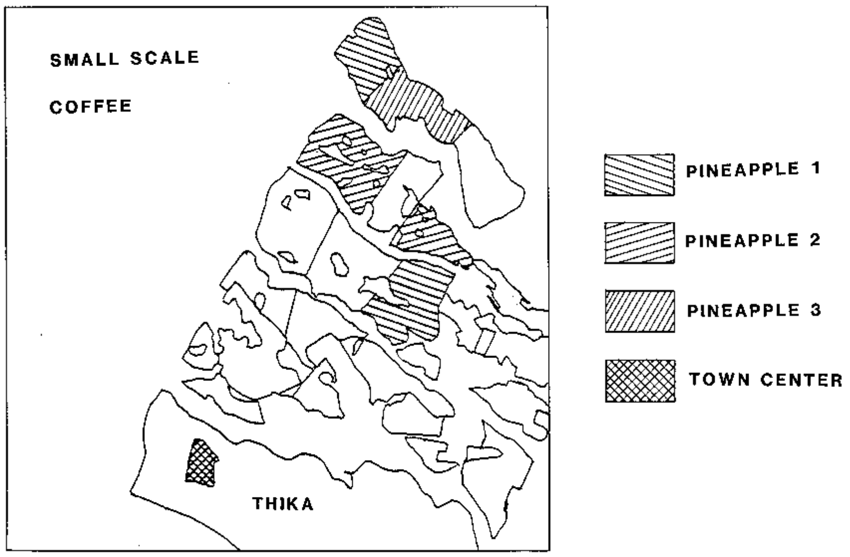

Figure 2: Sketch of areas of interest

4.1.2 Multivariate Change Detection

In Figure 3 top-left we show MAD 1, 2 and 3 as red, green and blue. In this image high and low values of the MADs corresponding to saturated colors show areas of a high degree of change. In Figure 3 top-right we show absolute values of MAD 1, 2 and 3 as red, green and blue with values below two standard deviations masked black and with values above three standard deviations saturated. These limits for stretching and masking are parameters that can be adjusted by the analyst. In this image only high values of the MADs corresponding to saturated colors other than black show areas of a high degree of change. Note that as with any technique based on eigenanalysis of covariance structures the sign of the transformed variables is arbitrary. An inspection of the MAD image (Figure 3 top-left) and a comparison with the simple change detection image (Figure 1 bottom-left) shows that there is a much better distinction between different types of changes. In the simple change detection image red and cyan are dominating but in the MAD image we see that a much better discrimination has been achieved. The image showing absolute values of MADs outlines the areas where large changes occurred and the color code in Figure 3 top says something about the nature of the change (change e.g. from vegetated to bare soil or vice versa, and dominating wavelength of change).

Below we give an interpretation of the numerical results from the computations of the MADs and a brief discussion. We discuss (1) correlations between original variables, (2) canonical correlations which are measures of similarity between the linear combinations found, (3) correlations between canonical variates and original variables in order to facilitate interpretation of the canonical variates, (4) correlations between MAD variates and original variables in order to facilitate interpretation of the MAD