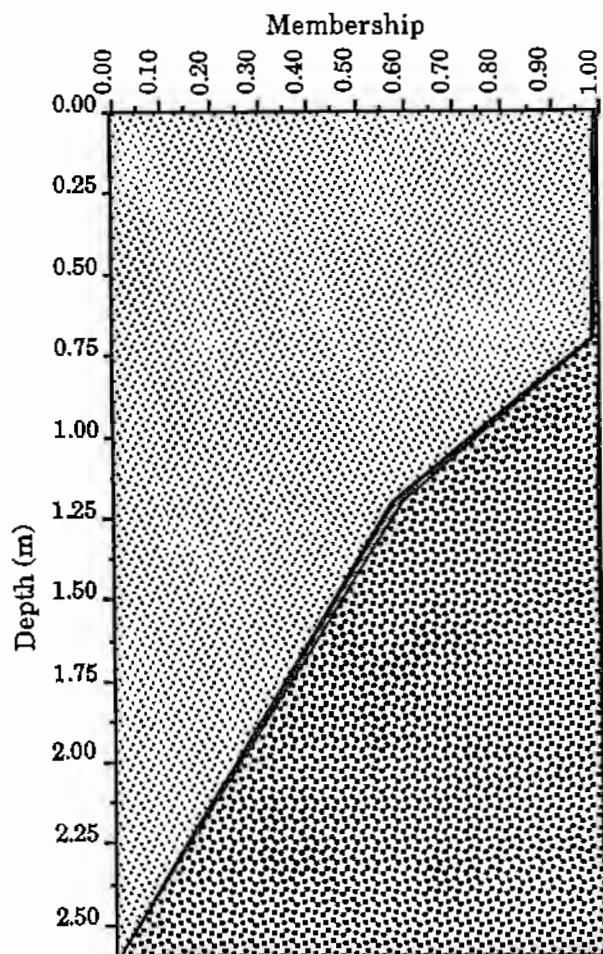


Figure 23.

Soil layer membership composition:



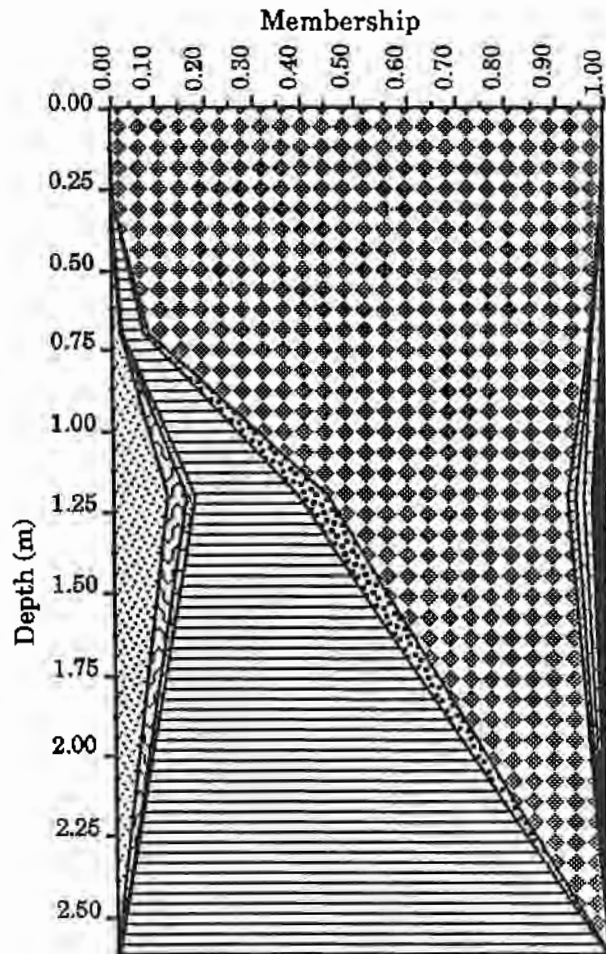
Soil layer morphological composition:

- (0.00-0.10, *Togo*) Dark grey (10YR4/1) medium heavy clay; weak 50-100mm angular blocky structure, with moderate 2-5mm granular structure; very strong; nodular fracture; earthy fabric; <2% <5mm cracks; 2-5% 1-2mm pores; few medium roots; pH8.7; genetic boundary, very diffuse, smooth change to
- (0.10-0.20, *Togo*) Very dark grey (10YR3/1) heavy clay; moderate 20-50mm angular blocky structure; very strong; smooth-ped fabric; 2-5% 5-10mm cracks; <2% 0.075-1mm pores; few very fine roots; pH8.5;
- (0.30-0.40, *Togo*) Very dark grey (10YR3/1) medium heavy clay; moderate 20-50mm angular blocky structure; moderately strong; smooth-ped fabric; <2% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH8.8;
- (0.70-0.80, *Togo*) Very dark grey (10YR3/1) medium clay; moderate >100mm angular blocky structure; moderately strong; smooth-ped fabric; <2% distinct fine light grey (10YR7/1) calcareous nodules; <2% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH9.0;
- (1.20-1.30, *Togo/Boolcarrol*) Very dark grey (10YR3/1) light medium clay; 2-10% distinct medium brown (10YR5/3) flecks produced by faunal mixing; moderate 50-100mm weak angular blocky structure, breaking to weak 20-50mm angular blocky structure; moderately firm; weak slickensides, smooth-ped fabric; <2% distinct fine white (10YR8/1) calcareous nodules; <2% <5mm cracks; <2% 0.075-1mm pores; pH9.0; genetic boundary, very diffuse, smooth change to
- (2.50-2.60, *Boolcarrol*) Brown (10YR5/3) medium clay; moderate 20-50mm weak angular blocky structure; moderately strong; weak slickensides, smooth-ped fabric; <2% distinct fine light brown (10YR7/3) calcareous nodules; <2% <5mm cracks; pH9.5;

Figure 24.

Soil layer membership composition:

Soil layer morphological descriptions:

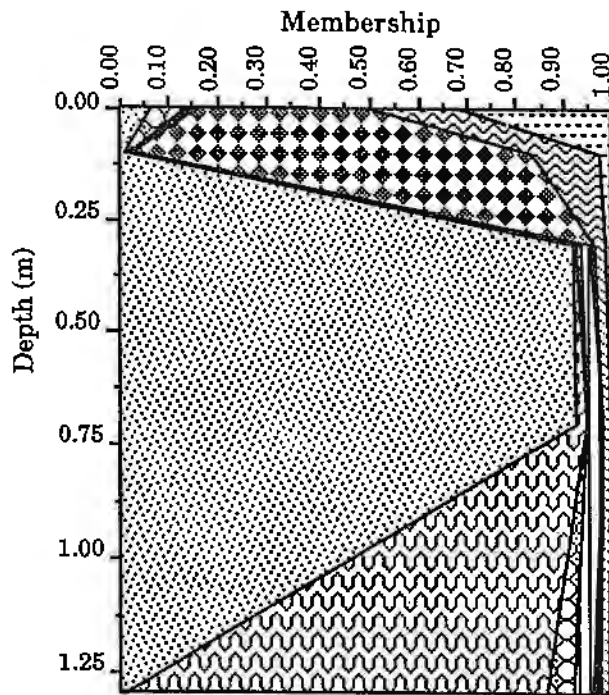


- (0.00-0.10, *Moema*) Dark brown (10YR3/3) sandy loam; weak 20-50mm subangular block structure, breaking to weak <2mm granular structure; moderately weak; granular fractur earthy fabric; <2% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH7.5;
- (0.10-0.20, *Moema*) Dark brown (10YR3/3) clayey sand; weak 20-50mm subangular block structure, breaking to weak <2mm granular structure; moderately weak; granular fractur earthy fabric; <2% <5mm cracks; <2% 2-5mm pores; few very fine roots; pH7.5; genet boundary, abrupt, irregular change to
- (0.30-0.40, *Moema*) Yellowish brown (10YR5/4) clayey sand; 2-10% distinct medium dark brow (10YR3/3) organic stains; weak 50-100mm subangular blocky structure; moderately weak granular fracture; earthy fabric; <2% <5mmcracks; 2-5% 0.075-1mm pores; few very fine root pH7.5; genetic boundary, abrupt, smooth change to
- (0.70-0.80, *Moema*) Yellowish brown (10YR5/4) sandy light clay; 2-10% distinct fine re (2.5YR4/6) inherited stains; <2% distinct medium dark yellowish brown (10YR3/4) organ stains; moderate 20-50mm columnar structure; moderately firm; earthy fabric; <2% <5m cracks; 2-5% 0.075-1mm pores; few very fine roots; pH8.0;
- (1.20-1.30, *Moema/Noelurma*) Light yellowish brown (10YR6/4) sandy light clay; 10-20% distinct medium grey (N6/1) mottles; 2-10% prominent medium reddish brown (2.5YR4/4) inherited stains; strong 20-50mm columnar structure; moderately strong; smooth-ped fabri <2% fine calcareous veins; <2% <5mm cracks; 2-5% 0.075-1mm pores; few very fine root pH8.5, diffuse smooth change to;
- (2.50-2.60, *Noelurma*) Reddish yellow (7.5YR6/6) clayey sand; 2% distinct fine dark greyis brown (10YR3/1) patches of soil, filling cracks; weak 50-100mm subangular blocky structur moderately strong; smooth fracture; smooth-ped fabric; 2-10% distinct fine white (10YR8/4) calcareous nodules; <2% <5mm cracks; <2% 0.075-1mm pores; common very fine roots; pH9. genetic boundary, diffuse smooth change to;

Figure 25.

Soil layer membership composition:

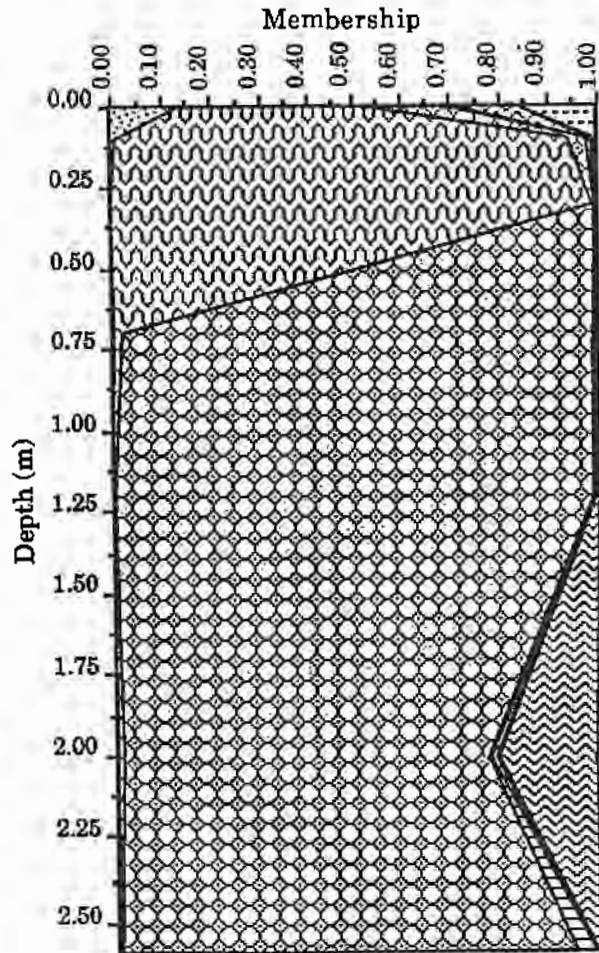
Soil layer morphological descriptions:



- (0.00-0.10, *Moema, Wewak*) Dark brown (7.5YR3/2) clay loam; weak 2-5mm subangular blocky structure; moderately firm; granular fracture; earthy fabric; 5-10% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH6.0; plough sole, sharp, smooth change to
- (0.10-0.20, *Moema*) Dark brown (7.5YR3/2) sandy clay loam; 10-20% very coarse light grey (10YR7/2) patches of soil, filling cracks; moderate 5-10mm angular blocky structure; very firm earthy and smooth-ped fabric; 2-5% 0.075-1mm pores; few very fine roots; pH7.5;
- (0.30-0.40, *Togo*) Dark reddish brown (5YR3/2) medium heavy clay; strong 10-20mm angular blocky structure, breaking to strong 5-10mm wedge structure; moderately firm; moderate slickensides, smooth-ped and earthy ped fabric; 2-5% 5-10mm cracks; 2-5% 0.075-1mm pores few very fine roots; pH8.0;
- (0.70-0.80, *Togo*) Yellowish red (5YR4/6) medium heavy clay; moderate 10-20mm angular blocky structure breaking to moderate 5-10mm wedge structure; very firm; weak slickensides earthy and polished ped fabric; <2% 5-10mm cracks; 2-5% 0.075-1mm pores; few very fine roots pH9.0;
- (1.20-1.30, *Bald Knob*) Yellowish red (5YR4/6) sandy clay; <2% faint medium dark brown (7.5YR4/2) organic stains; weak 20-50mm prismatic structure, breaking to moderate 5-10mm subangular blocky structure; moderately firm; nodular fracture; earthy and smooth-ped fabric 2-10% distinct medium very pale brown (10YR7/3) calcareous nodules; <2% medium organic laminae; <2% 5-10mm cracks; 2-5% 0.075-1mm pores; pH9.0;

Figure 26.

Soil layer membership composition:



Soil layer morphological descriptions:

(0.00-0.10, *Bald Knob*) Dark brown (7.5YR3/2) medium clay; moderate <2mm granular structure, with moderate 20-50mm angular blocky structure; very firm; smooth-ped fabric; <2 <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH9.0; plough sole, clear, smooth change to

(0.10-0.20, *Bald Knob*) Dark brown (7.5YR3/2) medium clay; moderate 20-50mm angular blocky structure; moderately strong; smooth-ped fabric; <2% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH9.0;

(0.30-0.40, *Bald Knob*) Dark brown (7.5YR3/2) medium clay; moderate 20-500mm angular blocky structure; moderately strong; smooth-ped fabric; 2-10% distinct fine very pale brown (10YR7/3) calcareous soft segregations; <2% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH9.5;

(0.70-0.80, *Nundi*) Dark reddish brown (5YR3/2) medium clay; <2% faint very pale brown (10YR7/3) pockets of sand; moderate 20-50mm angular blocky structure; moderately strong; smooth-ped fabric; 2-10% distinct fine very pale brown (10YR7/3) calcareous soft segregation <2% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH9.5; genetic boundary gradual, smooth change to

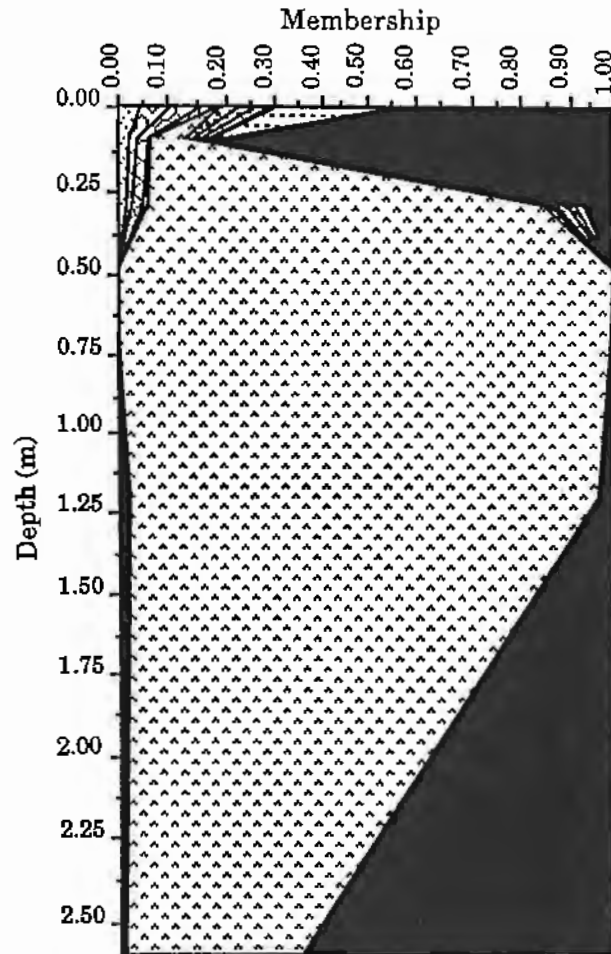
(1.20-1.30, *Nundi*) Reddish brown (5YR4/4) medium clay; 2-10% distinct coarse dark brown (7.5YR5/4) flecks produced by faunal mixing; <2% distinct fine reddish brown (5YR5/4) patches of sediment, filling cracks; weak 50-100mm angular blocky structure, with moderate 20-50mm angular blocky structure; moderately strong; nodular fracture; smooth-ped fabric; 10-20 coarse calcareous soft segregations; <2% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; <2% 2-6mm subangular basalt fragments; pH9.5; genetic boundary, clear, smooth change to

(2.00-2.10, *Nundi*) Brown (7.5YR5/4) silty clay; 2-10% prominent medium dark greyish brown (5YR3/3) flecks produced by faunal mixing; weak 50-100mm angular blocky structure, with apedal massive; moderately strong; smooth fracture; earthy and smooth-ped fabric; <2% <5mm cracks <2% 0.075-1mm pores; pH9.0; genetic boundary, gradual, smooth change to

(2.50-2.60, *Nundi*) Dark brown (7.5YR4/4) medium clay; weak 50-100mm angular blocky structure, with apedal massive; moderately strong; nodular fracture; smooth-ped fabric; 2-10 distinct medium very pale brown (10YR7/3) calcareous nodules; <2% <5mm cracks; 10-50% 2-60mm rounded basalt fragments; pH9.0;

Figure 27.

