

satisfactorily in those institutes, the scientists have to handle several disease-causing organisms, which may not appeal to women scientists, explaining their lower participation in these institutes. Women scientists from bigger cities are likely to be reluctant to accept jobs in the regional centres away from important metropolitan cities and in centres where dangerous pathogens are handled or extensive field work is required. This

explains their relatively sparse representation in those institutes. It may be concluded that women scientists in ICMR do not face the problem of a 'glass ceiling'. It is expected that in course of time they will equal the number of male counterparts or outnumber them in these august institutions.

1. Sinha, U. B. and Sinha, D., *Curr. Sci.*, 2011, **100**(6), 837–840.

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## Planting cycas

Landscaping and garden designing nowadays is professionally managed by companies. Residential and commercial landscapings (hotels and hospitals, institutions, parks and private residences) bring aesthetically pleasing extension of indoor living to the outdoors. However, some traditionally grown plants are replaced with some evergreen plants. Traditional wisdom of growing which plant to grow near the prayer hall, hospital or residential area is not given importance. Cycas is traditionally not cultivated as a household plant, now we see it in all the gardens. It is even commercially grown in nurseries and marketed at Rs 500–1000 per plant. Cycas is a gymnosperm – naked



Cycas plant.

seeded plant. Its history can be traced back to Mesozoic era. It is called as a 'living fossil' as it looks like its fossil ancestor. It has practically not shown any modification during this long geological period. It is sluggish in its growth and is dioecious. Male and female plants are separate. Cycas is represented in species like *Cycas circinalis*, *Cycas revoluta*, *Cycas beddomei*, *Cycas rumphalii* and *Cycas pectinata*. Of these, *C. circinalis* and *C. revoluta* are cultivated as ornamental garden plants. The plant is, no doubt, good to look at with its evergreen leaves. When it starts producing cones, male cones are fairly big and compact. It has a number of microsporophylls which bear microsporangia on its abaxial (lower) surface in groups. Each microsporangium has thousands of spores which are boat shaped. Each cone produces pollen grains, microspores in billions. The plant is mainly wind pollinated. It emits most disagreeable smell. The spores affect the lungs, and is bad for asthma patients. Hence, it is not advisable to grow it in private gardens, hospitals, libraries or laboratory buildings. However, it can be grown in public gardens where people sit for a while and go. It produces seeds rich in starch and is

used as food. But its continuous use may lead to digestive disorders. It is difficult to know the sex of the plant before cone formation. However, Shetty and Subramanyan<sup>1</sup> showed that the cytological studies are helpful in determining the sex. We suggest that the Cycas should not be grown near the hospitals, laboratories, libraries, ashramas in private or personal gardens. But it can be grown safely in public gardens. In Indonesia it is grown in graveyards.

1. Shetty, B. V. and Subramanyan, K., *Proc. Indian Sci. Congr. Assoc.*, 1962, pt 3, p. 259.

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## Reintroducing the cheetah in India's grassland – glamour or conservation?

Among the wild cats, cheetah is unique and is the only extant member of the genus *Acinonyx* notable with its non-retractable claws and pads. This fast-running cat derived its name from Sanskrit, *citrakayah*, meaning, the spotted. Like the lion, the cheetah came to India from south-western

Asia by the way of north-western passes, and established in the plains of northern and central parts stretching south up to the Deccan and Mysore<sup>1</sup>. Recent genetic study indicates that the last common ancestor of all existing cheetah populations lived in Asia about 11 million years ago<sup>2</sup>.

The fascinating cheetah or hunting leopard was indeed hunted to extinction in the wild in 1952. According to Prater<sup>1</sup>, the last authentic record of the cheetah hunting in India was of three males shot together at Bastar District in Madhya Pradesh in 1948.

The cheetah made headlines last year when the Ministry of Environment and Forests (MoEF), New Delhi, announced setting aside three grassland sanctuaries to bring the extinct cat back to India<sup>3</sup>. The cats to be released will be brought from the Middle East where the African cheetahs are bred. The IUCN Guidelines define reintroduction as 'an attempt to establish a species in an area which was once part of its historical range, but from which it has been extirpated or become extinct'<sup>4</sup>. The question, however is, would releasing the cheetah in India that originates from the Middle East be considered a reintroduction?

