

FORENSIC BIOLOGY AND SEROLOGY ASSIGNMENT

TOPIC : NEAR THREATENED, VULNERABLE AND LEAST CONCERNED SPECIES

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INTRODUCTION

A NEAR THREATENED SPECIES IS ONE THAT IS LIKELY TO QUALIFY FOR A THREATENED CATEGORY IN THE NEAR FUTURE.

THE DEFINITIONS OF THE THREE THREATENED CATEGORIES (VULNERABLE, ENDANGERED, AND CRITICALLY ENDANGERED) ARE BASED ON FIVE CRITERIA: POPULATION REDUCTION RATE, GEOGRAPHIC RANGE, POPULATION SIZE, POPULATION RESTRICTIONS, AND PROBABILITY OF EXTINCTION.

LEAST CONCERN IS THE LOWEST LEVEL OF CONSERVATION. A SPECIES OF LEAST CONCERN IS ONE THAT HAS A WIDESPREAD AND ABUNDANT POPULATION.

NEAR THREATENED SPECIES

- A NEAR THREATENED SPECIES IS ONE THAT IS LIKELY TO QUALIFY FOR A THREATENED CATEGORY IN THE NEAR FUTURE.
- MANY SPECIES OF VIOLETS, NATIVE TO TROPICAL JUNGLES IN SOUTH AMERICA AND AFRICA, ARE NEAR THREATENED, FOR INSTANCE. THEY HAVE HEALTHY POPULATIONS, BUT THEIR RAIN FOREST HABITAT IS DISAPPEARING AT A FAST PACE. PEOPLE ARE CUTTING DOWN HUGE AREAS OF RAIN FOREST FOR DEVELOPMENT AND TIMBER. MANY VIOLET SPECIES ARE LIKELY TO BECOME THREATENED.

SOME OF THE NEAR THREATENED SPECIES ARE AS FOLLOWS:

THE GREAT INDIAN BUSTARD

- THE GREAT INDIAN BUSTARD (*ARDEOTIS NIGRICEPS*) OR INDIAN BUSTARD, IS A BUSTARD FOUND ON THE INDIAN SUBCONTINENT, OR IN RAJASTHAN, IN THE THAR DESERT. A LARGE BIRD WITH A HORIZONTAL BODY AND LONG BARE LEGS, GIVING IT AN OSTRICH LIKE APPEARANCE, THIS BIRD IS AMONG THE HEAVIEST OF THE FLYING BIRDS.
- ONCE COMMON ON THE DRY PLAINS OF THE INDIAN SUBCONTINENT, AS FEW AS 150 INDIVIDUALS WERE ESTIMATED TO SURVIVE IN 2018 (REDUCED FROM AN ESTIMATED 250 INDIVIDUALS IN 2011)[3] AND THE SPECIES IS CRITICALLY ENDANGERED BY HUNTING AND LOSS OF ITS HABITAT, WHICH CONSISTS OF LARGE EXPANSES OF DRY GRASSLAND AND SCRUB. THESE BIRDS ARE OFTEN FOUND ASSOCIATED IN THE SAME HABITAT AS BLACKBUCK. IT IS PROTECTED UNDER THE WILD LIFE PROTECTION ACT, 1972 OF THE PARLIAMENT OF INDIA.

- THE ASIATIC LION THE ASIATIC LION, ALSO KNOWN AS THE PERSIAN LION,[1][2] IS A POPULATION OF *PANTHERA LEO LEO* THAT TODAY SURVIVES IN THE WILD ONLY IN INDIA.[3] SINCE THE TURN OF THE 20TH CENTURY, ITS RANGE HAS BEEN RESTRICTED TO GIR NATIONAL PARK AND THE SURROUNDING AREAS IN THE INDIAN STATE OF GUJARAT. HISTORICALLY, IT INHABITED MUCH OF SOUTHWEST ASIA TO NORTHERN INDIA.
- NEARLY 25 LIONS IN THE VICINITY OF GIR FOREST WERE FOUND DEAD IN OCTOBER 2018. FOUR OF THEM HAD DIED BECAUSE OF CANINE DISTEMPER VIRUS, THE SAME VIRUS THAT HAD ALSO KILLED SEVERAL LIONS IN THE SERENGETI.

