

Challenges to Biodiversity of Goa from Climate Change.: **Impacts on tiny Goa's ecological identity**

Dr Savita Kerkar
Associate Professor
Dept. of Biotechnology
Goa University

CMS Vatavaran
Biodiversity
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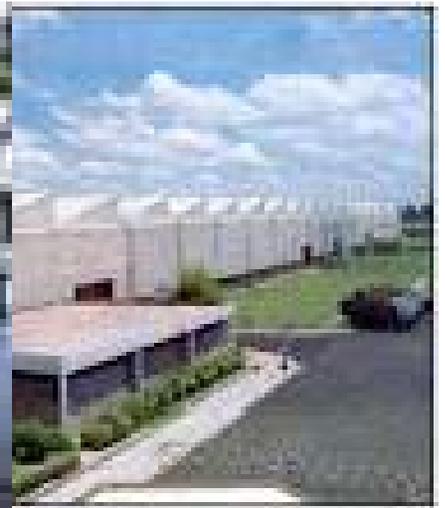
1980

www.indiavideo.org

2010







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Changes in Biodiversity with climate change

- ⦿ Decrease in numbers of fireflies
- ⦿ Reduction in the number of sparrows
- ⦿ Increase in Crow population
- ⦿ Frog numbers reduced

**30TH APRIL
SAVE THE FROGS DAY**



You can help-
Report incidents of poaching.
Use organic fertilizers.
Create safe frog backyard environs.
Conserve natural resources.
Reduce use of fossil fuels.

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White Backed Vulture

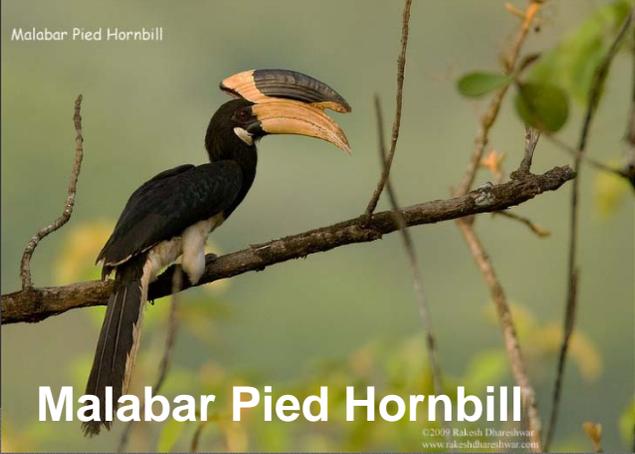


Nilgiri Wood Pigeon

Nilgiri Wood Pigeon



Great Pied Hornbill



Malabar Pied Hornbill

Malabar Pied Hornbill

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www.rakeshdhareshwar.com



long-billed Vulture

© sunil singhal 2010

**Birds
Facing
Extinction**

MATOLI



Matoli is a wooden canopy containing forest items like seasonal flowers, fruits, roots, leaves and creepers and is placed over the idol of Lord Ganesh

Report by The Times of India, Goa, 24th September 2012

Rupesh Dayanand Poinguinkar has exhibited 336 items in the matoli, in his house at Velwada in Poinguinim of Canacona taluka to celebrate the floral diversity of the Western ghats of Goa and herald the first fruits of the season.





Waghnakhi (*Gloriosa superba*)



Terminalia chebula



Kangle (*Celastrus paniculatus*)



Fagla (*Momordica*)



Arjun (*Terminalia arjuna*)



Ghagryo (*Connarus monacarpus*)



Tamhan (*Lagerstroemia speciosa*)



Matoli fruits for sale in Panjim market 2012

Climate change will affect Goa beaches



‘Environmental Education and Sustainable Development in the New Millennium’, a book released by Dr Desh Bandhu, president, Indian Environment Society on the occasion of “VIII Global Conference on Environmental Education 2009” says that **Goa being a State with shortest coastline, is more prone to sea level rise** due to global warming and climatic change.