The Government of India has an ambitious plan to allocate six cheetahs each to two wildlife sanctuaries, viz. Kuno-Palpur and Nauradehi in Madhya Pradesh and Shahgarh landscape in Jaisalmer district of Rajasthan. The MoEF is willing to spend Rs 30 million to restore these sites including the relocation of 23 vil-

lages before the arrival of cheetahs<sup>3</sup>. If the mission succeeds, it may certainly boost ecotourism and tourists will be fascinated to see the cheetah in the wild.

Nonetheless, some questions remain unanswered. Will the local communities that live in the proposed sites happy to give up their settlements for the cheetah? What are the social, economic and ecological costs and benefits of the cheetah release into the wild? Did the scientific community specialized in wildlife thoroughly debate the pros and cons of the cheetah release? A quick search of the words 'cheetah reintroduction' in the website of *Current Science* journal yielded no relevant discussions till date. Does this project politically motivated to glamorize a few who dream of seeing the cheetah? The Prime Minister's office has recently rejected a proposal to establish a national body to save the elephants. When India is facing difficulties to save natural habitats for the largest herbivore,

should the cheetah dream project worth pursuing?

1. Prater, S. H., *The Book of Indian Animals*, Bombay Natural History Society, Bombay, 1971.
2. *Science*, 2006, **311**, 73–77.
3. Project Cheetah, Ministry of Environment and Forests, Government of India, Delhi, 2000.
4. IUCN Guidelines for Re-introductions, IUCN Species Survival Commission, Gland, 1998.

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## The Shankaracharya sacred grove of Srinagar, Kashmir, India

Sacred groves are small patches of forests conserved through man's spiritual belief and faith. They are often the only lingering samples of natural vegetation in the man-modified landscapes. In such groves the highest levels of biological diversity are found<sup>1</sup>. Besides centre of high species richness<sup>2-4</sup>, they act as a gene pool and provide refuge to a large number of endemic, endangered and threatened species<sup>2</sup>, and render ecological services such as source of perennial water, maintain local micro-environmental conditions and help in biogeochemical cycles<sup>3,5</sup>. In India, nearly 13,720 sacred groves have been enumerated from 19 states<sup>6</sup>. Kerala, Maharashtra, Andhra Pradesh and Tamil Nadu have the maximum number of sacred groves<sup>6</sup>. No sacred grove has been reported from Jammu and Kashmir, although a few of them like the Mata Vaishno Devi, the Jasrota Mata, the Mansar Lake, the Shankaracharya temple, etc. are present in the state. Kashmir, popularly known as the 'Paradise on Earth', is supposed to be the originating centre of human culture. It is a land of saints, sages, great philosophers and mystics. Shankaracharya sacred grove is one such centre.

The Shankaracharya sacred grove is a reserve forest being maintained for aesthetic and recreational purposes<sup>7</sup>. The study site is located between lat. 34°04'35.56"N and 34°05'25.08"N and long. 74°50'03.16"E and 74°51'08.63"E, covering ~138.35 ha area. It lies in south-east of Srinagar at about 4.5 km from the Clock Tower, Lal Chowk, Srinagar. The altitude of the study site varies from 1590 to 1853 m and the mean minimum and maximum temperatures range between -4.0°C and 31.0°C, whereas mean rainfall is 659 mm per annum<sup>8</sup>.

A total of 256 plants (angiosperms and gymnosperms) from 60 families and 229



A view of the Shankaracharya temple.

genera were collected. Dicotyledonous plants contribute nearly 85% of the total angiosperms. Asteraceae was the largest family with 45 species. Other important families were Poaceae, Rosaceae, Papilionaceae, Lamiaceae, Ranunculaceae and Apiaceae. Seven gymnosperms were also present in the sacred grove. The forest had 112 medicinal species, 68 weed species, 36 poisonous plants, 23 exotic species, 14 fodder species, 12 species used in regional art and crafts, 12 edible species, 9 religious species having sacred value for both Hindus and Muslims, 5 species utilized in the making of house, boat and the *Shikara* (the floating house boat) and 3 parasite species. Some of the important species include *Platanus orientalis* (a multipurpose religious tree), *Ephedra gerardiana* (a medicinal gymnosperm), *Pinus helepansis* (exotic species), *Orobanche alba* (root parasite), *Parratiopsis jacquemontiana* (twigs are used in the making of *kangri*, a small fire pot with a frame of cane), *Juglans regia* (wood used in traditional wood carving), etc.

The Shankaracharya sacred grove is administered by the State Forest Department, like most of the sacred groves in