

The Rice Terrace System and the Earthworm Problem (brief overview and impressions)

by

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Already during the first visits of some members of our group an "earthworm problem" was mentioned. The topic seems to have kept people of Ifugao busy up until now. Although within the work of our group we did not encounter any signs of a real problem, we've tried to follow up the development and keep our eyes open, as there have still been many people talking about it. Unfortunately we have not even been able to spot any single earthworm which might have been regarded as being of extraordinary size (as the reported troublemakers are said to be huge!).

Reports on such an earthworm problem have been published by CONKLIN (1980). He writes:

"Large earthworms, of a type known as 'olang 'an 'o''ongal (*Pheretima elongata*; Gates 1972) have spread from regions south of North Central Ifugao into much of the survey area, including Bayninan, during the past three decades. Boring under and into the outer layers of clayey pond-field soil from dikes, walls, and earth embankments, this worms seriously weaken the retaining capacity of pond-field bunds and outer terrace structures by causing excessive seepage.... During this late dry season investigations can lead to destructive slumping and washouts even where retaining-wall masonry shows few defects... Such slippage does not require heavy rainfall. To prevent recurrence, coarse gravel and broken shale fill must be substituted for the regolithic earthen layer just beneath the outer sections of muddy soil and against the upper part of the terrace rim and dike. If worm-caused seepage increases alarmingly during the dry season, a temporary mud dike may be formed a few meters back from the bund to prevent further loss of irrigation water." (CONKLIN, 1980, pp. 29-30)

The only new published information within the scientific community on this issue which we could trace, was a just recently published paper by BARRION & LITSINGER (1997). Their field data date back to 1989 and have been assessed in Abra Province. Some of the more important passages of their article on the worm (*Dichogaster* nr. *curgensis* MICHAELSEN; Annelida: Octochaetidae) are quoted in the following passages:

"...the problem was as an unusually high population of earthworms in the wetland rice fields. Missing hills (blank mounds), uneven plant height, and wilted plants were observed. The earthworm tunneling caused leaks in ricefield levees and banks disrupting irrigation."

The earthworm "40 to 75 mm long and 1.5 to 2.0 mm in diameter, has become a widespread pest of rice in Abra, Kalinga-Apayao, and mountain provinces...."

“The evidence suggests that heavy floods due to monsoonal rains on the deforested Abra River watershed eroded the deforested hillsides, transporting the earthworms down the river system through the irrigation canals and ultimately depositing them in rice fields.”

“*D. nr. curgensis* can therefore be classified as an epigeic species that lives in rich organic soil horizon subsisting on organic matter”.

On the possible control methods BARRION & LITSINGER (1997) write:

“...submergence would probably have to exceed 35 days to effectively control the very high populations at Abra and prevent injury to rice plants.”

“Farmers may want to consider a preventative program of constructing holding ponds for the river water to trap the earthworms coming into the farm before releasing to the rest of the fields. Placing screens at the pond outlets would also help contain the worms. Attempts to reduce the resident earthworm population could be tried by flooding the fields for 2-3 months under 14 cm or deeper water.”

“Transplanting would be a preferred planting method over direct seeding as 3 weeks of seedling growth in the former can take place in a location free of earthworms. Older seedlings (45 to 55 days) should be transplanted to further minimize field time.”

“Farmers should avoid adding any plant material to the field in the form of rice straw or weeds as earthworms feed on organic materials.”

How is the situation in Ifugao?

If we consider all the latter informations, it is hardly possible that the same kind of problem is affecting the rice terraces, especially as some of the cultivation activities in Ifugao are already preventive against this pest. However, already in 1989, during the field studies of BARRION & LITSINGER (1997), Abra farmers told, “that similar symptoms and high yield losses were observed in nearby provinces including the scenic Banawe rice terraces.” (BARRION & LITSINGER 1997: 89).

