

Report on the soil zoological expeditions to Ecuador and Colombia between 1986 and 1993

I. List of localities and habitats of “Berlese” samples

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Abstract. Complete lists of the sampling localities and habitats of the Hungarian soil zoological expeditions to Ecuador and Colombia between 1986 and 1993 are presented. The lists are organized according to the expedition’s dates and apart from the locality some data on the biotopes and sampled substrates are also given.

INTRODUCTION

Between 1986 and 1993 six Hungarian soil zoological expeditions collected earthworms and soil mesofauna samples (“Berlese” samples of different substrates like moss, litter, soil etc.) in Ecuador and Colombia. The participants were in 1986, 1987, 1989 András Zicsi and the late Imre Loksa; in 1988, 1990, 1993 András Zicsi and Csaba Csuzdi. These researches were financially supported by the Hungarian Academy of Sciences. We also enjoyed local assistance from the Pontificia Universidad Católica del Ecuador, Quito, and the Universidad Nacional de Colombia, Palmira.

The expeditions took place during the rainy season, mainly in April and May, and covered most of the Ecuador, from the Colombian to the Peruvian borders, with the exception of some regions in the South-East (Oriente) and the Pacific Coast. Our collectings in Colombia focused on the Southern part, mainly the Cauca Valley.

Detailed results of the earthworm collections have yet been presented (Zicsi, 2007); herewith we summarize the Berlese samples’ localities so as to facilitate the further work on these materials. The lists are organized according to the expedition’s dates and codes used.

LIST OF LOCALITIES AND HABITATS

Ecuador 1986

- Ecu. Berl. 1.** – Between Quito and Nono (Prov. Pichincha), 8 km to Nono, 3280 m. – 4. II. 1986. – *Wet grass from the banks of a creek.*
- Ecu. Berl. 2.** – *Moss from shrubs at the entrance of a gorge hollowed out by a creek.*
- Ecu. Berl. 3.** – *Moss from the vertical walls of the gorge.*
- Ecu. Berl. 4.** – *Moss from the stems of shrubs at the gorge entrance.*
- Ecu. Berl. 5.** – *Detritus from fern stems from about 30 m above the water level of the creek.*
- Ecu. Berl. 6.** – *Moss from stems of shrubs from about 30 m above creek level.*
- Ecu. Berl. 7.** – *Detritus from below shrubs about 30 m above the creek.*
- Ecu. Berl. 8.** Riverbanks of Rio Alamo, 6 km leaving Nono, 2250 m. – 4. II. 1986. – *Moss from a tree stump on the riverbank.*
- Ecu. Berl. 9.** – *Moss and fern stems from riverside rock.*
- Ecu. Berl. 10.** – *Forest litter and soil from 10 m above the water level of the river.*
- Ecu. Berl. 11.** – *Moss hanging from shrubs and tree branches, from about 10 m above the river.*
- Ecu. Berl. 12.** – *Moss from tree stems, from about 10 m above the river.*
- Ecu. Berl. 13.** – *Horsetail and moss from forest edge, about 50 m above the river.*
- Ecu. Berl. 14.** – *Moss hanging from rock at a small waterfall, about 50 m above the river.*

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- Ecu. Berl. 15.** – Moss and scale-moss from tree stem, about 60 m above the river.
- Ecu. Berl. 16.** Riverbank of Rio Alamo, 3 km leaving Nono, 2750 m. – 4. II. 1986. – Litter and soil from forest patch.
- Ecu. Berl. 17.** – Debris of decomposing tree stump and moss from near the riverbank.
- Ecu. Berl. 18.** – Grass of grazed pasture, with much couch-grass.
- Ecu. Berl. 19.** Paschocha National Park, 2800-2850 m. – 6. II. 1986. – Scale-moss hanging from vertical bank of a creek, 3 m above water level.
- Ecu. Berl. 20.** – Litter of dense creeping reed and soil from the bank of the creek (light scarcely at all).
- Ecu. Berl. 21.** – Rock-trough filled with water above creek level, moss hanging from the wall above the trough.
- Ecu. Berl. 22.** – Hillside 150 m above the creek (3000 m); fern stems from shrubby secondary forest.
- Ecu. Berl. 23.** – Mossy litter and soil from below ferns in the shrubby secondary forest.
- Ecu. Berl. 24.** – Sclerophyllous litter and soil of the shrubby secondary forest.
- Ecu. Berl. 25.** – Moss and soil from below closed shrubs of the shrubby secondary forest.
- Ecu. Berl. 26.** – Moss and soil from a small clearing of the shrubby secondary forest.
- Ecu. Berl. 27.** – Cattle pasture, detritus and soil from a fresh grass patch.
- Ecu. Berl. 28.** – Cattle pasture, detritus and soil of relatively dry grass.
- Ecu. Berl. 29.** – End of the fenced part of the park with a small creek. Wet litter of creeping reed growing along the creek.
- Ecu. Berl. 30.** – Wet moss cover of stones lying in the creek.
- Ecu. Berl. 31.** – Moss hanging from tree branches overshadowing the creek.
- Ecu. Berl. 32.** – Thick moss and soil from almost vertical wall.
- Ecu. Berl. 33.** – Litter and soil of very old reeds, about 20 m above the creek.
- Ecu. Berl. 34.** – Litter and soil from below *Rubus* shrubs on a pasture, about 50 m above the creek.
- Ecu. Berl. 35.** Naranhito (Prov. Cotopaxi), on the way to San Francisco de las Pampas, cca 2200 m. – 9. II. 1986. – Forest patch, litter and soil.
- Ecu. Berl. 36.** – Debris and moss cover of decomposing tree stump.
- Ecu. Berl. 37.** – Moss hanging from tree branches.
- Ecu. Berl. 38.** – 1.5 km in the direction of Toachi. Forest patch with many palm trees. Litter and soil.
- Ecu. Berl. 39.** – Debris and moss cover of decomposing tree stump.
- Ecu. Berl. 40.** – Moss from tree stems.
- Ecu. Berl. 41.** Galapagos de las Pampas (Prov. Cotopaxi), on the way to San Francisco de las Pampas, cca 2200 m. – 9. II. 1986. – Wet litter and soil from the bank of a hollow of a creek.
- Ecu. Berl. 42.** – Moss from rock, moistened continuously by a small spring.
- Ecu. Berl. 43.** San Francisco de las Pampas (Prov. Cotopaxi), cca 2300 m. – 10. II. 1986. – Litter and soil from small forest patch among cultivated fields.
- Ecu. Berl. 44.** – Moss hanging from the tree stems.
- Ecu. Berl. 45.** – Epiphyllous moss of palm leaves.
- Ecu. Berl. 46.** – Litter and soil from maize field near the forest patch (last year's fallow).
- Ecu. Berl. 47.** – Soil and detritus of secondary vegetation from the fallow.
- Ecu. Berl. 48.** – Thick moss carpet of the fallow.
- Ecu. Berl. 49.** About 4 km from San Francisco de las Pampas in the direction of Toachi. (Prov. Cotopaxi), 2200 m. – 10. II. 1986. – Litter and soil of the forest patch on the plateau.
- Ecu. Berl. 50.** – Moss hanging from tree stems and braches in the flat forest patch.
- Ecu. Berl. 51.** – Moulder from below the bark of cut tree trunk, in the flat forest patch.
- Ecu. Berl. 52.** – Litter and soil from forest on steep hillside (inclinatio about 50°).
- Ecu. Berl. 53.** – Moss hanging from branches and detritus of *Bromelia* from steep hillside forest.
- Ecu. Berl. 54.** – Bark and moss from tree trunk lying on flat, clear-cut area.
- Ecu. Berl. 55.** – Grass detritus and soil from flat, clear-cut area.
- Ecu. Berl. 56.** Large waterfall near Toachi (Prov. Pichincha), 2000 m. – 10. II. 1986. – Litter and soil from shrubby forest bordering the waterfall.
- Ecu. Berl. 57.** – Wet moss from rock walls beside the waterfall.
- Ecu. Berl. 58.** – Somewhat drier moss and soil from rock walls, farther from the waterfall.
- Ecu. Berl. 59.** – Decomposing palm leaves, somewhat farther from the waterfall.
- Ecu. Berl. 60.** – Decomposing tree trunk at the foot of rock wall, somewhat farther from the waterfall.
- Ecu. Berl. 61.** – Wet moss from below the waterfall.
- Ecu. Berl. 62.** – Wet litter, moss and roots from beside the foot of the waterfall.
- Ecu. Berl. 63.** Pomasqui (Prov. Pichincha), cca 2600 m. – 12. II. 1986. – Eucalyptus forest, litter and detritus of sparse grass.
- Ecu. Berl. 64.** Pululagua crater and its surroundings, „Midad del Mundo” (Prov. Pichincha). – 12. II. 1986. – Shrubs and ferns on the sides of the crater, litter and soil.

