General of Health Services

Τa

From:

All State Drugs Controllers

Nirman Bhawan, New Delhi Dated the 11th May, 2006

Subject: Diclofenac for veterinary use - regarding.

Sir.

Serious concern has been expressed at different fora over the decline in the population of Vultures in Indian subcontinent. Extensive studies have indicated that use of diclofenac in livestock's is the major cause of Vultures decline. Vultures are exposed to diclofenac when they consume carcasses of livestock's treated with diclofenac before death. This results the poisoning of Vultures leading to their death because of renal failure etc. It has therefore been felt that diclofenac for veterinary use should be plaused out and afternate safer and effective drug like Meloxicam etc. should be permitted to be used for the treatment of animals in veterinary healthcare. This would help in saving the vulture population and ecological balance in animal world.

It is uncerstood that, Dept. of Animal Husbandry and Dairying, Ministry of Agriculture has also issued direction to State Veterinary Departments not to purchase dictofenac for further veterinary use.

It has therefore been decided with the approval of Health Ministry that Licences granted to manufacture diclofenac formulations for veterinary use should be withdrawn and the marketing of such formulations to be phased out within a period of three months. You are therefore requested to implement the decision to withdraw the veterinary formulations of diclofenac and to ensure its phasing out within three months.

Yours faithfully,

(ASHWINI KUMAR) DRUGS CONTROLLER GENERAL (I) 9/20/23 7:42 PM

Environment Ministry Recommends Ban on Multidose Vial of Diciofenac to Save Vultures

Press Information Bureau
Government of India
Ministry of Environment, Forest and Climate Change.

9_Santambar_2015_10-21_TS

Environment Ministry Recommends Ban on Multidose Vial of Diclofenac to Save Vultures

Based on the recommendation of the Ministry of Environment, Forest and Climate Change, the Ministry o Health and Family Welfare has banned the sale of Diclofenac in multidose vial. It will be sold only in single-dos vial packaging.

Keeping in view the severity of the situation and the need to conserve and protect vultures from extinction, the Ministry of Environment, Forest and Climate Change has requested the Ministry of Health and Family Welfare to restrict the pack of Diclofenac for human use in single dose only. Earlier, the Ministry of Health and Family Welfare, in consultation with Environment, Forest and Climate Change, published a Gazette notification of G.S.R. 558 (E) dated 17th July, 2015, regarding the restriction on packaging of multi-dose vial of Diclofenac to single dose for human use. Even after banning the use of Diclofenac for veterinary use, the multi-dose vial available in the market for human use were widely misused for veterinary purpose. This, in turn, has a seven impact on the population of vultures.

The commonly-used anti-inflammatory drug for cattle is considered the chief cause for the steep decline in the number of vultures in recent years. The drug is harmless to the cattle it is administered to, but is fatal for the vultures, who routinely feed on the carcass of dead cattle. Studies have shown that the drug causes kidney and liver failure in vultures.

Earlier, in 2006, the Government of India had imposed a ban on the use of Diclofenac for treating cattle.

HK

CMS



UNEP/CMS/Resolution 11.15 (Rev.COP13)
Original: English

PREVENTING POISONING OF MIGRATORY BIRDS

Adopted by the Conference of the Parties at its 13th Meeting (Gandhinagar, February 2020)

Recognizing that Article III (4)(b) of the Convention requires Parties that are Range States of migratory species listed in Appendix I to endeavour "to prevent, remove, compensate for or minimize, as appropriate, the adverse effects of activities or obstacles that seriously impede or prevent the migration of the species".

Recognizing that Article III (4)(c) of the Convention requires such Parties to endeavour, "to the extent feasible and appropriate, to prevent, reduce or control factors that are endangering or are likely to further endanger such species".