Soil layer membership composition:



Soil layer morphological description:

(0.00-0.10, *Extragrade*) Dark Brown (7.5YR4/2); sand; <2% distinct n (7.5YR5/4); apedal single-grained structure, with weak 2-5mm granular str very weak; smooth fracture; sandy fabric; <2% 0.075-1mm pores; very fine fin pH6.5;

(0.10-0.20, *Extragrade*) Brown (10YR5/3); sand; apedal single-grained structu weak; smooth fracture; common fine roots; <2% 0.075-1mm pores; pH5.6;

(0.30-0.40, *Couradda*) Brown (10YR5/3); sand; apedal single grained structu weak; smooth fracture; sandy fabric; <2% 0.075-1mm pores; few very fine roots; genetic boundary, sharp, gamate change to

(0.50-0.60, *Couradda*) Yellowish red (5YR4/6) (sandy clay; 20-50% prominent very light brownish grey (10YR6/2) mottles; moderate 50-100mm columnar str breaking to moderate 10-20mm angular blocky structure; very firm; smooth-ped <2% fine ferruginous nodules; <2% 5-10mm cracks; <2% 0.075-1mm pores; fe fine roots; pH6.5;

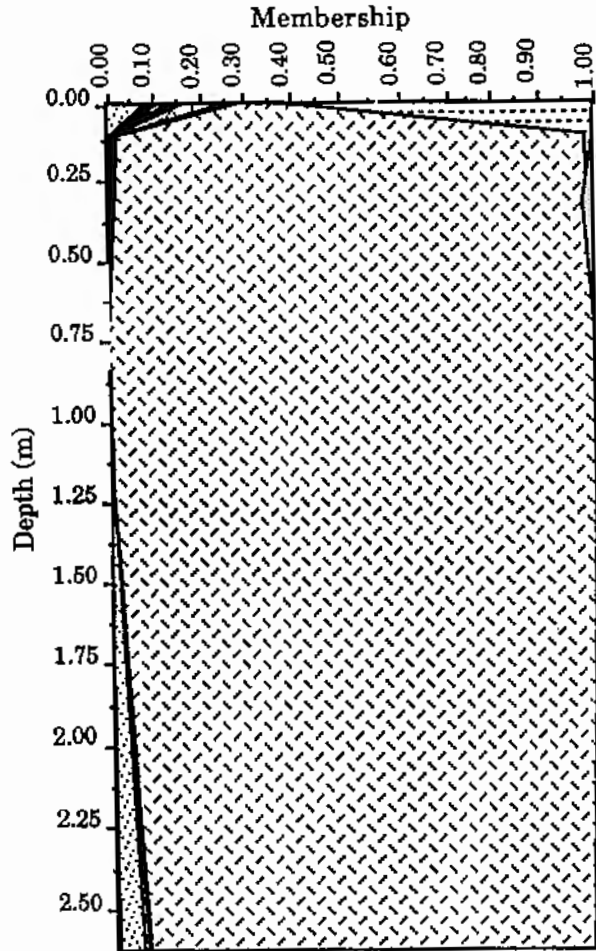
(0.70-0.80, *Couradda*) Yellowish red (5YR4/6) sandy clay; 20-50% prominent very light brownish grey (10YR6/2) mottles; apedal massive; moderately strong; fabric; <2% fine ferruginous nodules; <2% 5-10mm cracks; <2% 0.075-1mm por very fine roots; pH6.5

(1.20-1.30, *Couradda*) Red (2.5YR4/8) light medium clay; 10-20% prominent yellowish brown (10YR5/6) mottles; 2-10% prominent medium grey (10YR6/1) 1 weak >100mm angular blocky structure, with weak <2mm biscuity structur strong; nodular fracture; smooth-ped fabric; <2% fine ferruginous nodules; <2 cracks; <2% 0.075mm pores; few very fine roots; pH6.0; genetic boundary, smooth change to

(2.50-2.60, *Extragrade/Couradda*) Yellowish red (5YR4/6) sandy clay; prominent coarse yellowish brown (10YR5/6) motles) 2-10% prominent mediu (10YR6/1) mottles; weak >100mm columnar structure; rigid; smooth fracture; : ped fabric; <2 <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH6.0

Figure 28.

Soil layer membership composition:



Soil layer morphological description:

- (0.00-0.10, *Wewak*) Very dark grey medium clay; weak 20-50mm angular blocky structure, with moderate 2-5mm granular structure; moderately weak; granular fracture; smooth-ped fabric; <2% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH8.7;
- (0.10-0.20, *Moplain*) Very dark grey (10YR3/1) medium clay; <2% distinct fine very dark greyish brown (10YR3/2) patches of sediment, filling cracks; <2% 0.075-1mm pores; few very fine roots; pH8.5;
- (0.30-0.40, *Moplain*) Very dark grey (10YR3/1) medium clay; <2% distinct fine very dark greyish brown (10YR3/2) patches of sediment, filling cracks; moderate 20-50mm angular blocky structure; moderately firm; smooth-ped and polished ped fabric; <2% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; <2% 6-20mm angular rock fragments; pH8.8;
- (0.70-0.80, *Moplain*) Dark grey (10YR4/1) medium heavy clay; weak 50-100mm lenticular structure breking to moderate 20-50mm angular blocky structure; very firm; weak slickensides, nodular fracture; smooth-ped and polished ped fabric; <2% faint fine white (10YR8/2) calcareous soft segregations; <2% fine calcareous nodules; <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH9.0; genetic boundary, diffuse smooth change to
- (1.20-1.30, *Moplain*) Brown (7.5YR5/4) light medium clay; 2-10% distinct medium dark greyish brown (10YR4/2) organic stains; moderate 50-100mm prismatic structure; moderately firm; moderate slickensides, nodular fracture; polished ped and smooth-ped fabric; <2% faint fine light grey (10YR7/2) calcareous nodules; <2% <5mm cracks; <2% 0.075-1mm pores; pH9.0; stratigraphic boundary, gradual, smooth change to
- (2.50-2.60, *Moplain*) Reddish brown (5YR4/4) silty clay; apedal massive; smooth-ped fabric; 2-10% prominent medium white (10YR8/2) calcareous nodules; >90% 20-60mm subrounded rock fragments; pH9.0;

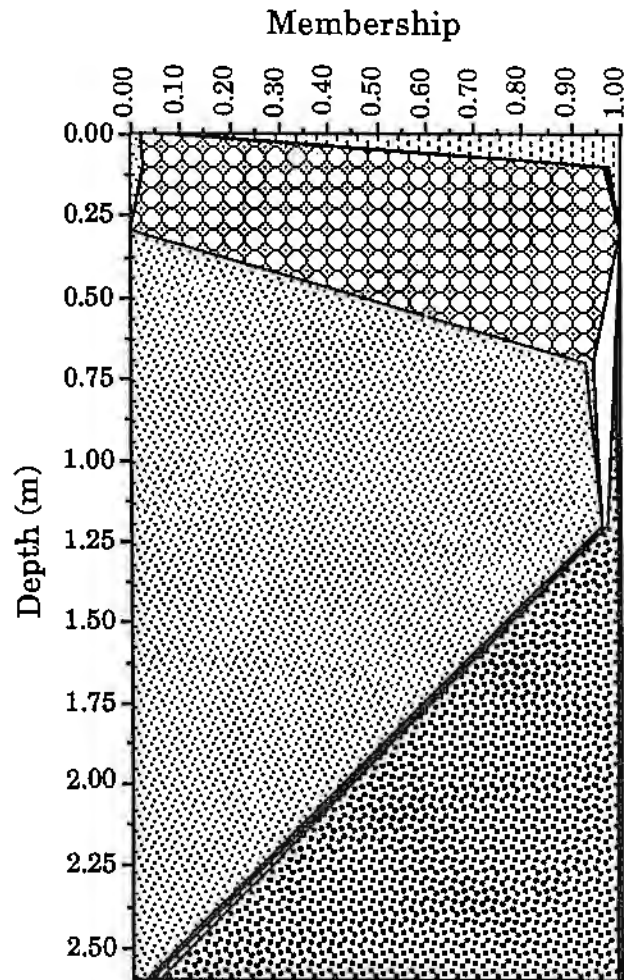


Figure 29.

(0.00-0.10m, *Wewak*) Very dark grey (10YR3/1) medium clay; weak 5-10mm subangular blocky structure; moderately weak; nodular fracture; earthy fabric; 5 <5mm cracks; few very fine roots; pH7.5;

(0.10-0.20, *Bald Hill*) Very dark grey (10YR3/1) medium clay; moderate 5-10mm angular blocky structure; very firm; weak slickensides, smooth ped and polished 5-10% <5mm cracks; 5-10% 0.075-1mm pores; few very fine roots; pH7.5;

(0.30-0.40, *Bald Hill*) Very dark grey (10YR3/1) medium clay; moderate 5-10mm angular blocky structure; very firm; weak slickensides, smooth ped and polished <2% distinct fine white (10YR8/2) calcareous nodules; 5-10% <5mm cracks; 5-10% 1mm pores; few very fine roots; pH8.6;

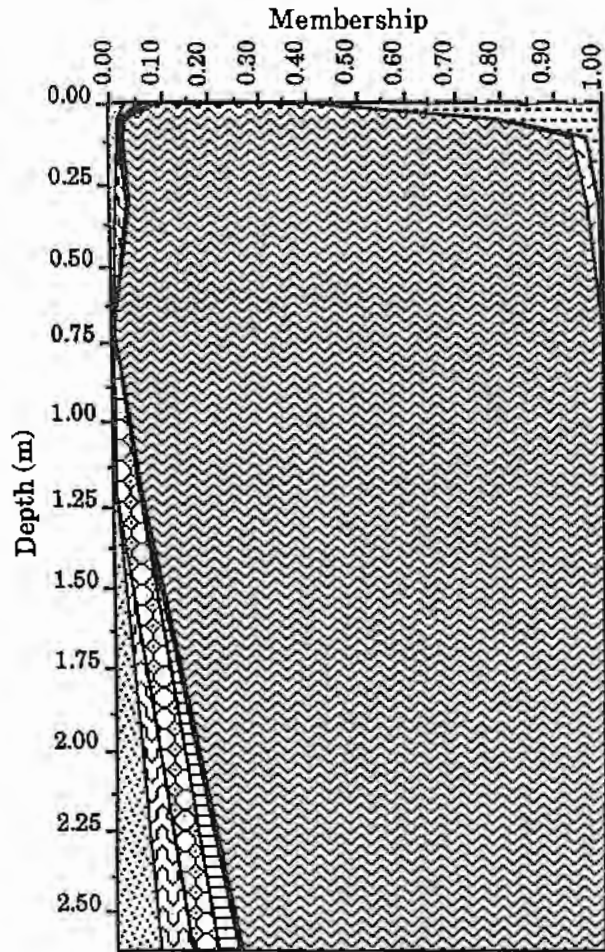
(0.70-0.80, *Togo*) Dark brown (7.5YR3/2) medium heavy clay; moderate 5-10mm angular blocky structure; very firm; weak slickensides, smooth ped and polished <2% distinct fine white (10YR8/2) calcareous nodules; 5-10% <5mm cracks; 5-10% 1mm pores; few very fine roots; <2% 2-6mm rounded quartz fragments; pH8.7; ge boundary, sharp, irregular change to

(1.20-1.30, *Togo*) Dark brown (7.5YR3/4) medium heavy clay; 10-20% distinct coa dark brown (7.5YR3/2) patches of soil; moderate 5-10mm angular blocky structure moderately firm; weak slickensides, smooth ped and polished fabric; 2-10% prominent medium white (10YR8/2) calcareous nodules; <2% fine manganese stains; 2-5% cracks; 2-5% 0.075-1mm pores; few very fine roots; <2% 2-6mm rounded quartz fragments; pH8.8; genetic boundary, sharp, irregular change to

(2.50-2.60, *Boolecarrol*) Dark brown (7.5YR3/4) medium heavy clay; moderate 5-10mm angular blocky structure; moderately firm; weak slickensides, smooth-ped and polished fabric; 2-5% prominent coarse white (10YR8/2) calcareous nodules; 2-10% distinct medium very dark grey (10YR3/1) manganese veins; 2-5% <5mm cracks; 0.075-1mm pores; pH8.8; genetic boundary, sharp, irregular change to

Figure 30.

Soil layer membership composition:



Soil layer morphological descriptions:

(0.00-0.05, *Wewak*) Very Dark greyish brown (10YR3/2) medium heavy clay; weak 20-50mm subangular blocky structure, with moderate 2-5mm granular structure; moderately firm; rough-ped fabric; 2-5% <5mm cracks; common very fine roots; pH7.0; genetic boundary, abrupt, wavy change to

(0.05-0.10, *Mayfield*) Very dark greyish brown (10YR3/2) medium heavy clay; strong 10-20mm subangular blocky structure, with moderate 5-10mm platy structure; moderately strong; smooth-ped fabric; 5-10% <5mm cracks; <2% 0.075-1mm pores; common very fine roots; pH7.5;

(0.10-0.20, *Mayfield*) Dark grey (10YR4/1) light medium clay; <2% distinct fine dark brown (10YR3/3) filling cracks; moderate 20-50mm angular blocky structure; moderately strong; smooth-ped fabric; 2-5% <5mm cracks; common very fine roots; pH8.3

(0.30-0.40, *Mayfield*) Very dark grey (19YR3/1) heavy clay; <2% distinct fine dark brown (10YR3/3) patches of sediment, filling cracks; moderate 20-50mm subangular blocky structure; very strong; smooth-ped fabric; 2-5% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH8.8;

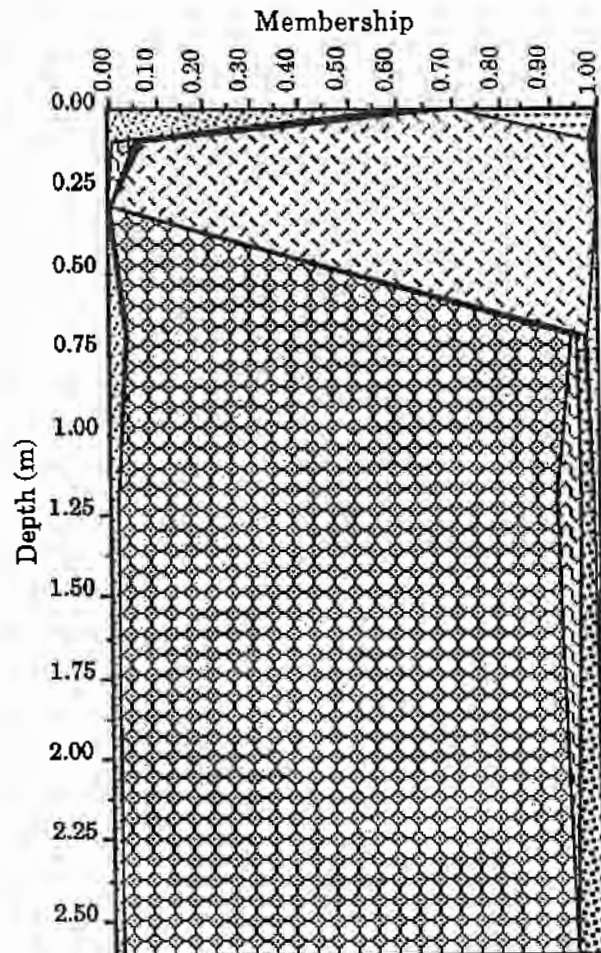
(0.70-0.80, *Mayfield*) Very dark grey (10YR3/1) heavy clay; <2% distinct fine dark greyish brown (10YR4/2) patches of sediment filling cracks; moderate 20-50mm lenticular blocky structure, breaking to moderate 10-20mm angular blocky structure; very strong; weak slickensides; smooth-ped and polished ped fabric; <2% faint fine white (10YR8/2) calcareous soft segregations; <2% <5mm cracks; <2% 0.075-1mm pores; common very fine roots; pH9.0; genetic boundary, diffuse smooth change to;

(1.20-1.30, *Mayfield*) Dark brown (7.5YR4/2) light medium clay; <2% distinct fine dark greyish brown (10YR3/1) patches of soil, filling cracks; weak 50-100mm subangular blocky structure; moderately strong; smooth fracture; smooth-ped fabric; 2-10% distinct fine white (10YR8/2) calcareous nodules; <2% <5mm cracks; <2% 0.075-1mm pores; common very fine roots; pH9.0; genetic boundary, diffuse smooth change to;

(2.50-2.60, *Mayfield*) Greyish brown (10YR5/2) heavy clay; <2% distinct fine dark greyish brown (10YR3/1) patches of soil, filling cracks; moderate >100mm wedge structure, breaking to moderate 10-20mm cast granular structure; very firm; weak slickensides; smooth-ped and polished ped fabric; <2% distinct fine white (10YR8/2) calcareous nodules; <2% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH9.0;

Figure 31.

Soil layer membership composition:



Soil layer morphological description:

(0.00-0.10, *Togo*) Dark grey (10YR4/1) medium heavy clay; moderate 2-5mm subangular blocky structure, breaking to apedal <2mm single-grained structure; very firm; granular fracture; earthy and sandy fabric; <2% distinct fine white (10YR8/1) calcareous nodules; 5% <5mm cracks; 2-5% <5mm cracks; 2-5% 0.075-1mm pores; common fine roots; <6mm rounded quartz fragments; pH7.2; plough sole, abrupt, smooth change to

(0.10-0.20, *Moplain*) Dark grey (10YR4/1) medium heavy clay; strong 5-10mm angular blocky structure; moderately strong; smooth-ped fabric; 2-10% distinct medium (10YR8/1) calcareous nodules; 5-10% 10-20mm cracks; <2% 0.075-1mm pores; few very fine roots; <2% 2-6mm rounded quartz fragments; pH9.0;

(0.30-0.40, *Moplain*) Dark grey (10YR4/1) heavy clay; strong 5-10mm angular structure, with strong 5-10mm wedge structure; moderately strong; smooth-ped fabric; distinct medium white (10YR8/1) calcareous nodules; 5-10% 10-20mm cracks; <2% 1mm pores; few very fine roots; 2-10% 2-6mm rounded quartz fragments; pH9.0;

(0.70-0.82, *Nundi*) Dark grey (10YR4/1) medium clay; 2-10% distinct medium very brown (10YR7/4) patches of soil, filling cracks; moderate 10-20mm angular blocky structure; moderately strong; smooth-ped fabric; 210% distinct medium white (10YR8/1) calcareous nodules; 2-5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH9.0; genetic boundary diffuse smooth change to

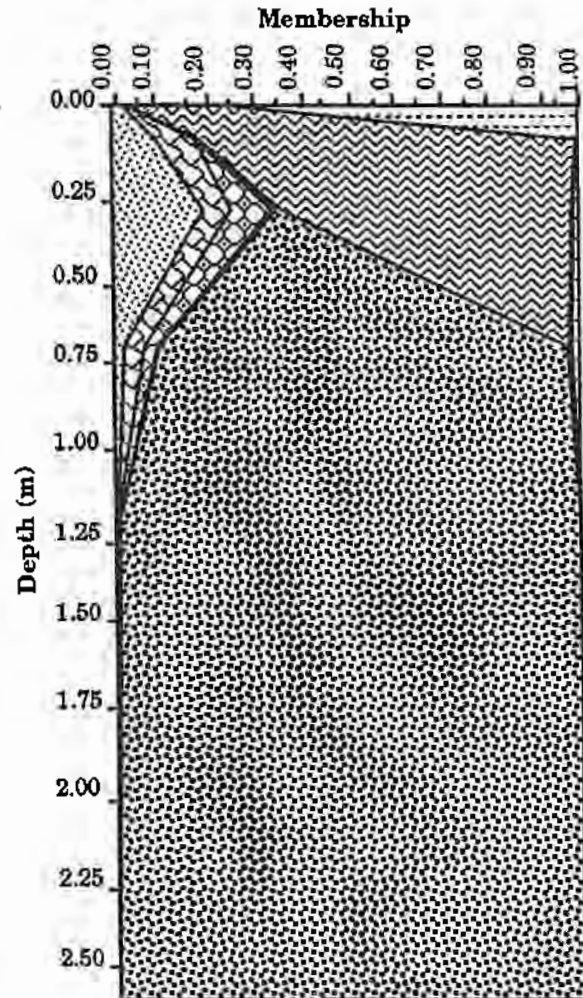
(1.20-1.30, *Nundi*) Dark grey (10YR4/1) medium clay; 2-10% distinct medium dark grey brown (10YR4/2) patches of soil, filling cracks; moderate 10-20mm subangular structure; very firm; earthy and smooth-ped fabric; 2-10% distinct medium white (10YR8/1) calcareous nodules; <2% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH9.0;

(2.50-2.60, *Nundi*) Brown (10YR5/3) medium clay; 2-10% distinct medium dark grey brown (10YR4/2) patches of soil, filling cracks; weak 10-20mm subangular blocky structure; very firm; nodular fracture; earthy and smooth-ped fabric; 2-10% distinct medium (10YR8/1) calcareous nodules; <2% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH9.0 genetic boundary, gradual, smooth change to

Figure 32.