- Ecu. Berl. 65.** – Moss from below of shrubs growing on the sides of the crater.
- Ecu. Berl. 66.** – Grass stems and moss from the sides of the crater.
- Ecu. Berl. 67.** – Eroded hollow in the direction of Midad del Mundo, moss from under bushes growing on the sides of the hollow.
- Ecu. Berl. 68.** – Litter and soil from below the bushes.
- Ecu. Berl. 69.** – Litter and soil from below shrubs on the slopes of another eroded hollow.
- Ecu. Berl. 70.** – Moss from the stems of trees and shrubs on the slopes of this eroded hollow.
- Ecu. Berl. 71.** – Litter and soil from under scattered shrubs on flat area between the eroded hollows.
- Ecu. Berl. 72.** – Litter and soil from below shrubs, on steep walls of an eroded gully.
- Ecu. Berl. 73.** Towards Calacali (Prov. Pichincha). – 12. II. 1986. – Detritus from below thorny vegetation.
- Ecu. Berl. 74.** – Litter and soil from below planted *Acacia* shrubs.
- Ecu. Berl. 75.** Cosanga (Las Caucheras) (Prov. Napo), 2100 m. – 13. II. 1986. – Relict fragment of primary forest. Litter of large, sclerophyllous trees and soil.
- Ecu. Berl. 76.** – Moss hanging from stems of old trees in relict fragment of primary forest.
- Ecu. Berl. 77.** – Litter, mostly of creeping reed, and soil from the edges of the primary forest.
- Ecu. Berl. 78.** – Grass detritus and soil from clear-cut area.
- Ecu. Berl. 79.** – Decomposing debris and moss cover of tree trunk lying on the clear-cut area.
- Ecu. Berl. 80.** Puerto Misahualli (Prov. Napo), 250 m. – 14. II. 1986 – Litter and soil from secondary forest.
- Ecu. Berl. 81.** – Soil from a large rock (there are huge boulders in the forest).
- Ecu. Berl. 82.** – Moss from the large rock.
- Ecu. Berl. 83.** – Debris of decomposing tree trunk and moss in secondary forest.
- Ecu. Berl. 84.** – About 50m above the level of Rio Napo (300m a.s.l.). Litter and soil of secondary forest.
- Ecu. Berl. 85.** – 50m above the level of Rio Napo, pasture with scattered trees, litter and soil.
- Ecu. Berl. 86.** – 50m above the level of Rio Napo, decomposing leaves of palm trees.
- Ecu. Berl. 87.** In the direction of Mirador, a nameless little streamlet of Rio Napo. – 14. II. 1986. – Litter and soil from forest bordering the streamlet.
- Ecu. Berl. 88.** – Moss from a fallen tree.
- Ecu. Berl. 89.** – Wet moss from the side of a little spring.
- Ecu. Berl. 90.** Puerto Napo (Prov. Napo). 14. II. 1986. – Litter and soil from patch along a temporary creek.
- Ecu. Berl. 91.** – Moss from tree stems in the creek side forest patch.
- Ecu. Berl. 92.** Near Santa Clara (Prov. Pastaza). – 14. II. 1986. – Litter and soil from primary forest patch.
- Ecu. Berl. 93.** – Debris and moss of decomposing tree trunk in the primary forest patch.
- Ecu. Berl. 94.** – Detritus amassed by the floods of a small creek.
- Ecu. Berl. 95.** – Soil and detritus of grass, after clear-cutting.
- Ecu. Berl. 96.** Teniente. Hugo Ortiz (Prov. Pastaza). – 14. II. 1986. – Litter and soil of primary forest patch.
- Ecu. Berl. 97.** – Moss hanging from trees of the primary forest patch.
- Ecu. Berl. 98.** – Soil and detritus of high grass (of the forest edge).
- Ecu. Berl. 99.** Between Puyo and Shell (Prov. Pastaza). – 15. II. 1986. – Forest fragment on steep hillside (970 m a.s.l.), litter and soil.
- Ecu. Berl. 100.** – Moss from tree stems in the forest fragment.
- Ecu. Berl. 101.** – Detritus of high grass and soil.
- Ecu. Berl. 102.** Between Rio Negro and Rio Verde (Prov. Tungurahua), 1270 m. – 15. II. 1986. – Litter and soil from steep hillside forest patch bordering a creek.
- Ecu. Berl. 103.** – Moss from rocks in the creek side forest patch.
- Ecu. Berl. 104.** – Stony hillside secondary forest clearing, tussocks.
- Ecu. Berl. 105.** Near to Baños (Prov. Tungurahua). – 15. II. 1986. – Very dry area. Litter and soil from below shrubs.
- Ecu. Berl. 106.** – Tussocks and detritus.
- Ecu. Berl. 107.** La Avelina (Prov. Cotopaxi), 2840 m. – 15. II. 1986. – Wet meadow (with *Juncus*-like plants), soil and detritus.
- Ecu. Berl. 108.** – Pasture, couch-grass.
- Ecu. Berl. 109.** – Litter and soil from below bushes along the banks of a water gully.
- Ecu. Berl. 110.** Atapul (Prov. Cotopaxi), between Pujili and Zumbagua, 3600–3800 m. – 16. II. 1986. – Paramo vegetation. Cushion plants.
- Ecu. Berl. 111.** – Soil and detritus of tussocks of the paramo vegetation.
- Ecu. Berl. 112.** – Litter, moss and soil from under bushes.
- Ecu. Berl. 113.** – Paramo vegetation, 4000–4200 m a.s.l. Small cushion plants.
- Ecu. Berl. 114.** – Cushion plants (taller ones).
- Ecu. Berl. 115.** On the way to Pujili, 3400 m. – 16. II. 1986. – Paramo vegetation. Roadside moss.
- Ecu. Berl. 116.** – Rocky gorge with waterfall. Moss from the side of the waterfall.
- Ecu. Berl. 117.** – Moss from rock wall, about 10 m from the waterfall.
- Ecu. Berl. 118.** – Cushion plants.

- Ecu. Berl. 119.** – Tussocks, detritus and soil.
- Ecu. Berl. 120.** On the way to Pujili, flat eroded depression, 3200 m. – 16. II. 1986. – *Wet meadow, detritus and soil.*
- Ecu. Berl. 121.** – Small cushion plants from beside streamlet.
- Ecu. Berl. 122.** – Tussocks, detritus and soil.
- Ecu. Berl. 123.** – On the way to Pujili, *Pinus radiata* forest plantation (about 40 years old), 2800 m. – 16. II. 1986. – *Mossy litter and soil from below trees.*
- Ecu. Berl. 124.** – Tussocks and coniferous litter of sparse forest stand.
- Ecu. Berl. 125.** – Cushion plants from forest clearing.
- Ecu. Berl. 126.** 8km leaving Pifo (Prov. Pichincha), 2800 m. – 18. II. 1986. – *Deep hollow (cca 50 m) of temporary creek. Soaking wet moss.*
- Ecu. Berl. 127.** – Soil and litter from below bushes of the hollow.
- Ecu. Berl. 128.** – Soil and litter from under dwarf shrubs in the upper third of the hollow.
- Ecu. Berl. 129.** – Soil and litter from below bushes growing above the max. flood level of the hollow.
- Ecu. Berl. 130.** – Moss from the ground, upper third of the hollow.
- Ecu. Berl. 131.** Psluguillo, about 20 km leaving Pifo (Prov. Pichincha), 3600m. – 18. II. 18986. – *Canyon of a permanent creek. Moss and detritus from trees, about 5m above the level of the creek.*
- Ecu. Berl. 132.** – Moss from stones, on the level of the creek.
- Ecu. Berl. 133.** – Litter and soil from below shrubs bordering the creek.
- Ecu. Berl. 134.** – Moss and detritus from bushes and trees along the creek.
- Ecu. Berl. 135.** – Moss from rocks, cca 30 m above the creek level.
- Ecu. Berl. 136.** 6 km leaving Psluguillo (Prov. Pichincha), 3900 m. – 18. II. 1986. – *Wet cushion plants from the flat area as a basin surrounded by heights.*
- Ecu. Berl. 137.** – Litter and soil from bushes at the foot of rocks.
- Ecu. Berl. 138.** – Moss from decomposing tree trunk, at the foot of rocks.
- Ecu. Berl. 139.** – Moss from tree stems, some 50 m higher.
- Ecu. Berl. 140.** – Litter and soil from below the trees.
- Ecu. Berl. 141.** – Moss and soil.
- Ecu. Berl. 142.** – Cushion plants.
- Ecu. Berl. 143.** – Tussocks and detritus.
- Ecu. Berl. 144.** – Moss and cushion plants.
- Ecu. Berl. 145.** Near Psluguillo (in the direction of Pifo), 3400 m. – 18. II. 1986. – *Dry, paper-like bark of trees bordering a stream.*
- Ecu. Berl. 146.** – Scarcely moist moss, from 5 m above the stream level.
- Ecu. Berl. 147.** – Soaking wet cushion plants from beside a streamlet.
- Ecu. Berl. 148.** – Moss and other plants growing on wet soil, from stream level.
- Ecu. Berl. 149.** – Detritus of sedge-like plants and wet soil from the side of a streamlet.
- Ecu. Berl. 150.** Near Psluguillo (in the direction of Pifo), 3200 m. – 18. II. 1986. – *Creekside moss, from the creek level.*
- Ecu. Berl. 151.** – Litter and soil from below shrubs bordering the creek.
- Ecu. Berl. 152.** – Cushion plants from near the creekside.
- Ecu. Berl. 153.** – Moss from decomposing tree trunk, near the creekside.
- Ecu. Berl. 154.** Between Tandapi and Toachi, 15 km to Toachi, stream confluent with Rio Pilatión, 2650 m. – 19. II. 1986. – *Soaking wet moss from the stream level.*
- Ecu. Berl. 155.** – Litter and soil from below bushes, growing on stream level.
- Ecu. Berl. 156.** – Litter and soil from below bushes, growing cca 30m above the stream level.
- Ecu. Berl. 157.** – Moss and debris of decomposing tree, 30m above stream level.
- Ecu. Berl. 158.** – Soil and decomposing *Bromelia* leaves, from steep devastated area.
- Ecu. Berl. 159.** – Moss from rocks on the steep devastated area.
- Ecu. Berl. 160.** – Somewhat farther from the stream, forest patch without reeds. Litter and soil.
- Ecu. Berl. 161.** – Litter and soil from forest patch with reeds.
- Ecu. Berl. 162.** – Forest patch, moss and soil from rocks.
- Ecu. Berl. 163.** – Forest patch, epiphyllous moss.
- Ecu. Berl. 164.** Near Toachi, at junction the old highway of Quito, about 50 m above the level of Rio Pilatión. – 19. II. 1986. – *Shrubby forest patch, 1200 m, litter and soil.*
- Ecu. Berl. 165.** – Grass cover succeeding clear-cutting.
- Ecu. Berl. 166.** – Moss from the steep roadside.
- Ecu. Berl. 167.** Santo Domingo de los Colorados (Prov. Pichincha). – 20. II. 1986. – *Litter and soil from forest patch.*
- Ecu. Berl. 168.** – Grass, succeeding clear-cutting.
- Ecu. Berl. 169.** 17 km from Santo Domingo de los Colorados, in the direction of Quinde, 350 m. – 20. II. 1986. – *Plantation of palma africana. Decomposing palm-trunk.*
- Ecu. Berl. 170.** – Moss and small plants from live palm stems.
- Ecu. Berl. 171.** 15 km from Puerto Quito (Prov. Pichincha). – 20. II. 1986. – *Litter and soil from forest patch.*
- Ecu. Berl. 172.** – Decomposing tree trunk debris.
- Ecu. Berl. 173.** Puerto Quito (Prov. Pichincha). – 20. II. 1986. – *Moss from riverside (May be inundated by floods).*

