

EAST AFRICAN SNAKEBITE SYMPOSIUM 5 June 2025



Overview of Medically Significant Snakes in East Africa, First Aid for Snakebite and How to Prevent Snakebites.

> KYLE RAY Curator Watamu Snake Farm



TYPES OF VENOM & ENVENOMATION SYNDROMES

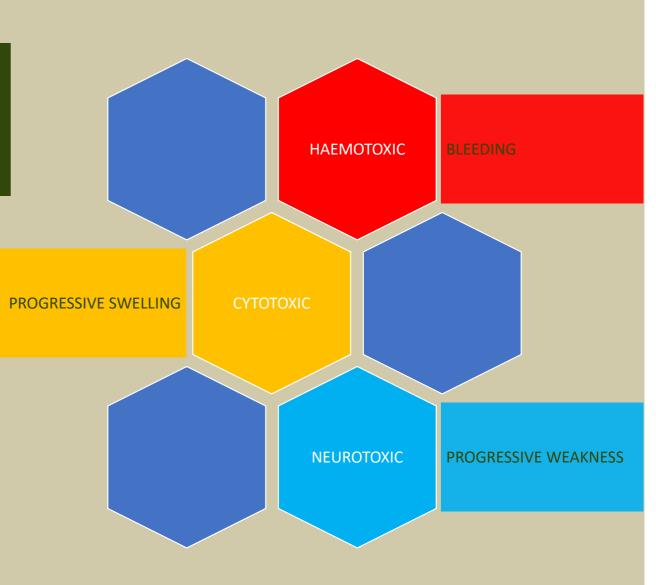
Complex mixture of proteins or peptides.

Produced exclusively by animals (snakes, spiders, scorpions, centipedes, stingrays, stonefish, jellyfish) etc.

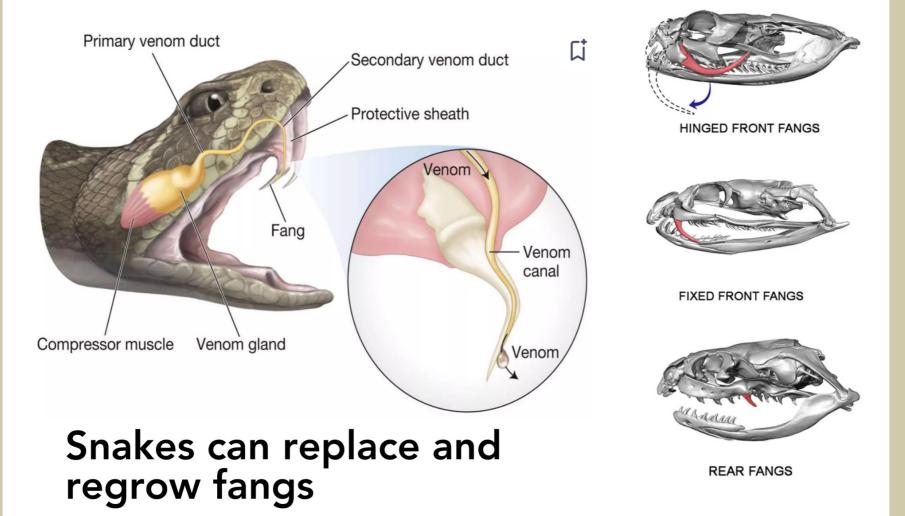
Manufactured in specialised glands

Special mechanism for delivering the venom into the prey (fangs, spines, tee).

Some venoms have digestive properties



SNAKE FANG STRUCTURE



SNAKE ID TIPS



THERE ARE A SEVEN THINGS THAT CAN HELP YOU TO NARROW DOWN THE IDENTIFICATION OF A SNAKE:

