

## CORRESPONDENCE

To the Editor, *The Photogrammetric Record*

### RS AS RUBBISH SENSING? A REPLY FROM A LANDSCAPE ECOLOGIST

Sir,

In your interesting Editorial of September 2005 (Newby, 2005), you faced the problem which affects all scientists who view the world from a vertical (nadir-pointing!) perspective: what is the real potential of remote sensing and how should the photogrammetric community deal with this question? Since *“the Council of the Remote Sensing and Photogrammetry Society has recently decided that Editorials from The Photogrammetric Record should be opened to a wider audience”* I would like to comment on the matter as an outsider of your *“small circle of friends”*.

In particular, introducing the potential (or otherwise!) of remote sensing, you discussed the keynote presentation by a giant of the photogrammetry and remote sensing community, Robin Vaughan, dating back to the 2004 RSPSoc Annual Conference in Aberdeen (Vaughan, 2004). This caustic and brilliant lecture introduced remote sensing as pure rubbish, since *“we still cannot do what was promised”*.

However, this opinion (and I guess it is only a Vaughan joke!) is still detracting from all our efforts to use remote sensing to characterise the land surface elements, and their changes over time, that are crucial for many scientific, resource management and policy purposes and for a range of human activities. Although *“exciting things can certainly be done in principle, but in practice they have proved difficult or impossible”*, biodiversity assessment both at global and local scales emerged from, and thanks to, remote sensing, particularly since the ready availability of suitable satellite imagery.

Surely, the definition of *“problems to be solved”* by remote sensing represents a key issue in land resource assessment and management, and, as stated in the Editorial, *“data nowadays is likely to be used—presumably ... misused—by non-experts”*. Remote sensing and satellite images have in fact succeeded in opening a way (a *“niche”* in ecological terms!) for all those ignorant folk in remote sensing or GIS whose final objective and product is a coloured map through which they can boast of their trivial and improbable results.

So, is this the case? Are we sure that the potential of remote sensing is so limited? Or rather, should we by now be claiming with enthusiasm that satellite imagery has provided researchers with new ideas and new scientific issues, thanks to the steadily improving spectral and spatial resolution over the years? Some scepticism still persists. As an example, despite the results reached with remotely sensed data in predicting biodiversity spots, Nagendra (2001) pointed out that these were obtained using questionable statistics and provided conflicting outcomes. Nevertheless, in his interesting review, he cited studies that made use of coarse satellite data (Verlinden and Masogo, 1997; Jakubauskas and Price, 1997).

This underestimation of remote sensing capabilities has led to its role in relating satellite imagery to ground-based (field) measurements being considered to represent an unattainable

ideal (Innes and Koch, 1998; Nagendra, 2001) and has thus tended to limit it only to mapping purposes. However, in recent years very high spatial resolution satellite sensors have been used for several purposes concerning the assessment of biodiversity: from the impact of logging (for example, Read et al., 2003) to upland vegetation monitoring (for example, Mehner et al., 2004).

And here is the ring which binds remote sensing, landscape ecology and photogrammetry. For many years landscape ecology was based on aerial photographs and the measurement of spatial patterns to provide information on the ecological processes that generated them. Nowadays, high resolution satellite data-sets are ready to face the challenge of experiments in the assessment of biodiversity at a high level of detail but from a remotely sensed perspective, and in the near future they may then claim to have reached utopia, the hitherto unattainable ideal referred to above. After all, as you pointed out in your Editorial, “*the aim of photogrammetric development has always been to produce methods which are universally, or at least widely, applicable and capable of routine use*”.

So, I am not “*Disgusted of Tunbridge Wells*”, “*Perplexed of Pasadena*” nor even “*Flabbergasted of Farnborough*”, but only an L-A-N-D-S-A-D landscape ecologist whose life has been based on rubbish sensing. Are you hearing my church chanting here?

Dipartimento di Scienze Ambientali “G. Sarfatti”  
Università degli Studi di Siena  
via P. A. Mattioli 4  
53100 Siena  
Italy

Yours faithfully  
DUCCIO ROCCHINI  
rocchini@unisi.it  
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[Paul Newby replies: It is interesting that Dr Rocchini correctly referred to our use of “rubbish” in this context. When we compared notes with Robin Vaughan on receiving this letter, we were both sure that we had not actually used that word, but on inspecting Robin’s original lecture material and our Editorial we were both proved wrong. This is evidently a clear example of failed intercultural communication, which illustrates the British propensity for introducing a topic, orally or in writing, with an outrageous remark which is not intended to be taken literally but merely serves to ensure that the audience is paying attention. We both clearly succeeded in this objective, but overlooked the possibility that a large part of our

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audience might in fact take our words literally. Of course Dr Rocchini himself recognised the remark as a “Vaughan joke”; we are glad that he nevertheless felt moved to send us this much appreciated response. We shall be willing to keep this correspondence open for a little longer to others who wish to contribute, and to give Robin Vaughan himself a chance to respond. ED.]