- Ecu. Berl. 174.** – Sparse moss from riverside rock, frequently inundated.
- Ecu. Berl. 175.** – Moss from high, riverside wall, above inundation area.
- Ecu. Berl. 176.** Leaving Pto. Quito (in the direction of Saloya). – 20. II. 1986. – Soil and litter from a forest patch in a steep gully.
- Ecu. Berl. 177.** – Debris of decomposing tree.
- Ecu. Berl. 178.** Saloya (Prov. Pichincha), 1450 m. – 20. II. 1986. – Relict fragment of primary forest, litter and soil.
- Ecu. Berl. 179.** – Moss from tree stems in the primary forest.
- Ecu. Berl. 180.** – Debris of decomposing tree stump.
- Ecu. Berl. 181.** – Litter and soil from forest edge with *Banana* plants.
- Ecu. Berl. 182.** Pululagua (Prov. Pichincha). – 21. II. 1986. – Big excrement heaps of earthworms.
- Ecu. Berl. 183.** Ibarra (Prov. Imbabura). – 22. II. 1986. – Soil and litter from below spiny thicket of shrubs on a plateau above the stream.
- Ecu. Berl. 184.** – Pasture with couch-grass, on the stream level.
- Ecu. Berl. 185.** – Detritus of a bulrush (*Typha*) patch.
- Ecu. Berl. 186.** – Soil, litter and plants hanging from high streamside wall.
- Ecu. Berl. 187.** Cotacachi (Prov. Imbabura), on the banks of Rio Ambi. – 22. II. 1986. – Pasture with couch-grass.
- Ecu. Berl. 188.** – Soil and detritus of reed.
- Ecu. Berl. 189.** – Soil and litter from below bushes.
- Ecu. Berl. 190.** – Palenque (Prov. Los Rios), „Centro Científica Rio Palenque”, 220 m. – 21. II. 1986. – leg. Tjitte de Vries. – Soil and litter.
- Ecu. Berl. 191.** La Merced (Prov. Pichincha), near the settlement. – 25. II. 1986. – Moss from below low bushes on devastated hills.
- Ecu. Berl. 192.** – Soil and litter from below taller shrubs.
- Ecu. Berl. 193.** – Tussocks from rock clefts.
- Ecu. Berl. 194.** – *Nostoc* stems from a shallow depression of a rock.
- Ecu. Berl. 195.** – Grass detritus and soil.
- Ecu. Berl. 196.** – Litter and soil from below bushes growing on the steep walls of a small creek hollow.
- Ecu. Berl. 197.** – San Rafael (Prov. Pichincha). – 25. II. 1986. – Soil and litter from below shrubs, cca 10m above the river level.
- Ecu. Berl. 198.** – Moss from below bushes.
- Ecu. Berl. 199.** – Moist moss from a quarry.
- Ecu. Berl. 200.** – Cotopaxi National Park (Prov. Cotopaxi). – 26. II. 1986. – Paramo, 4200 m a.s.l., cushion plants.
- Ecu. Berl. 201.** – Tussocks and their detritus.
- Ecu. Berl. 202.** – Mossy detritus from below shrubs.
- Ecu. Berl. 203.** – Greybeard lichen from bushes.
- Ecu. Berl. 204.** – Paramo, 4000 m, moss from the banks of a deep water gully.
- Ecu. Berl. 205.** – Soil and litter of dwarf shrubs.
- Ecu. Berl. 206.** – Moss from a steep slope.
- Ecu. Berl. 207.** – Lichens from a grey lichen meadow.
- Ecu. Berl. 208.** – Soil from below lichens.
- Ecu. Berl. 209.** – Thick grey lichen cover from stones.
- Ecu. Berl. 210.** – 3900 m, most probably burnt area. Sparse cushion vegetation.
- Ecu. Berl. 211.** – Sparse moss and soil.
- Ecu. Berl. 212.** Cotopaxi National Park (Prov. Cotopaxi). Laguna del Limpio, 3850 m a.s.l. – 26. II. 1986. – Wet vegetation and soil from immediate vicinity of water surface.
- Ecu. Berl. 213.** – Relatively dry vegetation and soil from somewhat farther.
- Ecu. Berl. 214.** – Plants and soil from depressions temporarily inundated.
- Ecu. Berl. 215.** – Laguna del Limpio, lichens, tussocks and soil from somewhat farther from the water surface.
- Ecu. Berl. 216.** – Paramo, 3750 m a.s.l., moss from shrubs.
- Ecu. Berl. 217.** – Moss, litter and soil from below bushes.
- Ecu. Berl. 218.** – Tussocks from near the stream.
- Ecu. Berl. 219.** – Cushion plants from near the stream.
- Ecu. Berl. 220.** Cotopaxi National Park (Prov. Cotopaxi). Plantation of *Pinus radiata*, 3750 m. – 26. II. 1986. – Thin forest stand, cushion plants from a clearing.
- Ecu. Berl. 221.** – Soil, detritus and tussocks.
- Ecu. Berl. 222.** – Large *Boletus* mushrooms.
- Ecu. Berl. 223.** – Closed forest stand, mossy soil and litter.
- Ecu. Berl. 224.** – Dried out big tussocks from closed forest stand.
- Ecu. Berl. 225.** – Decomposing tree branches on the ground of closed forest stand.

Ecuador 1987

- Ecu. Berl. 1.** Finca Los Cypresses, near La Merced (Prov. Pichincha), 2800 m. – 1. IV. 1987. – Moss from the vertical wall of a gorge in a creek valley.
- Ecu. Berl. 2.** – Fern stems and soil.
- Ecu. Berl. 3.** – Plant roots and soil from below *Eucalyptus* trees on a flat area.
- Ecu. Berl. 4.** – Soil and litter from below old, planted *Cupressus* trees.
- Ecu. Berl. 5.** – Moss from below stems of old, planted *Cupressus* trees.
- Ecu. Berl. 6.** Quito S. el Pintado (Prov. Pichincha), 2800 m. – 1. IV. 1987. – Soil and litter from below shrubs growing on the sides of a deep water gully.
- Ecu. Berl. 7.** – Moss and plant detritus from sides of a deep water gully.
- Ecu. Berl. 8.** – Flat, moist area above the water gully. Roots of couch-grass and soil, 0-5 cm depth.

- Ecu. Berl. 9.** – Soil from the *smae* site, 10-20 cm depth.
- Ecu. Berl. 10.** – Devastated area; soil and litter from below shrubs growing on the edge of a small gorge.
- Ecu. Berl. 11.** Pilahuin (Prov. Tungurahua), in the environs, 2900 m. – 2. IV. 1987. – Steep slope of small hill left out from agricultural cultivation. – Soil and detritus of sparse vegetation.
- Ecu. Berl. 12.**– 3100 m. Paramo vegetation. Detritus and roots of grass tussocks.
- Ecu. Berl. 13.** – Cushion-plants.
- Ecu. Berl. 14.** – Moss and soil from steep rock wall.
- Ecu. Berl. 15.** Pilahuin – Arenales de Chimborazo (Prov. Tungurahua), 3200 m. – 2. IV. 1987. – Paramo vegetation, cushion-plants.
- Ecu. Berl. 16.** – *Pinus radiata* forest, planted after Paramo vegetation.
- Ecu. Berl. 17.** Arenales de Chimborazo, Hacienda Cununyaacu (Prov. Tungurahua), 3600 m. – 2. IV. 1987. – Paramo vegetation; detritus of grass and cushion-plants of grazed area.
- Ecu. Berl. 18.**– San José de Chimbo, near to the settlement (Prov. Bolivar), 2000 m. – 3. IV. 1987. – Soil and litter from below shrubs.
- Ecu. Berl. 19.** – Moss from rocks.
- Ecu. Berl. 20.** Cashca Totoras (prov. Bolivar), 3000 m. – 3. IV. 1987. – Rainforest; soil and litter from below thick shrubs.
- Ecu. Berl. 21.** – Rainforest; moss from below shrubs (scarcely any light).
- Ecu. Berl. 22.** – Rainforest; moss from tree stems.
- Ecu. Berl. 23.** – Rainforest; soil and decomposing leaves of sclerophyllous trees.
- Ecu. Berl. 24.** – Rainforest; dead *Bromelia*-stems from trees.
- Ecu. Berl. 25.** – Grass succeeding cut forest.
- Ecu. Berl. 26.** – Soil and litter from below bushes, grown on the forest clearing.
- Ecu. Berl. 27.** Chimborazo W. Cruce del Arenal, 4200 m. – 3. IV. 1987. – Grey lichen covering the ground.
- Ecu. Berl. 28.** – Small flowered cushion-plants.
- Ecu. Berl. 29.** – Soil and litter from below dwarf shrubs.
- Ecu. Berl. 30.** – Grey lichen and plant detritus from below dwarf shrubs.
- Ecu. Berl. 31.** 5 km SE, 4300 m. – 3. IV. 1987. – Soil and litter from below dwarf bushes.
- Ecu. Berl. 32.** – Cushions of small flowered cushion-plant.
- Ecu. Berl. 33.** – Cushions of big flowered cushion-plant.
- Ecu. Berl. 34.** 8 km SE, 4200 m. – 3. IV. 1987. – Lichens from grey lichen field of more than 100 m² extent.
- Ecu. Berl. 35.** – Detritus of dead tussocks.
- Ecu. Berl. 36.** Chimborazo SW, Loma Yanausha, 4000 m. – 3. IV. 1987. – Cushion-plants from grazed area.
- Ecu. Berl. 37.** – Soil and moss from the sides of fan artificial water gully.
- Ecu. Berl. 38.** – Detritus of plants from the bottom of the artificial water gully (in continuous contact with the water).
- Ecu. Berl. 39.** In the environments of Juan de Velasco (Prov. Chimborazo), 3200 m. – 4. IV. 1987. – Soil and litter from shrubby forest fragmentum.
- Ecu. Berl. 40.** – Wet moss from a source, on the edge of a forest patch.
- Ecu. Berl. 41.** – Wet soil and plant detritus from beside the source, on the edge of the forest patch.
- Ecu. Berl. 42.** Mal Pote (Prov. Chimborazo), cca 2600 m. – 4. IV. 1987. – Rainforest patch in a creek valley; soil and litter.
- Ecu. Berl. 43.** – Soil and moss from the ground in the above rainforest patch.
- Ecu. Berl. 44.** – Moss from trees.
- Ecu. Berl. 45.** Between Mal Pote and Chagmala, cca 2400 m. – 5. IV. 1987. – Thick moss from the steep sides of the highway.
- Ecu. Berl. 46.** – Dry, decomposing leaves of *Bromelia*-stems, from the steep sides of the highway.
- Ecu. Berl. 47.** Mal Pote (Prov. Chimborazo), cca 2600 m. – 5. IV. 1987. – Soil and litter from an extensive but disturbed rainforest.
- Ecu. Berl. 48.** – Moss from trees in the above rainforest.
- Ecu. Berl. 49.** Rio Chimbo (Prov. Chimborazo), in the height of San Pablo, cca 2000 m. – 5. IV. 1987. – Soil and litter from a riverside forest.
- Ecu. Berl. 50.** – Moss from trees in the riverside forest.
- Ecu. Berl. 51.** In the environment of Juan de Velasco (Prov. Chimborazo), 2600 m. – 5. IV. 1987. – Soil and litter from disturbed, grazed forest patch.
- Ecu. Berl. 52.** Tandajapa (Prov. Pichincha), 2200 m. – 8. IV. 1987. – Soil and litter from rainforest of a creek valley.
- Ecu. Berl. 53.** – Moss from trees in the above rainforest.
- Ecu. Berl. 54.** – Moss from rock in the above rainforest.
- Ecu. Berl. 55.** Between Tandajapa and Santa Rosa (Prov. Pichincha), 2000m. – 8. IV. 1987. – Soil and litter accumulated on the rock rim, in the rainforest of a creek valley.
- Ecu. Berl. 56.** – Moss and scarce soil from the rock wall in the above rainforest.
- Ecu. Berl. 57.** On the way from Tandajapa to Nono (Prov. Pichincha), 2500 m. – 8. IV. 1987. – Rainforest patch in the third creek valley; soil and litter.
- Ecu. Berl. 58.** – Moss from the ground in the above rainforest.
- Ecu. Berl. 59.** – Thick moss and detritus of *Orchidea*, from the steep sides of the highway.
- Ecu. Berl. 60.** Baeza (Prov. Napo), on the left banks of the Rio Papallacta, 2000 m. – 8. IV. 1987. – Old rainforest on a rocky mountain above the river. Soil and litter.
- Ecu. Berl. 61.** – Debris of lying, decomposing tree trunk in the above rainforest.
- Ecu. Berl. 62.** – Moss and soil interwoven with roots, from rocks in the above rainforest.

