

**REPLY TO SPANHOVE & LEHOUCK
“DON’T MISS THE INVASIONS! A NOTE ON FOREST HEALTH
MONITORING IN THE TAITA HILLS, KENYA”**

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Spanhove and Lehouck raise several excellent points in their critique of “*Forest Health Monitoring in the Ngangao Forest, Taita Hills, Kenya: A Five Year Assessment of Change*” (JEANH 97(1): 3-17). Their central argument, that Rogers *et al.* neglected monitoring of invasive alien species in their assessment of ‘forest health’, cannot be disputed. Though we briefly address the influence of endemic trees (specifically pioneer species), and contrast those influences between Chawia (a highly disturbed forest) and Ngangao (a moderately disturbed forest), we do not extend our assessment to other invasive exotic vegetation. Thus, our study constitutes an assessment of change in the condition of the Ngangao Forest (primarily trees) and misses other elements of the ecosystem, such as the invasive species component correctly pointed out by Spanhove & Lehouck. In addition to alien species, there are enumerable components critical to ecosystem ‘health’ not examined here (*e.g.* forest soils and erosion, nutrient cycling, epiphytes, bioindicators of air quality, understorey vegetation, invertebrates, wildlife, *etc.*).

While we agree with the importance of monitoring invasive species, actually performing a systematic survey of aliens is easier said than done. We did not survey invasives for three reasons: 1) our budget was limited and our objective was to complete a baseline survey of tree conditions with limited funds; 2) from past experience in temperate forests, Rogers has found that procuring several high quality botanists to perform consistent and standardized (between crew) vegetation inventories is difficult; 3) due to limited schedules, we were confined to completing each forest monitoring plot with one crew in one day—tropical botanical vegetation surveys, subsampling a one hectare area, were estimated to exceed that limitation. Having said this, we hope to perform follow-up monitoring efforts, adding additional measures (perhaps even a systematic tally of invasive species) in the process, if adequate funding permits.

Finally, though the importance of invasive species cannot be understated, the approach recommended by Spanhove & Lehouck—concentrating exotic species monitoring around known source areas—is problematic. If we add forest monitoring plots where there is a known, or likely, occurrence of a “problem” than we are likely to bias our survey of overall forest conditions toward that particular issue and/or locale. Our objective was to complete a statistically defensible sampling of the entire forest, not just conditions occurring at the forest edge. In the end, we met our objective of characterizing forest conditions at the *detection*-level and we applaud those such as Spanhove & Lehouck who wish to intensify monitoring efforts as a result of this work. In doing so, we caution those who follow against mischaracterizing the population of interest (*i.e.* the whole forest) based on sampling only

where a problem is expected. Perhaps the best way to address this quandary is to design monitoring efforts with explicit goals that are complimentary, or even integrative, with those implemented with a broader objective.