

not be accessible to all. If scientists and other organizations involved in the water business are asked for the technique to arrest the declining water table, they will all answer in a single voice: 'artificial groundwater recharging'. No doubt, artificial groundwater recharging has now been accepted worldwide as a cost-effective technique. But this technique requires a proper set-up and good knowledge to maintain it. Moreover, what is the adoption status of this technique? We all know this bitter truth. Will a few structures installed by Central and State Government bodies serve the purpose? In order to adopt artificial techniques of recharging, probably we have forgotten the traditional groundwater recharging systems (i.e. natural ponds). Land value is the main cause of the extinction of natural ponds in the cities, but in villages they still exist. In earlier times, these ponds were used to store run-off and as a drinking and bathing facility for animals. The stored water slowly infiltrates and eventually recharges the groundwater. From the dried bed of the pond, deposited silt was removed for various uses. This process helps in reviving the infiltration capacity and storage volume of the pond for the coming year. But during the last few decades, urbanization has played a major role in changing the socio-economic conditions of the village-

ers. Availability of all basic facilities at home have made the villagers abandon these ponds. In fact, the ponds have now become garbage bins and sewage ponds as the inflow now includes detergent and soap water from bathrooms, oily and solid waste from kitchens and dung-laden water from animal sheds. Storage of cow dung on the banks of these ponds is a common practice. Accumulation of these solid wastes reduces the infiltration capacity and storage volume of the ponds. What will be the effect of this polluted water on the aquifer underneath?

A pond in good condition serves both the purpose of storing water and recharging groundwater (Figure 1). It requires cleaning once a year before the onset of monsoon. Why are the Central and State



**Figure 1.** Photograph of a well-managed pond. (Inset) Run-off outlet from upper catchment.

Government organizations dealing with groundwater not thinking in this direction? Why do we not learn from the movements run to clean Sukhna Lake in Chandigarh and Dal Lake in Kashmir? Why are we ignorant to the poor state of our own village assets? It is the present-day need to make villagers aware about the functions and benefits of clean ponds. Panchayats and college/school teachers of the concerned villages are the best-suited for this purpose. Generally, ponds are considered as a village property; hence, Panchayats can enforce strict policies to maintain them. Thus, we have to safeguard these natural groundwater recharging bodies to assure the sustainability of our water resources.

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A. K. VASHISHT<sup>1,\*</sup>  
S. R. VASHISHT<sup>2</sup>

<sup>1</sup>Department of Irrigation and Drainage Engineering,  
G.B. Pant University of Agriculture and Technology,  
Pantnagar 263 145, India  
<sup>2</sup>Village Kharar Achharwal,  
District Hoshiarpur, Punjab  
\*e-mail: [akvashisht74@yahoo.com](mailto:akvashisht74@yahoo.com)

## Some taxonomic inaccuracies in conservation publications

Citing literature is the usual practice in publications and it is necessary to highlight new findings or substantiate claims<sup>1-3</sup>. In a recent paper, Gunawardene *et al.*<sup>4</sup> cited papers to substantiate what they intended to convey, one on flora<sup>5</sup> and the others on fauna<sup>6,7</sup>, but in many cases incorrectly. The article is a literature survey on the Western Ghats-Sri Lanka biodiversity hotspot, highlighting the need for more comparative as well as collaborative studies between Sri Lanka and the Western Ghats, and giving evidence from recent studies<sup>2,4</sup>. It is unfortunate that non-taxonomists, such as conservationists, unwittingly misrepresent research findings from taxonomy, resulting in misleading analyses of biodiversity

and incorrect conclusions about conservation, an issue which has not been addressed in taxonomic discussions<sup>8-11</sup>.

Gunawardene *et al.*<sup>4</sup> have referred to a report of five species of mosses<sup>5</sup> from Sri Lanka as follows: 'A collection in the uplands of Sri Lanka in 2002 revealed five new species of mosses, suggesting that further investigation into less accessible montane ecosystems may yield additional new species'. In fact, the five moss species reported by Tan<sup>5</sup> from Sri Lanka were previously known species; they are new records for Sri Lanka, not new species.