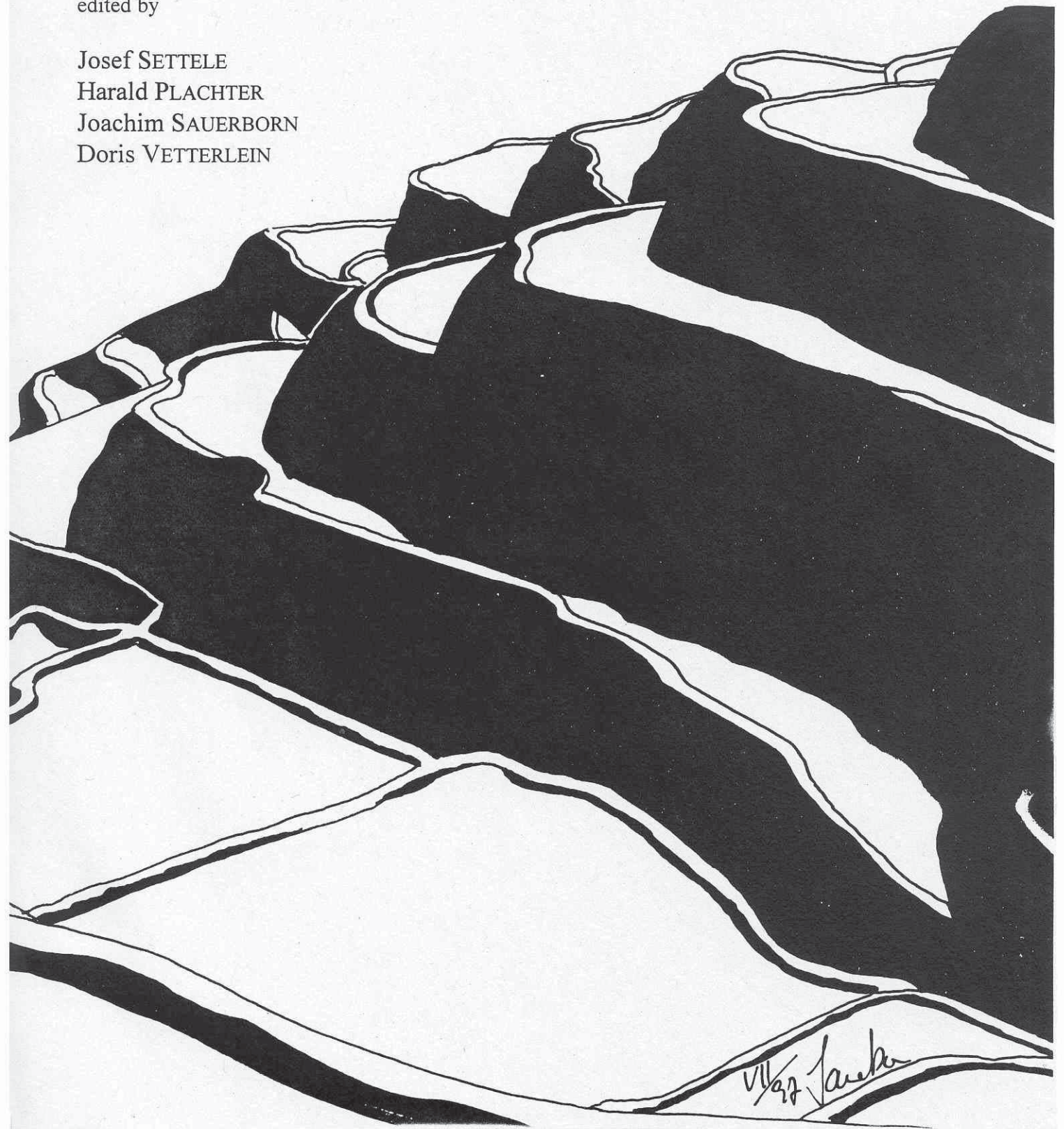
For sure the problem is not a very new one in Ifugao (a picture by CONKLIN, 1980, p. 30, which shows damage allegedly caused by worms, was for example taken in 1963). Just the same it seems to be hard to get conclusive information on what is really happening in the rice terraces. The worms mentioned by CONKLIN (1980) and by BARRION & LITSINGER (1997) are obviously different species. If the problem in Ifugao should refer to the same species like in Abra, there is the inconsistency that this species never causes huge holes and reaches the length people talk about. On the other hand, if the reported huge worms are really that important and destructive, they should be clearly visible - either directly or via the damage they cause. Maybe during our stay we just have not been at the right places at the right time to come across it.

**Rice Terraces of Ifugao (Northern-Luzon, Philippines)
Conflicts of Landuse and Environmental Conservation**

- Report of a Scientific Students' Excursion -

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