Concerned that very large numbers of migratory birds are killed annually as a result of poisoning and that this unnecessary mortality can severely affect the conservation status of vulnerable species, including many listed under CMS and its associated instruments, and that for some species poisoning is the primary cause of their unfavourable conservation status,

Highlighting the need to provide practical guidance on preventing, reducing or controlling poisoning from, inter alia, agriculture pesticides, poison bait, veterinary pharmaceutical treatments and use of lead for hunting and fishing, and potential synergistic effects of different poisons through ingestion from various food sources such as prey species,

Aware that international measures and concerted actions to address migratory bird poisoning are urgently needed and should involve CMS Parties, Range States, international and national organizations, the private sector and relevant stakeholders,

Further aware of the important role of industries involved in the manufacture of substances that can result in the poisoning of migratory birds; organizations involved in their sale and distribution; and representational bodies of those whose use of such substances can result in migratory bird mortality or morbidity,

Aware of the important role of national legislation and its enforcement regarding categorization and selling of such substances, which can result in mortality or morbidity in bird species through permission regime.

Aware that deliberate poisoning events could remain undetected or unregistered.

Underlining the need of qualified authorities to improve detection and a prosecution of criminal acts of bird poisoning,

Recalling Resolution 10.26¹ on minimizing the risk of poisoning to migratory birds, which called on the Scientific Council and the Secretariat to establish an intersessional working group, the Preventian Poisoning Working Group, to undertake a detailed assessment of the severity and scope of poisoning for migratory birds; significant knowledge gaps; and where sufficient knowledge exists to

https://pib.gov.in/newsite/PrintRelease.aspx?relid=127003

Superseded by Resolution 11.15 (Rev.COP12) Preventing Poisoning of Migratory Birds

KETOPROFEN AND ACECLOFENAC BAN IN INDIA

New Delhi the 31st July, 2023

S.O. 3448(E).—Whereas the Central Government is satisfied that the use of drug formulations containing

Ketoprofen and Aceclofenac are likely to involve risk to animals; And whereas, safer alternatives to the said drugs are available; And whereas, the Central Government is satisfied that it is necessary and expedient in the public interest to prohibit the manufacture, sale and distribution of—

- (i) Ketoprofen and its formulations; and
- (ii) Aceclofenac and its formulations, for animal use;

Now, therefore, in exercise of powers conferred by section 26A of the Drugs and Cosmetics Act, 1940 (23 of

1940), and after consultation with the Drugs Technical Advisory Board, the Central Government, hereby prohibits the manufacture, sale and distribution of the following drugs, with immediate effect, namely:-

- "(i) Ketoprofen and its formulations for animal use
- (ii) Aceclofenac and its formulations for animal use"

रनिस्ट्री सं. डी.एज.- 33004/9

REGD. No. D. L.-33004/99



सी.जी.-डी.एल.-अ.-01082023-247766 CG-DL-E-01082023-247766

SHISTON A

भाग II—खण्ड 3—उप-खण्ड (ii) PART II—Section 3—Sub-section (ii) प्राथिकार से प्रकाशित

सं. 3298] No. 3298]

नई दिल्ली, मंगलवार, अगस्त 1, 2023/प्रावण 10, 1945 NEW DELHI, TUESDAY, AUGUST 1, 2023/SHRAVANA 10, 1945

स्वास्थ्य और परिवार कल्याण मंत्रालय

(स्वास्थ्य और परिवार कल्याण विभाग

प्रधिसचना

नई दिल्ली, 31 जुलाई, 2023

का.आ. 3448(अ)...जबिक केंद्र सरकार इस बात से संतुष्ट है कि केटोग्रोफेन और एसिक्लोफेनाक युक्त दवा सूत्र के उपयोग से पशुओं के लिए जोखिम शामिल होने की संभावना है;

और जबकि, उक्त दवाओं के सुरक्षित विकल्प उपलब्ध हैं;

और जबकि, केंद्र सरकार इस बात से संतुष्ट है कि जनहित में जानवरों के उपयोग के लिए निम्न लिखित के निर्माण, बिक्री और वितरण पर रोक लगाना आवश्यक और समीचीन है।

