

# Making every chirp count

A local conservation drive in Mount Abu to protect the green munias offers some lessons despite its limitations, writes **Sahil Zutshi**

**E**ight kilometres from Mount Abu, a hill-station in southern Rajasthan, a pockmarked road perilously hugs and winds its way across hillsides covered with Kachnar and Mandar trees to the villages of Oriya and Achalgarh. Not far from these villages stands Gurusikhar, the highest peak in the Aravalli ranges, which rises some 5,650 ft and is home to an ancient temple and a cave.



Green munias are categorised as 'vulnerable' by the International Union for Conservation of Nature; (below) a view of the protected biodiversity area near Mount Abu. PHOTOS BY AINSLEY PRIESTMAN AND SAHIL ZUTSHI

While this ancient area, situated in the Aravallis, features in various sacred Indian scriptures, and is renowned for its pilgrimage and tourist sights, not much is known about it being home to a rare, spectacularly coloured little bird.

Among the 200-odd species of birds found in Mount Abu Wildlife Sanctuary are five species of munias including the endemic and prized green munia which can be frequently spotted on the hillsides of Mount Abu.

Known by their local name in the hills of Mount Abu, the Harias (translating to the green ones), the globally threatened green munias or green avadavats are exquisitely coloured birds and have a loud high-pitched call making them a much sought-after songbird.

The word 'avadavat' is thought to be a corruption of 'Ahmedabad', historically known to be a thriving bird bazaar and a hub for the caged bird trade. Paradoxically, while they are classed as 'rare', illegal trade of these birds continues to flourish. Since these birds move in large flocks, capturing them is easier and illegal trading is more lucrative. Green munias are categorised 'vulnerable' by the International Union for Conservation of Nature (IUCN), and are listed in Schedule IV of the Wildlife Protection Act making hunting, trapping or trade illegal, a punishable offence.

## Conservation initiative

Since 2017, habitat restoration work has progressed at a declared and restricted 'Protected Biodiversity Area', which has involved the plantation of native tree species and the controlled management of invasive lantana and parthenium.

So far, over a hundred species of suitable trees have been planted and ever since being declared a 'plantation zone', it has stopped suffering from over-grazing – results of which are already visible in the appearance of grasslands, comprising native wildflowers and flora. While lantana and Mauritius thorn present challenges, the advocacy to in-

discriminately remove thick bush cover either mechanically or biologically has been carefully managed at the protected site to safeguard the natural nesting habitat of munias.

The conservation efforts also include rainwater harvesting, waste collection and most importantly, vigilance to curb environmental violations around Oriya and Achalgarh.

The overall reduction in anthropological activities at the protected area has seen an increase in flock sizes. The sight of green munias feeding communally alongside white-throated munias (silverbills) and scaly-breasted munias has become a common sight all through the summer and monsoon months. On a lucky day, flocks of 50 or more birds have been spotted. Zones designated as 'protected areas' and strict vigilance have allowed for regular sightings of this attractive bird.

Recent observations have documented that cosmos and crown flowers are the favourites for munias during the seed production stage of the plants.

"It is truly wonderful to see so many green munias at one place. The plantation work has been commendable. The effort could be used as a model to reinvigorate the forests of Mount Abu and provide a

safe habitat for these birds," Gajendra Singh Khimsar, former Forest Minister of Rajasthan remarked on a recent visit to the protected area.

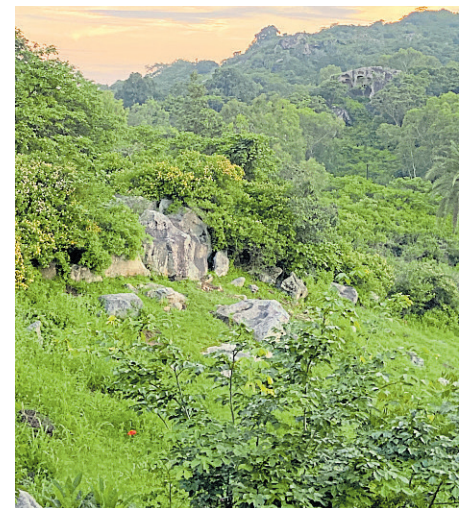
## Overcoming roadblocks

Unfortunately, the textbook approach of involving the wider local community has, in this case, been unsuccessful. The conservation efforts have been hampered by local opposition and illegal encroachments.