THE GHARIAL

- THE GHARIAL (*GAVIALIS GANGETICUS*), ALSO KNOWN AS GAVIAL OR FISH-EATING CROCODILE, IS A CROCODILIAN IN THE FAMILY GAVIALIDAE AND AMONG THE LONGEST OF ALL LIVING CROCODILIANS. MATURE FEMALES ARE 2.6 TO 4.5 M (8 FT 6 IN TO 14 FT 9 IN) LONG, AND MALES 3 TO 6 M (9 FT 10 IN TO 19 FT 8 IN). ADULT MALES HAVE A DISTINCT BOSS AT THE END OF THE SNOUT, WHICH RESEMBLES AN EARTHENWARE POT KNOWN AS A GHARA, HENCE THE NAME “GHARIAL”. THE GHARIAL IS WELL ADAPTED TO CATCHING FISH BECAUSE OF ITS LONG, NARROW SNOUT AND 110 SHARP, INTERLOCKING TEETH.

- THE WILD GHARIAL POPULATION HAS DECLINED DRASTICALLY SINCE THE 1930S AND IS LIMITED TO ONLY 2% OF ITS HISTORICAL RANGE TODAY. CONSERVATION PROGRAMMES INITIATED IN INDIA AND NEPAL FOCUSED ON REINTRODUCING CAPTIVE-BRED GHARIALS SINCE THE EARLY 1980S. LOSS OF HABITAT BECAUSE OF SAND MINING AND CONVERSION TO AGRICULTURE, DEPLETION OF FISH RESOURCES AND DETRIMENTAL FISHING METHODS CONTINUE TO THREATEN THE POPULATION. IT HAS BEEN LISTED AS CRITICALLY ENDANGERED ON THE IUCN RED LIST SINCE 2007.

VULNERABLE SPECIES

- A VULNERABLE SPECIES IS A SPECIES OF ANIMALS OR PLANTS WHICH ARE LIKELY TO BECOME ENDANGERED UNLESS SOMETHING CHANGES. SOMETHING HAS TO BE DONE TO REMOVE THE THINGS THAT ARE HARMFUL TO THEIR SURVIVAL, AND THEIR RATE OF REPRODUCTION NEEDS TO INCREASE. VULNERABILITY IS MAINLY CAUSED BY HABITAT LOSS OR DESTRUCTION.
- THESE ARE BASED ON FIVE CRITERIA: POPULATION REDUCTION RATE, GEOGRAPHIC RANGE, POPULATION SIZE, POPULATION RESTRICTIONS, AND PROBABILITY OF EXTINCTION.

- POPULATION REDUCTION RATE

A SPECIES IS CLASSIFIED AS VULNERABLE IF ITS POPULATION HAS DECLINED BETWEEN 30 AND 50 PERCENT. THIS DECLINE IS MEASURED OVER 10 YEARS OR THREE GENERATIONS OF THE SPECIES, WHICHEVER IS LONGER. A GENERATION IS THE PERIOD OF TIME BETWEEN THE BIRTH OF AN ANIMAL AND THE TIME IT IS ABLE TO REPRODUCE. MICE ARE ABLE TO REPRODUCE WHEN THEY ARE ABOUT ONE MONTH OLD. MOUSE POPULATIONS ARE MOSTLY TRACKED OVER 10-YEAR PERIODS. AN ELEPHANT'S GENERATION LASTS ABOUT 15 YEARS. SO, ELEPHANT POPULATIONS ARE MEASURED OVER 45-YEAR PEOCCURRENCE.

- GEOGRAPHIC RANGE

A SPECIES IS VULNERABLE IF ITS “EXTENT OF OCCURRENCE” IS ESTIMATED TO BE LESS THAN 20,000 SQUARE *POPULATION KILOMETERS* (7,722 SQUARE MILES). AN EXTENT OF OCCURRENCE IS THE SMALLEST AREA THAT COULD CONTAIN ALL SITES OF A SPECIES’ POPULATION. IF ALL MEMBERS OF A SPECIES COULD SURVIVE IN A SINGLE AREA, THE SIZE OF THAT AREA IS THE SPECIES’ EXTENT OF OCCURRENCE

- POPULATION SIZE

SPECIES WITH FEWER THAN 10,000 MATURE INDIVIDUALS ARE VULNERABLE. THE SPECIES IS ALSO VULNERABLE IF THAT POPULATION DECLINES BY AT LEAST 10 PERCENT WITHIN 10 YEARS OR THREE GENERATIONS, WHICHEVER IS LONGER.

