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Collins and Wood assert that our estimates of potential trace gas production by termites (*1*) were too high and that there is no evidence to support our speculation that human activities lead to increased termite populations. We will show that our estimates were conservative.

Collins and Wood correctly note that four literature values for litter consumption by termites in our table 2 (*1*) represent the percentage of litter consumed in each ecosystem. Those numbers, however, were not used in any calculations and were only one of two ways we used to indicate that our calculated values for consumption were reasonable [note 33 in (*1*)]. In stable ecosystems the net primary productivity (NPP) is equal to the production of dead organic material. Since overall primary consumption is small and inefficient, NPP should about equal total litter production (*2*). Our estimates were based on trace gas production efficiencies, an average consumption rate, and literature values for population densities.

The field values for litter consumption quoted by Collins and Wood are underestimates, since they do not include consumption by all termite species present or consumption of large branches, dead tree trunks, soil organic matter, or belowground biomass (*3–5*). In addition, the field sampling techniques used may alter termite behavior and affect consumption estimates (*4*). Collins and Wood contend that our consumption rate of 140 mg per termite per year is much too high and say that a value of 30 mg per gram of termite per day is more reasonable. We believe that a global average consumption figure of 30 mg/g per day is low. However (assuming the authors are using milligrams of dry weight consumed per gram of termite fresh weight per day), a termite fresh weight of 12.7 mg makes the two figures equivalent. Higher consumption rates would lower this "average" termite size. Fresh weights for individual termites range from about 0.5 mg to over 100 mg (*4, 6*). Many ecologically important species of *Cubitermes* and *Macrotermes* have individuals weighing at least 10 mg (*4*). An average weight of about 11 mg was reported for all species sampled in the riverine forests of Central Africa (*4*).

Collins and Wood propose their table 1 as a correction for our overestimates. There are four major differences between their table 1 and our table 2:

1) They assume a global average consumption of 30 mg/g per day as a basis for their calculation of CH_4 production. This value is unrealistically low. It should at least be corrected for areas where Macrotermitinae are dominant. Literature values for consumption by these termites are as high as 560 mg/g per day (*3*).

2) They arbitrarily assume that soil feeders are low CH_4 producers. Recent measurements show that soil feeders have the highest weight specific CH_4 production and CH_4/CO_2 emission ratio of any termite group measured (*7*).

3) They change some termite densities to correct for alleged overestimates. They state that values we used, 4450 and 3163 termites per square meter, are maximum values and that the average value should be 2000 termites per square meter, and they cite Wood and Sands (*4*). However, according to Wood and Sands (pp. 266–267), "maximum populations (4450 per m^2) in rainforest were recorded by Strickland (1944) from soil cores only 7.5 cm deep which would probably sample less than half of the subterranean population and exclude mound-building and arboreal-nesting species." Thus the values we used were very conservative. In fact, a population of 15,000 termites per square meter has been reported for a single species (*4*).

4) They assume that CH_4 emissions would be lower for Macrotermitinae because of the metabolism of their fungus combs. Actual measurements on intact colonies of *Macrotermes* in East Africa show high CH_4 emission rates. Although metabolism of the fungus comb does result in higher CO_2 production rates for in situ colonies than for nonfungus growers, total consumption by Macrotermitinae is much larger (*4, 8*). Energy balance considerations (*4, 9*) and our in situ measurements of total colony respiration (*7*) cast doubt on the universal applicability of the fungus/termite metabolism ratios of 5/1 or 6/1 that they quote.

Finally, Collins and Wood state that human activities tend to decrease termite populations. Although the matter needs much more study, the literature clearly does not support their contention. Although the number of species tends to decrease, the populations of the few species able to exploit man-modified niches increase dramatically (*10*). Termites are reported as pests of virtually every crop grown in the tropics (*11*). Some authors have proposed a mechanism to explain the increase in the density of termites (*5, 12*). The studies cited by Collins and Wood were not designed to correlate changes in termite densities with changes in land use.

In our report we did not claim to present the definitive answers about trace gas production by termites. We attempted to estimate trace gas production potential. Research has continued and we now have much more data (*7, 13*). We still believe that our original estimates were conservative.

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