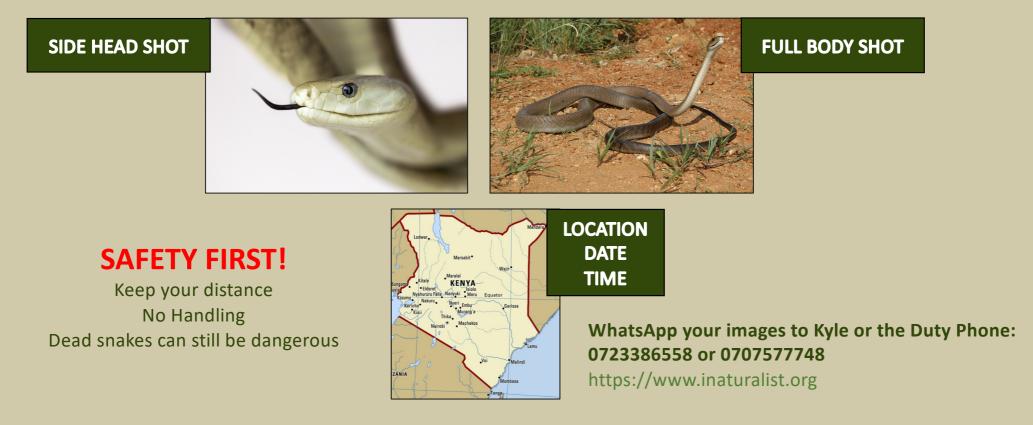
- THE LOCATION some snakes have very specific distributions, others are more widespread.
- **THE HABITAT** was it seen in a tree, on the ground, in water or on a rock.
- HEAD SHAPE The shape of the head and the eye.
- LENGTH The size and length of the body.
- COLOUR the colouring of the snake and any specific markings.
- SKIN TEXTURE is it smooth, keeled or velvety.
- **BEHAVIOUR** diurnal/nocturnal, aggressive/shy.

ALL OF THE ABOVE CAN HELP YOU TO DETERMINE IF THE SNAKE YOU ARE LOOKING AT IS DANGEROUS OR NOT.

https://www.inaturalist.org

PHOTOGRAPHING A SNAKE FOR ID PURPOSES

You can help to build knowledge and data by becoming a citizen scientist. When you see a snake take a picture and send a GPS location and we will help to identify it and add it to our data.



MEDICALLY SIGNIFICANT SNAKES

THE MOST MEDICALLY IMPORTANT SNAKES BELONG TO JUST FOUR GENRA:

Bitis: Heavy Bodied Adders

Dendroaspis: Mambas

Echis: African Carpet Vipers

Naja: Cobras

But there are several other species capable of causing death or severe injury.

The WHO categorises snakes in 2 categories:

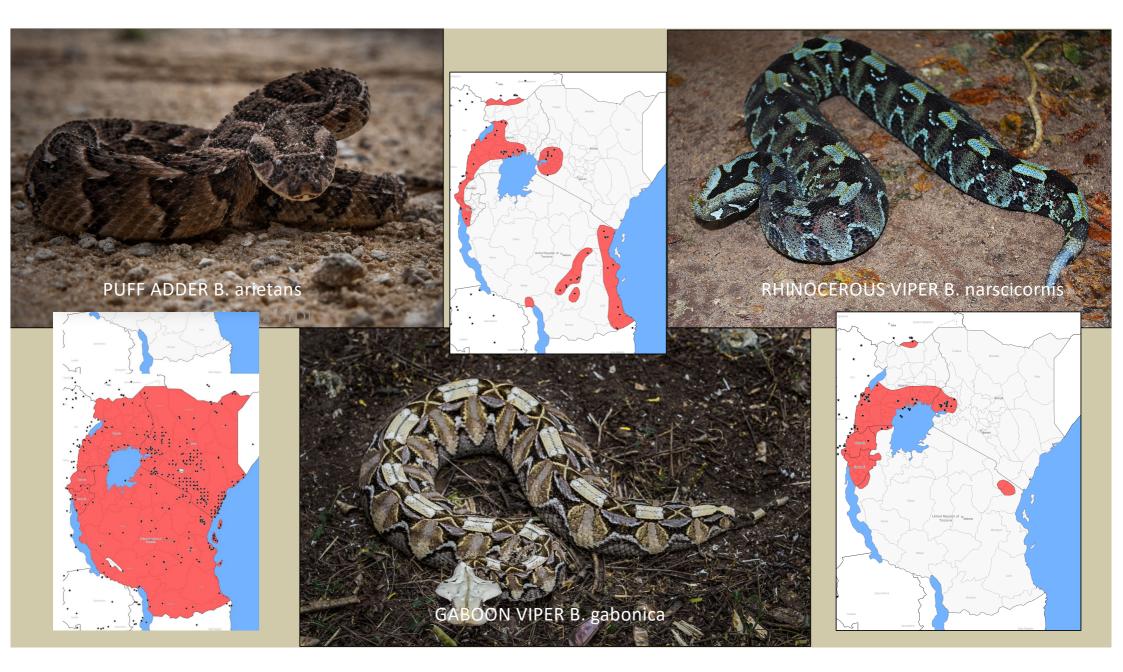
CATEGORY 1 - Snakes that bite frequently, and are associated with severe or life-threatening envenoming. All respond to polyvalent antivenom in the correct dose.