Climate change will affect Goa beaches

- Around 4.3 per cent of Goa's a 105-km coastline has already been affected by one meter rise in sea level
- Maharashtra with highest coastal area of 30.8 million hectares, only 0.13 per cent of its area is under beach erosion
- 7.3 per cent of Goa's coastal population is affected by beach erosion which is also very high compared to other States.
- State legislative assembly during the recent monsoon session, more than 10 per cent of the State's beaches have already been eroded due to global warming and the consequent rise in sea water levels.
- Destruction of mangroves and salt pans, plus sand mining and constructions for tourism have exacerbated the problems.

Report by The Times of India, Goa,
26th September 2010

'Beach erosion in Goa could be linked to climate change'



Workshop on 'National green corps: Eco clubs, the gateway to green campus' organized by the [Goa state council](#) for science and technology, ministry of environment and forests (MoEF) and education department in association with CPR environmental education centre, Chennai, at the state museum in Panaji

'Beach erosion in Goa could be linked to climate change'

⦿ Alvarino Luis, (NCAOR)

- The extent of erosion on the state's beaches may be a result of wind speeds driving sea waves to hit the coast harder than in the past
- earth's average surface temperature has risen by 0.76 degrees Celsius since 1850.
- Carbon emissions which effect climatic changes, form a blanket in the upper atmosphere of the earth and prevent heat from escaping.
- In Goa, summers have been warmer during the last few years and the minimum temperatures are also on the higher side

'Beach erosion in Goa could be linked to climate change'

◎ Baban Ingole, Scientist ,NIO

- the impact of climate change will be adverse on fisheries.
- **Jellyfish are now seen more often on beaches.** They can tolerate higher temperatures and they feed on abundantly available food such as zooplankton and fish larvae, which are also food for bigger fishes
- invasive jellyfish species can impact the food chain.
- **population of sardines is increasing** because they frequent waters with warmer temperatures and find a suitable habitat off the Konkan coast.

Report by The Times of India, Goa,
12th July 2008

Portuguese Man O' War in Goa

- ⦿ Thirty lifeguard recruits participating in a drill at Vainguinim beach on Friday were laid low by Portuguese Man O' War or Bluebottle - native to warm waters
- ⦿ NIO scientist Baban Ingole said no scientific study has been conducted in Goa on Bluebottles, But there appears to be an increase in their sightings.





September 26, 2011

- Cases of Leptospirosis disease have been reported from various parts of Goa and neighbouring states.
- For the year 2011 till date, 1172 samples of suspected patients have been tested and of these 103 are positive for Leptospirosis, with 11 deaths.



The **yellow fever mosquito**, *Aedes aegypti* is a [mosquito](#) that can spread the [dengue fever](#), [Chikungunya](#) and [yellow fever](#) viruses.

Report by CSE WEBNET , 30th September 2011

Mining in Goa: damage to the environment greater than loss of revenue

- At present, Goa has **90 operational mines** spread along the Western Ghats in an area of 150 to 200 sq km. Most of the legal and illegal mines are in forest areas.
- **Former Union minister A. Raja** who is now in jail in connection with the 2G spectrum scam, issued 169 environmental clearances for mines in Goa between 2005 and 2009 when he was the Union minister of state for environment, says Claude Alvares of non-profit Goa Foundation. He says this was a record in itself. Of these, **15 clearances were for mines inside the Netravalli wildlife sanctuary in south Goa.**

Report by The Economic Times, Goa,
7th September 2012

- ⦿ A judicial commission's inquiry into the illegal mining in Goa has revealed that 33 mines in the state were operating within one kilometer of a national park, sanctuary or protected areas without permission.

Seasonal assessment of heavy metal pollution in tropical mangrove sediments (Goa, India)

Kuldeep Attri and Savita Kerkar. Journal of Ecobiotechnology : September 2011

Insights on metal-microbe interactions in *Bacillus* sp. and *Chromohalobacter* sp. from a solar saltern.

Flory Perira, K.P Krishnan, Rupesh Kumar Singh & Savita Kerkar. Journal of Ecobiotechnology: April 2012.

Bacterial response to dynamic metal concentrations in the surface sediments of a solar saltern (Goa, India)

Flory Pereira ,Savita Kerkar and K.P.Krishnan· EMAS : July 2012



We have not inherited the earth from our forefathers but borrowed it from our children

LET'S SAVE GOA!