- (i) केटोप्रोफेन और इसके सूत्रण; और
- (ii) एसिक्लोफेनाक और इसके सुत्रण,

इसलिए, अब, औषधि और प्रसाधन सामग्री अधिनियम, 1940 (1940 का 23) की घारा 26क द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, और औषधि तकनीकी सलाहकार बोर्ड के परामर्श के बाद, केंद्र सरकार एतदद्वारा निम्नलिखित दवाओं के निर्माण, विक्री और वितरण पर तत्काल प्रभाव से रोक लगाती है. अर्थात: -

4957 GI/2023

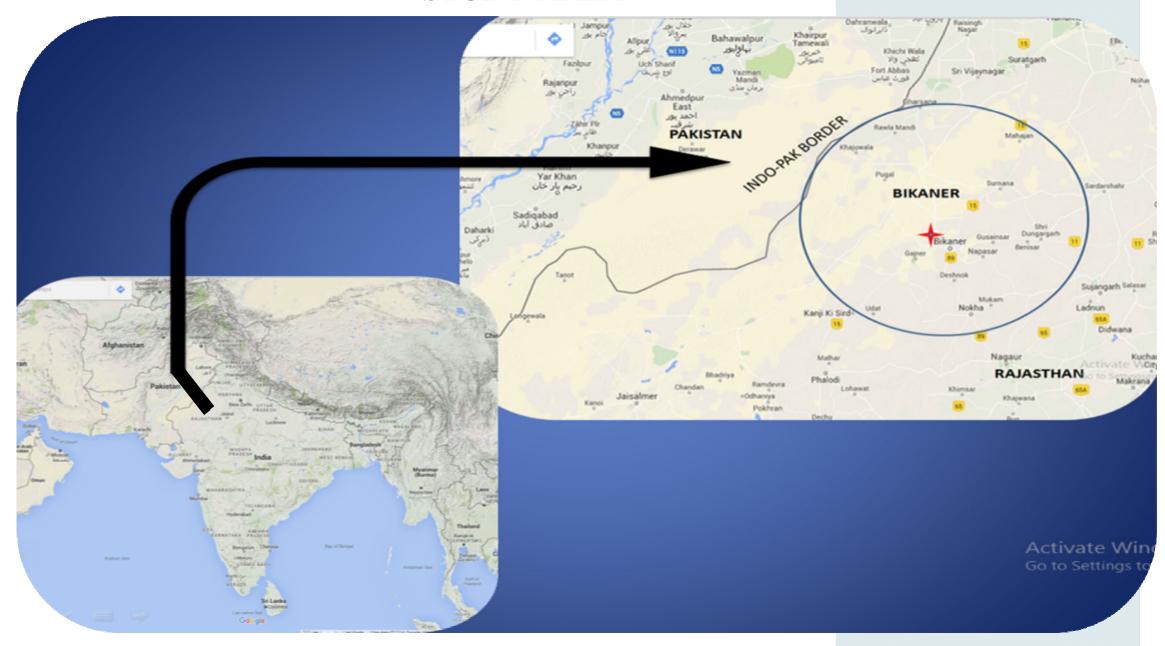
1)

OBJECTS

- Population status and mortality database
- To find out relationship vet. drug utilization for animal treatment and their impacts.
- Find out local migration monitoring for food
- To correlate livestock population, drug use for animal treatment with special concern to stop mortality of stappe and vultures
- To evaluate any other poisoning
- Maintain a good practice of feeding management of dead animals with Dept. of Forest, Municipal cooperation of Bikaner and Dept. of Drug

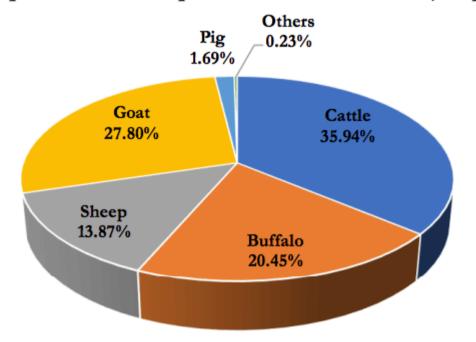


STUDY AREA





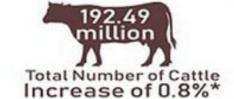
Graph 1: Livestock Population 2019 - Share of Major Species