CATEGORY 2 – Snakes that bite less frequently and are associated with severe or life-threatening envenoming.



CATEGORY 1: Bitis – HEAVY BODIED ADDERS

CYTOTOXIC (can be haemotoxic)



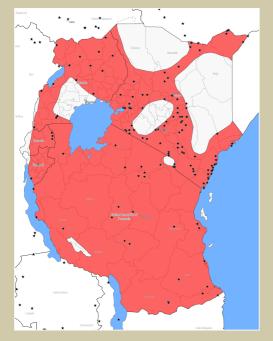
CATEGORY 1: Dendroaspis - MAMBAS

NEUROTOXIC (+ can be cytotoxic (Exc D.Polylepis))

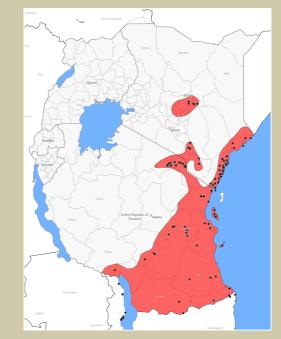
SNAKEBITE INSTITUTE



BLACK MAMBA D.polylepis



EASTERN GREEN MAMBA D.augisticeps



JAMESONS MAMBA D.jamesoni



CATEGORY 1: Echis pyramidum – NORTH-EAST AFRICAN CARPET VIPER



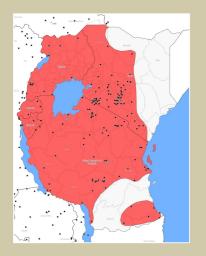
CYTOTOXIC AND HAEMOTOXIC

CATEGORY 1: Naja – SPITTING COBRAS

CYTOTOXIC



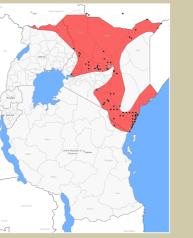
BLACK NECKED SPITTING COBRA N.nigricollis



ASHES SPITTING COBRA N.pallida N.ashei

RED SPITTING COBRA

MOZAMBIQUE SPITTING COBRA N.mossambicus







CATEGORY 2: *Naja* – COBRAS

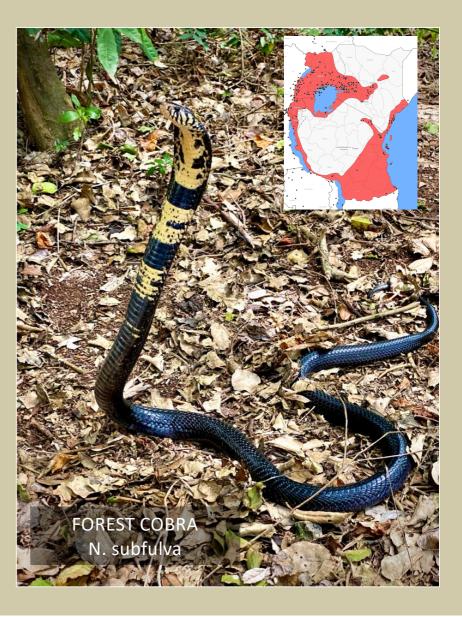
NEUROTOXIC





GOLDS TREE COBRA Pseudhaje Goldii





CATEGORY 2: VINE SNAKES (Thelotornis) & BOOMSLANG (Disphlopidus) REAR FANGED SNAKES

HAEMOTOXIC (monovalent antivenom)

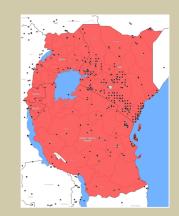
FOREST VINE SNAKE Thelotornis kirtlandi



EASTERN VINE SNAKE Thelotornis mossambicanus

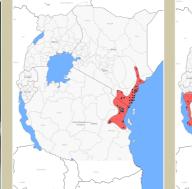
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BOOMSLANG Dispholidus typus