- Ecu. Berl. 63.** – Young rainforest on a mountain above the river; soil and litter.
- Ecu. Berl. 64.** – Moss from the ground in the above forest.
- Ecu. Berl. 65.** – Moss from the edges of the forest.
- Ecu. Berl. 66.** – Moss from the sides of *Carex*-like clumps on a wet, boggy area, with many small springs.
- Ecu. Berl. 67.** Between Bermejó and Cosanga (Prov. Napo), 2100 m. – 10. IV. 1987. – Moss and debris of dead trees in a thinned rainforest.
- Ecu. Berl. 68.** – Moss from below stems of live trees in the thinned rainforest.
- Ecu. Berl. 69.** – Soil and litter from below trees.
- Ecu. Berl. 70.** Cosanga, Rio Cosanga (Prov. Napo), 2000 m. – 10. IV. 1987. – Remnants of a riverside gallery forest.
- Ecu. Berl. 71.** – Debris of decomposing tree trunk and moss from the trunk in the riverside gallery forest.
- Ecu. Berl. 72.** – Moss from tree stems of the gallery forest.
- Ecu. Berl. 73.** – Moss and plant detritus from a wet, swampy area of forest cut.
- Ecu. Berl. 74.** Cosanga (Las Caucheras) (Prov. Napo), 2100 m. – 10. IV. 1987. – Formerly thinned but no burnt rainforest with creeping reeds; soil and litter.
- Ecu. Berl. 75.** – Moss from the foot of an old tree in the above rainforest.
- Ecu. Berl. 76.** – Moss hanging from the branches of trees in the above rainforest.
- Ecu. Berl. 77.** – Cut over area; debris of entirely decomposed roadside tree stump.
- Ecu. Berl. 78.** – Debris of lying, decomposing palm trunk.
- Ecu. Berl. 79.** – Debris of lying, decomposing tree trunks.
- Ecu. Berl. 80.** – Moss from lying, decomposing tree trunks.
- Ecu. Berl. 81.** Between Cosanga and Sarayacu (Prov. Napo), 1800 m. – 10. IV. 1987. – Moss hanging from interwoven twigs of shrubs in a gorge with water run.
- Ecu. Berl. 82.** – Litter from below bushes in a gorge with water run.
- Ecu. Berl. 83.** Rio Jondachi, somewhat after leaving Jondachi (Prov. Napo). – 10. IV. 1987. – Soil and litter from riverside forest.
- Ecu. Berl. 84.** – Soil, roots and scale-moss from rocks on the edge of the riverside forest.
- Ecu. Berl. 85.** Pusuno, on the left banks of Rio Pusuno, 300 m. – 11. IV. 1987. – Soil and litter of rainforest.
- Ecu. Berl. 86.** – Moss from tree stems in the rainforest.
- Ecu. Berl. 87.** – Moss from the steep side of the forest road.
- Ecu. Berl. 88.** – Soil and litter from young (natural) rainforest.
- Ecu. Berl. 89.** 4 km from Pusuno to Puerto Misahualli (Prov. Napo). – 11. IV. 1987. – Orange plantation, litter and soil.
- Ecu. Berl. 90.** – 10 km from Pusuno to Puerto Misahualli. – (Prov. Napo). – 11. IV. 1987. – Moss from stones lying in a stream.
- Ecu. Berl. 91.** – Soil and litter from the forest bordering the stream.
- Ecu. Berl. 92.** 5 km from Puerto Misahualli, towards Mirador (Prov. Napo). – 11. IV. 1987. – Rainforest in a deep gorge; soil and litter.
- Ecu. Berl. 93.** – Debris of mossy tree stump in the deep gorge.
- Ecu. Berl. 94.** Rio Anzu near Piatua (Prov. Pastaza). – 11. IV. 1987. – Soil and litter from riverside gallery forest.
- Ecu. Berl. 95.** – Moss hanging from trees, and debris of other plants, from the riverside gallery forest.
- Ecu. Berl. 96.** – Cut area, cca 150 m from the river. Soil and detritus of high grass.
- Ecu. Berl. 97.** Triunfo (Prov. Pastaza). – 12. IV. 1987. – Soil and litter from rainforest fragmentum.
- Ecu. Berl. 98.** – Debris and moss from decomposing, lying tree trunk.
- Ecu. Berl. 99.** – Moss from tree stems.
- Ecu. Berl. 100.** – Soil and detritus of grass growing on clear cut area.
- Ecu. Berl. 101.** 2 km from Triunfo, towards Pujo (Prov. Pastaza). – 12. IV. 1987. – Soil and litter from rainforest patch with big bamboos.
- Ecu. Berl. 102.** – Moss from trees in the above rainforest patch.
- Ecu. Berl. 103.** – Decomposing bamboo of the rainforest patch.
- Ecu. Berl. 104.** – Soil and detritus of grass growing on clear cut area.
- Ecu. Berl. 105.** Between Mera and Cashurcu (Prov. Pastaza). – 12. IV. 1987. – Rocky gorge with stream; soil and litter from below bushes.
- Ecu. Berl. 106.** – Moss from trees.
- Ecu. Berl. 107.** – Moss from rocks.
- Ecu. Berl. 108.** Pasochoa National Park. – 15. IV. 1987. – Old, dense creeping reed from about 50 cm above the stream level; Soil and litter (there was scarcely any light on the ground).
- Ecu. Berl. 109.** – Moss from the ground on the edges of the reeds.
- Ecu. Berl. 110.** – Deciduous trees and reed about 100 m above the stream level. Debris of composing tree stump and moss from the stump.
- Ecu. Berl. 111.** – Soil and litter from the same site.
- Ecu. Berl. 112.** – Soil and litter from the steep sides of the stream.
- Ecu. Berl. 113.** – Moss, scale-moss and sparse soil.
- Ecu. Berl. 114.** – Soil and litter from ferny, shrubby forest, about 50 m above the stream level.
- Ecu. Berl. 115.** – Forest skirts; soil and grass detritus from grazed meadow.
- Ecu. Berl. 116.** – Moss from steep sides of carriage-road.
- Ecu. Berl. 117.** Antisana volcano (Prov. Napo), along Rio Antisana, 4300 m. – 16. IV. 1987. – Paramo vegetation; moss and litter from below shrubs.

- Ecu. Berl. 118.** – Cushion-plants; cushion and soil.
- Ecu. Berl. 119.** – Old, decomposing cattle dung (among Paramo-grass).
- Ecu. Berl. 120.** – Small plants and moss from rocks.
- Ecu. Berl. 121.** – Once burnt area (Paramo); grass and mossy soil.
- Ecu. Berl. 122.** – Small plants and moss from rocks in the burnt area.
- Ecu. Berl. 123.** – Grey lichen meadow on a flat area; lichens and moss.
- Ecu. Berl. 124.** Antisana volcano (Prov. Napo), at the research-house, 4200 m. – 16. IV. 1987. – Soil and large cushion-plants on te stream side.
- Ecu. Berl. 125.** – Grass and mossy soil.
- Ecu. Berl. 126.** Antisana volcano, road leading W, downwards to Pintag, 3600 m. – 17. IV. 1987. – Paramo (not burnt); soil and detritus of tussocks.
- Ecu. Berl. 127.** – 3600 m. Paramo; cushion-plants.
- Ecu. Berl. 128.** – 3000 m. Soil and litter from below shrubs, about 50m above stream level.
- Ecu. Berl. 129.** – 3000 m. Moss from horizontal branches of live trees.
- Ecu. Berl. 130.** – 3000 m. Soil and litter from below stream-side bushes.
- Ecu. Berl. 131.** – 3000 m. Moss from rock; about 5m above the stream.
- Ecu. Berl. 132.** – 3000 m. Soil and plant detritus from grazed meadow, somewhat above the stream.
- Ecu. Berl. 133.** – 3000 m. Soil from 20-40 cm depth on the above grazed meadow.
- Ecu. Berl. 134.** – 3000 m. Soaking wet streamside soil and plants.
- Ecu. Berl. 135.** – 2900 m. Soil and litter from below bushes around a source.
- Ecu. Berl. 136.** – 2900 m. Moss and scale-moss.
- Ecu. Berl. 137.** Pichincha Aguagua volcano (Prov. Pichincha), 4600 m. – 19. IV. 1987. – Moss and cushion-plants.
- Ecu. Berl. 138.** – 4600 m. Lower, dead leaves of a cudweed-like plant.
- Ecu. Berl. 139.** – 4600 m. Live and dead parts of a big cushion-plant standing isolated.
- Ecu. Berl. 140.** – 4500 m. Moss and small plants from the ground.
- Ecu. Berl. 141.** – 4500 m. Mass of lower, dead leaves of a plant with violet coloured cluster-like flowers.
- Ecu. Berl. 142.** – 3800 m. Cushion-plants; live and dead parts of the cushions.
- Ecu. Berl. 143.** – 3800 m. Soil and plant detritus from the bottom of a temporary water gully.
- Ecu. Berl. 144.** – 3800 m. Soil and plant detritus from a deepening, in wich water is temporarily gathering.
- Ecu. Berl. 145.** – 3800 m. Secondary grazed area. Soil and detritus of tussocks.
- Ecu. Berl. 146.** – 3800 m. Paramo; soil and tussocks.
- Ecu. Berl. 147.** – 4400 m. Roots and soil from cushion-plants.
- Ecu. Berl. 148.** – 4400 m. Upper parts of cushion-plant.
- Ecu. Berl. 149.** – 4400 m. Paramo; moss and litter from below shrubs.
- Ecu. Berl. 150.** – 4400 m. Paramo; soil and detritus of tussocks.
- Ecu. Berl. 151.** – 4000 m. Soil and litter from below bushes on a rock rim os a rock wall of S exposure.
- Ecu. Berl. 152.** – Moss from ground below bushes.
- Ecu. Berl. 153.** – Soil and litter from the edge of the rock rim; grassy patch.
- Ecu. Berl. 154.** – Soil and moss from the edge of the rock rim.
- Ecu. Berl. 155.** – 3200 m. Soil and litter from below shrubs around the ruins of a house.
- Ecu. Berl. 156.** – Soil and plants from grazed meadow.
- Ecu. Berl. 157.** Quito W. outskirts of the town, 3000 m. – 19. IV. 1987. – Planted *Pinus radiata* forest, cca 60 years old.
- Ecu. Berl. 158.** Between Perucho and San José de Minas (Prov. Pichincha), about 4 km from Perucho. – 21. IV. 1987. – Soil and litter from secondary shrubby area (*Acacia*, *Eucalyptus*) on the streamside.
- Ecu. Berl. 159.** San José de Minas (Prov. Pichincha). – 21. IV. 1987. – Moist litter of shrubs along a small creek in otherwise dry area.
- Ecu. Berl. 160.** – Continuously moist, wet litter from beside small waterfall.
- Ecu. Berl. 161.** – Moist moss, from beside small creek.
- Ecu. Berl. 162.** 5 km from San José de Minas on the way to Otavalo. – 21. IV. 1987. – Soil and litter from streamside forest patch.
- Ecu. Berl. 163.** – Soil and litter from steep streamside.
- Ecu. Berl. 164.** – Moss from the ground of streamside forest patch.
- Ecu. Berl. 165.** – Hanging moss from a gorge, from about 10m above the stream level.
- Ecu. Berl. 166.** – Wet soil with scale-moss, from cca 10 m above the stream level.
- Ecu. Berl. 167.** – Wet soil and moss from beside source in a deep gorge, about 50 m above the stream level.
- Ecu. Berl. 168.** – Roots and detritus of ferns, from the walls of the deep. gorge.
- Ecu. Berl. 169.** – Moss from the walls of the deep gorge.
- Ecu. Berl. 170.** 10 km leaving San José de Minas, on the way to Otavalo. – 21. IV. 1987. – Thicket of bushes succeeding clear cut forest area, with small creek. Soil and litter.
- Ecu. Berl. 171.** – Soil and moss, in continuous contact with water.

