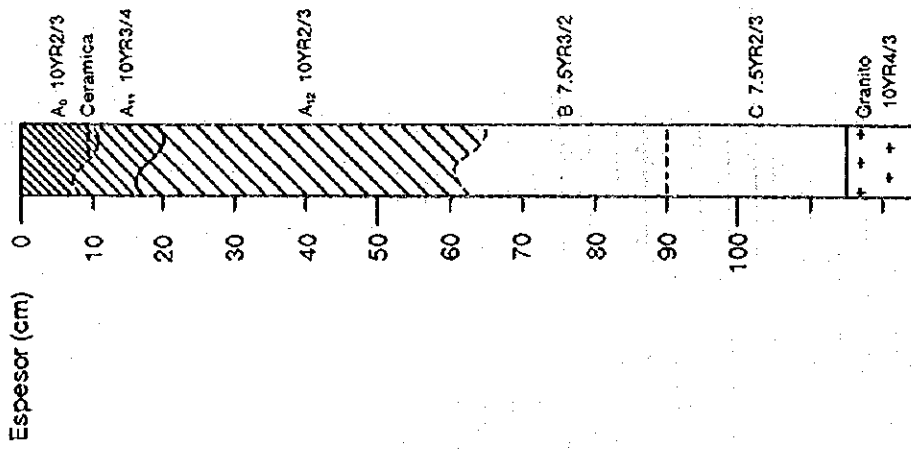


Numero S-19  
Clase de suelo Suero marron de bosque

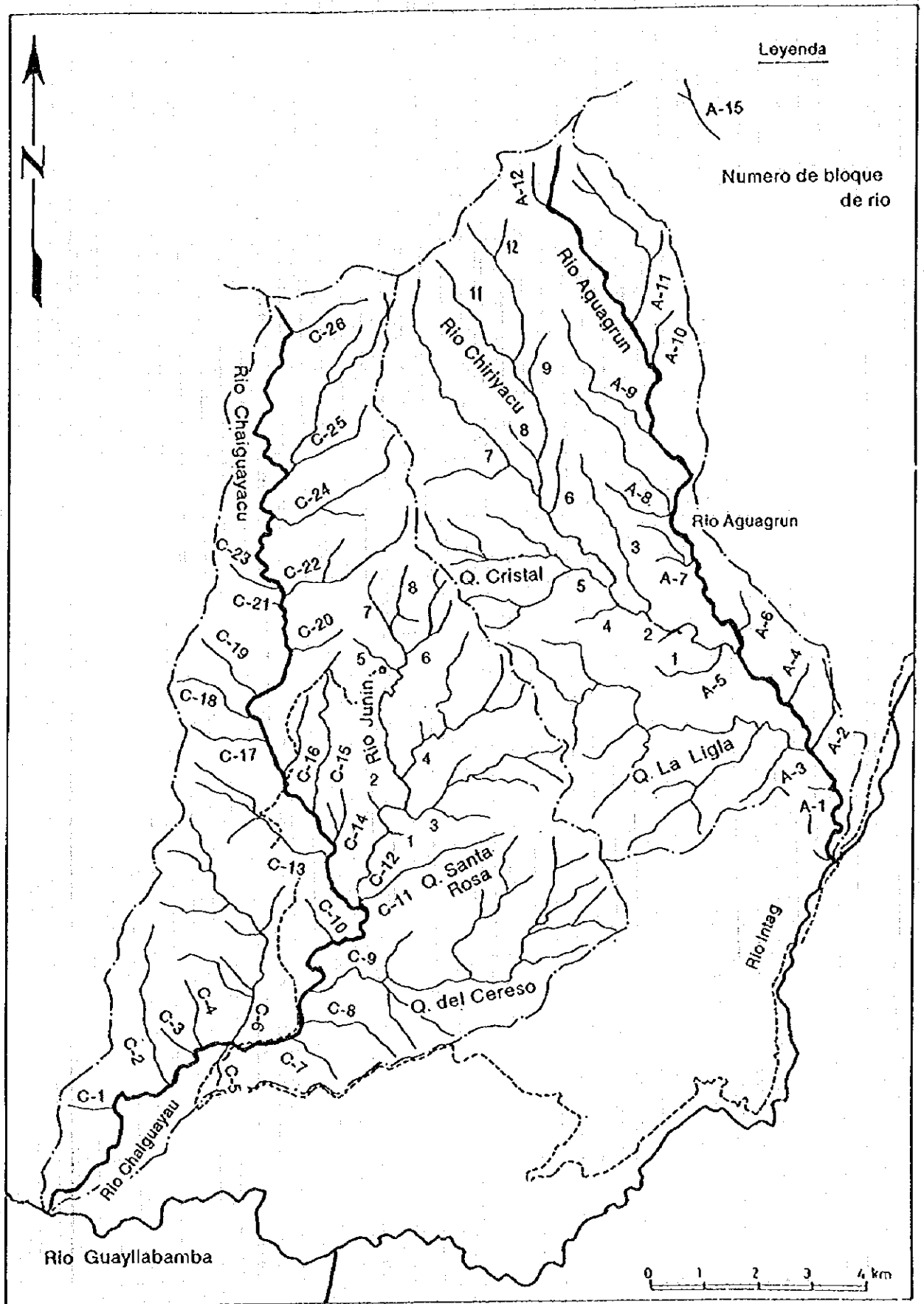


LEYENDA

- Horizonte de suero A<sub>0</sub>
- Horizonte de suero A<sub>1</sub>
- Horizonte de suero A<sub>2</sub>
- Granito
- Gravas de granito
- Mancha
- Ceramica

- 卷末 15 河川図
- 卷末 16 河川の状況
- 卷末 17 河川断面図
- 卷末 18 流量測定位置
- 卷末 19 河川流量特性曲線
- 卷末 20 調査区域の水収支



