Prelim Bits 25-06-2019

Radio-collaring Asiatic lions

- Asiatic lions are slightly smaller than African lions.
- They used to range from Turkey, across Asia, to eastern India.
- At present Gir National Park and Wildlife Sanctuary is the only abode of the Asiatic lion.
- They are estimated to be 523 in the wild.
- Five protected areas currently exist to protect the Asian lion:
    1. Gir Sanctuary,
    2. Gir National Park
    3. Pania Sanctuary together forms the “Gir Conservation Area” (GCA)
    4. The other two are, Mitiyala and
    5. Girnar protected areas within dispersal distance of the Gir Conservation Area.
- The lions face the usual threats of poaching and habitat fragmentation.
- Other threats are identified as encroachment, forest fire, natural calamities, grazing, collection of fuelwood, Non-timber forest produce (NTFP)
- However, recent death of around two dozen lions is attributed to the deadly Canine Distemper Virus (CDV) in Dalkhaniya range of Gir forest division.
- So the Gujarat Forest Department has begun Radio-collaring Asiatic lions in a bid to study their movement patterns, territories and habitat preferences.
- Radio-collars are fitted with small radio transmitter that will beam signals to the satellites at a preset frequency and the satellites, in turn, will relay the signals to a control-room in Sasan.
- The government has set up a high-tech monitoring unit at Sasan which will serve as control-room for the collars.
- This will help the forest department in monitoring of the group's movement, research, knowing the territory of the animal and other details.
- During floods and other calamities and spread of diseases, the radio collars would be a big help for forest teams.
- Collars effect on the lions:

1. It changes the natural look of the collared lions
2. Collaring a sub-adult poses some risk as the throat of such animal grows with age
3. So the collar straps should be made adjusted accordingly.

- Conservation Status-

1. Listed in Schedule I of Wildlife (Protection) Act 1972
2. Appendix I of CITES
3. Endangered on IUCN Red List
4. Asiatic Lion Conservation Project by the MoEFCC

Lunar Evacuation System Assembly

- Lunar Evacuation System Assembly, or LESA is developed by the European Space Agency (ESA)
- It is a pyramid-like structure whose purpose is to rescue an astronaut who suffers an injury on the lunar (moon) surface.
- It can be operated by a single astronaut.
- LESA can be transported like a golf caddy and placed close to the fallen astronaut to provide a lifting mechanism
- It enables an astronaut to lift their crewmate onto a mobile stretcher.
- The astronauts can then safely bring their crewmate to the lander.
- This entire process of deploying and securing their crewmate to the stretcher should take less than 10 minutes.
- This is the second version of LESA.
- An earlier prototype was tested during the NEEMO 22 mission.
- NEEMO is a NASA’s mission that sends groups of astronauts to live in Aquarius, the world's only undersea research station, for up to three weeks at a time.
- The Aquarius habitat and its surroundings provide a convincing analog for space exploration.

Superbugs - Plants to Humans

- Antibiotic-resistant infections are a threat to global public health, food safety and an economic burden.
- Chicken is considered to be at the forefront of spreading antibiotic resistance bacteria in human guts.

- However, the new research from the American Society for Microbiology have found that plant-foods also serve as vehicles for transmitting antibiotic resistance to the gut microbiome.
- The study found out that almost 20% of the two million antibiotic-resistant

infections reported per year are related to green vegetables.

- The researchers developed a novel, lettuce-mouse model system.
- They feeded lettuce infected with an E.Coli superbug to mice, and analyzing the mice's fecal matter over time.
- The antibiotic-resistant bacteria can hide in the human intestines for months or even years and later cause diseases such as a urinary infection.
- Exposure to one type of antibiotic did not increase the ability of superbugs to hide in the mouse intestines.
- Whereas a second antibiotic resulted in stable gut colonisation after ingestion.
- Ingestion of bacteria with food also changed colonisation.
- This highlight the importance of tackling foodborne antibiotic-resistance from plant-based foods.
- The World Health Organisation (WHO) has included antibiotic resistance in its 'high priority' list to find a solution.

Superbugs

- Strains of bacteria that are resistant to the majority of antibiotics commonly used.
- Antibiotics are medicines that are used to cure bacterial infections.
- However, when bacteria develop the ability to defeat the drugs designed to kill them, then the bacteria is called to be antibiotic resistant.

Source: The Indian Express, Science Daily