- Ecu. Berl. 172.** – Moss and debris from decomposing tree stump.
- Ecu. Berl. 173.** – Soil, moss and horsetail (*Equisetum*) from rocks.
- Ecu. Berl. 174.** 12 km Leaving San José de Minas, on the way Otavalo. – 21. IV. 1987. – *Thinned rainforest; soil and litter.*
- Ecu. Berl. 175.** – Moss and lichens from trees.
- Ecu. Berl. 176.** 8 km to Otavalo (coming from San José de Minas) (Prov. Imbabura); *Rainforest patch on steep mountainside; soil and litter.*
- Ecu. Berl. 177.** – Moss from the ground.
- Ecu. Berl. 178.** 53 km from Otavalo, on the way to Selva Alegre (Prov. Imbabura). – 22. IV. 1987. – *Thinned rainforest; soil and litter.*
- Ecu. Berl. 179.** – *Decomposing tree stump interwoven with roots.*
- Ecu. Berl. 180.** – Moss from rocks.
- Ecu. Berl. 181.** – Soil and litter from forest skirts overgrown with creeping reed.
- Ecu. Berl. 182.** – Soil and detritus from secondary grassy area.
- Ecu. Berl. 183.** 47 km from Otavalo, on the way to Selva Alegre (Prov. Imbabura). – 22. IV. 1987. – *Only slightly thinned rainforest; soil and litter.*
- Ecu. Berl. 184.** – Debris and moss of decomposing tree stump.
- Ecu. Berl. 185.** – Moss from trees.
- Ecu. Berl. 186.** 32 km from Otavalo, on the way to Selva Alegre, 3700 m. – 22. IV. 1987. – *Soil and Litter from below bushes along a small creek.*
- Ecu. Berl. 187.** – Moss from the bushes along the small creek.
- Ecu. Berl. 188.** – Debris and moss of decomposing tree trunk.
- Ecu. Berl. 189.** – Soil and small plants of a small clearing among the bushes.
- Ecu. Berl. 190.** – Moss, in continuous contact with the water of the creek.
- Ecu. Berl. 191.** – Wet soil and detritus of a ferny area along the creek (on creek level).
- Ecu. Berl. 192.** 30 km from Otavalo, on the way to Selva Alegre, 3900 m. – 22. IV. 1987. – *Paramo vegetation; small plants from among tussocks.*
- Ecu. Berl. 193.** – Roots and detritus of tussocks.
- Ecu. Berl. 194.** – Moss and litter from below shrubs.
- Ecu. Berl. 195.** – Loose cushion-plants.
- Ecu. B. 3.** – Soil from 15 cm depth.
- Ecu. B. 4.** Between Quito and Santo Domingo (Prov. Pichincha). About 1km from the church. – 21. IV. 1988. – *Moss from the neighbourhood of a rapid.*
- Ecu. B. 5.** – Litter from the same site.
- Ecu. B. 6.** – Soil from 15 cm depth.
- Ecu. B. 7.** Below Olmedo (Prov. Pichincha), meadow with couch-grass. – 23. IV. 1988. – *Upper, grassy level.*
- Ecu. B. 8.** – Soil from 15cm depth.
- Ecu. B. 9.** Slope of the volcano Cayambe, about 4200 m a.s.l. (Prov. Pichincha). shrubby vegetation. – 23. IV. 1988. – *Moss.*
- Ecu. B. 10.** – *Grassy, upper level.*
- Ecu. B. 11.** – Soil from 15 cm depth.
- Ecu. B. 12.** Above the lagoon San Marcos (Prov. Pichincha). – 23. IV. 1988. – *Moss and leaves from branches lying on the ground.*
- Ecu. B. 13.** – Moss from the walls of a road-cut.
- Ecu. B. 14.** – Moss-cushion from the slope of the bank.
- Ecu. B. 15.** About 71 km from Quito to Santo Domingo (Prov. Pichincha). – 24. IV. 1988. – *Moss from lake-shore, leaving the waterfall.*
- Ecu. B. 16.** – Litter from the same site.
- Ecu. B. 17.** – Soil from 15 cm depth.
- Ecu. B. 18.** Chunchi, 7km approaching town (Prov. Chimborazo). – 25. IV. 1988. – *Moss.*
- Ecu. B. 19.** – Litter from the same spot.
- Ecu. B. 20.** 12 km to El Tambo (Prov. Cañar). – 25. IV. 1988. – *Litter from below shrubs.*
- Ecu. B. 21.** 26 km leaving Cuenca (Prov. Azuay). – 26. IV. 1988. – *On an access road, litter from below shrubs.*
- Ecu. B. 22.** – Grass from the smart site.
- Ecu. B. 23.** – Soil from 15 cm depth.
- Ecu. B. 24.** 52 km from Cuenca, on the road to Loja (Prov. Azuay). 4000 m a.s.l., plateau. – 26. IV. 1988. – *Sphagnum-moss.*
- Ecu. B. 25.** – Litter from the same place.
- Ecu. B. 26.** – Soil from 15 cm depth.
- Ecu. B. 27.** Leaving Saraguro, 175 km from Cuenca (Prov. Loja). – 26. IV. 1988. – *Moss.*
- Ecu. B. 28.** – Litter from the same collecting site.
- Ecu. B. 29.** – Soil from 15 cm depth.
- Ecu. B. 30.** 5 km leaving Loja, towards Vilcabamba (Prov. Loja). – 27. IV. 1988. – *Mixed litter, soil and grass*
- Ecu. B. 31.** 12 km leaving Loja, on the way to Vilcabamba (Prov. Loja). – 27. IV. 1988. – *Moss.*
- Ecu. B. 32.** – Litter on the same site.
- Ecu. B. 33.** – Soil from 15 cm depth.
- Ecu. B. 34.** 6 km leaving Yangana, to Zumba, valley of a creek (Prov. Loja). – 28. IV. 1988. – *Litter.*
- Ecu. B. 34/Ecu. B.** – Moss from the same place.

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- Ecu. B. 1.** Above Quito, 3200-3400 m a.s.l., 46 km leaving Quito to Santo Domingo (Prov. Pichincha). – 21. IV. 1988. – *Moss*
- Ecu. B. 2.** – Litter from the same site.

- Ecu. B. 35.** 35 km leaving Loja, on the way to Machala (2km before reaching Catamayo) (Prov. Loja). – 1. V. 1988. – Dry, shrubby area. Litter.
- Ecu. B. 36.** – *Tussocks on the same spot.*
- Ecu. B. 37.** 85 km from Loja, leaving Zambí, at the bridge (Prov. Loja). – 1. V. 1988. – *Moss.*
- Ecu. B. 38.** – *Litter from the same place.*
- Ecu. B. 39.** – *Soil from a depth of about 15 cm.*
- Ecu. B. 40.** 11 km leaving Santa Rosa, on the way to Loja (Prov. El Oro). – 2. V. 1988. – *Patch of primary forest; litter.*
- Ecu. B. 41.** – *Bromelias from the same forest patch.*
- Ecu. B. 42.** Leaving Pasaje, 54 km from Santa Rosa (Prov. El Oro). – 2. V. 1988. – *Tussocks and turf.*
- Ecu. B. 43.** – *Succulent dicotyledons from the same site.*
- Ecu. B. 44.** Leaving Pasaje, 64 km from Santa Rosa (Prov. El Oro). – 2. V. 1988. – *Dry area, tussocks.*
- Ecu. B. 45.** – *Soil from 15cm depth.*
- Ecu. B. 46.** 15 km leaving Santa Isabel (Prov. Azuay). Mountain slope. – 2. V. 1988. – *Moss.*
- Ecu. B. 47.** – *Litter from the same site.*
- Ecu. B. 48.** – *Soil from a depth of about 15 cm.*
- Ecu. B. 49.** Between Giron and Victoria de el Portete (Prov. Azuay). – 2. V. 1988. – *Litter.*
- Ecu. B. 50.** – *Grass from the same site.*
- Ecu. B. 51.** – *Soil 15 cm depth.*
- Ecu. B. 52.** Leaving Chordeleg, 39km from Cuenca (Prov. Azuay). – 3. V. 1988. – *Moss.*
- Ecu. B. 53.** – *Litter from the same collecting site.*
- Ecu. B. 54.** (Z/64) 2 km leaving Sigsig (Prov. Azuay). – 3. V. 1988. – *Moss from the slope of bank.*
- Ecu. B. 55.** – *Litter on the same place.*
- Ecu. B. 56.** Between El Tambo and Zhud, 84 km from Cuenca (Prov. Cañar). – 4. V. 1988. – *Moss.*
- Ecu. B. 57.** – *Litter on the same site.*
- Ecu. B. 58.** – *Soil from 15 cm depth.*
- Ecu. B. 59.** 52 km from Loja, on the way to Cuenca (Prov. Loja). – 30. IV. 1988. – *Soil from 15cm depth.*
- Ecu. B. 60.** Leaving Riobamba, near the village Mocha Pata (Prov. Tungurahua). – 4. V. 1988. – *Grassy pasture; lower soil layer.*
- Ecu. B. 61.** – *Upper soil layer from the same place.*
- Ecu. B. 62.** Above the lagoon San Marcos, on the slopes of the volcano Cayambe (Prov. Pichincha). – 6. V. 1988. – *Moss from trees.*
- Ecu. B. 63.** 79 km from Quito, leaving the church, a tan Indian dwelling (Prov. Pichincha). – 7. V. 1988. – *Bromelia.*
- Ecu. B. 64.** Leaving Borja, to Lago Agrio, cut primary forest patch (Prov. napo). – 9. V. 1988. – *Moss from trees.*
- Ecu. B. 65.** – *Litter from the same site.*
- Ecu. B. 66.** – *Tussocks.*
- Ecu. B. 67.** – *Woody debris.*
- Ecu. B. 68.** – *Bromelias.*
- Ecu. B. 69.** – *Soil from 15 cm depth.*
- Ecu. B. 70.** 3 km leaving Las Palmas, on the way to Lago Agrio (Prov. Napo). – 9. V. 1988. – *Hillside, moss-cushion.*
- Ecu. B. 71.** – *Litter on the same spot.*
- Ecu. B. 72.** (Z/86) On the way to Lago Agrio, near the bridge of Rio Marker (Prov. Napo). – 9. V. 1988. – *Moss.*
- Ecu. B. 73.** Primary forest patch, leaving San Vicente (Prov. Napo). – 10. V. 1988. – *Moss.*
- Ecu. B. 74.** – *Litter on the same site.*
- Ecu. B. 75.** – *Soil from 15 cm depth.*
- Ecu. B. 76.** Leaving Lago Agrio, 8 km towards Dureno (Prov. Napo). – 10. V. 1988. – *Patch of primary forest, litter.*
- Ecu. B. 77.** – *Cut forest patch on the same place; decomposing wood debris.*
- Ecu. B. 78.** (Z/87) 25 km leaving Lago Agrio (Prov. Napo). – 10. V. 1988. – *Litter of coffee plantation.*
- Ecu. B. 79.** – *Litter of nearby primary forest patch.*
- Ecu. B. 80.** – *Moss of nearby primary forest patch.*
- Ecu. B. 81.** (Z/88) Primary forest patch, leaving Dureno, on the riverside of Rio Aguatico (Prov. Napo). – 10. V. 1988. – *Litter.*
- Ecu. B. 82.** Primary forest patch at the second bridge, leaving Dureno (Prov. Napo). – 10. V. 1988. – *Litter.*
- Ecu. B. 83.** Primary forest patch, 2,5 km on access road, approaching Lago Agrio (Prov. Napo). – 10. V. 1988. – *Litter.*
- Ecu. B. 84.** 48 km leaving Lago Agrio, towards Quito (Prov. Napo). – 11. V. 1988. – *Moss of primary forest cut.*
- Ecu. B. 85.** – *Litter from the same site.*
- Ecu. B. 86.** – *Wood debris.*
- Ecu. B. 87.** Between Lago Agrio and Quito, 70 km from Lago Agrio (Prov. Napo). – 11. V. 1988. – *Primary forest patch.*
- Ecu. B. 88.** Between Lago Agrio and Quito, 80 km from Lago Agrio, (2 km approaching Reventador) (Prov. Napo). – 11. V. 1988. – *Moss of primary forest.*
- Ecu. B. 89.** – *Litter on the same spot.*
- Ecu. B. 90.** 1km leaving Reventador (Prov. Napo). – 11. V. 1988. – *Bromelias from cut primary forest.*
- Ecu. B. 91.** Above Papallacta, in about a distance of 7 km (Prov. Napo). – 11. V. 1988. – *Moss from a meadow.*
- Ecu. B. 92.** – *Litter from the same site.*
- Ecu. B. 93.** – *Soil from 15 cm depth.*
- Ecu. B. 94.** About 9 km above Papallacta (Prov. Napo). – 11. V. 1988. – *Litter of pachonal.*
- Ecu. B. 95.** Between Papallacta and Pifo, near the summit (Prov. Napo). – 11. V. 1988. – *Moss.*
- Ecu. B. 96.** Leaving El Chaupi, on the way to El Refugio finca (Prov. Pichincha). – 13. V. 1988. – *Moss.*