Soil layer membership composition:

Soil layer morphological description:



(0.00-0.09, *Wewak*) Very dark grey (10YR3/1) light medium clay; moderate 5-10mm granuli structure, with strong 20-50mm platy structure; earthy fabric; <2% <5mm cracks; <2% 0.07-1mm pores; few very fine roots; 2-10% 2-6mm angular quartz fragments; pH6.7; plough sol sharp, smooth change to

(0.10-0.20, *Mayfield*) Very dark greyish brown (10YR3/2) medium heavy clay; weak 50-100mm platy structure, breaking to moderate 20-50mm angular blocky structure; moderately strong rough fracture; smooth-ped and earthy fabric; <2% <5mm cracks; <2% 0.075-1mm pore common very fine roots; 2-10% 2-6mm subrounded quartz fragments; pH6.7;

(0.30-0.40, *Mayfield*) Very dark grey (10YR3/1) medium heavy clay; moderate 50-100mm subangular blocky structure; moderately strong; earthy fabric; <2% faint fine very pale brown (10YR8/3) calcareous nodules; <2% <5mm cracks; <2% 0.075-1mm pores; common very fine roots; 2-10% 2-6mm subrounded quartz fragments; pH8.5; plough sole, diffuse, smooth change to

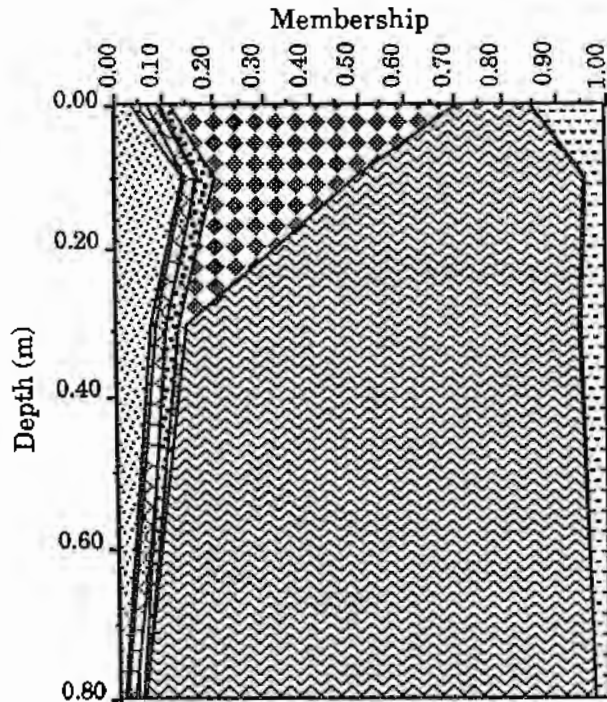
(0.70-0.80, *Boolcarrol*) Reddish brown (5YR4/4) light medium clay; 2-10% distinct medium very dark grey (5YR4/1) patches of soil filling cracks; weak >100mm angular blocky structure moderately weak; nodular fracture; earthy fabric; <2% <5mm cracks; 2-5% 0.075-1mm pore <2% 2-6mm subrounded quartz fragments; pH8.7;

(1.20-1.30, *Boolcarrol*) Yellowish red (5YR4/6) light clay; weak >100mm subangular blocky structure, breaking to moderate 10-20mm angular blocky structure; moderately weak; smooth fracture; polished ped and smooth ped fabric; 2-10% faint fine dark brown (7.5YR3/4) manganese cutans in cracks and cavities; <2% <5mm cracks; 2-5% 1-2mm pores; pH8. stratigraphic boundary, diffuse smooth change to

(2.50-2.60, *Boolcarrol*) Dark brown (7.5YR3/2) light medium clay; <2% distinct fine very pale brown (10YR8/3) patches of sediment, filling cracks; moderate >100mm wedge structure breaking to strong 10-20mm angular blocky structure; moderately firm; moderate slickenside polished ped fabric; <2% faint medium very pale brown (10YR8/3) calcareous nodules; 2-5% <5mm cracks; <2% 0.075-1mm pores; pH8.2;

Figure 33.

Soil layer membership compositions:



Soil layer morphological description:

(0.00-0.10, *Moema*) Dark reddish brown (5YR3/2) medium clay; weak 20-50mm subangular blocky structure, with moderate 2-5mm cast granular structure; moderately firm; granular fracture; earthy fabric; <2% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH8.0;

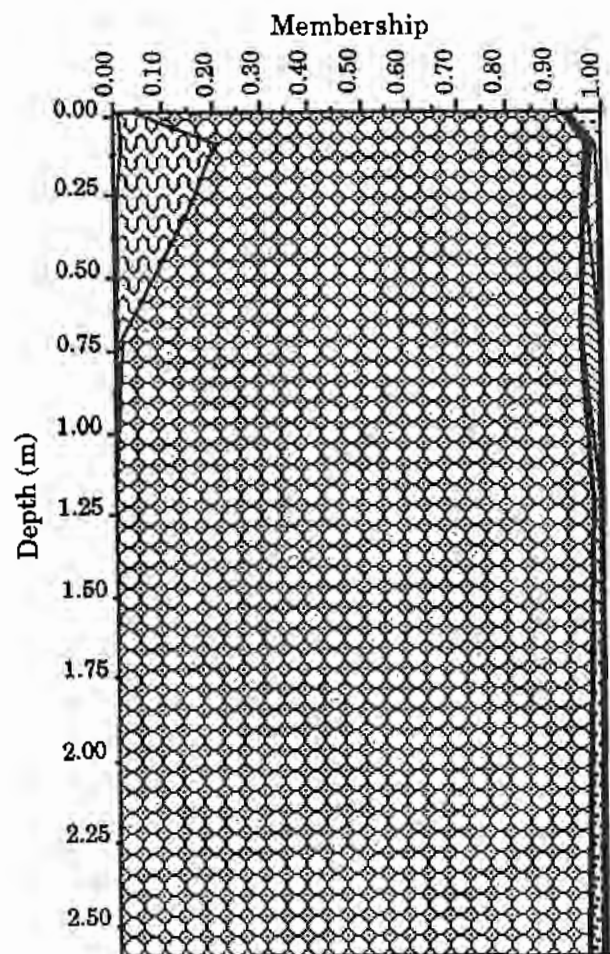
(0.10-0.20, *Mayfield*) Dark reddish brown (5YR3/4) medium clay; moderate 20-50mm subangular blocky structure; moderately firm; earthy fabric; <2% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH8.0;

(0.30-0.40, *Mayfield*) Dark reddish grey (5YR4/2) heavy clay; moderate 20-50mm subangular blocky structure; very firm; earthy fabric; <2% <5mm cracks; few very fine roots; 2-10% 2-6mm subangular basal fragments; pH7.0; stratigraphic boundary, abrupt, smooth change to

(0.70-0.80, *Mayfield*) Reddish brown (5YR4/3) sandy clay; apedal massive; moderately strong earthy fabric; <2% 0.075-1mm pores; few very fine roots; 50-90% >60mm subangular basal fragments; pH8.0;

Figure 34.

Soil layer membership composition:



Soil layer morphological descriptions:

(0.00-0.10, *Nundi*) Dark reddish brown (5YR3/2) light medium clay; <2% distinct very fine grey (5YR3/1) organic stains; moderate 5-10mm angular blocky structure, with moderate 2-5mm granular structure; moderately weak; smooth-ped fabric; <2% 0.075-1mm pores; few very fine roots; pH9.0;

(0.10-0.20, *Nundi*) Dark reddish brown (5YR3/2) light medium clay; <2% distinct fine very dark grey (5YR3/1) organic stains; moderate 10-20mm angular blocky structure; moderately firm; smooth-ped fabric; <2% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH9.0;

(0.30-0.40, *Nundi*) Dark reddish brown (5YR3/3) medium clay; moderate 5-10mm lenticular structure, breaking to moderate 5-10mm angular blocky structure; moderately firm; smooth-ped and polished ped fabric; 2-10% distinct medium pink (7.5YR8/4) calcareous soft segregations; <2% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH9.5; genetic boundary, gradual, smooth change to

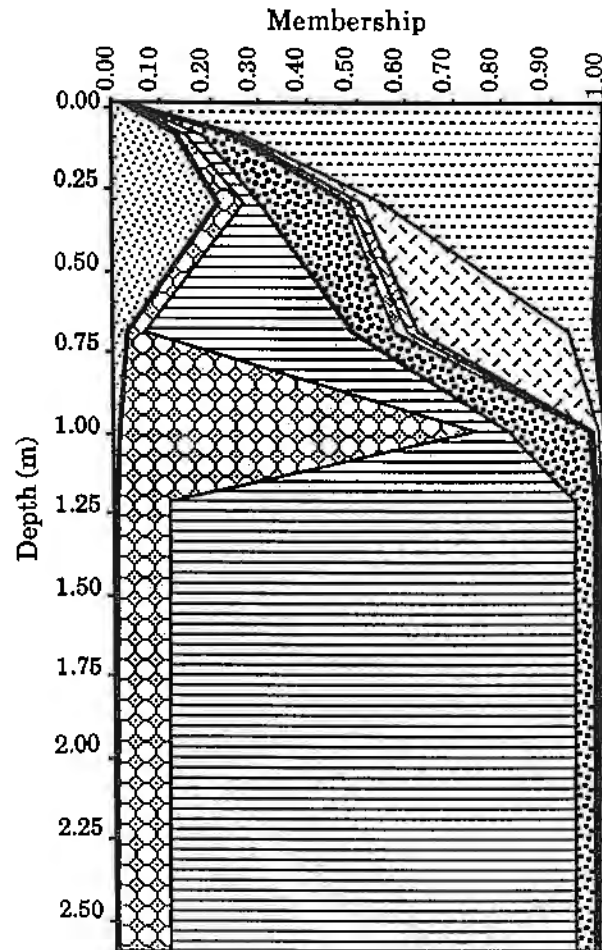
(0.70-0.80, *Nundi*) Dark reddish brown (5YR3/3) medium heavy clay; moderate 20-50mm prismatic structure, breaking to moderate 5-10mm angular blocky structure; moderately firm with moderate 20-50mm angular blocky structure; moderately firm; smooth-ped fabric; <2% distinct medium pink (7.5YR8/4) calcareous soft segregations; <2% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH9.5;

(1.20-1.30, *Nundi*) Dark reddish brown (5YR3/3) light medium clay; 2-10% distinct fine dark brown (7.5YR3/2) organic stains; 2-10% distinct fine strong brown (7.5YR5/6) patches of sediment, filing cracks; moderate 20-50mm prismatic structure, breaking to moderate 5-10mm angular blocky structure; moderately firm with moderate 20-50mm angular blocky structure; moderately firm; smooth-ped fabric; 2-10% distinct medium pink (7.5YR8/4) calcareous soft segregations; <2% <5mm cracks; <2% 0.075-1mm pores; pH9.5; stratigraphic boundary, sharp, smooth change to

(2.50-2.60, *Nundi*) Dark brown (7.5YR3/2) sandy clay; 2-10% distinct fine pink (7.5YR7/4) patches of sediment, filing cracks; apedal massive; very firm; <2% calcareous soft segregations, pH9.2;

Figure 35.

Soil layer membership composition:



Soil layer morphological descriptions:

(0.00-0.06, *Wewak*) Dark brown (10YR3/3) sandy clay; weak 5-10mm subangular structure; moderately weak; rough fracture; earthy fabric; <2% ,%mm cracks; <2% 0. pores; few very fine roots; <2% 2-6mm rounded tabular quartz fragments; pH6.0 boundary, abrupt, smooth change to

(0.10-0.20, *Wewak*) Yellowish brown (10YR5/4) medium heavy clay; moderate subangular blocky structure; very strong; earthy and polished ped fabric; <2% <5m; few very coarse roots; <2% 20-60mm rounded tabular quartz fragments; pH5.8

(0.30-0.40, *Wewak/Togo*) Yellowish brown (10YR5/4) medium heavy clay; weak subangular blocky structure; very strong; rough fracture; earthy fabric; 10-20% co dark greyish brown (10YR3/2) organic veins; 2-5% <5mm cracks; <2% 20-60mm tabular quartz fragments; pH6.0;

(0.70-0.80, *Noelurma*) Brownish yellow (10Yr6/6) medium heavy clay; pale brown weak 20-50mm biscuity structure, breaking to moderate 5-10mm angular blocky struc strong; rough fracture; earthy and polished ped fabric; <2% fine pale brown (calcareous soft segregations; <2% fine manganese stains; 2-5% <5mm cracks; <2% 0. pores; few very fine roots; <2% 2-6mm rounded tabular quartz fragments; pH8.8 boundary, diffuse,

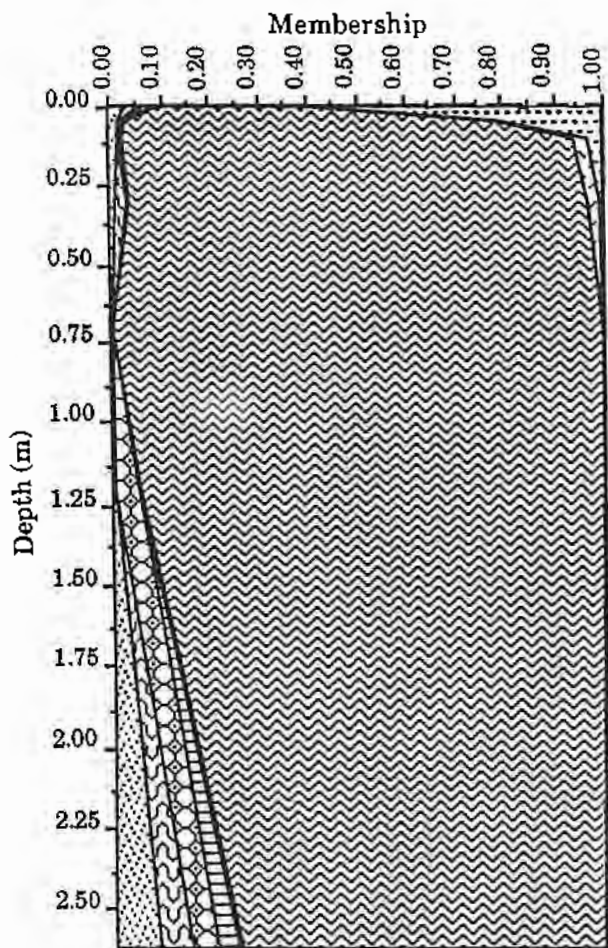
(1.00-1.10, *Nundi*) Brown (10YR4/3) medium heavy clay; moderate 20-50mm angul structure; very firm; smooth-ped and earthy ped fabric; 10-20% distinct coarse white calcareous nodules; <2% distinct very dark grey (10YR3/1) manganese stains; <2 cracks <2% 0.075-1mm pores; few very fine roots; pH8.3: genetic boundary, sharp, smo to

(1.22-1.30, *Noelurma*) Brown (10YR5/3) sandy clay; weak biscuity structure, with wea subangular blocky structure; very strong; rough fracture; earthy fabric; 2-10% distinc yellowish brown (10YR8/1) calcareous nodules; <2% fine manganese stains; 2-5 cracks; 2-5% 0.075-1mm pores; <2% 2-6mm rounded tabular quartz fragments; pH8.5;

(2.50-2.60, *Noelurma*) Light brownish grey (10YR6/2) sandy clay loam; weak biscuity breaking to apedal <2mm single-grained structure; very firm; rough fracture; earthy 10% distinct medium yellowish brown (10YR5/6) iron-manganese nodules; 2-10 rounded tabular quartz fragments; pH8.0;

Figure 30.