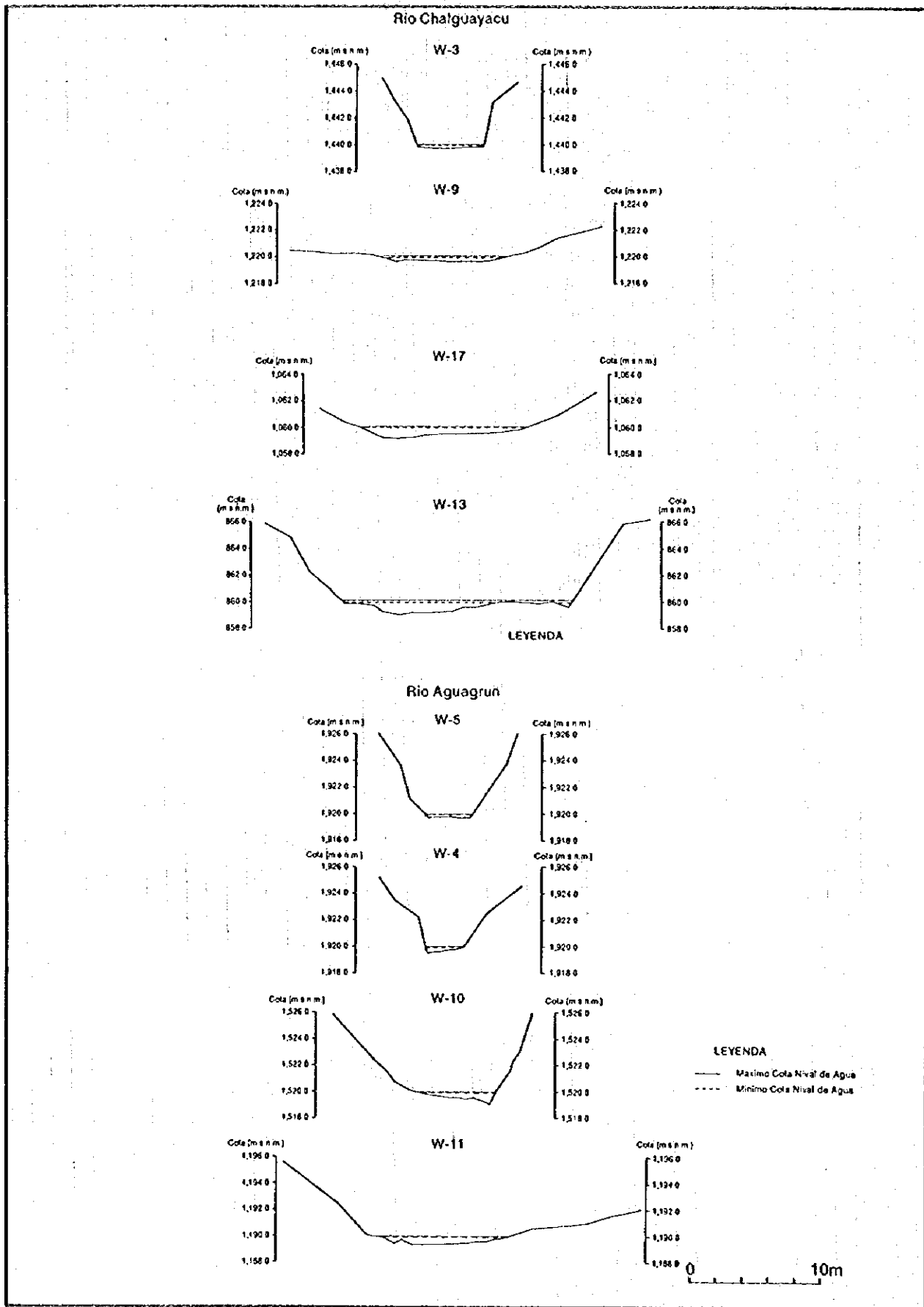


河川の状況 (1)

No.	Area de Cuenca (m <sup>2</sup> )	Largo de Rio (km)	Elevacion de Rio (m)	Declive de Rio (°)	Otros
Chalguayacu	81,270,000	25.75	2,450	5.4	Corriente principal
C-1	475,000	1.05	500	25.5	
C-2	2,693,750	2.95	780	14.8	
C-3	356,250	1.00	240	13.5	
C-4	987,500	1.30	440	18.7	
C-5	162,500	0.60	180	16.7	
C-6	7,981,250	11.75	1,820	8.8	
C-7	1,056,250	1.35	360	14.9	
C-8	1,450,000	2.00	400	11.3	
C-9	13,396,250	23.40	4,150	10.1	Q. del Cerezo
C-10	525,000	1.00	210	11.9	
C-11	1,962,500	3.05	740	13.6	Q. Santa Rosa
C-12	16,205,000	8.00	1,170	8.3	
C-12-1	262,500	0.85	280	18.2	
C-12-2	600,000	1.05	280	14.9	
C-12-3	4,581,250	3.80	690	10.3	Rio Junin
C-12-3-1	550,000	1.05	520	26.3	
C-12-3-2	368,750	0.55	140	14.3	
C-12-3-3	1,143,750	1.65	440	14.9	
C-12-3-4	500,000	1.00	300	16.7	
C-12-4	4,437,500	3.60	810	12.7	
C-12-4-1	350,000	0.75	300	21.8	Q. Fortuna
C-12-4-2	1,712,500	2.60	760	16.3	
C-12-4-3	812,500	1.30	440	18.7	
C-12-5	262,500	1.00	400	21.8	
C-12-6	1,375,000	2.30	760	18.3	Q. La Controversia
C-12-6-1	206,250	0.75	320	23.1	Q. El Copo
C-12-7	418,750	1.25	400	17.7	Q. La Limonita
C-12-8	725,000	1.05	360	18.9	Q. Verde
C-13	3,250,000	6.10	690	6.5	
C-14	413,750	1.30	240	10.5	
C-15	1,993,750	3.25	620	10.8	
C-16	712,500	1.50	280	10.6	
C-17	850,000	1.90	300	9.0	
C-18	1,150,000	1.75	400	12.9	
C-19	1,031,250	1.50	420	15.6	
C-20	631,250	1.40	400	15.9	
C-21	443,750	0.70	160	12.9	
C-22	2,462,500	4.35	1,300	16.6	Q. Esperanza
C-23	593,750	1.10	180	9.3	
C-24	2,156,250	3.90	920	13.3	
C-25	4,212,500	8.35	1,720	11.6	
C-26	1,468,750	2.05	360	10.0	

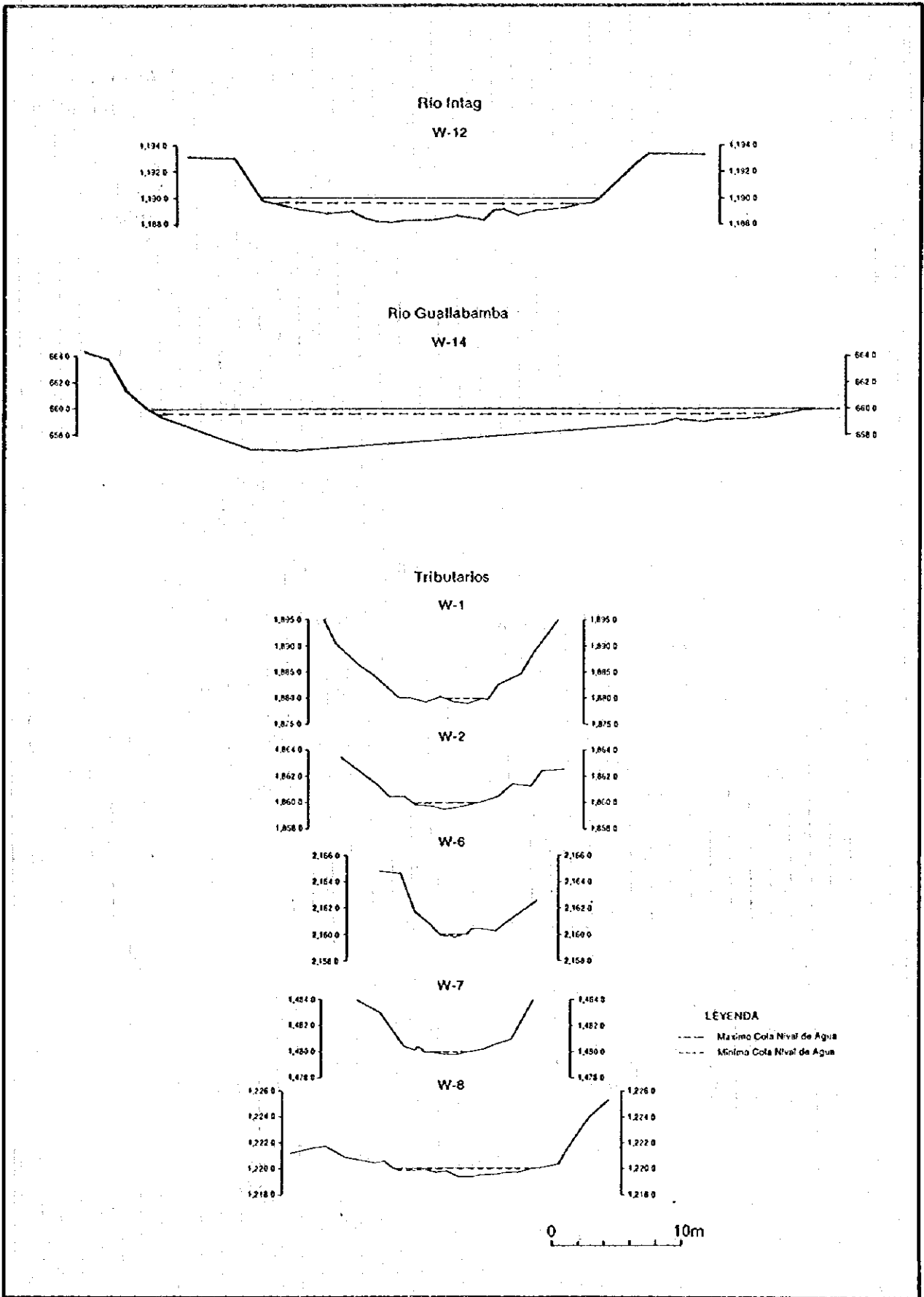
(2)