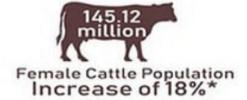


7 20th Livestock Census

Total Livestock population is 535.78 million, increase of 4.6%*

Total Bovine population (Cattle, Buffalo, Mithun and Yak) is 302.79 Million in 2019, an increase of about 1% *





Exotic/Crossbred and Indigenous/Non-descript Cattle population is 50.42 million and 142.11 million respectively



Cattle Mortality from Lumpy at Jorbeer Dumping station, Bikaner (Rajasthan)

MAJOR NASAD'S USE FOR ANIMALS TREATMENT

- 1. Ketoprofen
- 2. Analgin
- 3. Phenylbutazone
- 4. Nimesulide
- 5. Meloxicam
- 6. Tolfenamic Acid
- 7. Meloxicam+Paracetamol
- 8. Nimesulide+Paracetamol
- 9. Mefenemic acid +Paracetamol
- 10. Aceclofenac +Paracetamol
- 11. Flunixin

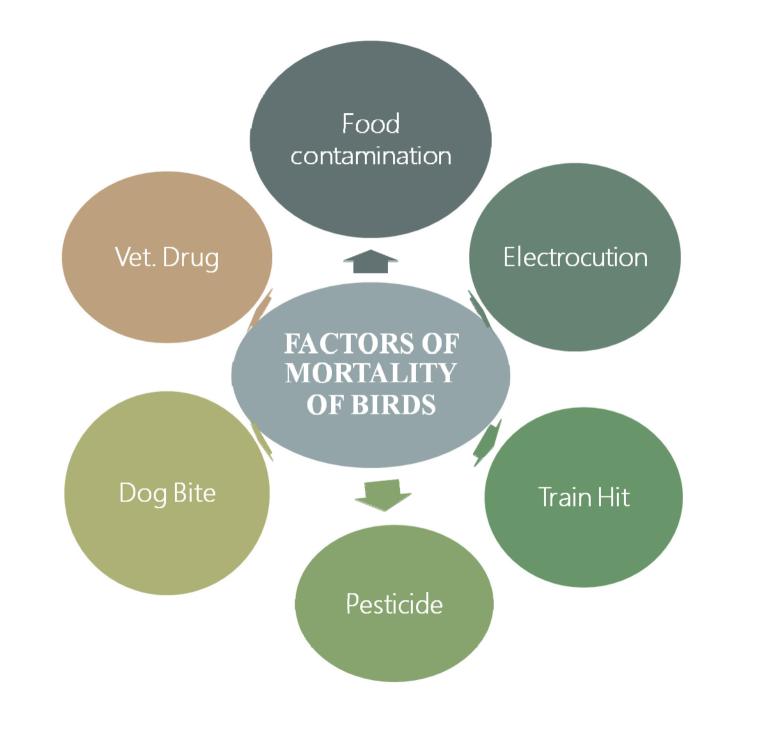




BAN from 2023

BIRDS POPULATION IN NORTH WEST RAJASTHAN

		2016-2017			2022-2023				
S.No	Name of Birds	Nov	Dec	Jan	Feb	Nov	Dec	Jan	Feb
1	King vulture (Sarcogyps calvus)		2	2	0	0	1	3	0
2	Cinereous vulture (Aegypius monachus)	50	75	145	40	39	83	139	112
3	Eurasian Griffon vulture (<i>Gyps fulvus</i>)	600	800	850	500	462	712	755	650
	Himalayan griffon vulture (<i>Gyps</i> himalayensis)	40	150	120	30	29	72	113	80
5	Long-billed vulture (Gyps indicus)	0	5	8	0	0	0	0	0
6	White-backed vulture (<i>Gyps bengalensis</i>)	0	0	3	0	0	0	0	0
7	Egyptian vulture (Neophron percnopterus)	1200	1500	1650	1200	1568	1908	2214	1555
8	Steppe Eagle (Aquila nipalensis)	1900	2400	3000	2300	1265	1610	2045	1674
	Total	3790	4932	5778	4070	3363	4386	5269	4071