- POPULATION RESTRICTION

POPULATION RESTRICTION IS A COMBINATION OF POPULATION AND AREA OF OCCUPANCY. A SPECIES IS VULNERABLE IF IT IS RESTRICTED TO LESS THAN 1,000 MATURE INDIVIDUALS OR AN AREA OF OCCUPANCY OF LESS THAN 20 SQUARE KILOMETERS (8 SQUARE MILES).

- PROBABILITY OF EXTINCTION

PROBABILITY OF EXTINCTION IN THE WILD IS AT LEAST 10 PERCENT WITHIN 100 YEARS.

BIOLOGISTS, ANTHROPOLOGISTS, METEOROLOGISTS, AND OTHER SCIENTISTS HAVE DEVELOPED COMPLEX WAYS TO DETERMINE A SPECIES' PROBABILITY OF EXTINCTION. THESE FORMULAS CALCULATE THE CHANCES A SPECIES CAN SURVIVE, WITHOUT HUMAN PROTECTION, IN THE WILD.

SOME OF THE VULNERABLE SPECIES ARE:

ETHIOPIAN BANANA FROG

- THE ETHIOPIAN BANANA FROG (*Afrixalus enseticola*) IS A SMALL FROG NATIVE TO HIGH-ALTITUDE AREAS OF SOUTHERN ETHIOPIA. IT IS A VULNERABLE SPECIES BECAUSE ITS AREA OF OCCUPANCY IS LESS THAN 2,000 SQUARE KILOMETERS (772 SQUARE MILES). THE EXTENT AND QUALITY OF ITS FOREST HABITAT ARE IN DECLINE. THREATS TO THIS HABITAT INCLUDE FOREST CLEARANCE, MOSTLY FOR HOUSING AND AGRICULTURE.

SNAGGLETOOTH SHARK

- THE SNAGGLETOOTH SHARK (*Hemipristis elongatus*) IS FOUND IN THE TROPICAL, COASTAL WATERS OF THE INDIAN AND PACIFIC OCEANS. ITS AREA OF OCCUPANCY IS ENORMOUS, FROM SOUTHEAST AFRICA TO THE PHILIPPINES, AND FROM CHINA TO AUSTRALIA.
- HOWEVER, THE SNAGGLETOOTH SHARK IS A VULNERABLE SPECIES BECAUSE OF A SEVERE POPULATION REDUCTION RATE. ITS POPULATION HAS FALLEN MORE THAN 10 PERCENT OVER 10 YEARS. THE NUMBER OF SHARKS IS DECLINING DUE TO FISHERIES, ESPECIALLY IN THE JAVA SEA AND GULF OF THAILAND. THE SNAGGLETOOTH SHARK'S FLESH, FINS, AND LIVER ARE CONSIDERED HIGH-QUALITY FOODS. THEY ARE SOLD IN COMMERCIAL FISH MARKETS, AS WELL AS RESTAURANTS.

LEAST CONCERNED SPECIES

- LEAST CONCERN IS THE LOWEST LEVEL OF CONSERVATION. A SPECIES OF LEAST CONCERN IS ONE THAT HAS A WIDESPREAD AND ABUNDANT POPULATION.
- HUMAN BEINGS ARE A SPECIES OF LEAST CONCERN, ALONG WITH MOST DOMESTIC ANIMALS, SUCH AS DOGS AND CATS. MANY WILD ANIMALS, SUCH AS PIGEONS AND HOUSEFLIES, ARE ALSO CLASSIFIED AS LEAST CONCERN.
- A LEAST-CONCERN SPECIES IS A SPECIES THAT HAS BEEN CATEGORIZED BY THE INTERNATIONAL UNION FOR CONSERVATION OF NATURE (IUCN) AS EVALUATED AS NOT BEING A FOCUS OF SPECIES CONSERVATION BECAUSE THE SPECIFIC SPECIES IS STILL PLENTIFUL IN THE WILD.

SOME OF THE LEAST CONCERNED SPECIES ARE:

- AARDVARK

THE INTERNATIONAL UNION FOR THE CONSERVATION OF SPECIES CONSIDERS THE AARDVARK A SPECIES OF “LEAST CONCERN,” MEANING THEIR POPULATIONS ARE STABLE. THE SPECIES HAS ROBUST NUMBERS IN PROTECTED AREAS, SUCH AS SOUTH AFRICA’S KRUGER NATIONAL PARK.