While the risk from trappers remains ever-present, the major threats are habitat alteration, destruction and pesticide and chemical fertiliser use on local farms. Unmanaged tourism has led to environmental degradation across the declared eco-sensitive zone. Loud music echoes around the hillsides; while relatively untouched habitats are being altered by increasing traffic, deforestation and encroachment.

The future for green mu-

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Ainsley Priestman

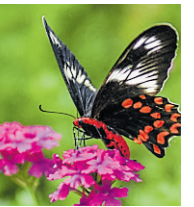
## DID YOU KNOW?



### Flowers alter their features to attract pollinators

Bizarre patterns, vibrant colours, heady scents—flowers present a buffet of choices to draw pollinators. In fact, studies have shown that bees, butterflies, and other pollinating insects have particular preferences in the flowers they visit. What's more, they also tweak their tastes according to the changing environment. Researchers found that the female common emigrant butterfly, found widely across India, had an innate inclination to the colour yellow while the males preferred both blue and yellow. To some extent, the butterflies could also be trained to change their colour preferences. Odour is also an important deciding factor, and an attractive enough scent can drastically alter or even reverse any learned preferences for colour.

Flowers, too, are known to alter their characteristics to attract more pollinators. While rhododendrons in the lower slopes of the Himalayas have longer flowers and diluted nectar, the plants at higher altitudes have altered themselves to have smaller flowers which are chock full of rich nectar to attract more flies and bumblebees.

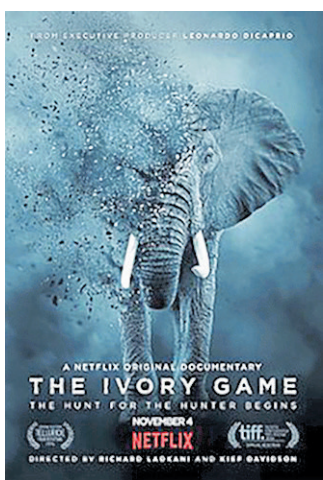


Recently, researchers found that some flowers have been altering their colours by dialling up the pigmentation in response to climate change. Some scientists worry that pollinators might overlook such flowers altogether. Only a better understanding of plant-pollinator interactions can tell us how such changes will impact the world's pollinators, and by extension, our food supply.

Research Matters

## ON THE RECORD

### The dark world of ivory trafficking



**T**he Ivory Game is a documentary film that exposes the dark world of ivory trafficking. Elephants are disappearing at a rate of 1 every 15 minutes and their deaths are fuelled by the illegal ivory trade.

To investigate and document the illegal trade of ivory, the filmmakers went undercover for 16 months, and the film charts the smuggling route from Tanzania, Kenya, and Zambia to China, Hong Kong, and Vietnam.

Directed by Kief Davidson and Richard Ladkani, and executive produced by Leonardo DiCaprio, the film, available on Netflix, brings to the fore the corrupt global network of ivory trafficking, exposing poachers and dealers as African elephants edge closer to extinction.

## PSYCHOLOGICAL STUDY

### An 'awe walk' might do wonders for your well-being

GRETCHEN REYNOLDS

**C**onsciously watching for small wonders in the world around you during an otherwise ordinary walk could amplify the mental health benefits of the stroll, according to an interesting new psychological study of what the study's authors call "awe walks."

In the study, people who took a fresh look at the objects, moments and vistas that surrounded them during brief, weekly walks felt more upbeat and hopeful in general than walkers who did not. The findings are subjective but indicate that awe walks could be a simple way to combat malaise and worry. They also underscore that how we think and feel during exercise can alter how the exercise alters us.

There already is considerable evidence, of course, that

exercise, including walking, can buoy our moods. Past studies have linked increased physical activity to greater happiness and reduced risks for anxiety, depression and other mental ills.

#### Less emotional stress

Feeling a sense of awe also seems to up our overall feelings of gladness and improve health. In past studies, people who reported feeling awe also tended to have less emotional stress and lower levels of substances related to body-wide inflammation.