Soil layer membership composition:



Soil layer morphological descriptions:

(0.00-0.05, *Wewak*) Very Dark greyish brown (10YR3/2) medium heavy clay; weak 20-50mm subangular blocky structure, with moderate 2-5mm granular structure; moderately firm; rough-ped fabric; 2-5% <5mm cracks; common very fine roots; pH7.0; genetic boundary, abrupt, wavy change to

(0.05-0.10, *Mayfield*) Very dark greyish brown (10YR3/2) medium heavy clay; strong 10-20mm subangular blocky structure, with moderate 5-10mm platy structure; moderately strong; smooth-ped fabric; 5-10% <5mm cracks; <2% 0.075-1mm pores; common very fine roots; pH7.5;

(0.10-0.20, *Mayfield*) Dark grey (10YR4/1) light medium clay; <2% distinct fine dark brown (10YR3/3) filling cracks; moderate 20-50mm angular blocky structure; moderately strong; smooth-ped fabric; 2-5% <5mm cracks; common very fine roots; pH8.3

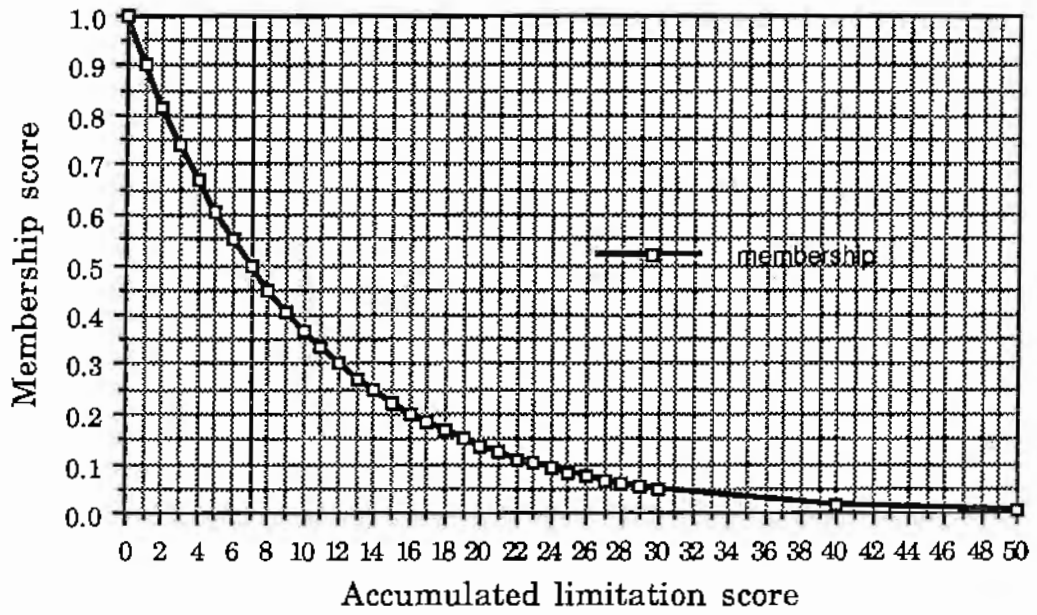
(0.30-0.40, *Mayfield*) Very dark grey (19YR3/1) heavy clay; <2% distinct fine dark brown (10YR3/3) patches of sediment, filling cracks; moderate 20-50mm subangular blocky structure; very strong; smooth-ped fabric; 2-5% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH8.8;

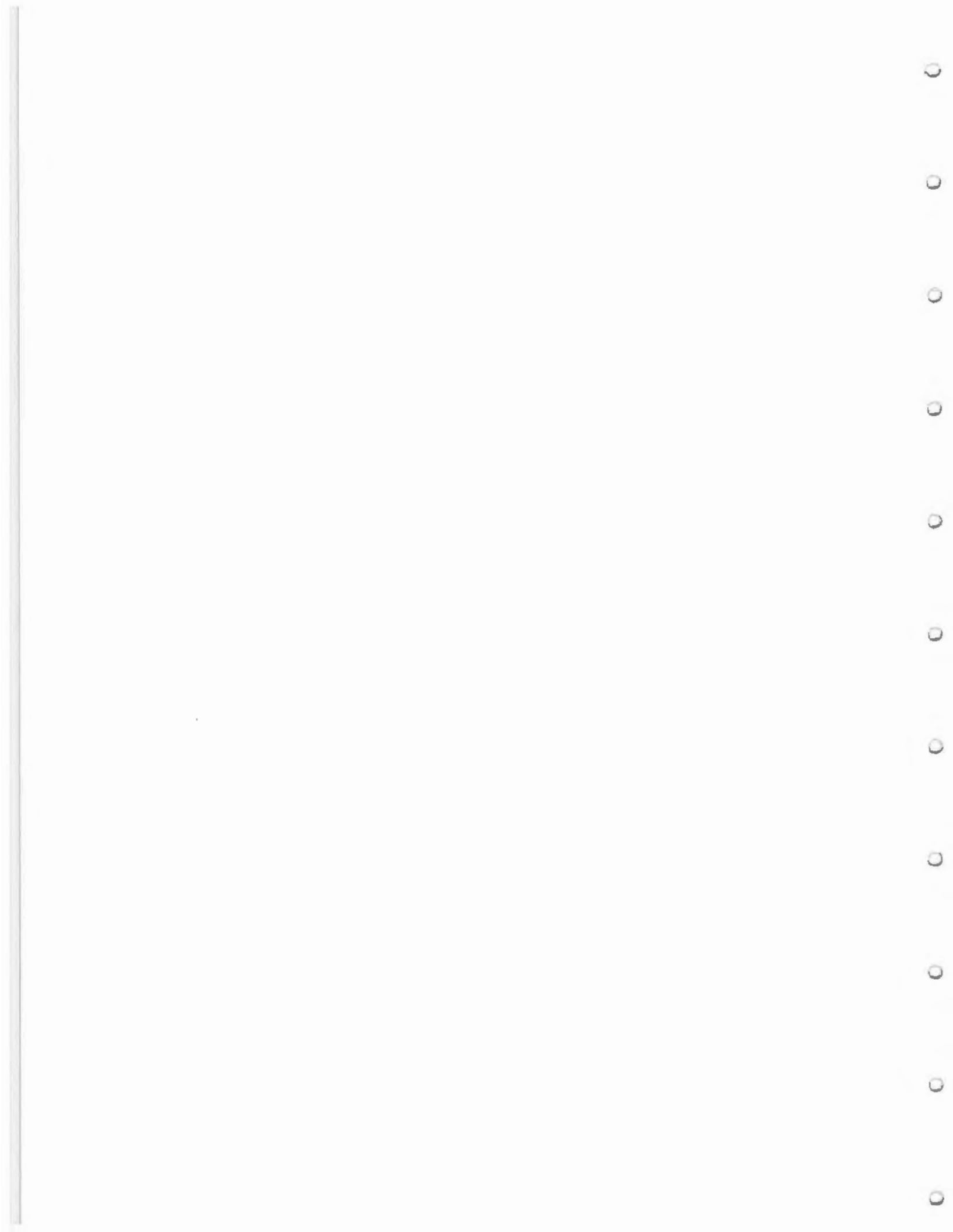
(0.70-0.80, *Mayfield*) Very dark grey (10YR3/1) heavy clay; <2% distinct fine dark greyish brown (10YR4/2) patches of sediment filling cracks; moderate 20-50mm lenticular blocky structure, breaking to moderate 10-20mm angular blocky structure; very strong; weak slickensides; smooth-ped and polished ped fabric; <2% faint fine white (10YR8/2) calcareous soft segregations; <2% <5mm cracks; <2% 0.075-1mm pores; common very fine roots; pH9.0; genetic boundary, diffuse smooth change to;

(1.20-1.30, *Mayfield*) Dark brown (7.5YR4/2) light medium clay; <2% distinct fine dark greyish brown (10YR3/1) patches of soil, filling cracks; weak 50-100mm subangular blocky structure; moderately strong; smooth fracture; smooth-ped fabric; 2-10% distinct fine white (10YR8/2) calcareous nodules; <2% <5mm cracks; <2% 0.075-1mm pores; common very fine roots; pH9.0; genetic boundary, diffuse smooth change to;

(2.50-2.60, *Mayfield*) Greyish brown (10YR5/2) heavy clay; <2% distinct fine dark greyish brown (10YR3/1) patches of soil, filling cracks; moderate >100mm wedge structure, breaking to moderate 10-20mm cast granular structure; very firm; weak slickensides; smooth-ped and polished ped fabric; <2% distinct fine white (10YR8/2) calcareous nodules; <2% <5mm cracks; <2% 0.075-1mm pores; few very fine roots; pH9.0;

Figure 36.





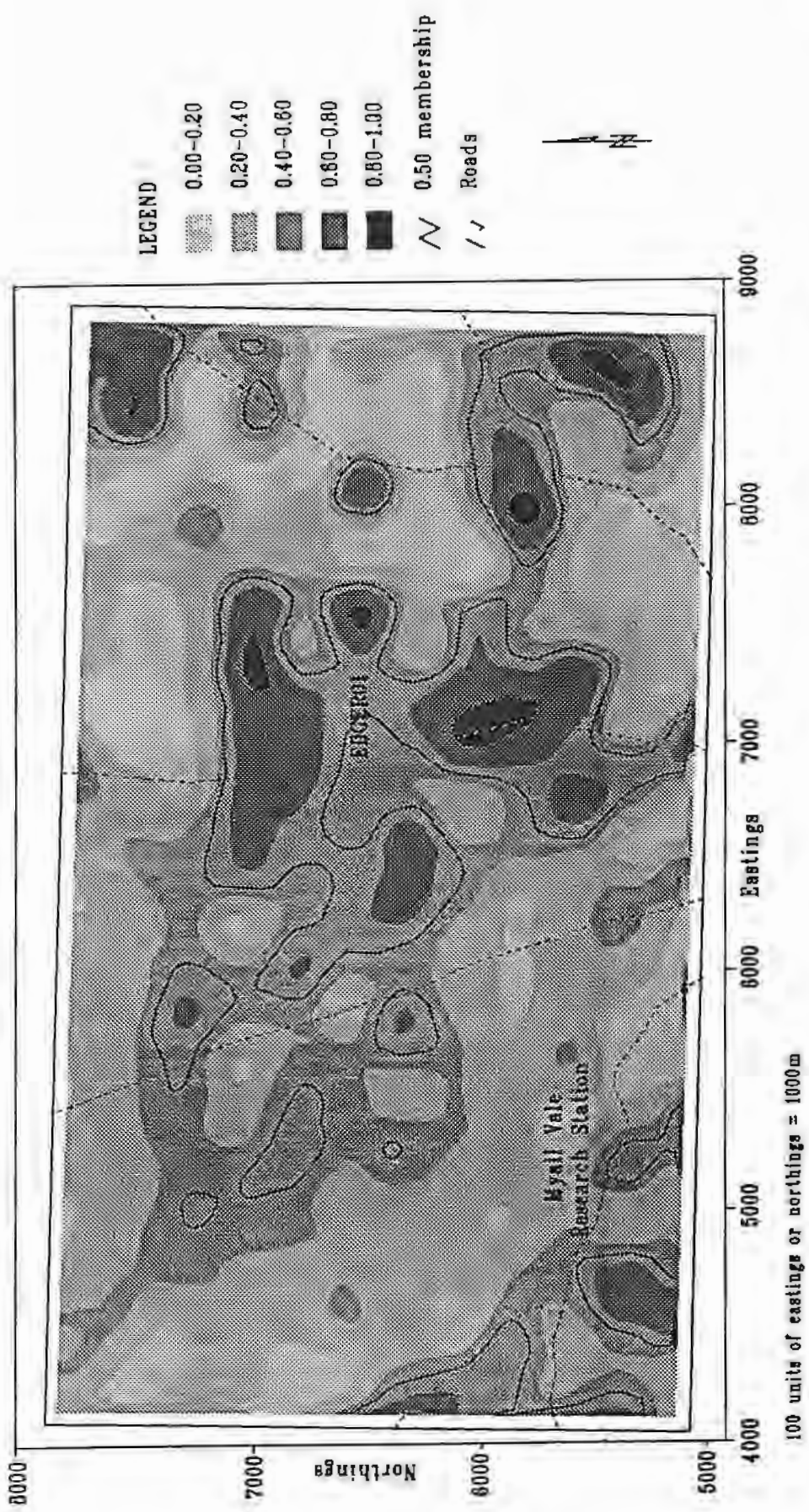


Figure 37.

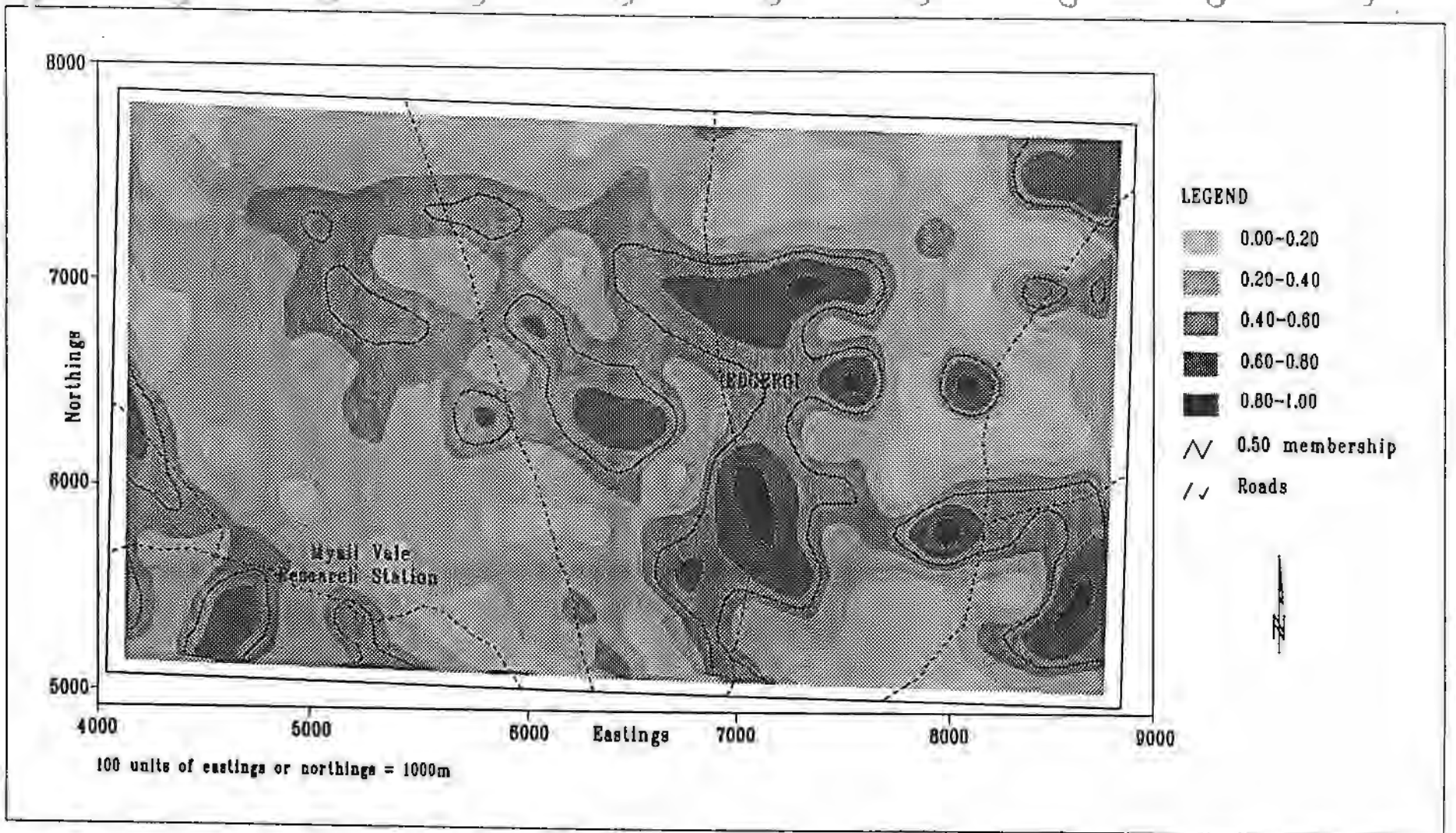


Figure 38.

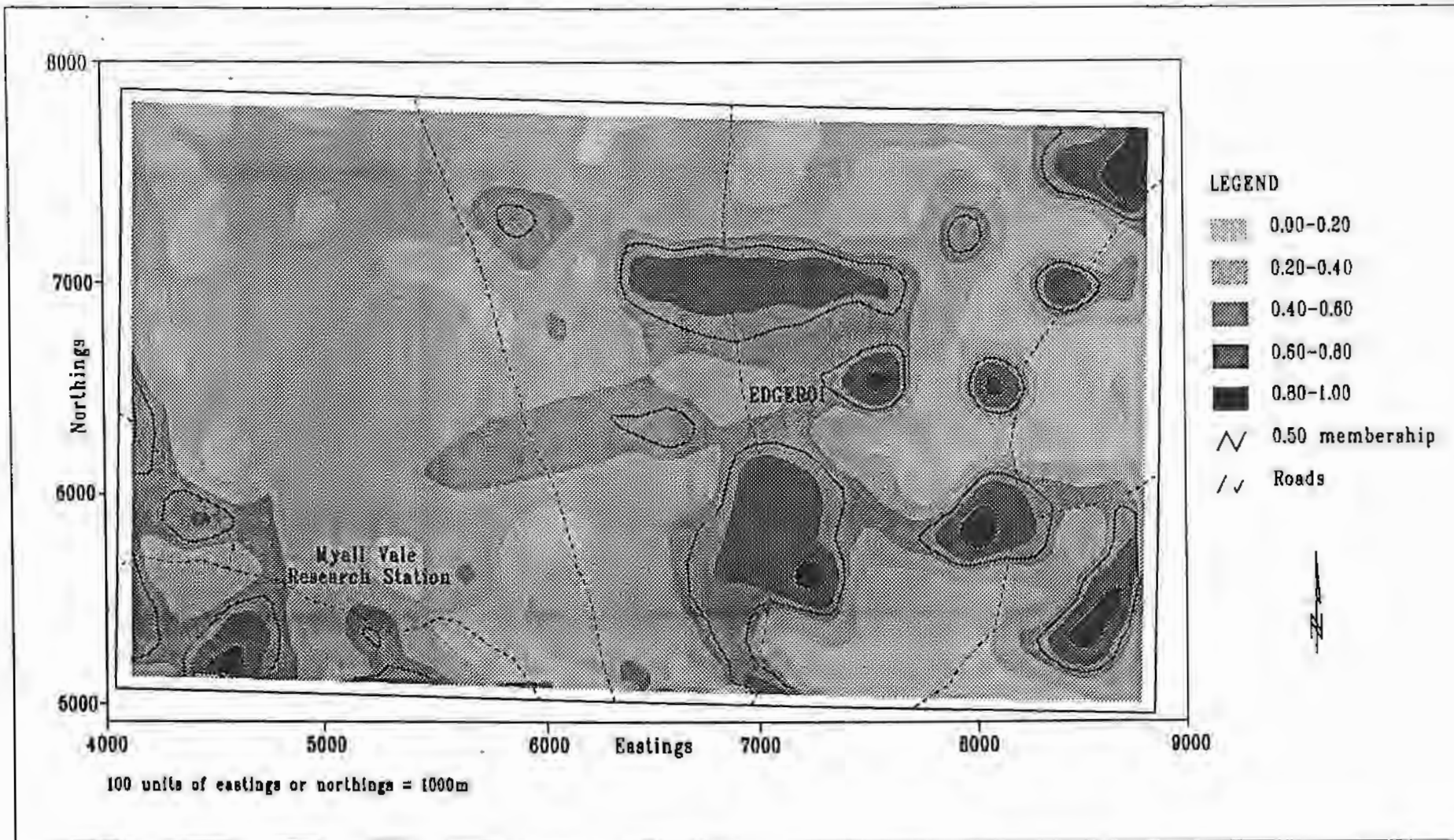









Figure 39.



