

Skylark (*Alauda arvensis*)

This is with reference to the letter by Alexandar¹ on skylark (*Alauda arvensis*). Though I understand the general concern of the author on the disappearing mesic grasslands in Ousudu Lake Bird Sanctuary, Puducherry, the bird species has, however, been misidentified in the letter. The species ought to have been the closely related Oriental skylark (*A. gulgula*), which is the commonest and most widespread of the two species in the Indian subcontinent. The Eurasian skylark (*A. arvensis*) is largely a winter visitor to northwest India^{2,3}.

It is also to be noted that the bird in the accompanying figures in the letter is in all probability a Paddyfield Pipit (*Anthus rufulus*) given the adult plumage characters of the bird and partially domed nest on the ground. Paddyfield Pipit is another dry grassland specialist and thrives well on fallow crop fields.

1. Alexandar, R., *Curr. Sci.*, 2012, **103**, 14.
2. Ali, S. and Ripley, S. D., *Handbook of the Birds of India and Pakistan*, Oxford University Press, Delhi, 1972, vol. 5.
3. Rasmussen, P. C. and Anderton, J. C., *Birds of South Asia: The Ripley Guide*,

Smithsonian Institution, Washington DC and Lynx Edicions, Barcelona, 2005.

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Response

I agree with Rajah Jayapal about misidentifying the species and confusing the Paddyfield Pipit (*Anthus rufulus*) with the skylark (*Alauda arvensis*). Paddyfield pipits have pale breast streakings, a prominent eye patch or clearly visible supercilium, a long(er) tail and long legs and lay eggs on the open ground. The Eurasian skylark (*A. arvensis*) is a dull-coloured bird with no visible breast streakings and prominent supercilium. It has a prominent crest on the head and a short tail that is only visible during flight. It lays eggs on the ground, hiding them under vegetation cover.

Though I have misidentified the species as mentioned earlier, the skylark is

prevalent along with the Paddyfield Pipit in the Ousudu Lake Bird Sanctuary. Jayapal has correctly remarked that one of my concerns is habitat loss for these kinds of species through disappearance of mesic grasslands. As a result, skylarks are forced to find nesting space on fallow crop fields, sharing this space with the Paddyfield Pipit which thrives well on these dry grasslands. However, I have also addressed the issue of second-term cultivation. The study showed that during the breeding season several nests and hatchlings of the Paddyfield Pipit are destroyed by second-term tilling, irrigation and weeding in the surrounding agricultural fields of Ousteri Lake. Therefore, within this bird sanctuary, groundnesting birds like the Paddyfield Pipit and skylark are being threatened as a result of habitat loss and second-term cultivation, and measures for conservation should be taken.

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Reforestation programme at Ramdurga village, Koppal district, Karnataka

Climate change is widely recognized as a significant man-made global environmental change and is also treated as a threat. The impact of high temperature, erratic precipitation, extreme weather events and rise in sea level is felt at local, regional and global levels. The importance of forested areas in carbon sequestration is well accepted and documented. Carbon in the form of CO₂ is accumulating in the atmosphere at the rate of about 3.5 billion metric tonnes per annum as a result of fossil-fuel combustion. The accumulation of CO₂ and other greenhouse gases (GHGs) in the atmosphere is expected to cause observable climate changes in the coming century. To avoid this critical situation, manage-

ment of terrestrial carbon sinks is of paramount importance to contain and arrest CO₂ from the atmosphere as it is the main GHG attributed to global warming. Forests play a significant role in the dynamics of global carbon cycle. The Forest Survey of India in its latest forest report¹ has stated that in order to assist policymakers on climate change-related issues, it is desirable to have a periodical account of carbon stocks in forests so as to assess contribution of forests in sequestration of atmospheric carbon. Globally, forests are considered as natural 'sinks' to store CO₂ and in recent years much emphasis is being given on scientific programmes based on afforestation and reforestation. Both policy-

makers and the scientific fraternity are in a process of continuously identifying suitable areas according to LULUCF which could be utilized for the aforesaid purpose.