But no studies had looked into whether mixing awe and activity might somehow augment the benefits of each—or, on the other hand, reduce them. So, for the new study, which was published in September in *Emotion*, scientists affiliated with the Memory and Aging



Awe walks could be a simple way to combat malaise and worry. NYT

Center at the University of California, San Francisco, and other institutions decided to start teaching older walkers how to cultivate awe.

They concentrated on people in their 60s, 70s and 80s, ages when some people can face

heightened risks for declining mental health.

The scientists randomly divided these volunteers into two groups. One, as a control group, was asked to start walking, at least once a week, for 15 minutes, preferably outside, but

given a few other mandates. The members of the other group likewise were asked to walk once a week, but also were instructed how to cultivate awe as they walked.

The awe walkers, like the control group, were asked to walk outdoors. After eight weeks, the scientists compared the groups' responses and photos.

Not surprisingly, they found that the awe walkers seemed to have become adept at discovering and amplifying awe. The researchers also found small but significant differences in the groups' sense of well-being. Overall, the awe walkers felt happier, less upset and more socially connected than the men and women in the control group. The volunteers in the control group reported some improvements in mood, but their gains were slighter.

The New York Times

## SNIPPETS

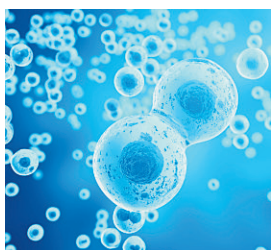
### Map shows how immune cells work

**R**esearchers have charted the activity of tens of thousands of genes in mouse immune cells over the course of an infection. The study from the University of Melbourne, Australia, the Wellcome Sanger Institute, and their collaborators created the first full dynamic map of how cells learn to fight microbes and then preserve a memory of this for future infections.

The findings could help scientists develop new vaccines and therapeutics for a range of diseases by guiding their research into a particular set of immune cells, known as CD4+ T cells, that are essential for generating

immunity. The research team studied the CD4+ T cells during an experimental infection of mice with malaria-causing parasites, which invade and multiply inside red blood cells. With the aid of machine learning techniques, the research team combined the gene activity data over four weeks of infection to generate a comprehensive map of the developmental journeys taken by CD4+ T cells.

The scientists have shared their data through a freely available digital resource to allow immunology researchers to track the response of individual genes after infection.



Science Daily

### Guidelines to protect biodiversity

**A** team of international scientists have collaborated to propose a series of global guidelines for the sustainable use of non-native tree species to help protect biodiversity and ecosystems around the world.

The new paper, published in the journal *Neobiota*, uses the Council of Europe — Bern Convention Code of Conduct on Invasive Alien Trees as a starting point, to present eight recommendations all aimed at maximising the benefits of non-native trees, while minimising their negative impacts. The guidelines include using native trees, or non-invasive non-native trees as opposed to

invasive non-native trees, being aware of the risk of invasion and consider global change trends and developing and supporting global networks and collaborative research and information sharing on native and non-native trees.

According to the scientists, the guidelines are a first step towards building a global agreement on the precautions that should be taken when introducing and planting non-native trees. They also warned that unless their global guidelines are taken



seriously the spread of non-native tree species will make the conservation of forest biodiversity difficult to achieve.

phys.org

### What shapes our perceptions?

**I**n first-of-its-kind observations in the human brain, an international team of researchers has revealed that two well-known neurochemicals — dopamine and serotonin — are at work at sub-second speeds to shape how people perceive the world and take action based on their perception.

The discovery shows researchers can continually and simultaneously measure the activity of both dopamine and serotonin — whose receptor and uptake sites are therapeutic targets for disorders ranging from depression to Parkin-

son's disease — in the human brain. Furthermore, the neurochemicals appear to integrate people's perceptions of the world with their actions, indicating dopamine and serotonin have far more expansive roles in the human nervous system than previously known.

The study published online in *Neuron* opens the door to a deeper understanding of an expanded role for these systems and their roles in human health which could deliver important insight into psychiatric and neurological disorders.

Science Daily