Food contamination by Veterinary Drug

























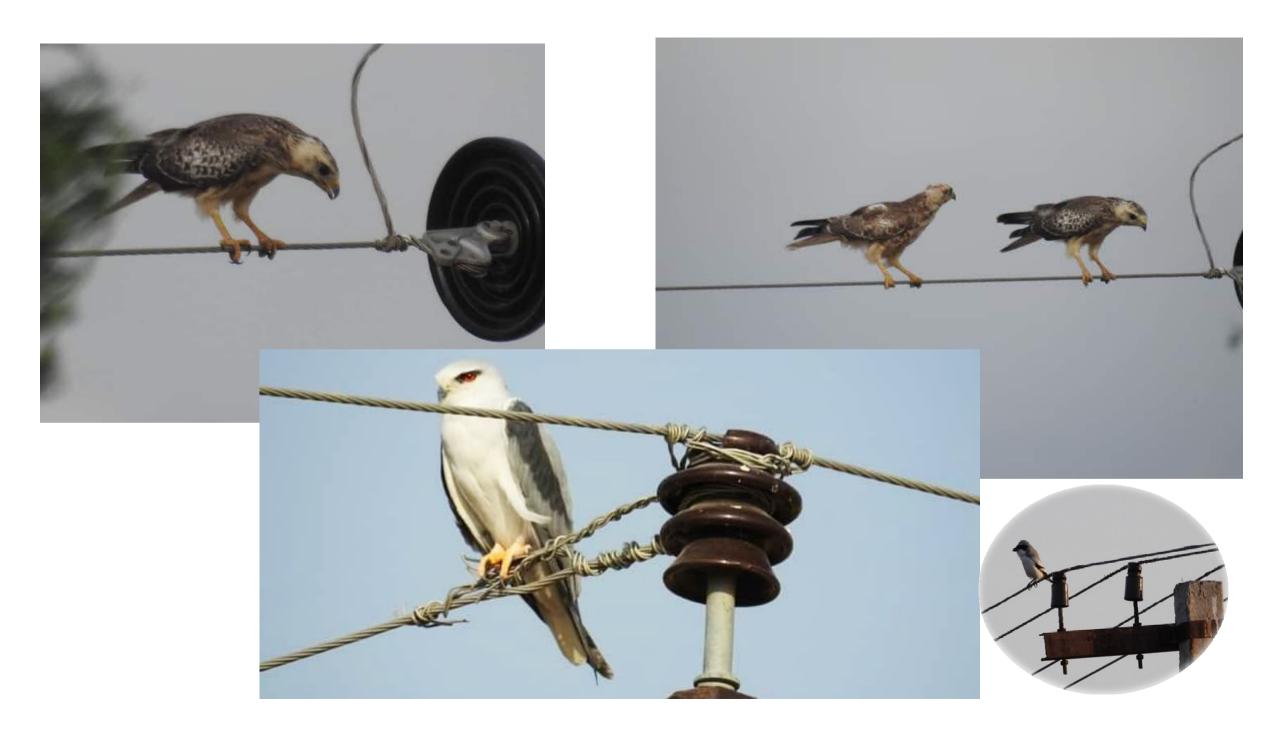


Electrocution



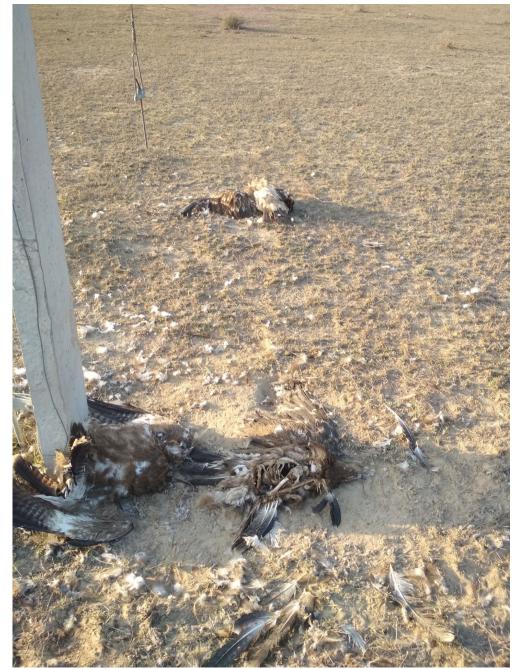


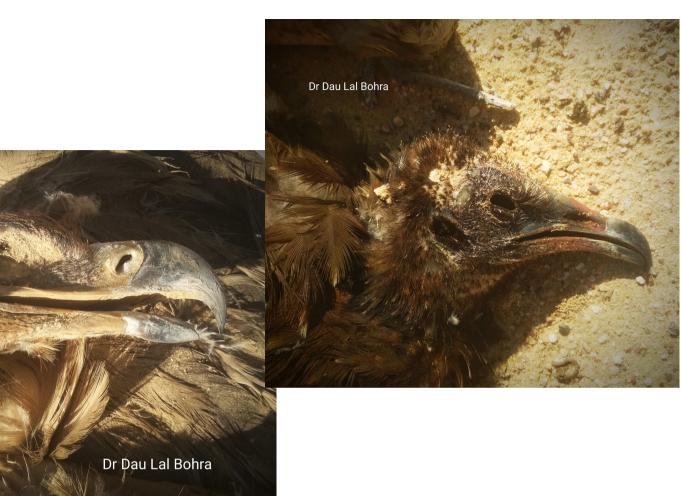




















Train Hit









Birds mortality in last 10 years

S. No.	Name of Birds	Number of mortality (2011-2017)	Number of mortality (2017-2022)
1	King vulture (Sarcogyps calvus)	0	0
2	Cinereous vulture (Aegypius monachus)	26	19
3	Eurasian Griffon vulture (Gyps fulvus)	209	167