Wildlife SOS, a research organization based in Delhi, has initiated a project to establish and simultaneously manage a forest under a reforestation programme at Ramdurga village (15°29'47.42"N lat. and 76°19'52.74"E long.), Koppal district, North Karnataka on 10 acres of land (Figure 1). The forest is being developed and managed with the help of local communities. Only such tree species which are ecologically beneficial and have high efficiency for carbon fixation are selected. At later stages, growth



Figure 1. Reforestation site at Ramdurga village, Koppal district, North Karnataka.

of the forest will be monitored in terms of carbon stored in the forest using non-destructive methods, i.e. developing biomass tables with variables like diameter at breast height, basal area, tree height and wood density. The study is an attempt to quantify carbon pools (living biomass only, i.e. above ground and below ground biomass) from within the maturing forest over a period of 5 years as a role to play in our fight against global warming and climate change.

The study area comes under the North Dry Zone. The place experiences a semi-arid type of climate characterized by hot

summers and low rainfall (about 52% of the annual rainfall is received during rabi season). It is cool and pleasant during major part of the year, except during the summer months of March to middle of June. The coldest period is December to January; minimum temperature reaches up to 16°C and maximum reaches 45°C during hot summer. The area is characterized by dryness for the major part of the year because of a less rainfall. The annual normal rainfall is 571.92 mm and normally rain commences from June and continues up to November. The area falls under the north median region of the

state. The elevation is between 450 and 900 m. The area is characterized by a large stretch of barren plains covered with black soil, red soil in granites and grey granite areas. The total population of the district is 1,193,496, of which the rural population is 995,224, accounting for 83% of the total population. The district has 3,020 small and marginal industries, which (13%) are agriculture-allied units and are broadly agricultural based.

The reforestation programme aims to create a 'carbon sink' at the proposed site to improve the local biodiversity and also to offset/reduce carbon emission to achieve sustainability. The carbon quantification data will be useful to assess the trends of carbon balance in the region.

1. State of Forest Report, Forest Survey of India, 2011; www.fsi.nic.in

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Depletion of traditional knowledge of medicinal plants

Traditional knowledge (TK) related to the use of natural resources including medicinal plants has been recognized as one of the important assets inherited through generations by the local communities¹. Such knowledge is generally passed down to the next generation verbally, in the form of odes and poems. In the process of rapid modernization and advancement of medical sciences, partially documented or undocumented knowledge on ethnomedicine began to deplete drastically. Although several ethnobotanists and anthropologists have made attempts at documenting such knowledge in various parts of the world, several remote localities and indigenous communities have remained unnoticed. Traditional knowledge has now regained importance due to the discovery of new

drugs and formulations from phytoresources^{2,3}. It has been established that more than 80% of the people in the developing countries depend on traditional medicines for healthcare mainly due to their less side effects³. As a result, there has been a spurt in herbal industries. The pharmaceutical sector has to meet the ever-growing, excessive demand and this in turn has led to wild harvest of these resources, which may lead to rapid depletion of resource base. Contrary to the growing demand of medicinal plants all over the globe, TK on ethnomedicine is declining rapidly, especially in the developing countries⁴.

The Himalayan region, well known for diversity and richness in medicinal plants, also harbours a large number of ethnic communities, each with distinct culture

and TK system. Rapid pace of development and socio-economic transformations have led to erosion of natural resources and TK in the western Himalayan region. It is in this light that we undertook a study to assess the status of TK on medicinal plants by conducting a rapid survey on current knowledge on the use of medicinal plants among various ethnic groups in Uttarkashi district, Uttarakhand. Semi-structured interviews were used to know the extent of knowledge on medicinal plants passed from the older to the new generation. The survey was conducted in Bhagirathi, Upper Yamuna and Tons valleys, which represent agro-pastoral (Garhwalis), pastoral (Gujjars) and Jads (Bhotia) communities. A total of 861 persons living in 134 (of total 686) villages in the entire