LEGEND

-  0.00-0.20
-  0.20-0.40
-  0.40-0.60
-  0.60-0.80
-  0.80-1.00
-  0.50 membership
-  Roads

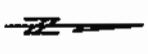
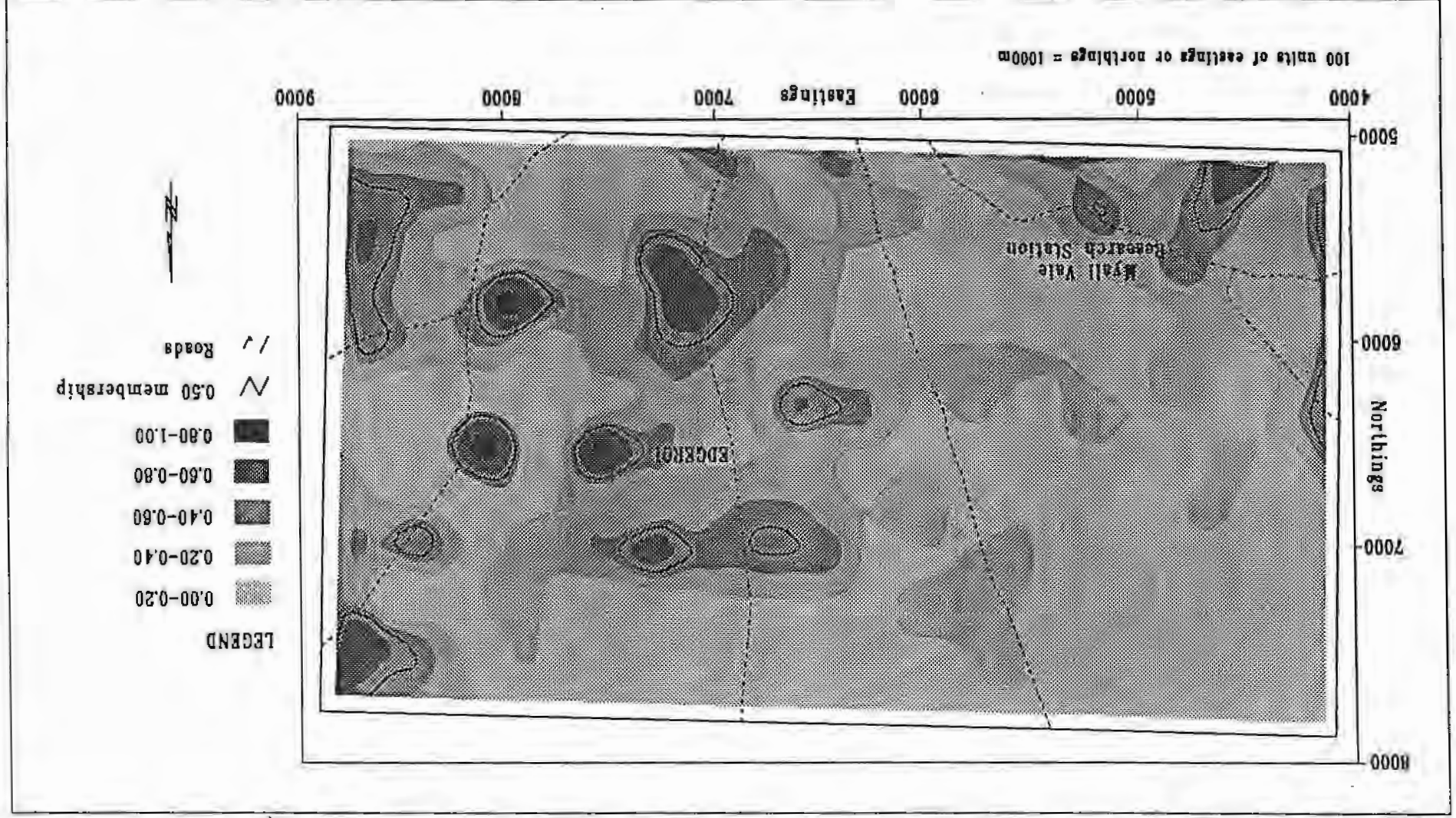


Figure 42.



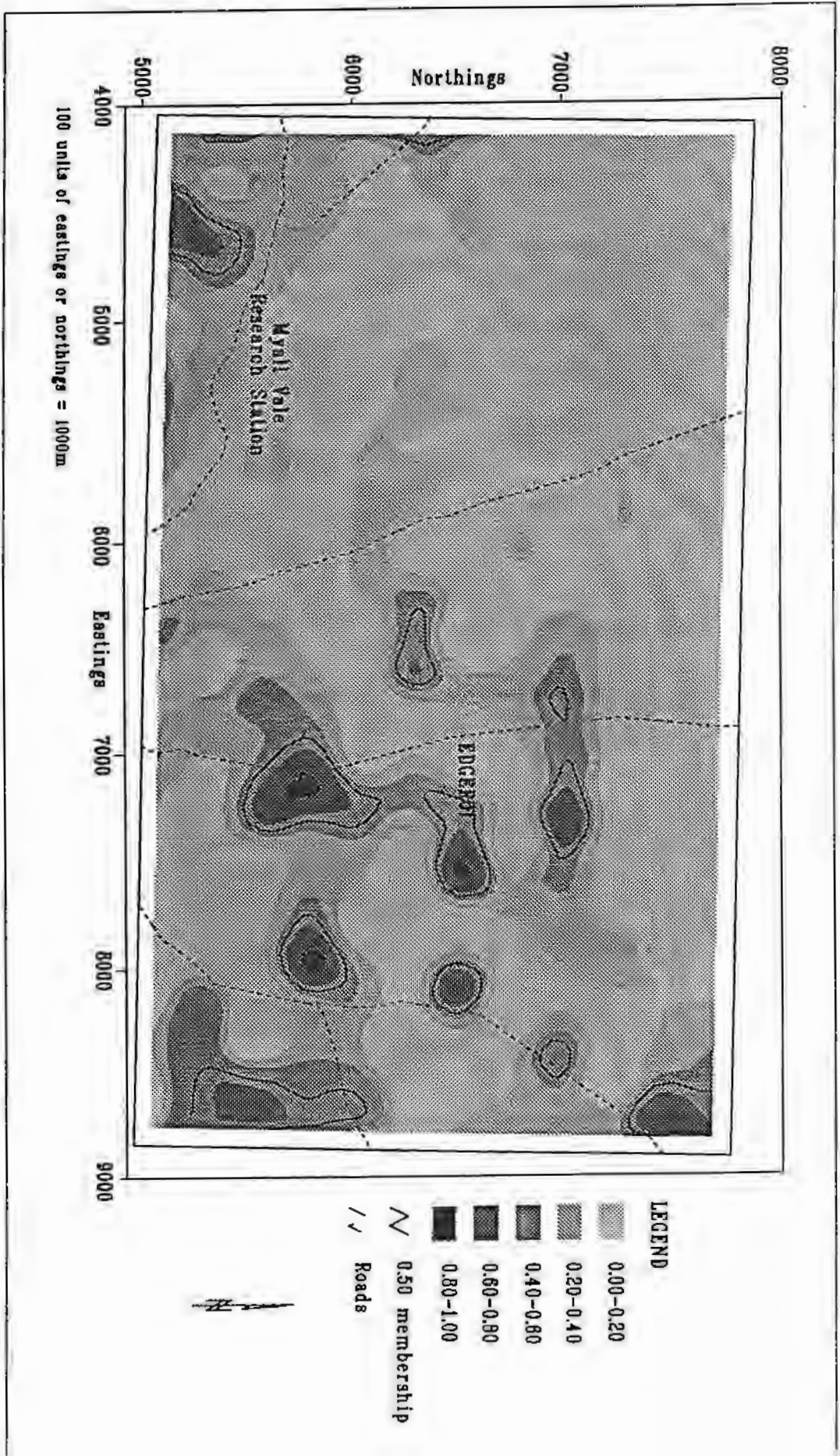


Figure 43.

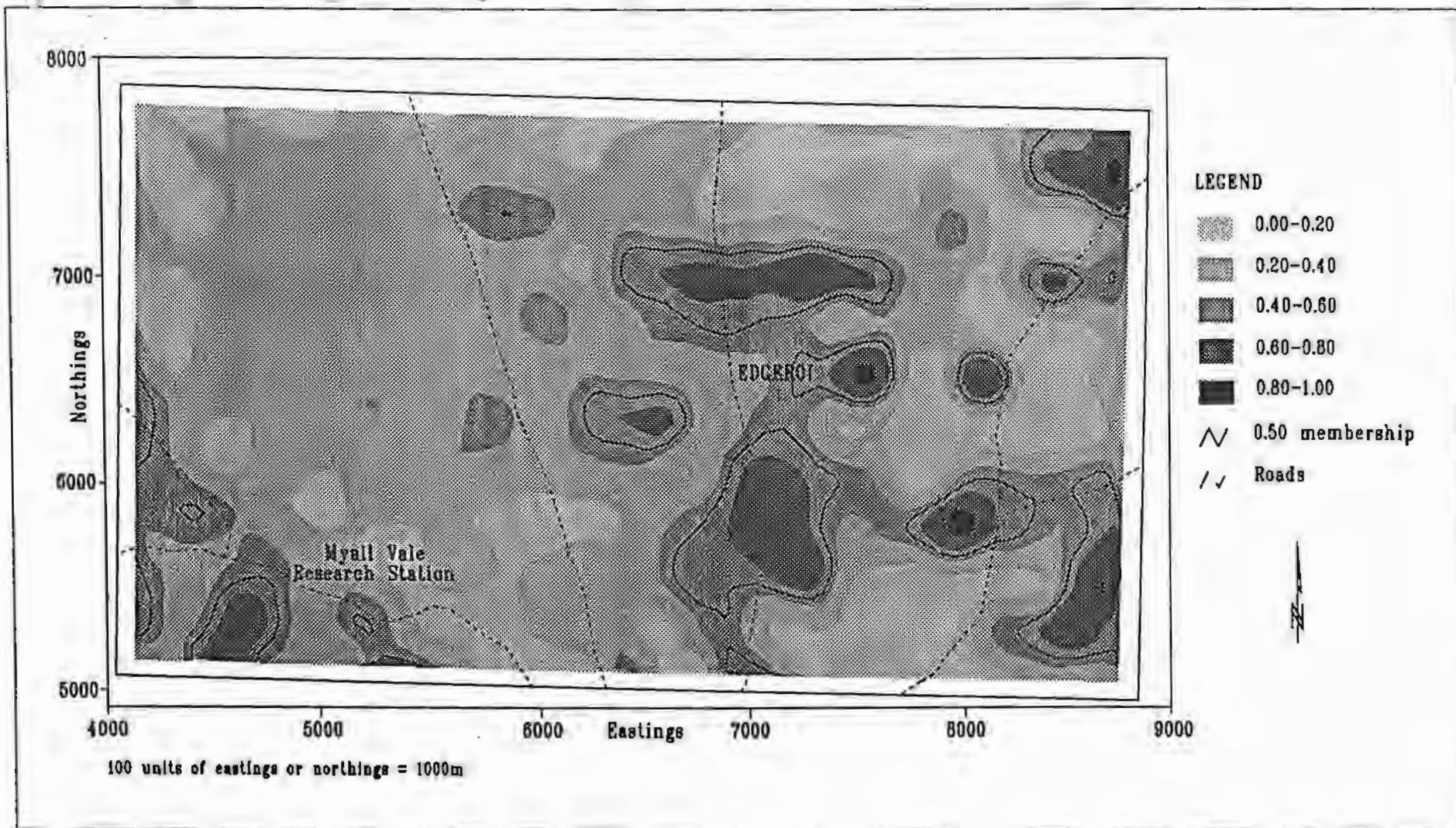


Figure 44

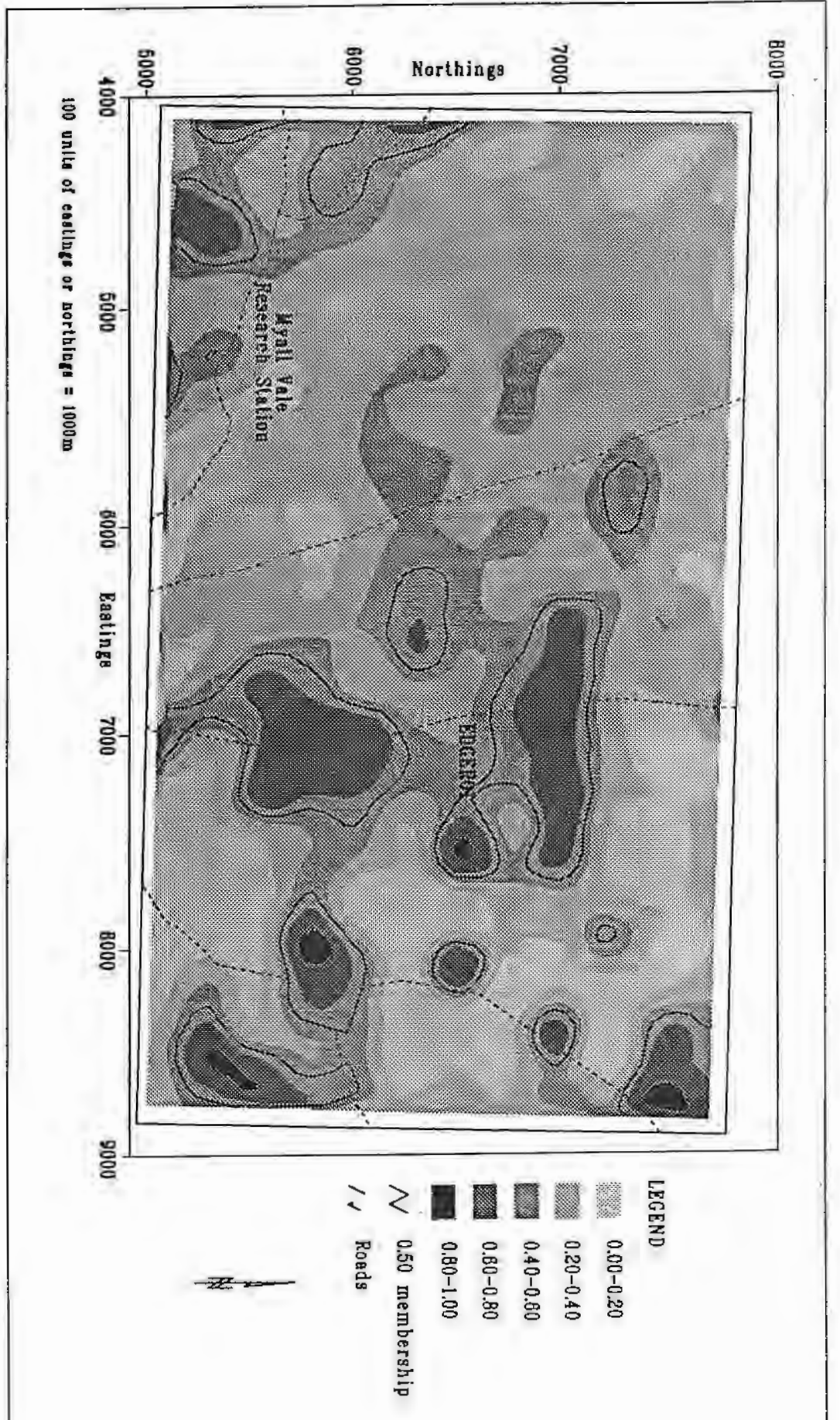


Figure 45

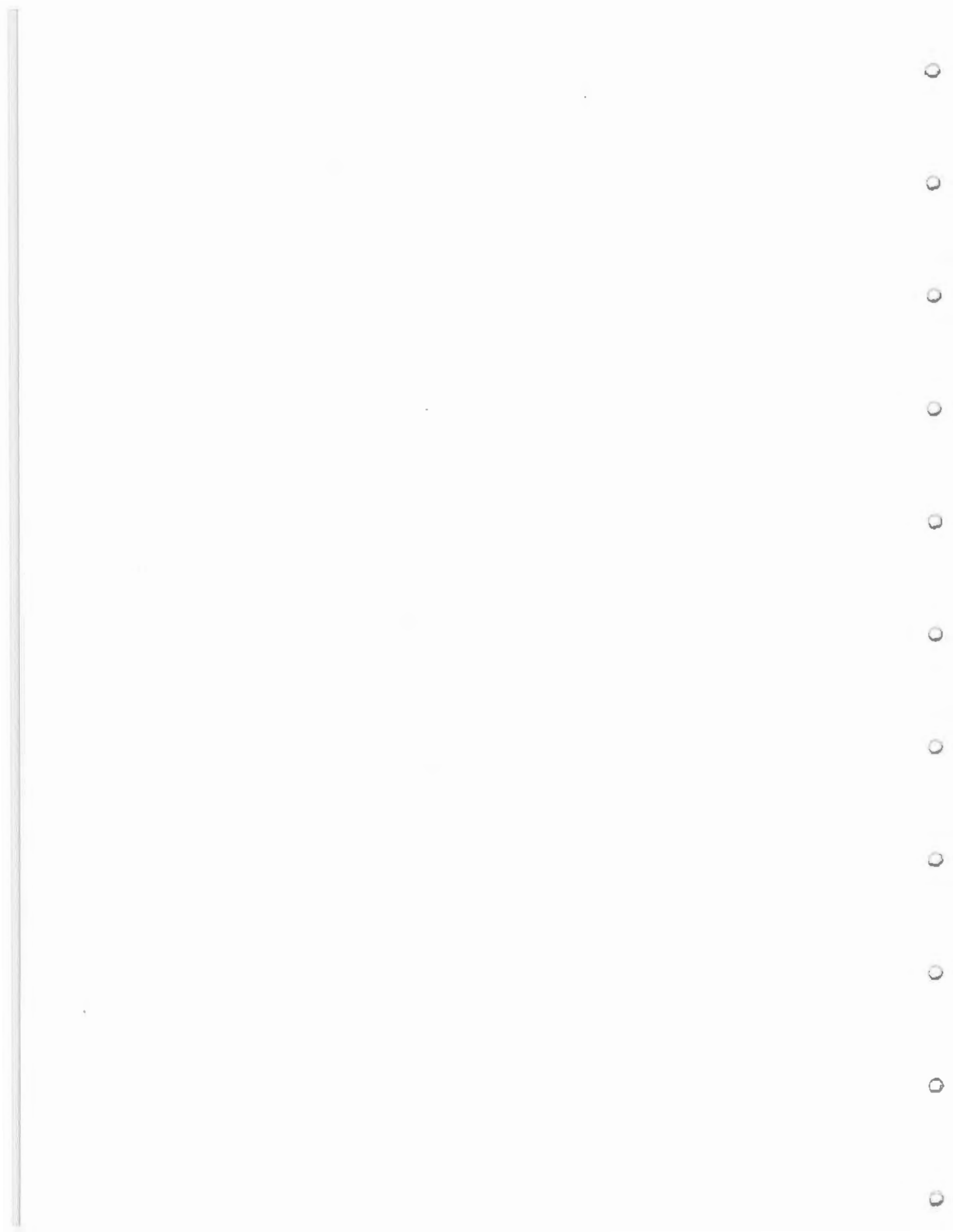


Table 1.

