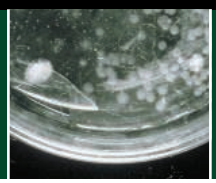
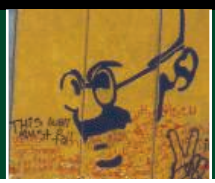
A drug's ups and downs
1037



Colliding sacred values
1039



LETTERS

edited by Etta Kavanagh

Another Threat to Borneo's Rainforests?

I WELCOME THE RECENT INITIATIVE BY THE GOVERNMENTS OF BRUNEI, Indonesia, and Malaysia to commit to conserve the highly diverse forests on the island of Borneo through the "Heart of Borneo" initiative ("Last-gasp effort to save Borneo's tropical rainforests," News Focus, 13 July, p. 192). This is timely and hopefully will lead toward improved conservation efforts and more sustainable land use in this beleaguered biodiversity hotspot.

However, large areas of Borneo are already under threat from a non-sustainable land use—that of open-cast coal mining. The mining giant BHP Billiton plans to develop a number of coal-mining areas directly within the Heart of Borneo (*1*). If these vast surface mines are allowed to proceed, it may lead to a catastrophic destruction of pristine rainforest and associated loss of plant and animal species.

If efforts to allow countries with tropical forests to obtain carbon credits from avoided deforestation come to fruition (*2*), the forests of Borneo will have value in a different currency, that of their forest-carbon stocks rather than the coal buried beneath them.

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Ocean Acidification and Scleractinian Corals

IN THEIR BREVIA "SCLERACTINIAN CORAL species survive and recover from decalcification" (30 March, p. 1811), M. Fine and D. Tchernov present an exciting experimental approach documenting how coral skeletons dissolve as a physiological response to increased atmospheric CO_2, a subject currently at the height of public concern (*1*, *2*). The fact that these authors demonstrated that five species of living scleractinian corals could lose their aragonitic skeletons, in response to elevated CO_2, and then continue to exist perfectly well as soft-bodied polyps is a confirmation of the ephemeral or "naked coral" hypothesis (*3*, *4*). This physiological response assists our understanding of the survival potential of corals after mass extinctions such as after the devastating one at the end-Permian (*5*). In addition, it explains the previously unexplained, geologically "sudden" appearance of order Scleractinia in Middle Triassic time, when geochemically perturbed oceans returned to normal. Before this time, corals and reefs disappeared from the fossil record for millions of years but may have continued to exist as "naked corals," thus remaining paleontologically "hidden" from our view.

An important implication of this work is the arbitrary and artificial nature of the current phylogenetic classification of scleractinian corals and some anemones. Why should Order Scleractinia be recognized on the basis of a calcified skeleton when essentially identical soft-bodied, anemone-like forms such as the Corallimorpharia belong to another group?

Fine and Tchernov's decalcification experiments may not be representative of all varieties of corals. I suspect that zooxanthellate reef-building species would have responded very differently to the experiment because of the complex nature of their photosymbiosis (*6*). Readers should not misconstrue this paper as tacit validation that we need not be as concerned about the growing problem of ocean acidification with regard to corals and reefs.

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Response

STANLEY HIGHLIGHTS THE DUAL SIGNIFICANCE of our findings: a confirmation of his naked coral hypothesis (*1*) and a plausible explanation for the enigma of discontinuity in the geological record of coral reefs (*2*).

Stanley uses our findings to suggest that scleractinians and noncalcifying species that are typically classified as a different order (such as corallimorpharians) are probably one clade. This is supported also by phylogenetic studies using molecular tools (*3*), demonstrating that a clade of scleractinians is more closely related to noncalcifying corallimorpharia than to another clade of scleractinians.

Stanley criticizes our study for using two Mediterranean coral species that he refers to as "not representative." Indeed, these are not classic reef-building corals; however, we doubt there is a definition of a "typical coral." The evolution and basic physiology of the studied species are indistinguishable from that of tropical reef-building corals (*4*, *5*). Over 98% of the colonies of the studied species are symbiotic, suffering reduced growth, lower competitive abilities, and reduced physiological state when losing their endosymbiotic

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