CORRESPONDENCE

Have we killed naturalists and natural history?

In a recent issue of Conservation Biology (1996, 10, 1–3), its editor Reed F. Noss has made a passionate plea for vitalizing and promoting field biology, popularly known as natural history. Stimulated by that article, I went through a strong urge to share Noss’ comments, viewing them against the opportunities and strengths India has.

Noss has set his article in the overall context of growing alienation of conservation biology from the reality, viz. basic field information. To quote him: ‘What do our students lose when we teach them how to model population viability and analyse remote sensing data, but now how to distinguish the song of the bay-breasted warbler from that of the cape may, the track of the mink from that of the marten, the taste of the birch twig from that of the cherry? Will the next generation of conservation biologists be knowledgeable but a bunch of computer nerds with no first-hand knowledge of natural history?’

Does it follow that they will therefore have no personal emotional ties to the land?

It is time we took note of these observations, particularly because of the widening conflicts between prudent resource management and degrading socio-political system in our country.

Although a modern biologist will readily reject natural history as something that is essentially anecdotal and consequently lacking reproducibility, it certainly triggers curiosity to know more, promotes zealotry towards nature, and enables perception of organic discipline with greater reverence. Probably, the most critical advantage is that it provides an opportunity to strike an emotional relationship between the human species and nature as a whole.

Noss’ article offers a number of viable suggestions which can be easily applied in the Indian context as well. Many more ideas can be developed and refined if we can make concerted effort to revive natural history and dedicated naturalists. The following can be one suggestion to promote the idea: State and Central Governments with the help of motivated community groups can initiate ‘Stream/Riverwatch’ or ‘Birdwatch’ programmes. They will not only be educational, but also recreational. For instance, through the ‘Stream/Riverwatch’ programme, children in upper primary and secondary schools can be encouraged to make simple observations on visible changes in rivers and streams. The raw information obtained can act as sources for developing different monitoring/treatment projects.

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NEWS

Palaeobotany on stamps

The Department of Post issued on 11 September 1997, four postal stamps on fossil plants to commemorate the fiftieth anniversary of the Birbal Sahni Institute of Palaeobotany. The stamps in the denomination of Rs 2.00 (Glossopteris), Rs 2.00 (Birbalsahni divyadarshanii), Rs 6.00 (Pentoxylon) and Rs 10.00 (Williamsonia sewardiana) depict the richness and variety of plant fossils in India. These are the first postal stamps of fossil plants from India.

1. Williamsonia sewardiana. An extinct plant of Mesozoic gymno-
sperms which belongs to Williamsoniacae of the group Bennettitales. Birbal Sahni reconstructed the plant as a miniature cycas tree with sparsely branched stem – *Bucklandia* Presl, leaf – *Pilophyllum* Morris and female flower – *Williamsonia* Carruthers, Male flower – *Weltrichia* Braun was found later on. The plant thrived in Rajmahal Hills, Bihar about 140 million years ago.

2. *Pentoxylon*. An important discovery of Birbal Sahni is the recognition of a unique group of plants named Pentoxylae from the Mesozoic sequence of Rajmahal Hills, Bihar (age 110–140 million years). The reconstructed plant has the stem – *Pentoxylon* Srivastava, Leaf – *Nipaniophyllum* Sahni and female cone *Caronoconites* Srivastava. Male flower – *Sahina* Vishnu Mittre was found later on. This Pentoxylon plant is used as an emblem of the Birbal Sahni Institute of Palaeobotany, Lucknow.

3. *Glossopteris*. The tongue-shaped leaf *Glossopteris*, represents a unique group of extinct vascular plants (age – Permin 250–280 million years). During this period India occupied a position south of equator close to South Pole as a part of very large continent called Gondwanaland which included South America, Antarctica, Africa and Australia. The vegetation which was dominated by *Glossopteris* was responsible for the coal reserves in peninsular India.

4. *Birbalsahnia divyadarshanii*. Fossil of an enigmatic flower-like organ of the extinct plant named after eminent Indian palaeobotanists Birbal Sahni and Divya Darshan Pant. It was discovered from Hura Coalfield, Santhal Pargana, Bihar (age 250–280 million years).

The first day cover features the Birbal Sahni Institute, and a cameo inset of Birbal Sahni. The issue coincided with a formal Foundation Day function at the Institute on September 10.

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**PSLV-C1/ IRS-1D mission**

On 29 September 1997 the entire nation witnessed the final tense moments of countdown and the perfect lift-off of the PSLV-C1 carrying the operational class Indian Remote Sensing Satellite IRS-1D. In about 19 minutes, the satellite was put into a polar orbit of 820 km apogee and about 300 km perigee, demonstrating the capability of the improved PSLV to orbit 1200 kg class payload. As our Prime Minister I. K. Gujral who witnessed the launch observed, this marks a major milestone of the country during the fiftieth year of her Independence.

While the achieved apogee and inclination are within specification bounds, the perigee was lower by about 500 km. This was due to a shortfall of 1.7% in the required orbital velocity of 7440 m/s. Preliminary analysis suggests that it was due to an anomaly in fourth-stage performance. Quick look data indicates normal performance of all other systems.

Shortly after separation from the launch vehicle, the spacecraft solar panels were deployed automatically using on-board sequencer and the satellite was put on 3-axis stabilized mode. Based on carefully planned orbital manoeuvres by onboard propulsion system of the spacecraft, the spacecraft has been put into a functional orbit and good pictures of all the cameras have been taken.

It may be recalled that this is the fourth launch of PSLV, having completed the three development flights during 1993–96. Though the first mission, PSLV-D1 conducted in 1993 could not place the satellite into orbit, the later two missions PSLV-D2 and D3 flown during 1994 and 1996 have been totally successful in placing IRS-P2 and IRS-P3 satellites respectively into Polar Sun-Synchronous Orbit (SSO).

PSLV-1C is the first in the PSLV Continuation series, carrying a payload of 1200 kg IRS-1D satellite. This payload enhancement is considerable compared to PSLV-D3 with a capability of 950 kg. The major changes in the vehicle configuration from the previous mission, PSLV-D3, are:

- The enhanced propellant loading of first stage from 129 t to 138 t and reduction in nozzle hardware mass.

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