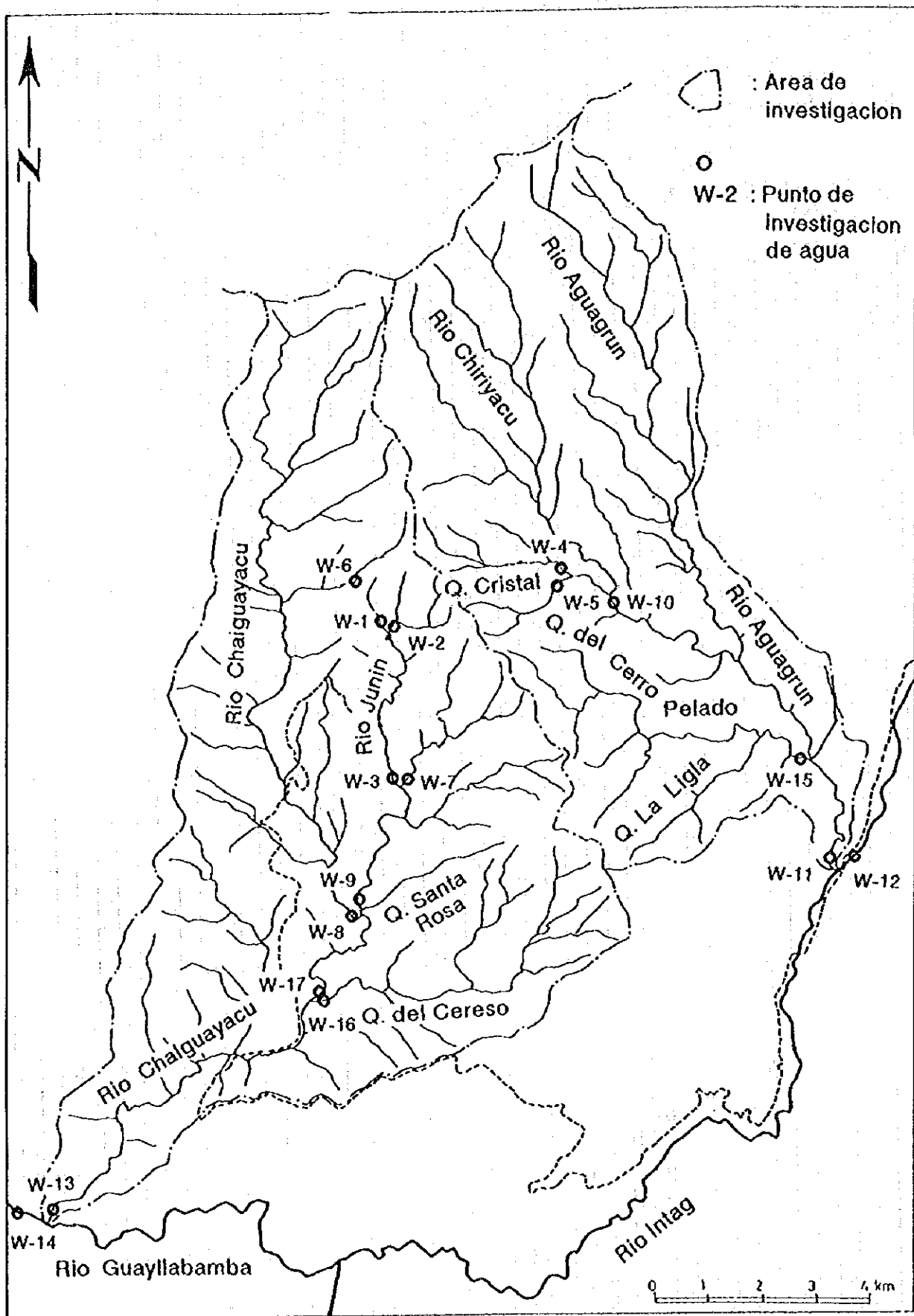
No.	Area de Cuenca (m <sup>2</sup> )	Largo de Rio (km)	Elevacion de Rio (m)	Declive de Rio (°)	Otros
Aguagrún	47,085,000	17.55	2,245	7.3	Corriente principal
A-1	150,000	0.55	320	30.2	
A-2	693,750	2.05	400	11.0	
A-3	13,712,500	7.55	900	6.8	Q. del Cerro Pelado
A-3-1	650,000	1.50	440	16.3	
A-3-2	3,737,500	5.65	860	8.7	Q. La Ligla
A-3-3	1,825,000	2.50	420	9.5	
A-3-4	1,075,000	1.20	200	9.5	Q. del Cerro Pelado
A-3-5	1,681,250	1.70	340	11.3	
A-3-5-1	443,750	1.15	200	9.9	
A-4	306,250	0.95	320	18.6	
A-5	27,891,250	12.35	1,830	8.4	
A-5-1	768,750	1.65	340	11.6	
A-5-2	306,250	0.95	300	17.5	Rio Chliyacu
A-5-3	1,537,500	3.55	480	7.7	
A-5-4	712,500	1.00	300	16.7	
A-5-5	5,885,000	4.60	735	9.1	
A-5-5-1	2,037,500	2.10	480	12.9	Q. Cristal
A-5-5-1-1	462,500	0.95	200	11.9	
A-5-5-2	618,750	1.50	400	14.9	
A-5-5-3	268,750	0.55	240	23.6	
A-5-5-4	631,250	1.00	320	17.7	
A-5-6	606,250	1.20	180	8.5	
A-5-7	7,250,000	5.45	1,120	11.6	
A-5-7-1	1,443,750	1.75	420	13.5	
A-5-8	381,250	0.95	240	14.2	
A-5-9	425,000	1.05	300	15.9	
A-5-10	2,225,000	2.50	740	16.5	
A-5-11	406,250	0.85	320	20.6	
A-6	425,000	1.00	200	11.3	
A-7	788,750	1.80	500	15.5	
A-8	2,819,750	4.73	850	10.2	
A-9	2,406,250	3.30	640	11.0	
A-10	868,750	1.10	300	15.3	
A-11	2,762,500	4.10	990	13.6	
A-12	1,143,750	1.00	360	19.8	



河川断面图 (1)