Ecu. B. 97. – *Litter from the same spot.*

Ecu. B. 98. Above El Chaupi on the slope of Illniza, paramo vegetation (Prov. Pichincha). – 13. V. 1988. – *Soil from 15cm depth.*

Ecu. B. 99. – *Cushion-plants from the same site.*

Ecu. B. 100. Some 2 km further higher on the slope of Illniza, on about 4400 m a.s.l. (Prov. Pichincha). – 13. V. 1988. – *Moss from the ground.*

Ecuador 1989

Ecu. B. 1. Before reaching Tinalandia, 550-60 m. a.s.l. (Prov. Pichincha). – 12. IV: 1989. – *Rainforest, moss from solitary tree.*

Ecu. B. 2. Between road-junction of Santo Domingo and Tinalandia, 550 m a.s.l. (Prov. Pichincha). – 12. IV. 1989. – *Withered palm-leaves.*

Ecu. B. 3. – *Moss from brookside big stones (inundated by floods).*

Ecu. B. 4. – *Litter and soil from under old standard tree (around it bamboo and bananas).*

Ecu. B. 5. Before reaching Tinalandia, 600 m a.s.l. (Prov. Pichincha). – 12. IV. 1989. – *Moss, plant-debris and roots from almost vertical soil-wall.*

Ecu. B. 6. – *Rainforest, steep break-down of about 70°, soil and litter.*

Ecu. B. 7. Leaving Alluriquin, 700 m. a.s.l. (Prov. Pichincha). – 12. IV. 1989. – *Rainforest, litter and soil.*

Ecu. B. 8. – *Bananas, roots and soil.*

Ecu. B. 9. – *Moss from stones.*

Ecu. B. 10. – *Moulding, lying tree trunk, mossy bark.*

Ecu. B. 11. – *Inner, mouldy part of the same trunk.*

Ecu. B. 12. 3 km before Toachi, 900 m. a.s.l. (Prov. Pichincha). – 12. IV. 1989. – *Steep wall beside waterfall, litter and soil.*

Ecu. B. 13. – *Moss and litter from fallen tree trunk.*

Ecu. B. 14. – *Moss and soil from a vertical wall.*

Ecu. B. 15. Pia Santa Rosa, near San Francisco, 2990 m. a.s.l. (Prov. Pichincha). – 13. IV. 1989. – *Couch-grass*

Ecu. B. 16. – *Soil of couch-grass, 10-20 cm depth.*

Ecu. B. 17. – *Moss and soil from the roadside.*

Ecu. B. 18. – *Litter, grass and soil from under bushes.*

Ecu. B. 19. – *Thicket of Rubus, litter and soil.*

Ecu. B. 20. Urbanisation Ludres, 13 km S from Quito, 3100 m. a.s.l. (Prov. Pichincha). – 13. IV. 1989. – *Grass and couch-grass and soil.*

Ecu. B. 21. – *Moss and soil from the side of an irrigation canal.*

Ecu. B. 22. – *Dwarf horsetail, litter and soil from the bushy shore of the irrigation canal.*

Ecu. B. 23. – *Grass with couch-grass, and soil from 10-20 cm depth.*

Ecu. B. 24. Between Pifo and Papallacta, 4100 m. a.s.l. (Prov. Pichincha). – 14. IV. 1989. – *Withered leaves and soil from under dicotyledon plant with big leaves (and lilac flowers).*

Ecu. B. 25. – *Moss from the soil.*

Ecu. B. 26. – *Jumble of dicotyledon, creeping to 2 m height on a tree.*

Ecu. B. 27. – *Felt-like debris from under the same plant.*

Ecu. B. 28. – *Litter and sparse moss from under bushes.*

Ecu. B. 29. – *Thick, dense moss from the stem of bushes.*

Ecu. B. 30. – *Soil, 10-30 cm depth.*

Ecu. B. 31. – *Gallery and excrement of earthworms, 30-40 cm depth.*

Ecu. B. 32. – *Moss from the soil.*

Ecu. B. 33. – *Cushion-plant.*

Ecu. B. 34. – *Fruits (seeds) of Espeletia-like plant.*

Ecu. B. 35. – *Moss from the soil, beside water-course.*

Ecu. B. 36. – *Grass with couch-grass.*

Ecu. B. 37. – *Moss and withered plant-debris from under bushes.*

Ecu. B. 38. – *On 4150 m. a.s.l., moss and low cushion-plants.*

Ecu. B. 39. – *Soil of the sample 38, about 10-15 cm depth.*

Ecu. B. 40. Antisana, earthworm experimental station, 3300 m. a.s.l. (Prov. Pichincha). – 15. IV. 1989. – *Brookside pasture.*

Ecu. B. 41. – *Drying cattle-excrement and soil from under it.*

Ecu. B. 42. – *Close to the brookside, leaves of wild sorrel-like plant and soil.*

Ecu. B. 43. – *Bog in the depression between the brook and the mountain-side, litter and soil.*

Ecu. B. 44. – *Moss and dicotyledon roots from branches of a tree, spanning over the waterfalls of the other book, flowing in here.*

Ecu. B. 45. – *Scale-moss from the vertical wall (not rock), beside the same site.*

Ecu. B. 46. – *Litter and soil from under the bushes of the valley.*

Ecu. B. 47. – *Litter and soil from under trees and bushes, cca 50m above the level of the brook.*

Ecu. B. 48. – *Relatively dry moss from bushes.*

Ecu. B. 49. – *Mossy soil and litter from under dwarf bushes.*

Ecu. B. 50. – *Relatively dry moss and soil from rocks, cca 150m above the level of the brook.*

Ecu. B. 51. Lava-flow of Antisanilla (Prov. Pichincha). – 15. IV. 1989. – *Soil and detritus from among the stone-avalanche.*

Ecu. B. 52. – *Moss from flat, horizontal stones.*

Ecu. B. 53. – *Moss from vertical surface of stones.*

Ecu. B. 54. Rio Guajalito, Las Palmeras, 1850 m a.s.l. (Prov. Pichincha). – 18. IV. 1989. – *„Real” primary forest, litter and upper soil level.*

- Ecu. B. 55.** – *Soil and roots.*
- Ecu. B. 56.** – *Loose moss, hanging from trees.*
- Ecu. B. 57.** – *„Hanging litter” and big, withered, mossy leaves.*
- Ecu. B. 58.** – *Living, mossy leaves (undergrowth).*
- Ecu. B. 59.** – *Moss from the riverside (vertical soil-wall).*
- Ecu. B. 60.** – *Moss from beside the small water-course nearing the river (open area).*
- Ecu. B. 61.** – *Narrow gorge, secondary rainforest of the valley, litter and soil.*
- Ecu. B. 62.** – *Above Las Palmeras, 2000 m a.s.l. (Prov. Pichincha). Litter and soil from under fern-trees.*
- Ecu. B. 63.** – *Moss from under fern-trees.*
- Ecu. B. 64.** – *Moss from rocky roadside.*
- Ecu. B. 65.** Chirigoba, 1850 m a.s.l. (Prov. pichincha). – 18. IV. 1989. – *Secondary rainforest, litter and soil.*
- Ecu. B. 66.** – *Moss, hanging from trees.*
- Ecu. B. 67.** – *Parts of moulding tree trunk, moss-ferns.*
- Ecu. B. 68.** – *Moss from roadside rock-wall.*
- Ecu. B. 69.** About 2km leaving Cayambe, 2700 m a.s.l. (Prov. Pichincha). – 19. IV. 1989. – *Moss from the side of small artificial water-course.*
- Ecu. B. 70.** – *Litter from under shrubs.*
- Ecu. B. 71.** – *Deep, natural water-gully, moss from the wall of the gorge.*
- Ecu. B. 72.** Above Otavalo, leaving Mohanda laguna, 3000 m a.s.l. (Prov. Imbabura). – 19. IV. 1989. – *Litter and soil from under bushes.*
- Ecu. B. 73.** – *Dwarf horsetail and moss from beside water-gully.*
- Ecu. B. 74.** – *Moss, lichen and roots from the steep wall.*
- Ecu. B. 75.** Above Otavalo, 3700 m a.s.l. (Prov. Imbabura). – 19. IV. 1989. – *Moss -forest, litter and soil.*
- Ecu. B. 76.** – *Moss from a tree.*
- Ecu. B. 77.** – *Moss from the ground.*
- Ecu. B. 78.** – *Lichen from the outside trees of the moss-forest.*
- Ecu. B. 79.** – *Out-over area towards the road; plants with bigger leaves.*
- Ecu. B. 80.** – *Bushes and shrubs of a flat area; litter and soil.*
- Ecu. B. 81.** – *Moss and lichen from trees.*
- Ecu. B. 82.** – *Moss from the ground.*
- Ecu. B. 83.** – *On 3350 m a.s.l., secondary shrubby area with creeping reed; dark litter and soil.*
- Ecu. B. 84.** – *On a cut-over area.*
- Ecu. B. 85.** 30km from Otavalo to Apuela, Otocique, 3250 m a.s.l. (Prov. Imbabura). *Paramo vegetation (burnt a year ago), litter and soil from under shrubs.*
- Ecu. B. 86.** – *Cushion-plants.*
- Ecu. B. 87.** – *Tussocks of couch-grass (from non-burnt area).*
- Ecu. B. 88.** – *On 3300 m a.s.l., thick hrubs, almost no light.*
- Ecu. B. 89.** – *Plant debris from under open shrubs.*
- Ecu. B. 90.** – *Soil moss from under open bushes.*
- Ecu. B. 91.** Tablachupa, 39 km from Otavalo, 3350 m a.s.l., (Prov. Imbabura). – 20. IV. 1989. – *Paramo; detritus, withered grass, quite dark soil from under bushes.*
- Ecu. B. 92.** – *Tussocks of couch-gras, lichen and some moss among it.*
- Ecu. B. 93.** – *Between couch-grass tussocks, moss from the open spaces.*
- Ecu. B. 94.** 53 km from Otavalo, 2850 m a.s.l. (Prov. imbabura). – 20. IV. 1989. – *Litter of bamboo, hanging on roots, without soil.*
- Ecu. B. 95.** – *Soil and roots from under sample 94.*
- Ecu. B. 96.** – *Moss, hanging from trees.*
- Ecu. B. 97.** – *Plant with big leaves (Gunnera sp.).*
- Ecu. B. 98.** 52 km from Otavalo, 2900 m a.s.l. (Prov. Imbabura). – 20. IV. 1989. – *Small waterfall with mossy vegetation. Moss and soil from rocks.*
- Ecu. B. 99.** – *Overshaded scale-moss.*
- Ecu. B. 100.** – *Hanging moss (fern-moss).*
- Ecu. B. 101.** 50 km from Otavalo, 2950 m a.s.l. (Prov. Imbabura). – 20. IV. 1989. – *Moss, lichen, fern.*
- Ecu. B. 102.** 43 km from Otavalo, 3200 m a.s.l. (Prov. Imbabura). – 20. IV. 1989. – *Moss -forest (trees with big leaves), litter and soil.*
- Ecu. B. 103.** – *Moss from the ground.*
- Ecu. B. 104.** – *Moss from the trees.*
- Ecu. B. 105.** 10 km from Otavalo to Selva Alegre, 2650 m a.s.l. (Prov. Imbabura). – 21. IV. 1989. – *Shrubby area, below it deep shadow.*
- Ecu. B. 106.** – *Pasture (with couch-grass).*
- Ecu. B. 107.** – *Moss from sunlit rocks of the pasture.*
- Ecu. B. 108.** 28 km from Otavalo to Selva Alegre, 3500 m a.s.l. (Prov. Imbabura). – 21. IV. 1989. – *Paramo; seeds of couch-grass.*
- Ecu. B. 109.** – *Cushion-plants from the open spaces between couch-grass tussocks.*
- Ecu. B. 110.** – *Gladiolus-stem.*
- Ecu. B. 111.** – *Plant debris from under bushes.*
- Ecu. B. 112.** 26 km from Otavalo to Selva Alegre, 3300 m a.s.l. (Prov. Imbabura). – 21. IV. 1989. – *Litter from under bushes.*
- Ecu. B. 113.** – *Moss from the shore of a small creek.*
- Ecu. B. 114.** 16 km from Otavalo to Selva Alegre, 3000 m a.s.l. (Prov. Imbabura). – 21. IV. 1989. – *Litter from under bushes.*
- Ecu. B. 115.** – *Moss from sunlit rocks of the pasture.*
- Ecu. B. 116.** Leaving the road-junction to Toachi, to Quito, 2600 m a.s.l. (Prov. Imbabura). – 21. IV. 1989. – *Litter and soil from under dwarf bushes.*
- Ecu. B. 117.** – *2500 m a.s.l.; litter from under bushes.*
- Ecu. B. 118.** – *2450 m a.s.l.; litter and soil from under roadside bushes.*