4	Himalayan griffon vulture (<i>Gyps</i> himalayensis)	53	39
5	Long-billed vulture (Gyps indicus)	2	0
6	White-backed vulture (Gyps bengalensis),	0	0
7	Egyptian vulture (Neophron percnopterus)	403	529
8	Steppe Eagle (Aquila nipalensis)	487	231
9	Black Kite (Milvus migrans)	23	37
	Total	1203	1022

Total Mortality: 2225 in 10 Years (223 birds per year)



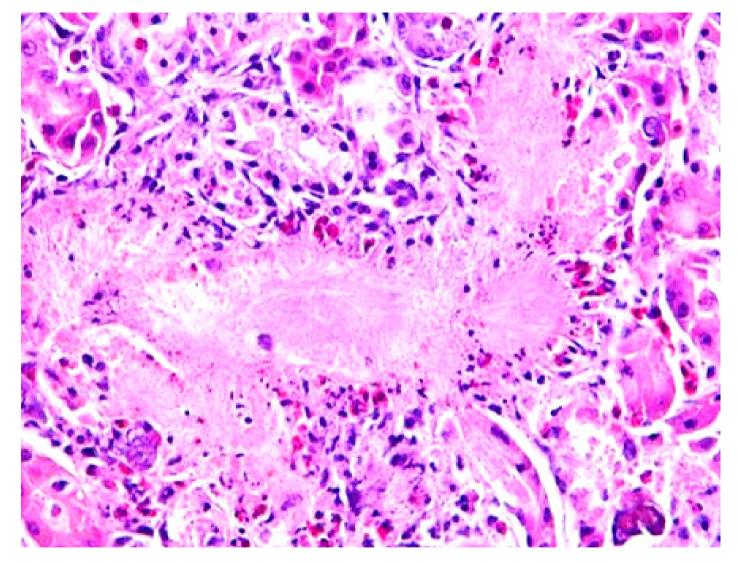
EGYPTIAN VULTURE (Neophron percnopterus): THREATENED BY NSAID IN INDIA (OTHER THEN DICLOFENAC)