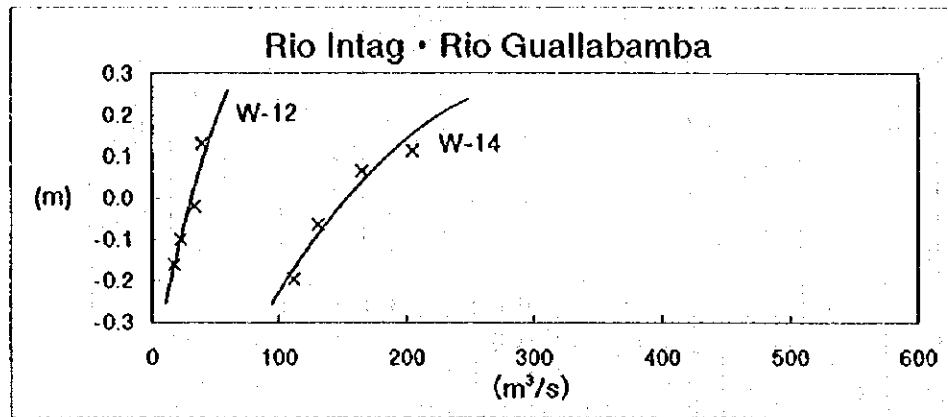
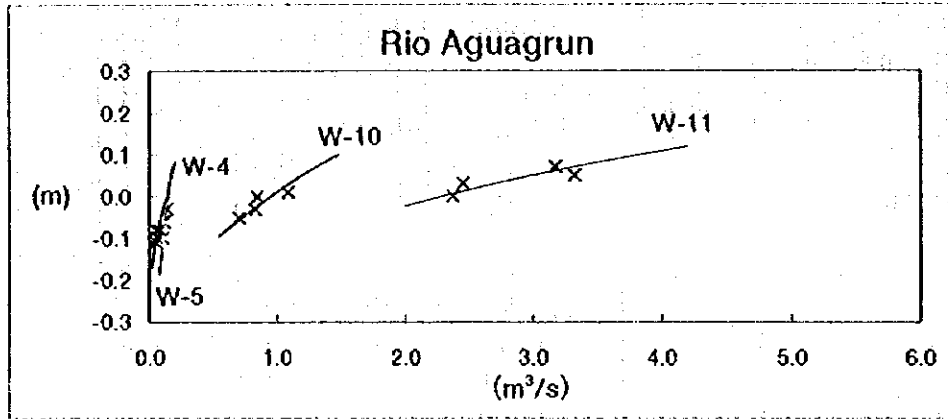
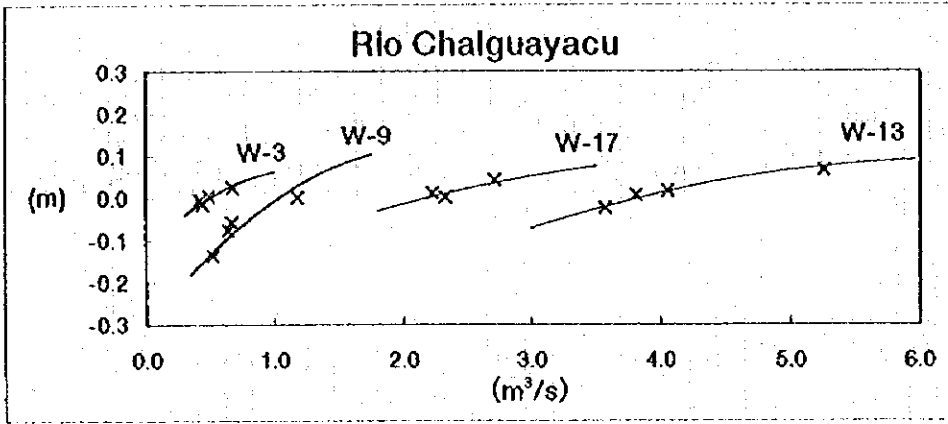


河川流量測定位置及び測定結果 (I) 測定位置

Numero	Nombre de Rio	Cota (m.s.n.m.)	Resultados de Medicion				Radio=Max/Min (Caudal de Rio)
			Estacion seca			Estacion lluviosa	
			①	②	③		
W-1	Tributario-1 de Rio Junin	1880	0.035 —	— —	— —	0.025 —	1.40
W-2	Tributario-2 de Rio Junin	1860	0.098 —	— —	— —	0.092 —	1.07
W-3	Rio Junin	1440	0.487 1440.00	0.441 1439.98	0.675 1440.02	0.419 1439.99	1.61
W-4	Q. Cristal	1920	0.103 1920.00	0.119 1920.04	0.112 1920.04	0.132 1920.07	1.28
W-5	Tributario de Q. Cristal	1920	0.060 1920.00	0.082 1920.02	0.051 1919.99	0.053 1920.02	1.61
W-6	Tributario de Rio Chalguayacu	2160	0.070 2160.00	0.030 2159.94	0.050 2159.97	0.029 2159.93	2.41
W-7	Tributario-3 de Rio Junin	1480	0.224 1480.00	0.172 1479.98	0.255 1480.01	0.238 1480.00	1.48
W-8	Rio Chalguayacu	1220	2.370 1220.00	1.676 1219.96	1.712 1219.97	2.661 1220.01	1.59
W-9	Rio Junin	1220	1.184 1220.00	0.670 1219.94	0.525 1219.86	0.641 1219.92	2.26
W-10	Rio Chiriyacu	1520	0.856 1520.00	0.709 1519.95	0.839 1519.97	1.098 1520.01	1.55
W-11	Rio Aguagrun	1190	2.372 1190.00	2.454 1190.03	3.174 1190.07	3.318 1190.05	1.40
W-12	Rio Intag	1190	22.317 1190.00	16.876 1189.94	33.344 1190.08	39.060 1190.23	2.31
W-13	Rio Chalguayacu	860	3.800 860.00	3.560 859.97	5.235 860.06	4.051 860.01	1.47
W-14	Rio Guallabamba	660	112.042 660.00	130.407 660.13	163.202 660.26	202.265 660.31	1.81
W-15	Q. del Cerro Pelado	1400	0.253 —	— —	— —	0.491 —	1.94
W-16	Q. del Cerezo	1060	0.405 1060.00	0.502 1060.03	0.431 1060.01	0.420 1060.01	1.24
W-17	Rio Junin	1060	2.329 1060.00	2.334 1060.00	2.228 1060.01	2.713 1060.04	1.22
W-18	Rio Chiriyacu	1500	(0.937) —	— —	— —	1.311 —	—
W-19	Rio Aguagrun	1500	(0.929) —	— —	— —	1.299 —	—

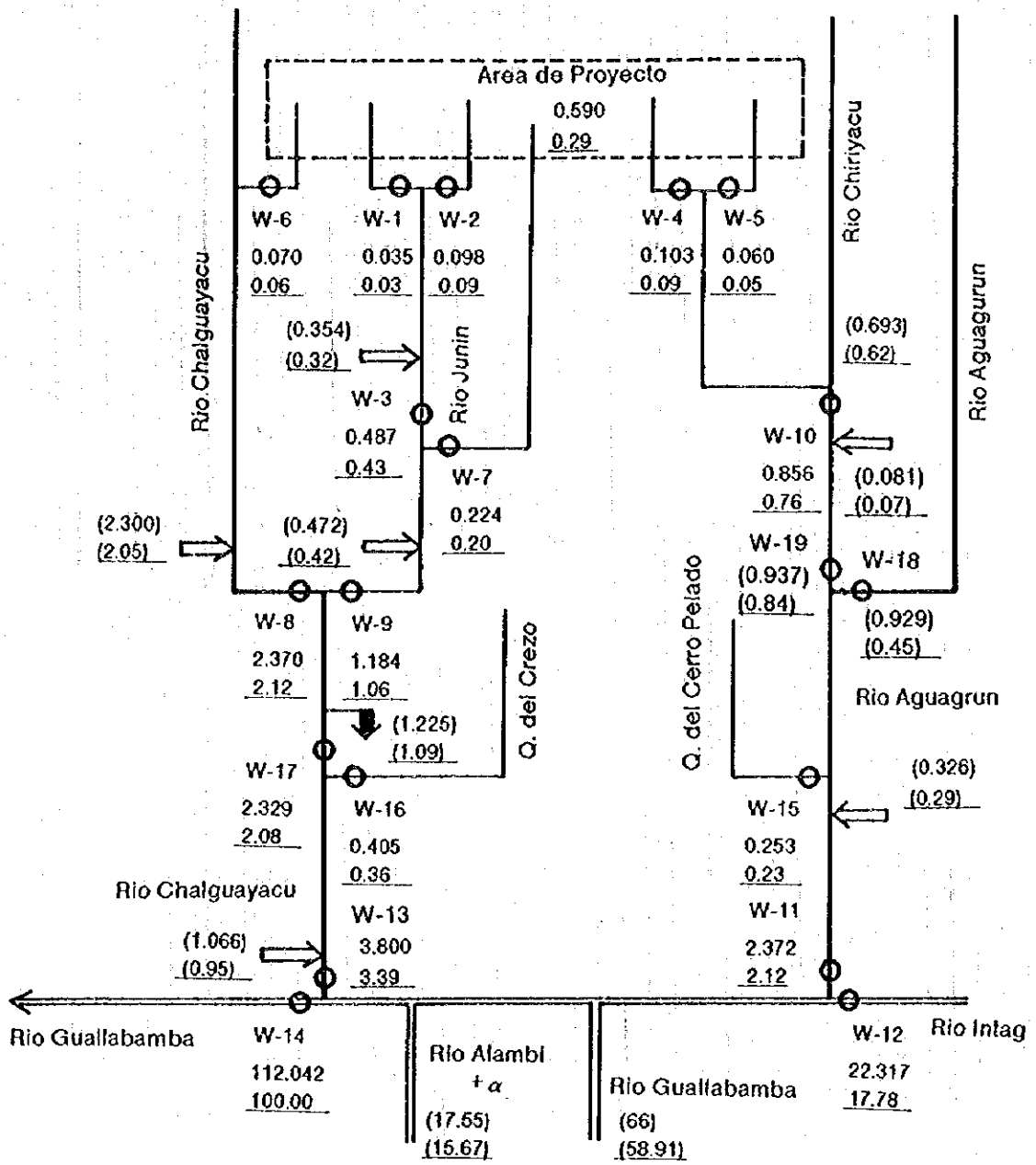
0.405 : Caudal de Rio (m<sup>3</sup>/s)  
1060.00 : Cota del Nivel de agua (m.s.n.m.)  
( ) : Calculo del Caudal de Rio (m<sup>3</sup>/s)