- Ecu. B. 119.** – Moss from mountain-side.
- Ecu. B. 120.** – 2000 m; litter and soil from under *Acacia*-trunk.
- Ecu. B. 121.** 62 km from Otavalo, before reaching Selva Alegre, at a flooded river, 1700 m a.s.l. (Prov. Imbabura). – 24. IV. 1989. – *Secondary rainforest, steep part (70°); litter and soil.*
- Ecu. B. 122.** – Moss from tree branches.
- Ecu. B. 123.** – Scale-moss and moss from rock-wall.
- Ecu. B. 124.** – Shrubby steep area on cut-over forest (cut-over about 3-4 years ago), moss from trees.
- Ecu. B. 125.** 56 km from Otavalo, approaching Selva Alegre, 2200 m a.s.l. (Prov. Imbabura). – 24. IV. 1989. – *Rainforest patch, soil and litter.*
- Ecu. B. 126.** – Mouldering trunk, mossy parts and bark.
- Ecu. B. 127.** – Moss from the ground.
- Ecu. B. 128.** – Hanging moss from trees.
- Ecu. B. 129.** 49 km from Otavalo, on the side of Selva Alegre, 2980 m a.s.l. (Prov. Imbabura). – 24. IV. 1989. – *Steep moss-forest (with spruce trees) beside waterfalls of a creek; soil and litter.*
- Ecu. B. 130.** – Moss from steep soil-wall.
- Ecu. B. 131.** – Moss, hanging from trees and shrubs.
- Ecu. B. 132.** – Constantly wet moss from rock-wall beside the waterfalls.
- Ecu. B. 133.** Above Junghal, 2150 m a.s.l. (Prov. Carchi). – 25. IV. 1989. – *Artificially irrigated area, grass.*
- Ecu. B. 134.** – Plant debris from under bushes.
- Ecu. B. 135.** 3 km before reaching El Angel, 2950 m a.s.l. (Prov. Carchi). – 25. IV. 1989. – *Meadow with couch-grass.*
- Ecu. B. 136.** – Soil of the meadow with couch-grass.
- Ecu. B. 137.** – Litter from under small bushes.
- Ecu. B. 138.** 7km leaving the road-junction of La Libertad, 3300 m a.s.l. (Prov. Carchi). – 25. IV. 1989. – *Litter and soil from under bushes.*
- Ecu. B. 139.** – Soil-moss.
- Ecu. B. 140.** 10 km leaving La Libertad to Tulcan, 3400 m a.s.l. (Prov. Carchi). – 25. IV. 1989. – *Old quarry, completely overgrown with vegetation; litter and soil from under shrubs.*
- Ecu. B. 141.** – Moss and cushion-vegetation.
- Ecu. B. 142.** – Cushion vegetation.
- Ecu. B. 143.** – Fern stems, lichen.
- Ecu. B. 144.** 14 km leaving La Libertad, towards Tulcan, 3500 m a.s.l. (Prov. Carchi). – 25. IV. 1989. – *Big bushes and ferns in Espeletia-vegetation; litter and soil.*
- Ecu. B. 145.** – Material of moulding tree trunk, and moss from it.
- Ecu. B. 146.** – Moss hanging from bushes, lichen.
- Ecu. B. 147.** – Withered leaves of *Espeletia*.
- Ecu. B. 148.** 13 km leaving La Libertad, towards Tulcan, 3500 m a.s.l. (Prov. Carchi). – 25. IV. 1989. – *Mossy soil.*
- Ecu. B. 149.** – *Big Graminea tussocks.*
- Ecu. B. 150.** 13 km leaving La Libertad, towards Tulcan, 3500 m a.s.l. (Prov. Carchi). – 25. IV. 1989. – *Moss level of very wet meadow (artificially inundated).*
- Ecu. B. 151.** 500 m leaving the road-junction, 2600 m a.s.l. (Prov. Carchi). – 25. IV. 1989. – *Tussocks of dry grass, leaves and litter.*
- Ecu. B. 152.** – *Dry grass and moss.*
- Ecu. B. 153.** Leaving the Santa Barbara – Tulcan road-junction, 500 m towards Tulcan, 3200 m a.s.l. (Prov. Carchi). – 26. IV. 1989. – *Remnant patch of moss-forest; soil.*
- Ecu. B. 154.** – Moss from the ground.
- Ecu. B. 155.** – Moss from the stems of trees (not hanging); mushrooms among it, too.
- Ecu. B. 156.** 34 km from the road-junction to Santa Barbara, 2550 m a.s.l. (Prov. Carchi). – 26. IV. 1989. – *Moss from beside small waterfall.*
- Ecu. B. 157.** – Leaves of *Gunnera* sp. and litter of other plants.
- Ecu. B. 158.** 33,5 km from the road-junction os Santa Barbara, 2550 m a.s.l. (Prov. Carchi). – 26. IV. 1989. – *Secondary rainforest, shrubby area; litter and soil.*
- Ecu. B. 159.** – Moss from tree stems.
- Ecu. B. 160.** – 31 km from the road-junction to Santa Barbara, on the riverside of Rio Chingual, 2480 m a.s.l. (Prov. Carchi). – 26. IV. 1989. – *Riverside rainforest-gallery; litter and soil.*
- Ecu. B. 161.** – Moss from stem of a very old tree.
- Ecu. B. 162.** – Riverside cut-over area, moss-level of wet meadow, parts of *Schoenoplectus*-like plant.
- Ecu. B. 163.** 15 km from road-junction of Santa Barbara, 2800 m a.s.l. (Prov. Carchi). – 26. IV. 1989. – *Scale-moss from perlite-like wall of the road (overshaded by bushes).*
- Ecu. B. 164.** 14 km from the road-junction of Santa Barbara, 2900 m a.s.l. (Prov. Carchi). – 26. IV. 1989. – *Secondary rainforest patch; litter and soil.*
- Ecu. B. 165.** – Soil-moss from the stem of fern-tree (very thick).
- Ecu. B. 166.** – Moss and lichen from stem and branches of bushes.
- Ecu. B. 167.** Below Baños, 500 m after leaving the tunnel, 1500 m a.s.l. (Prov. Tungurahua). – 30. IV. 1989. – *Plant debris and sparse moss from under thick vegetation.*
- Ecu. B. 168.** – Moss and small ferns from skirts of the thicket, well exposed to light.
- Ecu. B. 169.** – Moss from open area.
- Ecu. B. 170.** Rio Verde, 1450 m a.s.l. (Prov. Tungurahua). – 30. IV. 1989. – *Small, nearly unisturbed rainforest patch beside orange-plantation; litter and soil.*
- Ecu. B. 171.** – Carpet-like moss from rock-wall.