UMSAMBARA VINE SNAKE Thelotornis usambaricus







CATEGORY 2: Atheris – BUSH VIPERS

HAEMOTOXIC



GREEN BUSH VIPER Atheris squamigera





PRICKLY BUSH VIPER Atheris hispida





MOUNT KENYA BUSH VIPER Atheris desaixi





Atheris barbouri



Atheris ceratophora



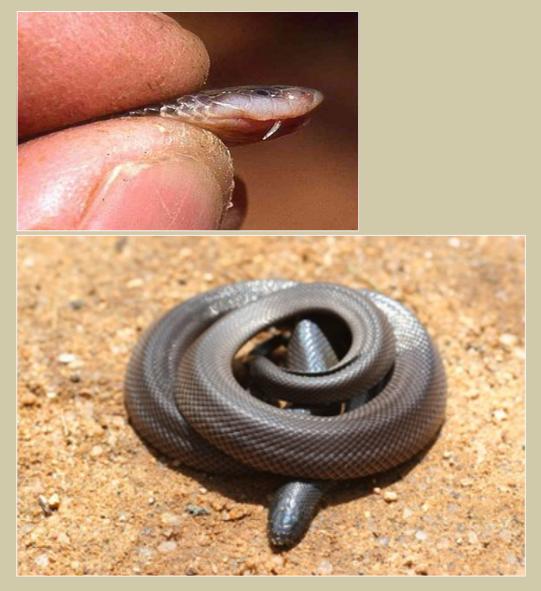
Atheris nitschei

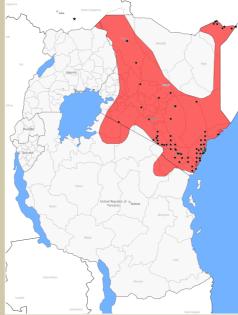


Atheris rungweensis

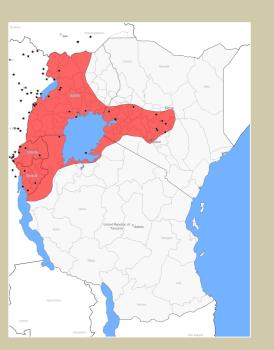
CATEGORY 2: Atractaspis – BURROWING ASPS

CYTOTOXIC (treat symptoms antivenom not required)

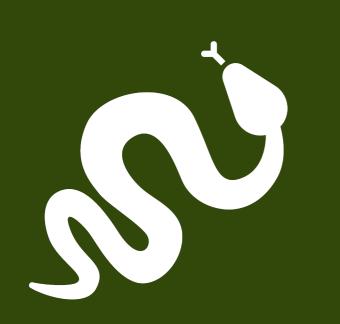




A. fallax



A. irregularis



SNAKEBITE FIRST AID

ABOVE ALL - AIM TO DO NO HARM!



SNAKEBITE FIRSTAID – IMPORTANT REMINDERS!

MOVE AWAY FROM THE SNAKE AND LEAVE IT ALONE

FIRSTAID SHOULD NOT DELAY TRANSFER TO A MEDICAL FACILITY – TIME IS OF THE ESSENCE WITH SNAKEBITE

DOING SOMETHING IS NOT ALWAYS BETTER THAN DOING NOTHING

TRADITIONAL HEALERS

- In many parts of East Africa snake cultural ties are strong and western medicine is not trusted, so victims of snakebite will seek help first from traditional healers.
- Many of the techniques they use are at worst harmful and at best useless, resulting in long delays before modern medical care is sought.
- Positive engagement with traditional healers may be more valuable than simply rejecting strongly held beliefs.
- Working with local healers to use their influence to teach people about prevention or to recognise early signs of severe envenoming can be beneficial.





Snakebite FIRSTAID DOS



Make sure the victim is safe & not in any danger from another bite or their environment.



Get the victim to the nearest medical facility as quickly, safely & passively as possible - transport in recovery position (side lying with bent limbs supporting the body) if unconscious & protect their airway.



Reassure & keep the victim calm.



Remove all jewellery, bracelets, tight bands & tight clothing from the bitten limb.



Immobilise the limb using a splint



Be ready to give assistance breathing (CPR) if required.



Paracetamol 1g max ADULT dose can help with pain relief and provide some reassurance. DO NOT GIVE NSAID'S



In the case of Neurotoxic envenomation apply a pressure pad (Time is of the essence do not delay to apply the bandage – apply en-route if possible

Application of Pressure Pad First Aid





- Use a small ball of cloth to form a pad, and bandage this directly over the bite site very firmly with an elastic bandage or long, wide piece of cloth.
- Apply a splint to the whole length of the bitten limb.
- If transporting by motorcycle or working animal, splinting bitten limb is adequate. Stretcher patients should have both limbs splinted together.