(2) 流量測定結果

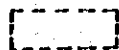


河川流量特性曲線

Septiembre



**LEYENDA**



Area de mineralizacion



Punto de Investigacion de agua

W-1

Numero

32.524

Caudal lluvial: m3/s

12.53

Porcentaje valor

( )

Supuesto valor

Corriente



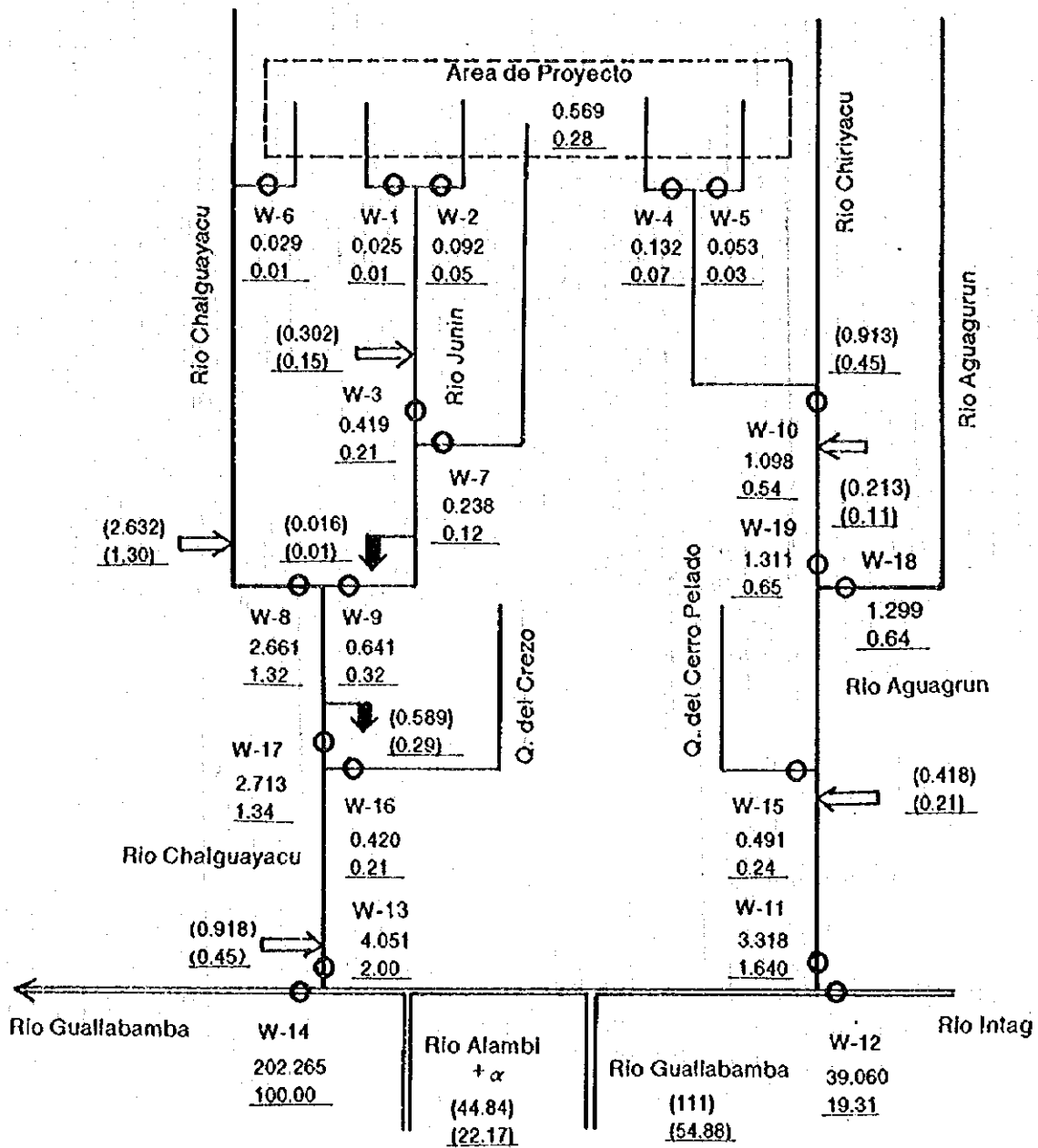
Entrada



Salida de agua subterranea

調査区域の水収支 (1)

Diciembre



LEYENDA

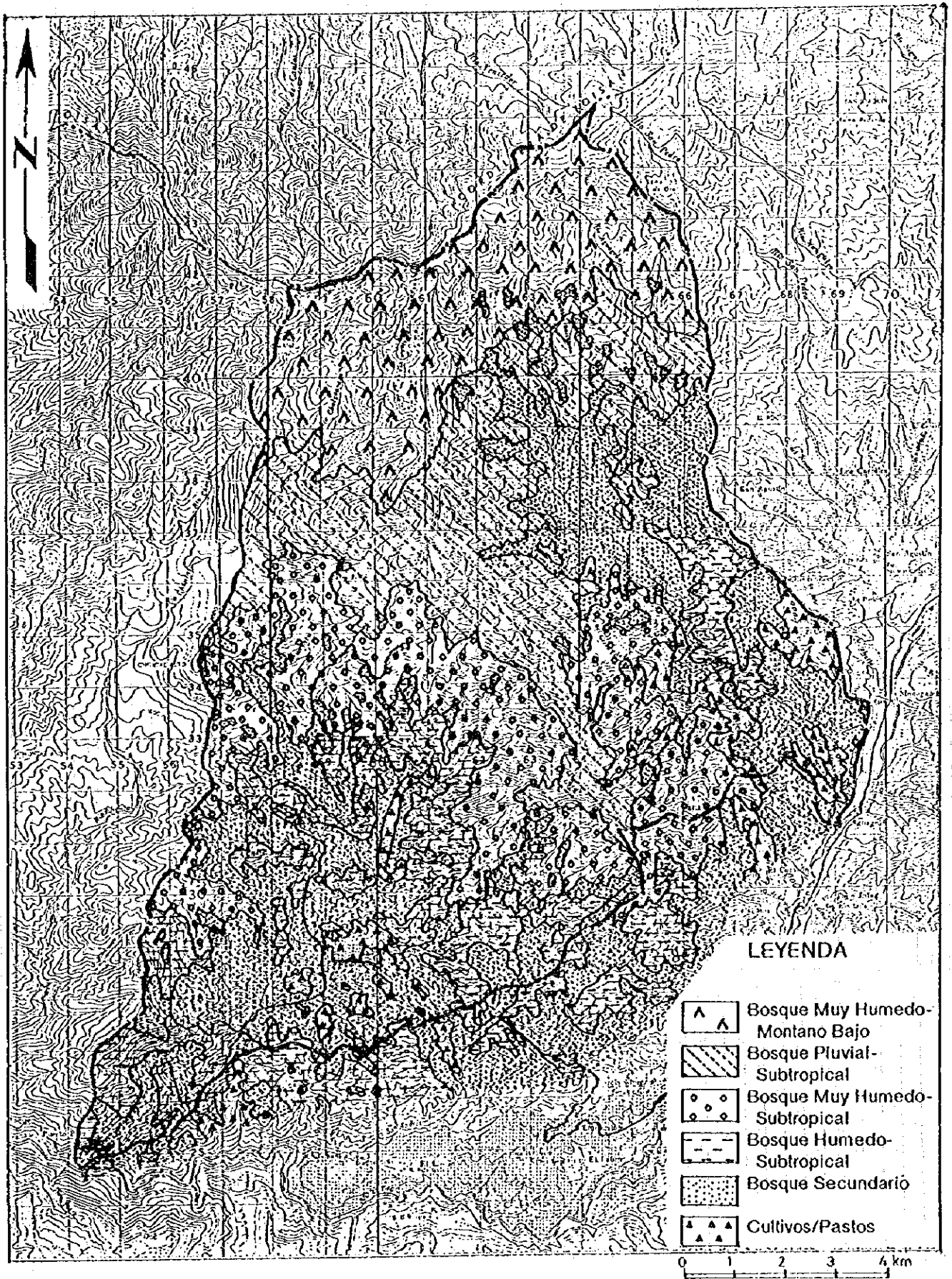
- Area de mineralizacion
  - Punto de investigacion de agua
  - W-1 Numero
  - 32.524 Caudal fluvial: m³/s
  - 12.53 Por ciento valor
  - ( ) Supuesto valor
- Corriente
- ← Entrada
  - ↓ Salida de agua subterranea