Likewise, Gunawardene *et al.*<sup>4</sup> reported the discovery of a frog belonging to an ancient Indo-Madagascan lineage as a

new family and genus from the Western Ghats<sup>6</sup> stating: 'Recently, a spectacular new species of frog, the purple frog (*Nasikabatrachus sahyadrensis*) has been discovered in the southern Western Ghats. It represents a new genus of frog *Nasikabatrachus* of an ancient Indo-Madagascan line; recent studies show that the frog belongs to an already known family *Euglossidae*'. Actually, Biju and Bossuyt<sup>6</sup> (in a high-impact journal which has been cited widely within conservation science<sup>12,13</sup>) concluded, based on molecular clock analyses, that this unique frog species diverged from the Seychellean endemic frog family *Sooglossidae* about 130 million years ago and created a new family *Nasikabatrachidae*. Frost *et al.*<sup>14</sup>

corroborated the conclusions of Biju and Bossuyt with regard to the relationships of *Nasikabatrachus* and the Seychellean Sooglossidae, but treated Nasikabatrachidae as a synonym of Sooglossidae; others continue to recognize Nasikabatrachidae as a valid family<sup>12,15</sup>. The claim by Gunawardene *et al.* that Nasikabatrachidae is a synonym of Euglossidae is thus in error.

Again, Gunawardene *et al.*<sup>4</sup> cited a webpage to record the discovered diversity of land snails<sup>7</sup> as 'She also recorded 23 new species of land-molluscs, including six new species of *Cyathopoma* and a new endemic genus *Ratnadvipia*'. The genus *Ratnadvipia* was actually described over a century ago<sup>16</sup>; what Raheem and her team<sup>7</sup> discovered was a new species of *Ratnadvipia*, which they later described as *Ratnadvipia karui*<sup>17</sup>.

Finally, Gunawardene *et al.*<sup>4</sup> reported the existing two Suborders of Odonata in Sri Lanka and Southern India as follows: 'The Odonate fauna of the Western Ghats and Sri Lanka include 223 species representing two sub-orders: dragonflies and damselflies'. According to Fonseka<sup>18</sup>, Suborders of Odonata in Sri Lanka are Anisoptera and Zygoptera; Gunawardene *et al.*<sup>4</sup> used only the common names, dragonflies and damselflies, suggesting that they are not familiar with higher taxonomic classifications.

In misrepresenting these citations<sup>5-7</sup>, Gunawardene *et al.*<sup>4</sup> mislead their readers. The taxonomic literature on specific groups of organisms is highly specialized and most non-specialists, including many conservationists, are unlikely to be adequately familiar with it and may well misunderstand taxonomic publications through lack of knowledge of procedures of taxonomy and of the consequent problem of understanding the results. Many authors of conservation-oriented publications unfortunately appear to read taxonomic publications superficially, merely counting the number of extant, extinct or endemic species to highlight their conclusions<sup>4</sup>. A large number of research papers from the South Asian region<sup>19-24</sup>

have been criticized<sup>25-27</sup> recently for inaccuracies. These incidents demonstrate the need for higher standard of peer-review, revision and editing than currently practised by journals in the region. This is essential for the well-being of conservation science, as well as for the prestige of the relevant journals and organizations. Taxonomic research is sometimes undertaken by individuals who are unfamiliar with taxonomic procedures, and it is critically important that their supervisors and mentors are able to provide the guidance necessary to produce valid conclusions and high-quality publications. Recent criticisms of biodiversity-related publications from the region have focused on taxonomic issues<sup>25</sup>. Accurate peer reviewing may play a vital role in solving many problems<sup>28</sup> of this nature in the future.

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M. M. BAHIR

Ministry of Social Services and  
Social Welfare,  
5th Floor, Sethsiripaya,  
Battaramulla,  
Sri Lanka  
Present address:  
Taprobanica Nature Conservation Society,  
146, Kendalanda, Homagama,  
Sri Lanka  
e-mail: goodwillserve@gmail.com