Egyptian Vultures normally feed on carrion and generally prefer forested habitats to human-dominated areas. Its plays an important ecological role by removing municipal waste and animal carcasses. Egyptian vultures are opportunists and eat very varied. Their diet consists mainly of carrion, but also small mammals, young birds, fish, eggs and even rotting fruit. The species can fly up to 80 kilometers per day in search of food.

One Egyptian Vulture found dead at Bikaner, Rajasthan (27.989N, 73.365E) in Feb.2021, with primary examination mortality due to some food contamination and high use of vet drug in animal tretment. Diclofenac and other drug testing not possible, so we analysis Histopathological analysis of Kidney and Liver.



Postmortem sub-adult Egyptian vulture showing liver kidney



Hematoxylin and Eosin stained micro-sections, the kidney revealed tubules with necrotic, flattened epithelium and dilatation of lumen. Some tubules revealed the presence of basophilic content. There was mononuclear infiltration in the interstitial tissue. Glomeruli had dilated bowman's space and few vacuoles towards the periphery of the tuft.

Fig. 1. Histological examinations of kidney: Renal tubular nephrosis (RTN) and the deposition of urate crystals (UC)

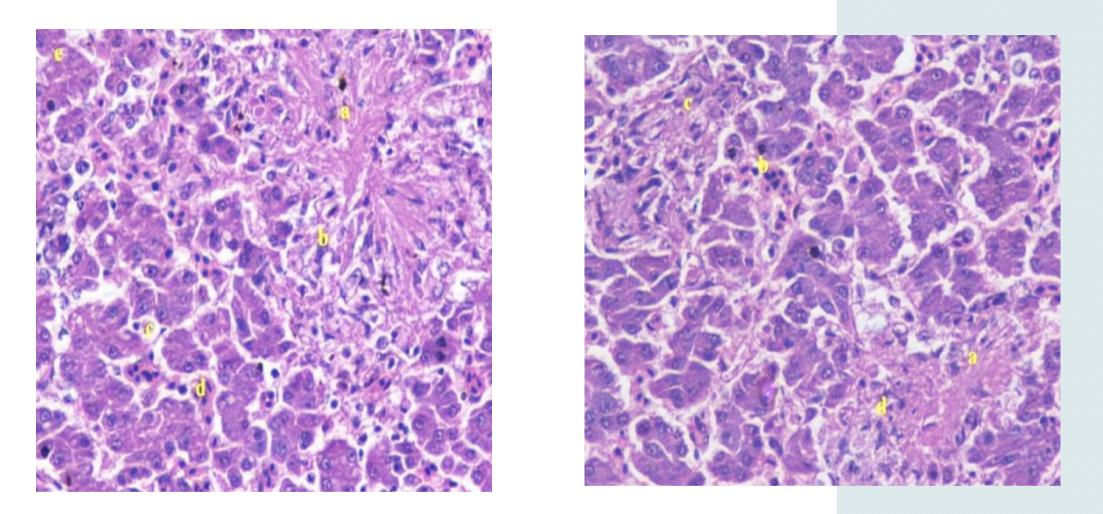


Fig. 2. & 3. The liver of dead birds revealed sinusoidal dilatation and foamy cytoplasm of hepatocytes and also a few foci of coagulative necrosis and its also showed uric acid crystals.

Result:-

It was concluded that the other then diclofenac toxicity in sub-adult Egyptian vulture could lead to visceral gout. Adult birds are relatively tolerant to diclofenac toxicity as compared to young birds. Young birds also revealed increased tolerance to cox-2 drug with an increase in age. Apart from visceral gout, from drug residuce can also cause mild to moderate degenerative changes in the kidneys and the liver at the given dose rates with no remarkable difference according to age or sex.

THANK YOU