卷末 21 調査区域の植生図

卷末 22 調査ラインの植物







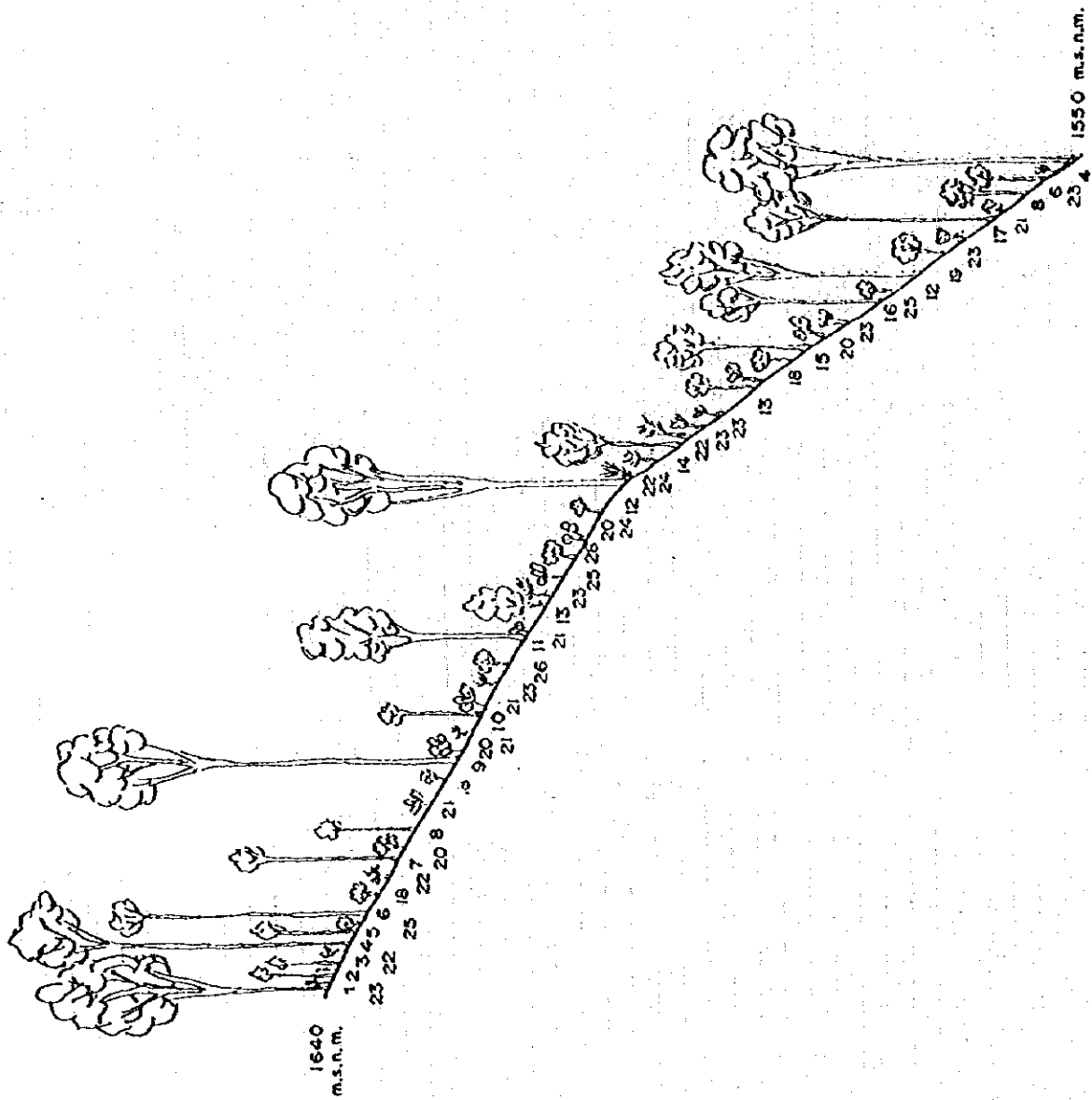
調査区域の植生図

**TRANSECTO - 1**  
**SECTOR VIA A LA MINA**

**ARBOLES**

**NOMBRES CIENTIFICOS**

- 1 Otoba sp
  - 2 Miconia sp.1
  - 3 Nephrolea rinocea
  - 4 Casearia sp.1
  - 5 Ocotea sp
  - 6 Aniba sp
  - 7 Psychotria racemosa
  - 8 Ocotea sp
  - 9 Psychotria racemosa
  - 10 Calyptranthes sp
  - 11 Beilschiedia sp
  - 12 Sapium sp
  - 13 Psychotria sp.1
  - 14 Otoba sp
  - 15 Cecropia sp.1
  - 16 Ocotea sp.2
  - 17 Vernonia sp
- ARBUSTOS Y HIERBAS**
- 18 Sauria Tormentosa
  - 19 Capparis sp
  - 20 Hedyomun sp
  - 21 Dystovamita sp
  - 22 Symphonia sp
  - 23 Miconia sp 2
  - 24 Tibouchina mollis
  - 25 Trema macrantha