Site Number	x co-ordinate	y co-ordinate
1	0	0
2	0	2
3	0	4
4	1	1
5	1	2
6	1	3
7	2	2
8	3	2
9	4	2
10	5	1
11	5	2
12	5	3
13	6	0
14	6	2
15	6	4

Table 2.

Site number	Fuzzy-k-means classification		Fuzzy-k-means with extragrades classification		
	Left Hand class	Right hand class	Left Hand class	Right hand class	Extragrade class
1	0.866	0.134	0.152	0.034	0.814
2	0.973	0.027	0.596	0.005	0.354
3	0.866	0.134	0.152	0.034	0.814
4	0.947	0.053	0.766	0.060	0.174
5	0.999	0.001	0.988	0.009	0.003
6	0.947	0.053	0.766	0.060	0.174
7	0.883	0.177	0.915	0.055	0.030
8	0.500	0.500	0.367	0.367	0.260

Table 3.

Attribute Soil layer	pH	E.C. (mS/m)	org. C (%)	CaCO 3 (%)	Silt (%)	Clay (%)	Cl- (mg/kg)	P (mg/kg)	Ca0.5 ⁺ (mmol/kg)	Mg0.5 ⁺ (mmol/kg)	K ⁺ (mmol/kg)	Na ⁺ (mmol/kg)
ed00101	6.8	24.0	2.29	<0.1	11	53	72	60	183	146	24.6	19.0
ed00102	8.1	10.0	0.90	<0.1	11	58	12	8	234	172	12.5	34.1
ed00103	9.2	23.9	0.74	0.3	12	52	30	7	231	166	10.6	70.2
ed00104	9.3	41.6	0.35	0.4	11	50	160	26	168	152	5.6	81.7
ed00105	9.2	73.6	0.25	0.7	11	56	336	20	203	167	7.9	100.0
ed00106	9.5	62.5	0.03	3.8	13	52	289	13	146	144	2.5	94.9
ed00201	7.4	12.8	1.96	<0.1	17	61	53	43	43	244	20.6	24.5
ed00202	8.5	10.0	0.65	<0.1	17	63	35	16	16	163	14.9	36.0
ed00203	9.1	19.3	0.52	0.1	17	65	17	23	23	132	12.4	70.6
ed00204	<0.1	<0.1	0.49	0.9	17	65	<1	23	23	154	5.7	18.3
ed00205	8.7	101.3	0.29	0.9	17	69	639	25	25	224	15.2	101.7
ed00206	9.2	70.2	0.04	0.8	18	58	419	10	10	242	10.7	90.1
~	~	~	~	~	~	~	~	~	~	~	~	~
~	~	~	~	~	~	~	~	~	~	~	~	~
~	~	~	~	~	~	~	~	~	~	~	~	~
na02606	9.33	37.0	0.01	11.3	10	47	14	1	45	230	7.1	150.2

Table 4.

Class Soil layer	Togo	Boolcarrol	Bald Knob	Moplain	Mayfield	Nundi	Wewak	Noelurma	Moema	Couradda	Extragrade
ed00101	0.059	0.007	0.004	0.001	0.004	0.008	0.911	0.005	0.001	0.000	0.000
ed00102	0.893	0.004	0.018	0.003	0.008	0.003	0.046	0.025	0.000	0.000	0.000
ed00103	0.719	0.006	0.041	0.007	0.008	0.055	0.055	0.109	0.000	0.000	0.000
ed00104	0.305	0.026	0.007	0.001	0.007	0.243	0.022	0.387	0.001	0.000	0.000
ed00105	0.361	0.250	0.005	0.001	0.003	0.280	0.015	0.083	0.001	0.000	0.000
ed00106	0.048	0.614	0.020	0.003	0.013	0.207	0.005	0.085	0.004	0.000	0.001
ed00201	0.549	0.004	0.003	0.001	0.025	0.010	0.404	0.002	0.000	0.000	0.000
ed00202	0.989	0.001	0.000	0.000	0.007	0.000	0.002	0.001	0.000	0.000	0.000
ed00203	0.951	0.005	0.024	0.000	0.012	0.002	0.002	0.004	0.000	0.000	0.000
ed00204	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000
ed00205	0.036	0.952	0.000	0.000	0.000	0.010	0.001	0.000	0.000	0.000	0.000
ed00206	0.002	0.991	0.000	0.000	0.001	0.003	0.000	0.002	0.000	0.000	0.000
≈	≈	≈	≈	≈	≈	≈	≈	≈	≈	≈	≈
≈	≈	≈	≈	≈	≈	≈	≈	≈	≈	≈	≈
≈	≈	≈	≈	≈	≈	≈	≈	≈	≈	≈	≈
na02606	0.003	0.014	0.018	0.002	0.002	0.005	0.002	0.009	0.001	0.001	0.945

Table 5.

Layer Class	Togo	Boolcarrol	Bald Knob	Moplain	Mayfield	Nundi	Mirrabooka	Noelurma	Moema	Courade
Attribute										
pH	8.64	8.73	8.70	8.82	8.27	9.14	7.13	8.60	6.88	5.7
E.C.(mS/m)	18.78	85.51	20.59	23.75	11.88	41.50	11.77	14.29	8.42	5.1
Org C (%)	0.66	0.12	0.64	0.60	0.73	0.34	1.25	0.16	0.99	0.2
CaCO ₃ (%)	0.22	0.78	0.69	0.81	0.12	2.14	0.07	0.09	0.06	0.1
Sand (%)	21.68	22.92	33.06	37.01	29.28	35.45	50.56	57.43	65.74	73.1
Silt (%)	16.22	16.71	17.31	15.07	23.40	17.48	14.44	9.50	9.98	5.1
Clay (%)	62.10	60.37	49.63	47.92	47.32	47.07	35.00	33.07	24.28	20.8
Cl (mg/kg)	39.13	468.38	4.09	45.10	20.74	135.11	25.63	33.12	10.19	52.1
P (mg/kg)	21.75	9.11	9.62	0.26	19.45	10.52	17.78	8.42	25.10	0.2
Ca(mmol+/kg)	241.94	210.47	217.17	220.60	211.30	137.18	112.56	78.54	64.36	0.1
Mg(mmol+/kg)	159.92	153.96	140.31	131.86	126.42	157.29	63.31	87.60	23.75	16.1
K (mmol+/kg)	11.93	9.86	7.74	4.52	7.06	6.79	9.28	4.88	7.31	1.1
Na (mmol+/kg)	30.54	96.05	24.93	25.83	13.99	55.16	5.50	19.85	0.16	5.1
SC(mmol+/kg)	444.33	470.34	390.15	382.81	358.77	356.42	190.65	190.87	95.58	24.1
ESP (%)	6.90	20.42	6.39	6.75	3.90	15.48	2.88	10.40	0.17	10.1

Table 6.

Mid-depth (m)	Number of layers
0.00-0.10	48
0.10-0.20	56
0.30-0.40	52
0.50-0.60	2
0.70-0.80	32
1.50-1.60	22
2.50-2.60	2
Total Number of Layers	214

Table 7

Layer Attribute	Centroid	ed09002	ed09004	ed09202	ed10901	ed12502	ed14502
Depth(m)		0.10-0.20	0.70-0.80	0.10-0.20	0.09-0.10	0.10-0.20	0.10-0.20
Horizon		A11	A13	A11	A11	A11	A11
pH	8.64	8.60	9.10	8.60	8.60	8.80	8.30
E.C. (mS/m)	18.78	9.20	28.30	15.80	17.00	22.50	12.80
Org C (%)	0.66	0.69	0.44	0.72	0.63	0.73	0.85
CaCO ₃ (%)	0.22	0.10	0.30	0.20	0.10	0.20	0.10
Sand (%)	21.68	18.00	19.00	25.00	15.00	14.00	21.00
Silt (%)	16.22	16.00	15.00	16.00	17.00	17.00	17.00
Clay (%)	62.10	64.00	64.00	58.00	67.00	68.00	61.00
Cl (mg/kg)	39.13	18.00	57.00	26.00	37.00	49.00	32.00
P (mg/kg)	21.75	29.00	33.00	9.00	41.00	15.00	36.00
Ca(mmol+/kg)	241.94	246.00	208.00	273.00	298.00	246.00	246.00
Mg(mmol+/kg)	159.92	166.00	175.00	131.00	163.00	130.00	169.00
K (mmol+/kg)	11.93	15.10	12.80	10.50	21.20	13.30	15.80
Na (mmol+/kg)	30.54	14.40	57.30	29.60	23.80	40.70	14.60
SC(mmol+/kg)	444.33	441.00	453.00	444.00	506.00	430.00	445.00
ESP (%)	6.90	3.30	12.60	6.70	4.70	9.50	3.30

Table 8.

Mid-depth (m)	Number of layers
0.70-0.80	21
1.20-1.30	51
1.70-1.80	1
2.00-2.10	2
2.50-2.60	75
>2.60	2
Total Number of Layers	152

Table 9a.

Layer Attribute	Centroid	ed02305	ed04005	ed04106	ed04205	ed04305	ed07505
Depth (m)		1.20-1.30	1.20-1.30	1.20-1.30	1.20-1.30	1.20-1.30	1.20-1.30
Horizon		B2	B21	B2n	B2n	B22	B22
pH	8.73	8.80	8.80	9.00	8.80	8.80	8.80
E.C. (mS/m)	85.51	100.20	91.30	66.80	57.90	74.80	83.30
Org C (%)	0.12	0.12	0.07	0.13	0.08	0.08	0.12
CaCO3 (%)	0.78	0.60	2.40	1.30	0.60	0.30	1.50
Sand (%)	22.92	14.00	23.00	26.00	25.00	21.00	16.00
Silt (%)	16.71	20.00	16.00	16.00	15.00	19.00	17.00
Clay (%)	60.37	65.00	58.00	57.00	59.00	59.00	66.00
Cl (mg/kg)	468.38	689.00	607.00	259.00	301.00	387.00	521.00
P (mg/kg)	9.11	21.00	4.00	6.00	11.00	12.00	12.00
Ca (mmol+/kg)	210.47	246.00	236.00	216.00	223.00	331.00	263.00
Mg (mmol+/kg)	153.96	170.00	149.00	158.00	149.00	165.00	133.00
K (mmol+/kg)	9.86	13.70	9.00	9.70	9.50	14.50	14.50
Na (mmol+/kg)	96.05	116.00	89.20	83.10	67.10	90.50	108.6
SC (mmol+/kg)	470.34	545.00	483.00	467.00	449.00	601.00	520.00
ESP (%)	20.42	21.30	18.50	17.80	15.00	15.10	20.90

Table 9b.

Layer Attribute	Centroid	ed07605	ed00506	ed02706	ed04006	ed04406	ed05606
Depth (m)		1.20-1.30	2.50-2.60	2.40-2.50	2.50-2.60	2.50-2.60	2.50-2.60
Horizon		B2k2	B2m2	B2n2	B22	B2	2B21
pH	8.73	8.80	8.90	8.80	8.60	8.70	8.70
E.C. (mS/m)	85.51	80.00	92.80	111.60	99.90	62.00	125.30
Org C (%)	0.12	0.13	0.08	0.09	0.12	0.09	0.08
CaCO3 (%)	0.78	0.80	0.90	1.60	1.20	0.30	0.80
Sand (%)	22.92	25.00	22.00	18.00	24.00	18.00	15.00
Silt (%)	16.71	18.00	15.00	14.00	14.00	18.00	14.00
Clay (%)	60.37	56.00	62.00	66.00	60.00	64.00	70.00
Cl (mg/kg)	468.38	559.00	767.00	839.00	749.00	259.00	933.00
P (mg/kg)	9.11	7.00	11.00	13.00	4.00	11.00	6.00
Ca (mmol+/kg)	210.47	219.00	228.00	234.00	260.00	221.00	227.00
Mg (mmol+/kg)	153.96	156.00	153.00	162.00	150.00	164.00	142.00
K (mmol+/kg)	9.86	14.10	7.80	13.50	9.40	12.10	13.70
Na (mmol+/kg)	96.05	89.50	101.90	109.80	101.09	96.20	121.60
SC (mmol+/kg)	470.34	479.00	491.00	519.00	521.00	493.00	505.00
ESP (%)	20.42	18.70	20.70	21.20	19.50	19.50	24.10

Table 10.

Layer Attribute	Centroid	ed02403	ed02303	ed06203	ed01604	na01802	ed16204
Depth (m)		0.30-0.40	0.30-0.40	0.30-0.40	0.70-0.80	0.10-0.20	0.70-0.80
Horizon		A1	A12	A1p2	B2		A1
pH	8.70	9.10	9.10	8.70	9.10	9.01	8.60
E.C. (mS/m)	20.59	21.00	28.3	11.30	28.40	29.60	19.60
Org C (%)	0.64	0.56	0.47	0.71	0.63	0.85	0.47
CaCO3 (%)	0.69	0.40	0.40	0.30	2.70	3.50	1.20
Sand (%)	33.06	27.00	22.00	34.00	15.00	38.40	26.00
Silt (%)	17.31	18.00	18.00	15.00	20.00	14.80	17.00
Clay (%)	49.63	53.00	59.00	49.00	61.00	46.80	55.00
Cl (mg/kg)	4.09	3.00	6.00	3.00	5.00	2.00	2.00
P (mg/kg)	9.62	12.00	13.00	10.00	26.00	5.90	47.00
Ca(mmol+/kg)	217.17	305.00	260.00	265.00	242.00	171.00	183.00
Mg(mmol+/kg)	140.31	144.00	148.00	109.00	258.00	186.60	120.00
K(mmol+/kg)	7.74	10.30	9.10	6.40	8.90	9.20	8.00
Na(mmol+/kg)	24.93	43.50	68.40	19.30	63.80	44.80	29.50
SC(mmol+/kg)	390.15	503.00	485.00	400.00	572.00	411.60	340.00
ESP (%)	6.39	8.70	14.10	4.80	11.20	10.88	8.70

Table 11.

Depth (m)	Number of layers
0.00-0.10	9
0.10-0.20	11
0.30-0.40	26
0.50-0.60	2
0.70-0.80	16
1.50-1.60	7
2.50-2.60	3
Total Number of Layers	74

Table 12.

Depth (m)	Number of layers
0.00-0.10	2
0.10-0.20	11
0.30-0.40	27
0.70-0.80	17
1.20-1.30	7
2.00-2.10	1
2.50-2.60	4
Total Number of Layers	74

Table 13.

Layer Attribute	Centroid	ed09804	ed10105	ed15604	ed08404	ed09803	ed06403
Depth (m)		0.70-0.80	1.20-1.30	0.70-0.80	0.30-0.40	0.30-0.40	0.30-0.40
Horizon		A14	B2v	A14	A13	A13	A13
pH	8.82	9.20	8.80	9.20	8.90	9.10	9.10
E.C. (mS/m)	23.75	37.10	33.90	35.20	20.00	21.50	17.50
Org C (%)	0.60	0.50	0.90	0.82	0.63	0.55	0.54
CaCO3 (%)	0.81	1.90	1.90	1.80	0.40	2.20	1.70
Sand (%)	37.01	33.00	38.00	280.00	31.00	26.00	55.00
Silt (%)	15.07	19.00	11.00	19.00	17.00	15.00	10.00
Clay (%)	47.92	45.00	48.00	50.00	51.00	56.00	32.00
Cl (mg/kg)	45.10	66.00	106.00	67.00	19.00	15.00	10.00
P (mg/kg)	0.26	<1	<1	<1	<1	<1.00	<1.00
Ca(mmol+/kg)	220.60	247.00	340.00	170.00	275.00	255.00	196.00
Mg(mmol+/kg)	131.86	113.00	111.00	227.00	159.00	100.00	69.00
K (mmol+/kg)	4.52	2.80	3.10	5.30	3.50	2.60	2.10
Na(mmol+/kg)	25.83	62.60	38.00	69.30	46.90	28.00	18.00
SC(mmol+/kg)	382.81	425.40	492.10	471.60	484.00	386.00	285.00
ESP (%)	6.75	4.72	7.72	14.70	9.70	7.20	6.30

Table 14.

Depth (m)	Number of layers
0.00-0.10	23
0.10-0.20	42
0.30-0.40	28
0.70-0.80	17
1.20-1.30	13
1.70-1.80	1
2.20-2.30	1
2.50-2.60	15
Total number of layers	140

Table 15.

Layer Attribute	Centroid	ed17003	ed04402	ed10303	ed17903	edi9303	ed11404
Depth (m)		0.30-0.40	2.50-2.60	0.30-0.40	0.30-0.40	0.30-0.40	0.70-0.80
Horizon		B2	A12	A13	A13	A13	A14
pH	8.27	8.30	8.40	7.90	8.00	6.60	8.80
E.C. (mS/m)	11.88	8.20	15.50	6.10	4.60	4.60	20.80
Org C (%)	0.73	1.21	0.78	1.20	0.98	0.70	0.55
CaCO3 (%)	0.12	0.10	0.20	<0.10	<0.10	<0.10	0.10
Sand (%)	29.28	32.00	27.00	21.00	25.00	25.00	21.00
Silt (%)	23.40	26.00	23.00	26.00	25.00	24.00	24.00
Clay (%)	47.32	39.00	49.00	51.00	48.00	50.00	55.00
Cl (mg/kg)	20.74	6.00	27.00	11.00	7.00	17.00	68.00
P (mg/kg)	19.45	26.00	8.00	58.00	39.00	77.00	18.00
Ca(mmol+/kg)	211.30	244.00	219.00	228.00	235.00	200.00	246.00
Mg(mmol+/kg)	126.42	114.00	119.00	154.00	132.00	72.00	139.00
K(mmol+/kg)	7.06	6.40	6.20	6.90	4.60	5.40	6.70
Na(mmol+/kg)	13.99	6.10	28.20	9.70	6.70	1.80	37.30
SC(mmol+/kg)	358.77	370.50	373.00	399.00	378.00	280.00	428.00
ESP (%)	3.90	1.65	7.60	2.40	1.80	0.60	8.70

Table 16.

Depth (m)	Number of layers
0.00-0.10	5
0.10-0.20	10
0.30-0.40	28
0.50-0.60	1
0.70-0.80	56
1.00-1.10	3
1.20-1.30	49
1.70-1.80	4
2.50-2.60	30
>2.60	3
Total Number of Layers	194

Table 17.