- AARDWOLF

THE AARDWOLF IS CURRENTLY CLASSIFIED AS A SPECIES OF LEAST CONCERN AND APPEARS TO BE MAINTAINING A STABLE POPULATION. PROTECTED LANDS AND FARMS ALLOW TERMITES TO BE ABUNDANT ENOUGH FOR AARDWOLVES TO CONTINUE TO FLOURISH. THERE ARE TWO MAIN TYPES OF HYENAS – THE WOLF-LIKE HYENAS AND THE BONE-CRUSHING HYENAS.

- ADELIE PENGUIN

THE ADÉLIE PENGUIN (*PYGOSCELIS ADELIAE*) IS A SPECIES OF PENGUIN COMMON ALONG THE ENTIRE COAST OF THE ANTARCTIC CONTINENT, WHICH IS THE ONLY PLACE WHERE IT IS FOUND. BECAUSE OF ITS VERY LARGE AND INCREASING POPULATION (ESTIMATED AT MORE THAN 10 MILLION MATURE INDIVIDUALS IN 2020), AND ITS UNFRAGMENTED HABITAT, THE ADÉLIE PENGUIN IS CONSIDERED BY THE INTERNATIONAL UNION FOR CONSERVATION OF NATURE TO BE A SPECIES OF LEAST CONCERN.

CONCLUSION

- NEAR THREATENED (NT) SPECIES ARE THOSE THAT ARE ON THE VERGE OF BECOMING THREATENED OR MAY MEET THE CRITERIA FOR THREATENED STATUS IN THE NEAR FUTURE. THE IUCN RED LIST HIGHLIGHTS THE ONGOING DECLINE OF EARTH'S BIODIVERSITY AS WELL AS THE IMPACT HUMANS HAVE ON LIFE ON THE PLANET. IT PROVIDES A GLOBALLY RECOGNISED STANDARD FOR MEASURING THE CONSERVATION. THERE IS NO IMMEDIATE THREAT TO THE SURVIVAL OF THE LEAST CONCERN SPECIES.
- NEAR THREATENED (NT) SPECIES ARE THOSE THAT ARE ON THE VERGE OF BECOMING THREATENED OR MAY MEET THE CRITERIA FOR THREATENED STATUS IN THE NEAR FUTURE. THE IUCN RED LIST HIGHLIGHTS THE ONGOING DECLINE OF EARTH'S BIODIVERSITY AS WELL AS THE IMPACT HUMANS HAVE ON LIFE ON THE PLANET. IT PROVIDES A GLOBALLY RECOGNISED STANDARD FOR MEASURING THE CONSERVATION STATUS OF SPECIES OVER TIME.

REFERENCE

- UGLY CUTE" BABY AARDVARK TAKES ITS FIRST STEPS. (n.d.). [VIDEO]. ANIMALS.
[HTTPS://WWW.NATIONALGEOGRAPHIC.COM/ANIMALS/MAMMALS/FACTS/AARDVARK#:~:TEXT=CONSERVATION%20STATUS,SOUTH%20AFRICA'S%20KRUGER%20NATIONAL%20PARK](https://www.nationalgeographic.com/animals/mammals/facts/aardvark#:~:text=CONSERVATION%20STATUS,SOUTH%20AFRICA%20S%20KRUGER%20NATIONAL%20PARK)
- WIKIPEDIA CONTRIBUTORS. (2023A). ADÉLIE PENGUIN. WIKIPEDIA.
[HTTPS://EN.M.WIKIPEDIA.ORG/WIKI/AD%C3%A9LIE_PENGUIN#:~:TEXT=BECAUSE%20OF%20ITS%20VERY%20LARGE,A%20SPECIES%20OF%20LEAST%20CONCERN](https://en.m.wikipedia.org/wiki/Ad%C3%A9lie_penguin#:~:text=BECAUSE%20OF%20ITS%20VERY%20LARGE,A%20SPECIES%20OF%20LEAST%20CONCERN)
- GROVER, N. (n.d.). LEAST CONCERN (LC) - IUCN CLASSIFICATION - ENVIRONMENT NOTES. PREPP.
[HTTPS://PREPP.IN/NEWS/E-492-LEAST-CONCERN-LC-IUCN-CLASSIFICATION-ENVIRONMENT-NOTES](https://prepp.in/news/E-492-LEAST-CONCERN-LC-IUCN-CLASSIFICATION-ENVIRONMENT-NOTES)
- ENDANGERED SPECIES. (n.d.). [HTTPS://EDUCATION.NATIONALGEOGRAPHIC.ORG/RESOURCE/ENDANGERED-SPECIES/](https://education.nationalgeographic.org/resource/endangered-species/)