# TRANSECTO-2

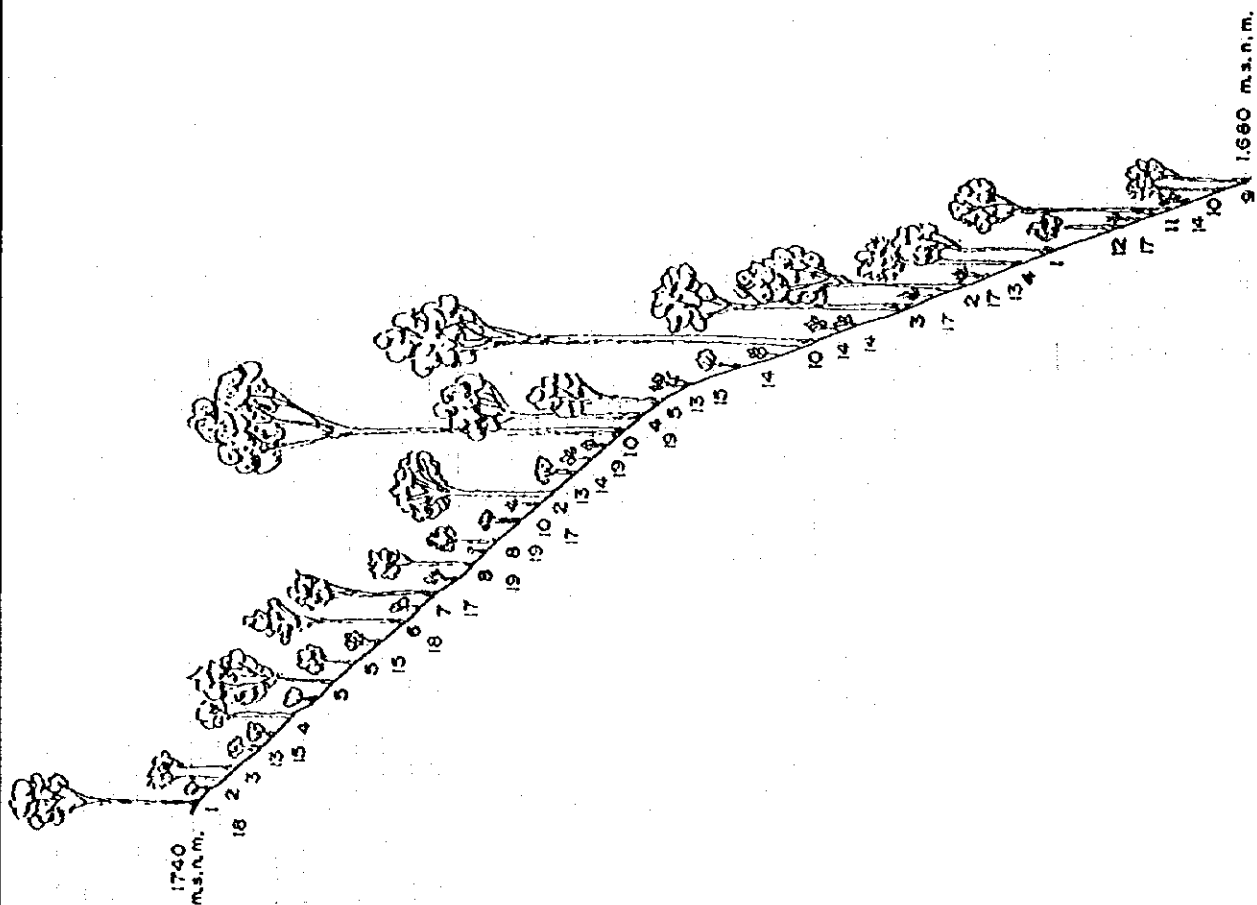
SECTOR: RIO JUNIN-E

## ARBOLES NOMBRES CIENTIFICOS

- 1 Ocotea floccerosa
- 2 Siparuna sp.
- 3 Desconocido
- 4 Miconia sp.i
- 5 Nephelaea tinorea
- 6 Nectandra sp.2
- 7 Eugenia sp.
- 8 Oroba sp.
- 9 Jacarafia sp.
- 10 Desconocido
- 11 Nectandra sp.4
- 12 Ocotea sp.2

## ARBUSTO Y HIERBAS

- 13 Saurata
- 14 Xanthosoma sp
- 15 Miconia thaezans
- 16 Calyptranthes sp.
- 17 Piper sp.
- 18 Cinchona sp.
- 19 Ayacece s.i



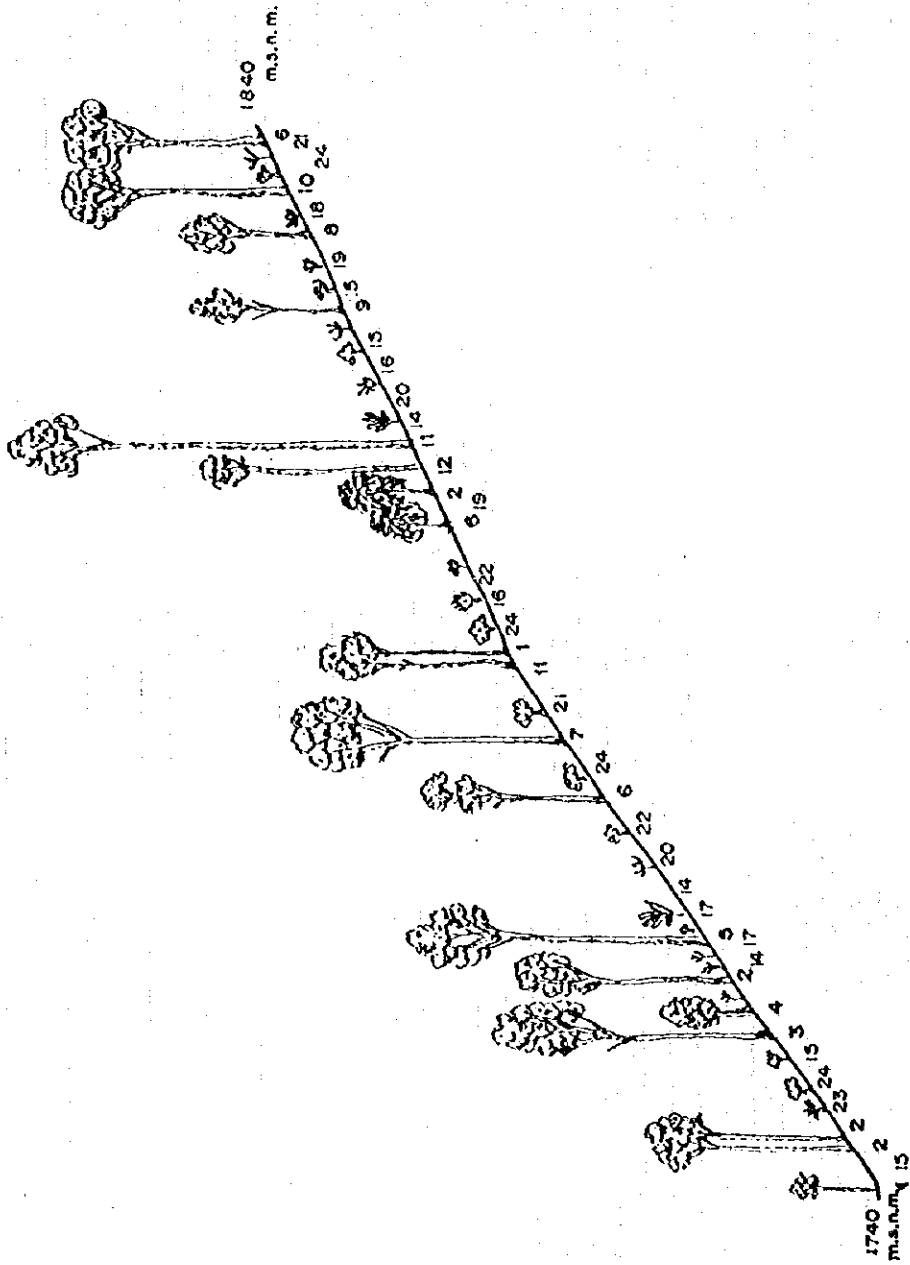
**TRANSECTO-3**

SECTOR : JUNIN-N.

**ARBOLES**

**NOMBRES CIENTIFICOS**

- 1 Miconia sp.3
- 2 Nectandra sp.2
- 3 Eugenia sp
- 4 Guetarda tournefortiopsi
- 5 Calypttranthes sp.
- 6 Vernonia sp.1
- 7 Ocotea sp.1
- 8 Carapa guianensis
- 9 Drymis sp.
- 10 Ocotea sp.2
- 11 Nectandra sp.1
- 12 Nectandra sp.1
- ARBUSTOS Y HIERBAS
- 14 Heliconia sp.
- 15 Piper sp.
- 16 Peperomia sp.
- 17 Arccea sp.
- 18 Anthurium sp.
- 19 Cestrum sp.
- 20 Bohemeoia sp.
- 21 Bomarea sp.
- 22 Psychotrie sp.
- 23 Licania sp.
- 24 Nepheles sp.