SNAKEBITES TO THE HEAD, NECK OR BODY

- People bitten on the head, neck or torso may develop life-threatening problems very soon after the bite.
- Keep the victim calm and as immobile as possible.
- If neurotoxicity is suspected, apply direct, continuous pressure over the site of the bite with a pad of cloth (t-shirt, towel etc.) but do not restrict breathing or swallowing.
- Reassure the person.
- TRANSPORT TO MEDICAL CARE IMMEDIATELY.
- Call ahead to notify the health facility of the emergency.



Snakebite FIRST-AID DON'TS

	\sim		$ \sim $	DA I	
01	02	03	04	05	06
DO NOT try to kill the snake.	DO NOT apply a tourniquet or tight band around the bitten limb.	DO NOT use traditional methods of healing.	DO NOT drink alcohol.	DO NOT suck the bite site to remove venom.	DO NOT cut, burn, shock or freeze the bite site.
Myth					



SPITTING COBRA – VENOM IN THE EYES



VENOM IN THE EYES IS VERY PAINFUL!



Immediately wash the eye out with liberal volumes of any bland liquid (water, milk, beer or even urine). Take care not to rinse venom from one eye into the other.



Try not to rub your eyes.



Wear sunglasses to protect the eyes from bright light.



GET MEDICAL ADVICE.

USEFUL THINGS TO NOTE AFTER A SNAKEBITE

developed.

DID YOU SEE THE SNAKE? (Can you describe it, is there a photo, is it dead) DID THE SNAKE REAR UP, SPREAD HOOD OR SPIT? (what actions or sounds did the snake make) WHERE WERE YOU WHEN YOU WERE BITTEN? (in long grass, in water, in a tree, in bed)? WHAT WERE YOU DOING WHEN YOU WERE BITTEN? Circumstances may be diagnostic (eg. nocturnal burrowing asp / spitting cobra bites; arboreal boomslang/ twig snake bites) TIME OF BITE? If very recent, may be too soon for signs of envenoming to have developed TREATMENT? Have you had any medication (traditional / western) administered? ALCOHOL – before or after the bite LOCATION OF BITE ON THE BODY? Look for puncture marks, persistent bleeding, swelling, bruising... ÇURŖENT, SYMPTOMS AND CONDITION? Check if any symptoms of envenoming have

HAVE A PLAN

It is of utmost importance that you identify the nearest hospital that has staff trained on snakebite treatment with immediate access to the appropriate antivenom. Currently the PREMIUM PANAF™ is the recommended antivenom for use in Kenya.



DON'T HESITATE TO CONTACT US, WE ARE HERE TO HELP!

PREVENTION IS BETTER THAN CURE!



UNDERSTAND COMMON SNAKE HABITATS – Keep areas clean and tidy/ take care collecting/chopping wood

HOME SAFETY – fill holes/close gaps, don't allow livestock in the home

WEAR THE APPROPRIATE PPE - shoes/gloves/gaters

LIGHTING - Ensure that there is proper lighting, use torches if walking in darker areas at night.

MOSQUITOE NETS & RAISED BEDS – Check bedding before getting into bed.

FOOD STORAGE & WASTE MANAGEMENT – Prevent rodents

WATER MANAGEMENT – water attracts mice/rats and snakes

SWIMMING POOLS & SURROUNDING AREAS CAN ATTRACT SNAKES

MOVING LARGE EQUIPMENT – Be careful, rocks etc

CAMPING – close tents, close bags, check sleeping bags,

And shoes.

BEWARE OF SEASONAL ACTIVITY SNAKE REPELLENTS DON'T WORK!!



EMERGENCY NUMBERS AND CONTACTS

KYLE RAY 0723 386558 DUTY NUMBER 0707 577748 info@taaf-eastafricanreptiles.org www.taaf-eastafricanreptiles.org

JOIN OUR SNAKEBITE FORUM (for healthcare workers)



APPRECIATION FOR ON GOING ASSISSTANCE AND SUPPORT

Stephen Spawls for photos and continuous assistance African Snakebite Institute and Johan Marais Dr David Williams for maps and photos Dr Eugene Erulu as our medical advisory

QUESTIONS