Layer Attribute	Centroid	ed04804	ed20103	na01306	ed03104	ed04705	ed13308	ed17405
Depth (m)		0.70-0.80	0.30-0.40	2.50-2.60	0.70-0.80	1.20-1.30	3.50-3.60	1.20-1.30
Horizon		B2v	A13		AC4	B22	2B2	B2v
pH	9.14	9.20	9.30	9.21	9.60	9.60	9.30	9.30
E.C. (mS/m)	41.50	93.70	38.90	62.40	66.40	33.70	59.30	54.80
Org C (%)	0.34	0.27	0.61	0.20	0.47	0.89	0.19	0.45
CaCO3 (%)	2.14	2.30	2.30	4.80	5.10	2.30	2.00	2.90
Sand (%)	35.45	28.00	30.00	35.00	29.00	22.00	27.00	26.00
Silt (%)	17.48	18.00	19.00	16.00	18.00	19.00	19.00	16.00
Clay (%)	47.07	52.00	47.00	49.00	47.00	55.00	52.00	55.00
Cl (mg/kg)	135.11	683.00	124.00	375.00	252.00	60.00	287.00	253.00
P (mg/kg)	10.52	1.50	9.00	17.60	5.00	40.00	22.00	10.00
Ca(mmol+/kg)	137.18	131.00	186.00	104.20	70.00	202.00	85.00	125.00
Mg(mmol+/kg)	157.29	196.00	147.00	223.90	244.00	215.00	167.00	260.00
K (mmol+/kg)	6.79	7.10	8.70	7.70	6.90	9.10	6.80	8.10
Na(mmol+/kg)	55.16	145.70	76.30	128.40	128.20	93.80	97.60	94.00
SC(mmol+/kg)	356.42	479.80	418.00	464.20	449.00	520.00	356.00	487.00
ESP (%)	15.48	30.40	18.30	27.66	28.60	18.10	27.50	19.30

Table 18.

Depth (m)	Number of layers
0.00-0.10	83
0.10-0.20	25
0.30-0.40	5
0.50-0.60	1
Total Number of Layers	114

Table 19.

Layer Attribute	Centroid	ed07801	ed11501	ed13301	ed07802	ed09901	ed04201
Depth (cm)		0.00-0.05	0.00-0.10	0.00-0.10	0.05-0.10	0.00-0.10	0.00-0.06
Horizon		Alp	A11	Alp	A11	A11	Alp
pH	7.13	6.90	7.00	6.60	7.30	6.70	7.60
E.C. (mS/m)	11.77	13.90	10.00	14.00	11.10	14.10	9.80
Org C (%)	1.25	1.25	1.49	1.32	0.82	1.76	1.33
CaCO3 (%)	0.07	<0.1	<0.1	<0.1	<0.1	<0.10	0.10
Sand (%)	50.56	46.00	40.00	48.00	47.00	50.00	40.00
Silt (%)	14.44	15.00	16.00	17.00	15.00	14.00	17.00
Clay (%)	35.00	37.00	41.00	33.00	37.00	33.00	40.00
Cl (mg/kg)	25.63	30.00	25.00	29.00	38.00	37.00	31.00
P (mg/kg)	17.78	45.00	65.00	31.00	18.00	12.00	20.00
Ca(mmol+/kg)	112.56	176.00	150.00	87.00	171.00	178.00	141.00
Mg(mmol+/kg)	63.31	111.00	98.00	77.00	90.00	56.00	108.00
K(mmol+)/kg)	9.28	13.40	16.20	12.60	8.30	11.40	10.10
Na(mmol+/kg)	5.50	10.30	6.30	6.00	16.10	10.10	10.10
SC(mmol+/kg)	190.65	310.70	270.50	183.00	285.00	255.00	270.00
ESP (%)	2.88	3.32	2.33	3.29	5.60	4.00	3.70

Table 20.

Depth (m)	Number of layers
0.00-0.10	0
0.10-0.20	6
0.30-0.40	7
0.70-0.80	8
1.20-1.30	17
1.70-1.80	2
2.20-2.30	3
2.50-2.60	19
>2.60	1
Total Number of Layers	64

Table 21.

Layer Attribute	Centroid	ed16405	ed16705	ed10006	ed16006	ed16406	ed20206
Depth (m)		1.20-1.30	1.20-1.30	2.50-2.60	1.20-1.30	2.50-2.60	2.50-2.60
Horizon		C1	B2	C	2B22	C1	C2
pH	8.60	8.90	9.30	8.70	8.30	9.20	8.90
E.C. (mS/m)	14.29	8.80	16.80	11.30	6.20	9.70	7.10
Org C (%)	0.16	0.15	0.19	0.08	0.16	0.05	0.07
CaCO ₃ (%)	0.09	<0.10	0.10	<0.10	<0.10	<0.10	<0.10
Sand (%)	57.43	65.00	55.00	61.00	61.00	65.00	76.00
Silt (%)	9.50	8.00	10.00	6.00	8.00	8.00	6.00
Clay (%)	33.07	26.00	35.00	33.00	31.00	27.00	18.00
Cl (mg/kg)	33.12	17.00	27.00	9.00	5.00	22.00	40.00
P (mg/kg)	8.42	20.00	15.00	12.00	47.00	27.00	12.00
Ca(mmol+/kg)	78.54	75.00	103.00	61.00	152.00	99.00	92.00
Mg(mmol+/kg)	87.60	83.00	152.00	105.00	81.00	64.00	65.00
K(mmol+/kg)	4.88	4.50	8.50	5.50	3.40	4.10	5.10
Na(mmol+/kg)	19.85	18.10	44.00	7.90	13.20	40.40	13.30
SC(mmol+/kg)	190.87	180.60	307.50	180.00	249.00	207.00	175.00
ESP (%)	10.40	10.02	14.31	4.40	5.30	19.50	7.60

Table 22.

Depth (m)	Number of layers
0.00-0.10	23
0.10-0.20	16
0.30-0.40	5
0.50-0.60	1
0.70-0.80	2
2.50-2.60	1
Total Number of Layers	48

Table 23.

Layer Attribute	Centroid	10001	na02601	ed10102	ed06702	ed19401	ed17301	ed19101
Depth (m)		0.00-0.10	0.00-0.10	0.10-0.20	0.10-0.20	0.00-0.10	0.00-0.10	0.00-0.10
Horizon		A11	A	A12	A12	A11	A11	A1
pH	6.88	6.30	6.72	6.90	6.80	6.80	7.20	6.70
E.C. (mS/m)	8.42	11.60	8.80	3.90	12.20	6.50	3.80	11.80
Org C (%)	0.99	0.92	0.99	0.59	0.99	0.71	0.97	1.68
CaCO ₃ (%)	0.30	<0.10	0.05	<0.10	<0.10	<0.10	<0.10	<0.10
Sand (%)	65.75	80.00	74.00	76.00	80.00	90.00	79.00	65.00
Silt (%)	9.98	4.00	9.00	4.00	4.00	3.00	8.00	5.00
Clay (%)	24.27	14.00	17.00	19.00	14.00	7.00	12.00	26.00
Cl (mg/kg)	2.74	6.00	2.00	2.00	14.00	11.00	5.00	21.00
P (mg/kg)	25.10	40.00	13.00	38.00	50.00	15.00	47.00	15.00
Ca (mmol+/kg)	64.36	28.00	59.90	47.00	41.00	21.00	20.00	88.00
Mg (mmol+/kg)	23.74	14.00	22.60	18.00	12.00	6.00	8.00	81.00
K (mmol+/kg)	7.31	7.50	5.90	7.90	11.30	3.70	6.60	8.70
Na (mmol+/kg)	0.16	<0.10	0.05	<0.10	0.10	<0.10	<0.10	0.20
SC (mmol+/kg)	95.57	51.00	88.45	73.00	64.00	30.00	35.00	178.00
ESP (%)	0.16	<0.10	<0.10	<0.10	0.20	<0.10	<0.10	0.10

Table 24.

Depth (m)	Number of layers
0.00-0.10	1
0.30-0.40	7
0.50-0.60	4
0.70-0.80	9
1.20-1.30	4
2.50-2.60	1
Total Number of Layers	26

Table 25.

Layer Attribute	Centroid	ed05205	ed08604	ed12004	ed12005
Depth (m)		0.70-0.80	0.50-0.60	0.70-0.80	1.20-1.30
Horizon		B21	B2	A22	A23
pH	5.70	5.50	5.40	5.90	5.80
E.C. (mS/m)	5.88	7.20	6.10	3.0	5.80
Org C (%)	0.20	0.11	0.29	0.11	0.04
CaCO3 (%)	0.05	<0.1	<0.1	<0.1	<0.1
Sand (%)	73.87	75.00	78.00	82.00	82.00
Silt (%)	5.81	4.00	6.00	5.00	6.00
Clay (%)	20.32	21.00	16.00	13.00	12.00
Cl (mg/kg)	52.02	68.00	36.00	29.00	66.00
P (mg/kg)	0.29	<1.0	<1.0	1.00	<1.0
Ca (mmol+/kg)	0.05	<1.0	<1.0	<1.0	<1.0
Mg (mmol+/kg)	16.97	17.00	33.00	11.00	12.00
K (mmol+/kg)	1.91	0.50	0.80	3.40	1.70
Na (mmol+/kg)	5.65	11.90	11.60	3.30	7.30
SC (mmol+/kg)	24.58	30.40	46.40	18.70	22.00
ESP (%)	10.40	39.15	25.65	17.65	33.18

Table 26.

Depth (m)	Number of layers
0.00-0.10	13
0.10-0.20	14
0.30-0.40	21
0.50-0.60	4
0.70-0.80	15
1.00-1.10	1
1.20-1.30	21
1.50-1.60	3
1.70-1.80	2
2.20-2.30	2
2.50-2.60	25
>2.60m	2
Total Number of Layers	123

Table 27.

Layer Attribute	ed00702	ed06801	ed10502	ed13503	ed14506	ed15205	ed19001
Depth (m)	0.10-0.20	0.50-0.60	0.70-0.80	0.30-0.40	2.50-2.60	1.20-1.30	0.00-0.10
Horizon	A1p2	A22	B22	A13	2B2	C	A1
pH	8.60	7.10	5.90	8.70	9.20	8.90	5.90
E.C. (mS/m)	10.90	1.70	3.90	<0.1	20.60	<0.1	10.00
Org C (%)	0.63	0.10	0.27	0.47	0.09	0.46	0.45
CaCO3 (%)	0.10	<0.1	<0.1	0.1	0.10	0.70	<0.1
Sand (%)	25.00	91.00	44.00	53.00	57.00	58.00	95.00
Silt (%)	21.00	5.00	4.00	9.00	11.00	14.00	2.00
Clay (%)	53.00	5.00	51.00	38.00	31.00	26.00	3.00
Cl (mg/kg)	34.00	<1	22.00	11.00	184.00	20.00	5.00
P (mg/kg)	4.00	6.00	6.00	<1	15.00	48.00	—
Ca(mmol+/kg)	258.00	4.00	11.00	139.00	75.00	122.00	3.00
Mg(mmol+/kg)	145.00	1.00	68.00	106.00	104.00	124.00	<1
K(mmol+/kg)	<0.1	0.80	<0.1	2.50	<0.1	4.60	0.50
Na(mmol+/kg)	38.00	<1	14.40	12.70	54.80	12.10	<0.1
SC(mmol+/kg)	441.00	6.00	102.00	260.00	223.00	263.00	7.00
ESP (%)	8.60	<0.1	14.10	4.90	23.50	4.60	<0.1

Table 28.

Soil layer class	Sample	Horizon	Depth (m)	pH	E.C. (mS/m)	org. C (%)	CaCO ₃ (%)	San (%)	Silt (%)	Clay (%)
<i>Togo</i>	1	A _{1p}	0.00-0.10	8.2	14.4	0.70	<0.1	17	13	69
<i>Togo</i>	2	A ₁₁	0.10-0.20	88.4	11.1	0.73	<0.1	17	12	70
<i>Togo</i>	3	A ₁₂	0.30-0.40	8.8	18.1	0.53	<0.1	18	12	69
<i>Togo</i>	4	A ₁₃	0.70-0.80	8.8	44.9	0.47	0.1	11	15	72
<i>Togo/Boolcarrol</i>	5	A _{1v}	1.20-1.30	8.7	91.0	0.37	0.5	10	15	74
<i>Boolcarrol</i>	6	B ₂	2.50-2.60	8.9	79.7	0.07	2.3	12	17	69

Cl ⁻ (mg/kg)	P (mg/kg)	Ca _{0.5} ⁺ (mmol/kg)	Mg _{0.5} ⁺ (mmol/kg)	K ⁺ (mmol/kg)	Na ⁺ (mmol/kg)	Al _{0.33} ⁺ (mmol/kg)	SCat (mmol/kg)	ESP (%)
39	49	261	217	25.5	18.9	<0.1	522	3.6
17	46	252	210	25.4	27.0	<0.1	514	5.3
59	16	257	208	15.9	56.7	<0.1	538	10.5
231	45	228	219	17.0	94.9	<0.1	558	17.0
548	34	217	221	18.2	101.5	<0.1	558	18.2
439	16	196	207	18.5	107.0	<0.1	529	20.2

Table 29.

Soil layer class	Sample	Horizon	Depth (m)	pH	E.C. (mS/m)	org. C (%)	CaCO ₃ (%)	Sand (%)	Silt (%)	Clay (%)
<i>Moema</i>	1	A ₁ 1	0.00-0.10	6.3	11.6	0.92	<0.1	80	4	14
<i>Moema</i>	2	A ₁ 2	0.10-0.20	6.9	3.9	0.59	<0.1	76	4	19
<i>Moema</i>	3	B ₂ 1	0.30-0.40	7.3	2.4	0.31	<0.1	80	4	16
<i>Moema</i>	4	B ₂ 2	0.70-0.80	7.8	3.2	0.22	<0.1	64	5	31
<i>Moema-Noelurma</i>	5	B ₂ k	1.20-1.30	8.3	11.8	0.16	0.2	52	3	44
<i>Moema</i>	6	C	2.50-2.60	8.7	11.3	0.08	<0.1	61	6	33

Cl ⁻ (mg/kg)	P (mg/kg)	Ca _{0.5} ⁺ (mmol/kg)	Mg _{0.5} ⁺ (mmol/kg)	K ⁺ (mmol/kg)	Na ⁺ (mmol/kg)	Al _{0.33} ⁺ (mmol/kg)	SCat (mmol/kg)	ESP (%)
6	40	28	14	7.5	<0.1	<1	51	<0.1
2	38	47	18	7.9	<0.1	<1	73	<0.1
3	21	40	14	5.6	<0.1	<1	59	<0.1
4	4	79	34	6.3	0.2	<1	120	0.2
9	5	103	100	4.3	1.7	<1	209	0.8
9	12	61	105	5.5	7.9	<1	180	4.4

Table 30.

Soil layer class	Sample	Horizon	Depth (m)	pH	E.C. (mS/m)	org. C (%)	CaCO ₃ (%)	Sand (%)	Silt (%)	Clay (%)
<i>Moema</i>	1	A _{1p}	0.00-0.10	7.03	10.50	1.85	<0.1	38	21	41
<i>Moema</i>	2	A _{1p}	0.10-0.20	7.15	4.70	1.02	<0.1	50	20	30
<i>Togo</i>	3	B ₂₁	0.30-0.40	8.00	5.50	0.65	<0.1	31	13	56
<i>Togo</i>	4	B ₂₂	0.70-0.80	8.84	10.20	0.41	0.1	32	13	55
<i>Bald Knob</i>	5	C ₁	1.20-1.30	9.03	17.10	0.15	1.7	47	15	38
<i>Noelurma</i>	6	C ₂	2.50-2.60	8.75	6.40	0.07	<0.1	62	9	29

Cl ⁻ (mg/kg)	P (mg/kg)	Ca _{0.5} ⁺ (mmol/kg)	Mg _{0.5} ⁺ (mmol/kg)	K ⁺ (mmol/kg)	Na ⁺ (mmol/kg)	Al _{0.33} ⁺ (mmol/kg)	SCat (mmol/kg)	ESP (%)
119	133	101	60	15.6	1.0	<1	178	0.6
9	90	70	36	7.3	0.3	<1	114	0.3
28	75	148	90	5.9	5.5	<1	249	2.2
8	23	142	103	6.3	11.2	<1	262	4.3
4	37	116	93	5.5	12.9	<1	228	5.7
5	30	77	64	3.1	8.8	<1	153	5.7

Table 31.

Soil layer class	Sample	Horizon	Depth (m)	pH	E.C. (mS/m)	org. C (%)	CaCO ₃ (%)	San (%)	Silt (%)	Clay (%)
<i>Bald Knob</i>	1	A _{1p}	0.00-0.10	8.18	19.3	1.73	0.60	30	20	51
<i>Bald Knob</i>	2	A ₁₁	0.10-0.20	8.72	17.2	1.12	2.70	30	19	51
<i>Bald Knob</i>	3	A ₁₂	0.30-0.40	9.18	24.8	0.74	5.30	31	19	51
<i>Nundi</i>	4	A ₁₃	0.70-0.80	9.56	43.9	0.57	6.10	29	21	51
<i>Nundi</i>	5	B ₂	1.20-1.30	9.60	53.2	0.20	3.90	51	16	33
<i>Nundi</i>	6	C	2.00-2.10	9.55	49.4	0.17	2.10	37	26	38
<i>Nundi</i>	7	D	2.50-2.60	9.72	43.4	0.13	4.40	55	15	30

Cl ⁻ (mg/kg)	P (mg/kg)	Ca _{0.5} ⁺ (mmol/kg)	Mg _{0.5} ⁺ (mmol/kg)	K ⁺ (mmol/kg)	Na ⁺ (mmol/kg)	Al _{0.33} ⁺ (mmol/kg)	SCat (mmol/kg)	ESP (%)
10	27.7	252	154	17.00	6.10	<0.1	429	1.4
5	5.8	243	176	7.60	12.60	<0.1	440	2.9
1	1.2	164	227	6.60	41.20	<0.1	439	9.4
54	5.5	72	262	7.70	96.40	<0.1	438	22.0
316	15.9	40	178	4.90	85.40	<0.1	309	27.6
238	10.8	42	243	4.40	95.50	<0.1	385	24.8
148	15.4	33	171	3.90	73.50	<0.1	281	26.1

Table 32.