- Ecu. B. 172.** 5 km from Rio verde towards Puyo, 1430m a.s.l. (Prov. Tungurahua). – 30. IV. 1989. – *Wide rainforest patch; litter and soil.*
- Ecu. B. 173.** – *Soil-moss (mossy soil, respectively).*
- Ecu. B. 174.** – *Wet moss from beside small waterfall.*
- Ecu. B. 175.** 16 km from Puyo, towards Macas, 900 m a.s.l. (Prov. Pastaza). – 1. V. 1989. – *Rainforest patch, beside an open area; litter and soil.*
- Ecu. B. 176.** – *Litter and roots, from the branching of a big tree, in about 2,5 m height.*
- Ecu. B. 177.** – *Completely humified mossy tree trunk, lying on the ground.*
- Ecu. B. 178.** – *Tinder from the same tree trunk.*
- Ecu. B. 179.** – *Mossy part of a standing tree stem.*
- Ecu. B. 180.** – *Soil and plant debris from the high (cultivated?) grass of a meadow on cut-over area.*
- Ecu. B. 181.** 23 km from Puyo, 900 m a.s.l. (Prov. Pastaza). – 1. V. 1989. – *Plant of a pasture, with litter and debris of ferns (water-filtration).*
- Ecu. B. 182.** – *Mossy soil.*
- Ecu. B. 183.** 1 km from the road-junction of Cañelas, 870 m a.s.l. (Prov. Pastaza). – 1. V. 1989. – *Steep forest of about 70°; litter and soil.*
- Ecu. B. 184.** – *Forest on falt area (sparse, secondary).*
- Ecu. B. 185.** 32 km from Puyo, 900 m a.s.l. (Prov. Pastaza). – 1. V. 1989. – *Secondary rainforest; litter and soil (in the deepening small „pond”).*
- Ecu. B. 186.** – *Pasture grass.*
- Ecu. B. 187.** 34 km from Puyo, 950 m a.s.l. (Prov. Pastaza). – 1. V. 1989. – *Secondary rainforest patch; flat area, litter and soil.*
- Ecu. B. 188.** – *Moss from tree stems.*
- Ecu. B. 189.** – *Material of humified, lying tree trunk, and moss from it.*
- Ecu. B. 190.** Between Puyo and Palora, bridge of Madre Tierra, 800 m a.s.l. (Prov. Pastaza). – 2. V. 1989. – *Moss from bark of tree stems.*
- Ecu. B. 191.** – *Plant debris and litter, mossy soil.*
- Ecu. B. 192.** – *Mossy debris of reed.*
- Ecu. B. 193.** *1km from the collecting site 190; wet meadow (with horsetail), plant debris and moss. - 2. V. 1989.*
- Ecu. B. 194.** – *Thick moss of old tree stem.*
- Ecu. B. 195.** Leaving Madre Tierra, 1000 m a.s.l. (Prov. Pastaza). – 2. V. 1989. – *„Fenwood”; litter and soil.*
- Ecu. B. 196.** – *Moulding tree trunk; moss and litter.*
- Ecu. B. 197.** – *Jumble („fusion”) of a plant and roots.*
- Ecu. B. 198.** – *Pasture patch beside the „fenwood”; plant debris and soil.*
- Ecu. B. 199.** Leaving Madre Tierra, 1000 m a.s.l. (Prov. Pastaza). – 2. V. 1989. – *Roadside wet but no fen-like cut-over („forest”) – patch; litter and soil.*
- Ecu. B. 200.** – *Moss from tree.*
- Ecu. B. 201.** Leaving Madre Tierra, cca 500 m from the collecting site 199, 850 m a.s.l. (Prov. Pastaza). – 2. V. 1989. – *Young, sparse trees, wet, high „pasture grass”; litter and soil.*
- Ecu. B. 202.** Some km leaving Triomfo, 980 m a.s.l. (Prov. Pastaza). – 2. V. 1989. – *Sparse trees, between them „pasture grass”; litter and soil from under tree.*
- Ecu. B. 203.** – *Moss and roots from a tree.*
- Ecu. B. 204.** – *Detritus of „pasture grass”.*
- Ecu. B. 205.** – *Drying cattle excrement and soil from under it.*
- Ecu. B. 206.** 22 km from Puyo, towards Baños, 1100 m a.s.l. (Prov. Pastaza). – 3. V. 1989. – *Gorge with small creek; litter and soil.*
- Ecu. B. 207.** – *Soil and wet moss from rock (always dripping).*
- Ecu. B. 208.** – *Detritus of plants (shrubs) with big leaves, on open area.*
- Ecu. B. 209.** – *Open area, moss from wall.*
- Ecu. B. 210.** 31 km from Puyo, towards Baños, 1100 m a.s.l. (Prov. Pastaza). – 3. V. 1989. – *Rainforest patch with rock-wall; litter and soil.*
- Ecu. B. 211.** – *Moss from trees.*
- Ecu. B. 212.** – *Dripping moss from rock-wall.*
- Ecu. B. 213.** – *Very thick, wet moss from roadside wall.*
- Ecu. B. 214.** At the foot of Cotopaxi, 3500 m a.s.l. (Prov. Cotopaxi). – 3. V. 1989. – *Pesudo-paramo level; withered, dead patch of cushion-like vegetation.*
- Ecu. B. 215.** – *Litter of withered grass-like plants of a meadow.*
- Ecu. B. 216.** – *Cushion-like vegetation, litter and soil.*
- Ecu. B. 217.** – *Thick moss, growing on the litter.*

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- Ecu. B. 1.** Prov. Pichincha. Leaving Nono, 50km from Quito, 2250m. – 19. IV. 1990. – *Moss.*
- Ecu. B. 2.** – *Litter.*
- Ecu. B. 3.** – *Soil.*
- Ecu. B. 4.** – *Bromelia from a tree.*
- Ecu. B. 5.** Prov. Pichincha. 8km after Santa Rosa, 2400 m. – 19. IV. 1990. – *Moss from fallen logs.*
- Ecu. B. 6.** – *Bark from fallen logs.*
- Ecu. B. 7.** – *Bromelia from a tree.*
- Ecu. B. 8.** – *Leaf litter from a ditch.*
- Ecu. B. 9.** Prov. Pichincha. Between Santa Rosa and Los Bancos, 2200 m. 19. IV. 1990. – *Leaf litter.*
- Ecu. B. 10.** – *Soil.*
- Ecu. B. 11.** Prov. Manabi. Between Sto. Domingo and El Carmen, 10 km from El Carmen 400 m. 20. IV. 1990. – *Leaf litter and coarse woody debris.*
- Ecu. B. 12.** – *Bromelia.*

- Ecu. B. 13.** Prov. Manabi. 7 km after Flavio Alfaro 300 m. – 20. IV. 1990. – *Litter from Cocoa plantation.*
- Ecu. B. 14.** – *Bamboo litter.*
- Ecu. B. 15.** *Epiphytes from trees.*
- Ecu. B. 16.** Prov. Manabi. Piedra Azul, 22 km after Flavio Alfaro, 250 m. – 20. IV. 1990. – *Coarse woody debris.*
- Ecu. B. 17.** Prov. Manabi. Garrapatilla, 7km before San Andres, 100 m. – 21. IV. 1990. – *Moss and epiphytes.*
- Ecu. B. 18.** Prov. Manabi. 40 km before Jipijapa 350 m. – 21. IV. 1990. – *Dry soil.*
- Ecu. B. 19.** – *Dry leaf litter.*
- Ecu. B. 20.** Prov. Manabi. 19 km after Manta, toward Portoviejo, cloud-forest, 300 m. – 22. IV. 1990. – *Leaf litter.*
- Ecu. B. 21.** – *Ceiba pentandra litter.*
- Ecu. B. 22.** Prov. Manabi. After Calderon toward Quevedo bamboo-forest, 150 m. – 22. IV. 1990. – *Litter.*
- Ecu. B. 23.** – *Pristine forest fragment, litter.*
- Ecu. B. 24.** Prov. Manabi. Palmita, 20 km from San Miguel, 500 m. – 22. IV. 1990. –
- Ecu. B. 25.** Prov. Cotopaxi. 20 km leaving El Palmer La Mana. – 750 m. 23. IV. 1990. – *Bromelia.*
- Ecu. B. 26.** Prov. Cotopaxi. 35 km from La Mana, before El Tingo, pristine forest fragment, 1300 m. – 23. IV. 1990. – *Forest litter.*
- Ecu. B. 27.** Prov. Cotopaxi. 43 km from La Mana, after El Tingo, 2000 m. – 23. IV. 1990. – *Moss from rocks.*
- Ecu. B. 28.** – *Moss hanging from trees.*
- Ecu. B. 29.** Prov. Pichincha. After Lloa, 4100 m. – 27. IV. 1990. – *Upper soil layer with grass.*
- Ecu. B. 30.** – *Lower soil layer.*
- Ecu. B. 32.** – 4050 m, *moss from the road-wall.*
- Ecu. B. 33.** Prov. Napo. 26 km before Loreto pristine forest, 650m. – 2. V. 1990. – *Leaf litter.*
- Ecu. B. 34.** – *Soil.*
- Ecu. B. 35.** Prov. Napo. 7 km leaving Loreto cafe plantation, 500 m. – 2. V. 1990. – *Leaf litter.*
- Ecu. B. 36.** Prov. Napo. Just before Loreto, 580 m. – 2. V. 1990. – *Litter from a hill side.*
- Ecu. B. 37.** Prov. Napo. 2 km before Loreto, pristine forest, 550 m. – 2. V. 1990. – *Leaf litter.*
- Ecu. B. 38.** Prov. Napo. 12 km before Loreto, cafe plantation, 450 m. – 2. V. 1990. – *Leaf litter.*
- Ecu. B. 39.** Prov. Napo. 31 km before Loreto, 1000 m. – 2. V. 1990. – *Litter.*
- Ecu. B. 40.** Prov. Napo. 35 km. Before Loreto, 1000 m. – 2. V. 1990. – *Coarse woody debris from a lake-shore.*
- Ecu. B. 41.** Prov. Napo. 41 km before Loreto, 1200 m. – 2. V. 1990. – *Litter.*
- Ecu. B. 42.** Prov. Napo. 52 km before Loreto, 1200 m. – 2. V. 1990. – *Leaf litter.*
- Ecu. B. 43.** – *Litter.*
- Ecu. B. 44.** Prov. Napo. 55 km before Loreto 1220 m. – 2. V. 1990. – *Moss from a fallen log.*
- Ecu. B. 45.** Prov. Napo. Between Puerto Napo and Ahuano, 9 km from Tena, 500 m. – 3. V. 1990. – *Cocoa and other litter.*
- Ecu. B. 46.** Prov. Napo. Between Puerto Napo and Ahuano, 18 km from Tena, pristine forest, 430 m. – 3. V. 1990. – *Leaf litter.*
- Ecu. B. 48.** Prov. Napo. Between Puerto Napo and Ahuano, 27 km from Tena, pristine forest, 430 m. – 3. V. 1990. – *Leaf litter.*
- Ecu. B. 49.** Prov. Napo. Before San Pedro, 35 km from Tena, pristine forest, 500 m. – 3. V. 1990. – *Litter.*
- Ecu. B. 50.** Prov. Carchi. Leaving Tufino on the Chiles Volcano, 4300 m. – 8. V. 1990. – *Moss and soil.*
- Ecu. B. 51.** – 3650 m, *moss and soil.*
- Ecu. B. 52.** Prov. Imbabura. 15 km from Otavalo just above the laguna Mojanda, 3800 m, – 9. V. 1990. – *Moss and soil.*

Colombia 1993

- C. 4.** Before Finca La Sirena, Tenjo, Palmira, on a little path. – 17. IV. 1993.
- C. 5.** Finca La Sirena, Tenjo, Palmira, Sendero el Mirador 2650 m. – 17. IV. 1993.
- C. 14.** El Topacio Nat. conservation area 1700 m. – 22. IV. 1993.
- C. 16.** Before El Topacio Nat. conservation area 1400 m. – 22. IV. 1993.
- C. 20.** Paramo de los Domingues 3650 m. El Cerrito on the shore of a small pond. – 23. IV. 1993.
- C. 36.** At the gate of Finca La Sirena, Tenjo, Palmira. – 19. IV. 1993.
- C. 39.** Before Finca La Sirena, Tenjo, Palmira on the bank of a small stream. – 19. IV. 1993.

Ecuador 1993

- E. 5.** Prov. Cotopaxi. Toward Latacunga at the foot of Cotopaxi Volcano. – 04. V. 1993.
- E. 8.** Prov. Cotopaxi. Leaving Insivili, paramo, 4150 m. – 04. V. 1993.
- E. 14.** Prov. Tungurahura. Leaving San Jose de Poalo, 3450 m. – 05. V. 1993.
- E. 18.** Prov. Tungurahura. Leaving San Jose de Poalo, 3700 m. – 05. V. 1993.
- E. 22.** Prov. Tungurahura. Laguna Pisayambo, 3700 m. – 06. V. 1993.
- E. 24.** Prov. Tungurahura. Laguna Pisayambo, 3800 m. – 06. V. 1993.

- E. 28. Prov Tungurahura 3km before the Laguna Pisayambo 3800 m, swampy slope. – 06. V. 1993.
- E. 34. Prov Tungurahura. Above the Pucara hydroelectric station, 3420 m. – 07. V. 1993.
- E. 36. Prov Tungurahura. Above the Pucara hydroelectric station, 3400 m. – 07. V. 1993.
- E. 40. Prov Tungurahura. Before Pillaro, Eucaliptus wood on sandy soil, 2700 m. – 07. V. 1993.
- E. 41. Prov. Cotopaxi, On the Cotopaxi Volcano, 3350 m. – 08. V. 1993.
- E. 42. Prov. Cotopaxi, On the Cotopaxi Volcano, grassy vegetation, 3450 m.
- E. 49. Prov. Carchi. Between Mira and El Angel 2900 m. – 12. V. 1993.

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