Soil layer class	Sample	Horizon	Depth (m)	pH	E.C. (mS/m)	org. C (%)	CaCO ₃ (%)	Sand (%)	Silt (%)	Clay (%)
<i>Extragrade</i>	1	A ₁ 1	0.00-0.10	5.0	5.7	0.79	<0.1	91	3	5
<i>Extragrade</i>	2	A ₁ v	0.10-0.20	4.7	3.3	0.45	<0.1	92	3	4
<i>Couradda</i>	3	A ₂	0.30-0.40	4.9	3.0	0.18	<0.1	93	4	3
<i>Couradda</i>	4	B ₂	0.50-0.60	5.4	6.1	0.29	<0.1	78	6	16
<i>Couradda</i>	5	B ₂	0.70-0.80	5.4	10.5	0.17	<0.1	72	3	25
<i>Couradda</i>	6	B ₂	1.20-1.30	6.4	24.6	0.08	<0.1	57	5	38
<i>Extragrade</i>	7	C	2.50-2.60	5.0	20.8	0.08	<0.1	72	3	25

Cl ⁻ (mg/kg)	P (mg/kg)	Ca _{0.5} ⁺ (mmol/kg)	Mg _{0.5} ⁺ (mmol/kg)	K ⁺ (mmol/kg)	Na ⁺ (mmol/kg)	Al _{0.33} ⁺ (mmol/kg)	SCat (mmol/kg)	ESP (%)
8	15	4	2	0.7	0.5	4	11	4.6
8	2	<1	<1	0.4	0.1	6	7	1.4
8	<1	<1	2	0.4	0.2	4	7	3.0
36	<1	<1	33	0.8	11.6	4	50	23.4
83	<1	<1	65	1.9	24.3	5	97	25.2
319	6	<1	86	5.0	35.8	<1	128	28.1
236	10	<1	32	1.7	16.4	3	53	31.1

Table 33.

Soil layer class	Sample	Horizon	Depth (m)	pH	E.C. (mS/m)	org. C (%)	CaCO ₃ (%)	Sand (%)	Silt (%)	Clay (%)
<i>Wewak</i>	1	A ₁ 1	0.00-0.10	8.0	16.2	1.43	0.1	43	14	41
<i>Moplain</i>	2	A ₁ 2	0.10-0.20	8.2	10.5	1.37	<0.1	44	15	39
<i>Moplain</i>	3	A ₁ 3	0.30-0.40	8.8	8.7	1.14	<0.1	35	15	48
<i>Moplain</i>	4	A ₁ 4	0.70-0.80	9.2	35.2	0.82	1.8	28	19	50
<i>Moplain</i>	5	B ₂	1.20-1.30	8.6	100.0	0.30	2.7	33	12	51
<i>Moplain</i>	6	D	2.50-2.60	9.2	45.8	0.16	14.9	35	16	34

Cl ⁻ (mg/kg)	P (mg/kg)	Ca _{0.5} ⁺ (mmol/kg)	Mg _{0.5} ⁺ (mmol/kg)	K ⁺ (mmol/kg)	Na ⁺ (mmol/kg)	Al _{0.33} ⁺ (mmol/kg)	SCat (mmol/kg)	ESP (%)
13	6	220	79	19.5	3.0	<1	321	0.9
13	<1	233	99	10.1	5.2	<1	347	1.5
13	<1	235	176	5.9	18.6	<1	436	4.3
67	<1	170	227	5.3	69.3	<1	471	14.7
523	<1	101	216	4.3	66.4	<1	388	17.1
310	<1	69	158	3.1	51.4	<1	282	18.2

Table 34.

Soil layer class	Sample	Horizon	Depth (m)	pH	E.C. (mS/m)	org. C (%)	CaCO ₃ (%)	Sand (%)	Silt (%)	Clay (%)
<i>Bald Hill</i>	1	A ₁ p ₁	0.00-0.10	6.5	27.8	2.08	<0.1	40	12	44
<i>Bald Hill</i>	2	A ₁ p ₂	0.10-0.20	7.3	15.1	1.06	0.1	34	14	50
<i>Togo</i>	3	A ₁ p ₃	0.30-0.40	8.7	11.3	0.71	0.3	34	15	49
<i>Togo</i>	4	B ₂ r ₁	0.70-0.80	9.1	16.5	0.61	0.5	31	15	52
<i>Boolcarrol</i>	5	B ₂ r ₂	1.20-1.30	8.9	24.9	0.31	0.3	25	16	58
<i>Boolcarrol</i>	5	B ₂ k ₃	2.50-2.60	8.7	26.8	0.06	0.3	27	15	58

Cl ⁻ (mg/kg)	P (mg/kg)	Ca _{0.5} ⁺ (mmol/kg)	Mg _{0.5} ⁺ (mmol/kg)	K ⁺ (mmol/kg)	Na ⁺ (mmol/kg)	Al _{0.33} ⁺ (mmol/kg)	SCat (mmol/kg)	ESP (%)
17	31	168	88	14.1	6.6	<1	276	2.4
4	13	222	75	7.1	9.4	<1	314	3.0
3	10	265	109	6.4	19.3	<1	400	4.8
21	21	248	110	7.4	41.0	<1	407	10.1
143	20	263	111	10.6	50.2	<1	435	11.5
166	7	255	98	12.7	54.9	<1	421	13.0

Table 35.

Soil layer class	Sample	Horizon	Depth (m)	pH	E.C. (mS/m)	org. C (%)	CaCO ₃ (%)	Sand (%)	Silt (%)	Clay (%)
<i>Wewak</i>	1	A ₁ 1	0.00-0.05	7.2	18.3	1.90	<0.1	25	23	49
<i>Mayfield</i>	2	A ₁ 2	0.05-0.10	7.4	12.9	1.28	<0.1	24	23	50
<i>Mayfield</i>	3	A ₁ 3	0.10-0.20	8.0	13.0	0.91	<0.1	25	22	51
<i>Mayfield</i>	4	A ₁ 4	0.30-0.40	8.8	13.5	0.91	0.2	24	23	51
<i>Mayfield</i>	5	A ₁ 5	0.70-0.80	9.0	26.0	0.77	0.3	20	24	54
<i>Mayfield</i>	6	B ₂ 1	1.20-1.30	9.1	23.6	0.39	0.5	27	22	50
<i>Mayfield</i>	7	B ₂ 2	2.50-2.60	9.0	20.5	0.19	0.3	31	19	50

Cl ⁻ (mg/kg)	P (mg/kg)	Ca _{0.5} ⁺ (mmol/kg)	Mg _{0.5} ⁺ (mmol/kg)	K ⁺ (mmol/kg)	Na ⁺ (mmol/kg)	Al _{0.33} ⁺ (mmol/kg)	SCat (mmol/kg)	ESP (%)
22	35	204	157	29.5	4.2	<1	394	1.1
37	106	220	156	17.1	7.8	<1	402	1.9
68	54	227	189	9.1	11.5	<1	423	2.7
10	3	211	208	8.1	24.4	<1	432	5.7
57	16	197	205	8.5	43.9	<1	457	9.6
40	20	175	205	9.2	40.9	<1	430	9.5
34	6	112	182	6.4	61.9	<1	362	17.1

Table 36.

Soil layer class	Sample	Horizon	Depth (m)	pH	E.C. (mS/m)	org. C (%)	CaCO ₃ (%)	San (%)	Silt (%)	Clay (%)
<i>Togo</i>	1	A _{1p}	0.00-0.10	8.02	17.3	1.25	0.10	39	8	53
<i>Moplain</i>	2	A ₁	0.10-0.20	8.98	18.6	0.64	0.90	31	9	61
<i>Moplain</i>	3	A _{1k1}	0.30-0.40	9.18	36.7	0.58	1.90	34	10	56
<i>Nundi</i>	4	A _{1k2}	0.70-0.80	9.29	62.6	0.44	3.80	42	9	49
<i>Nundi</i>	5	A _{1k3}	1.20-1.30	9.40	71.5	0.19	2.30	48	10	42
<i>Nundi</i>	6	B _{2k1}	2.50-2.60	9.39	72.4	0.18	2.10	35	13	52

Cl ⁻ (mg/kg)	P (mg/kg)	Ca _{0.5} ⁺ (mmol/kg)	Mg _{0.5} ⁺ (mmol/kg)	K ⁺ (mmol/kg)	Na ⁺ (mmol/kg)	Al _{0.33} ⁺ (mmol/kg)	SCat (mmol/kg)	ESP (%)
17	8	263	138	11.9	23.4	<1	437	5.4
4	0	303	152	7.4	39.3	<1	501	7.8
30	0	222	165	8.2	83.7	<1	480	17.6
259	5	129	144	9.0	114.3	<1	396	28.9
304	13	92	122	8.5	92.0	<1	314	29.3
315	12	102	135	7.5	108.1	<1	352	30.7

Table 37.

Soil layer class	Sample	Horizon	Depth (cm)	pH	E.C. (mS/m)	org. C (%)	CaCO ₃ (%)	Sand (%)	Silt (%)	Clay (%)
<i>Wewak</i>	1	A _{1p}	0-10	7.3	14.2	0.94	<0.1	30	19	50
<i>Mayfield</i>	2	A ₁₁	10-20	8.2	8.3	0.73	<0.1	25	21	53
<i>Mayfield</i>	3	A ₁₂	30-40	8.9	20.1	0.59	0.3	23	21	55
<i>Boolcarrol</i>	4	B ₂	70-80	8.0	289.0	0.23	0.7	19	17	62
<i>Boolcarrol</i>	5	B ₂	120-130	8.6	167.3	0.18	0.7	15	13	70
<i>Boolcarrol</i>	6	2B ₂	250-260	8.9	124.9	0.14	1.7	19	16	63

Cl- (mg/kg)	P (mg/kg)	Ca0.5+ (mmol/kg)	Mg0.5+ (mmol/kg)	K+ (mmol/kg)	Na+ (mmol/kg)	Al0.33+ (mmol/kg)	SCat (mmol/kg)	ESP (%)
27	18	224	143	10.0	14.9	<1	392	3.8
6	16	248	135	3.7	25.3	<1	412	6.1
33	11	239	139	2.3	59.2	<1	439	13.5
390	14	240	162	8.6	131.1	<1	541	24.2
1284	11	254	186	10.9	168.2	<1	619	27.2
1148	7	227	155	7.2	150.7	<1	540	27.9

Table 38.

Soil layer class	Sample	Horizon	Depth (m)	pH	E.C. (mS/m)	org. C (%)	CaCO ₃ (%)	Sand (%)	Silt (%)	Clay (%)
<i>Moema</i>	1	A ₁ 1	0.00-0.10	7.2	19.6	2.68	<0.1	30	23	43
<i>Mayfield</i>	2	A ₁ 2	0.10-0.20	7.3	8.3	0.79	<0.1	23	23	53
<i>Mayfield</i>	3	A ₁ 3	0.30-0.40	6.6	4.6	0.70	<0.1	25	24	50
<i>Mayfield</i>	4	B ₂ r	0.70-0.80	7.8	8.9	0.44	0.1	44	19	36

Cl ⁻ (mg/kg)	P (mg/kg)	Ca _{0.5} ⁺ (mmol/kg)	Mg _{0.5} ⁺ (mmol/kg)	K ⁺ (mmol/kg)	Na ⁺ (mmol/kg)	Al _{0.33} ⁺ (mmol/kg)	SCat (mmol/kg)	ESP (%)
10	135	215	55	27.6	0.7	<1	298	0.2
27	73	245	66	11.9	1.0	<1	324	0.3
17	77	200	72	5.4	1.8	<1	280	0.6
12	36	223	81	4.3	3.9	<1	313	1.2

Table 39.

Soil layer class	Sample	Horizon	Depth (m)	pH	E.C. (mS/m)	org. C (%)	CaCO ₃ (%)	San (%)	Silt (%)	Clay (%)
<i>Nundi</i>	1	A _{1p}	0.00-0.10	8.76	18.3	0.75	3.1	53	12	35
<i>Nundi</i>	2	A ₁₁	0.10-0.20	9.15	20.7	0.52	8.0	46	13	41
<i>Nundi</i>	3	A ₁₂	0.30-0.40	9.41	31.4	0.45	8.7	46	14	40
<i>Nundi</i>	4	A ₁₃	0.70-0.80	9.63	54.6	0.22	3.0	40	22	38
<i>Nundi</i>	5	A _{1v}	1.20-1.30	9.33	94.3	0.12	4.0	51	16	33
<i>Nundi</i>	6	B ₂	2.50-2.60	9.28	79.9	0.08	4.2	48	18	34

Cl ⁻ (mg/kg)	P (mg/kg)	Ca _{0.5} ⁺ (mmol/kg)	Mg _{0.5} ⁺ (mmol/kg)	K ⁺ (mmol/kg)	Na ⁺ (mmol/kg)	Al _{0.33} ⁺ (mmol/kg)	SCat (mmol/kg)	ESP (%)
16	10.3	214	118	7.3	12.6	<0.1	351	3.6
11	6.6	191	158	3.8	24.2	<0.1	377	6.4
19	1.7	121	180	3.7	52.6	<0.1	358	14.7
94	9.0	50	217	4.7	100.1	<0.1	371	26.9
843	15.1	54	154	5.7	80.3	<0.1	294	27.3
729	9.3	79	141	4.1	69.1	<0.1	293	23.5

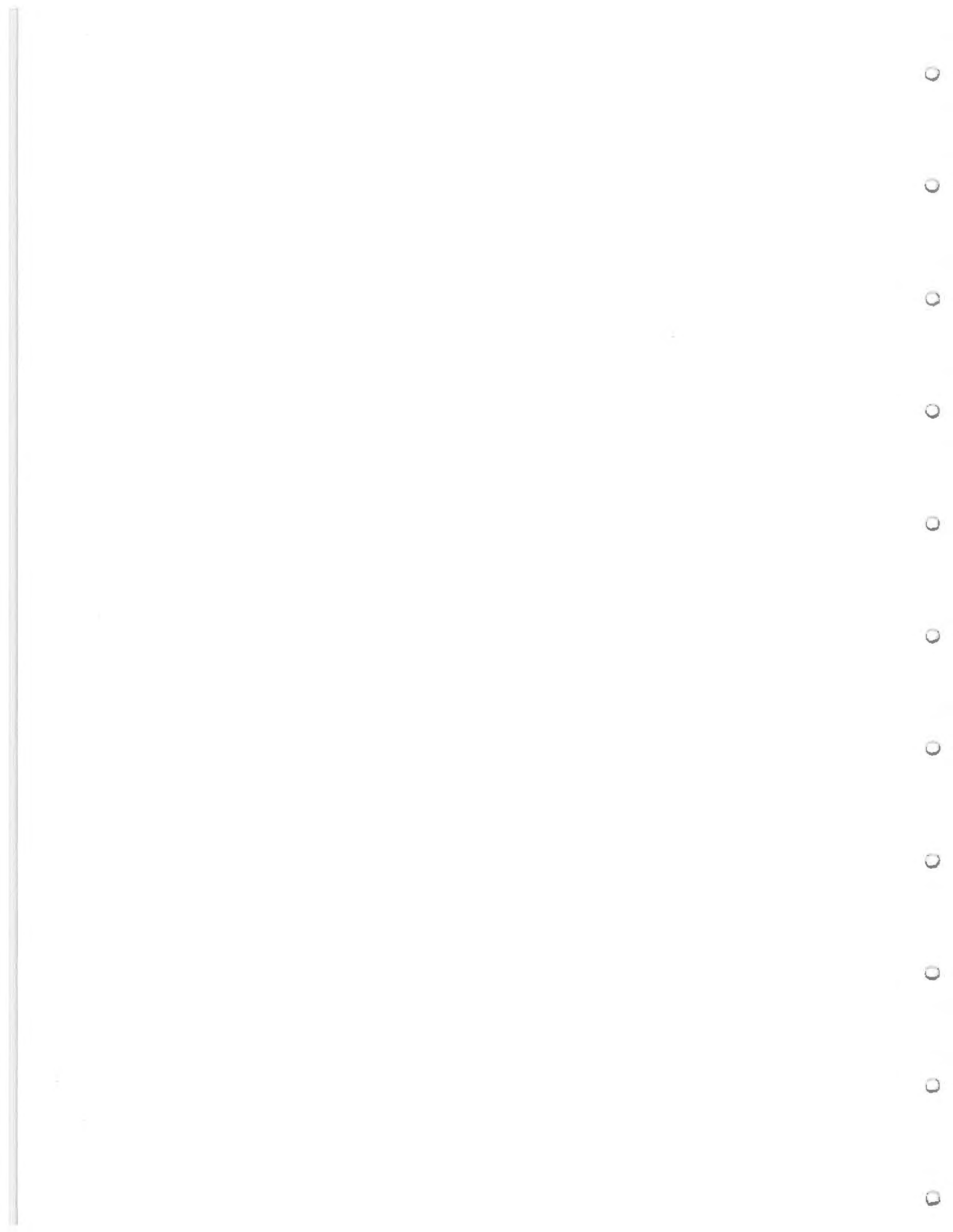


Table 41.

Terms	Definitions
Land use	A land use considered as a broad reconnaissance level (e.g. forestry, urban, dryland agriculture etc).
Land utilisation type	A land use described in a greater degree of detail than that of a major land use. For example bio-physical requirements. Preparation of land utilization specifications prior to field survey guides data collection, mapping and analysis.
Land characteristic	An attribute of land that can be measured or estimated.
Land quality	A complex attribute of land which acts in a manner distinct from the actions of other land qualities in its influence on the suitability of land for a specific use (e.g. moisture availability etc.). Land qualities take into account interactions between relevant land characteristics.
Land Suitability	The fitness of land for specified kinds of land use.

Table 42.

Suitability class	Accumulated Limitation Score
S1	<5
S2	5-10
S3	11-27
N	>27

Table 43.

GEOMORPHOLOGY AND GEOLOGY (WARD, IN PREP)	SOIL UNIT (WARD, IN PREP)	SOIL PROFILE CLASSES
ERODED LANDSCAPE	TARLEE CLARENDON MONTANA BALD HILL MOONBILL KILLARNEY MURRUMBILLA COOYONG WATSON	KEERA - WOODLANDS GREEN TIMBERS COWIMANGHIAH DOYLE YERI & BELBOWRIE
DUST MANTLED PLAINS	OAKVALE YARRIE MUCKABINYA GOMMEL MERIAH ROUND SWAMP BOHENA	EXTRAGRADES FROM SUIAWWRC BELBOWRIE - WOOLANGABBA BELAR WAUGAN -
ALLUVIAL PLAINS	NAMOI SPRING CREEK GALATHERA PIAN QUEERBRI BOBBIWAA	- MANAMOI MANAMOI BELAR BELAR & YERI VARIOUS VARIOUS