TRANSECTO-4

SECTOR: JUNIN

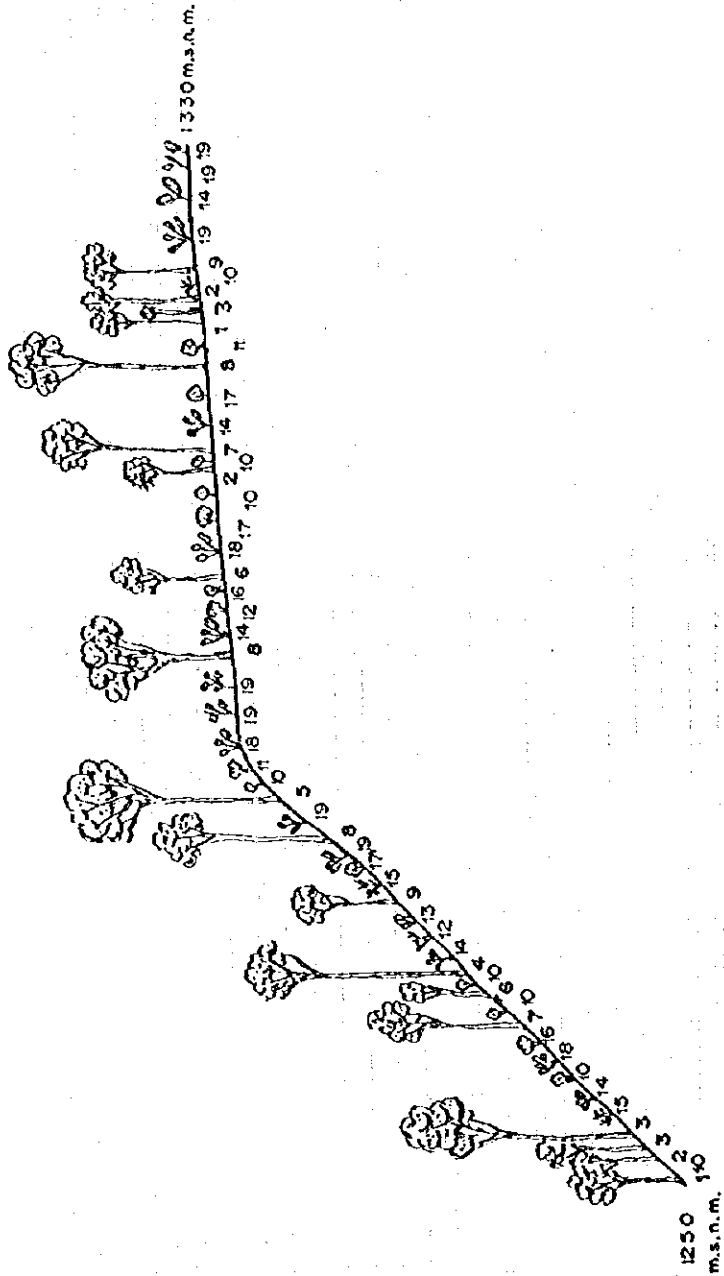
ARBOLES

NOMBRES CIENTIFICOS

- 1 Paikourea sp.1
- 2 Posoqueria sp.
- 3 Clusia sp.2
- 4 Vernonia sp.
- 5 Nectandra sp.1
- 6 Drymis sp.
- 7 Siparuna sp.
- 8 Psychotria sp.1
- 9 Capparis sp.

ARBUSTOS Y HIERBAS

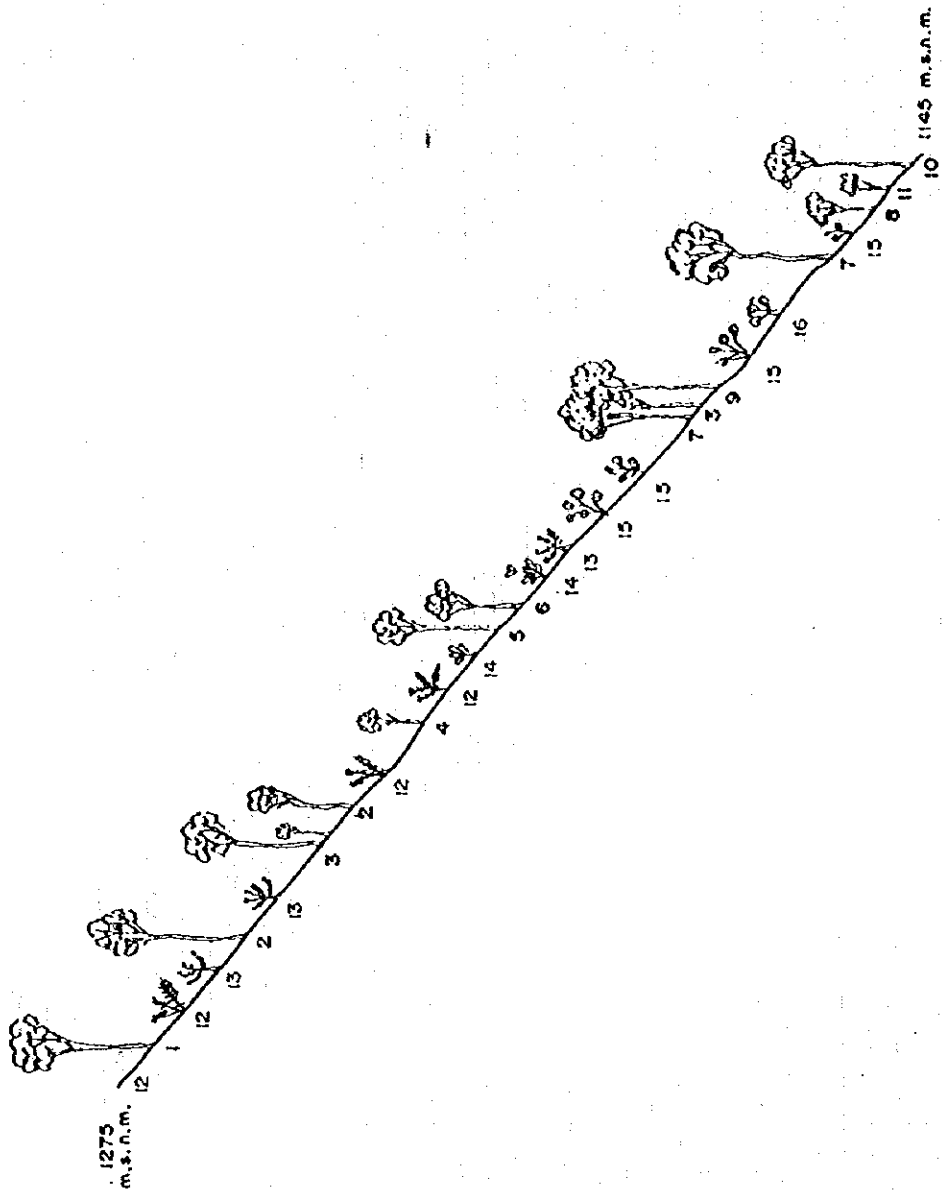
- 10 Aphelandra ocanthus
- 11 Saurauia sp.
- 12 Bomarea edulis
- 13 Philadendron sp.
- 14 Hedyosmum sp.
- 15 Piper sp.
- 16 Pentagonia
- 17 Sessea sp.
- 18 Inga sp.
- 19 Miconia sp.



**TRANSECTO - 5**  
**SECTOR CERRO NEGRO**  
**(LA MAGNOLIA)**

**ARBOLES**  
**NOMBRES CIENTIFICOS**

- 1 *Dystevomita* sp.
  - 2 *Terminalia* sp.
  - 3 *Faromea* sp.
  - 4 *Beilschmied* sp.
  - 5 *Cybianthus* sp.
  - 6 *Pelicourea* sp.
  - 7 *Nectandra* sp.3
  - 8 *Sapium* sp.
  - 9 *Freziera* sp.
  - 10 *Saurauia* sp.1
  - 11 *Posoqueria* sp.
- ARBUSTOS Y HIERBAS**
- 12 *Piper* sp.
  - 13 *Tibouchina* sp.
  - 14 *Anthurium* sp.
  - 15 *Sapium peruvianum*
  - 16 *Cestrum* sp.



**TRANSECTO-6**

**SECTOR: LA MAGNOLIA**

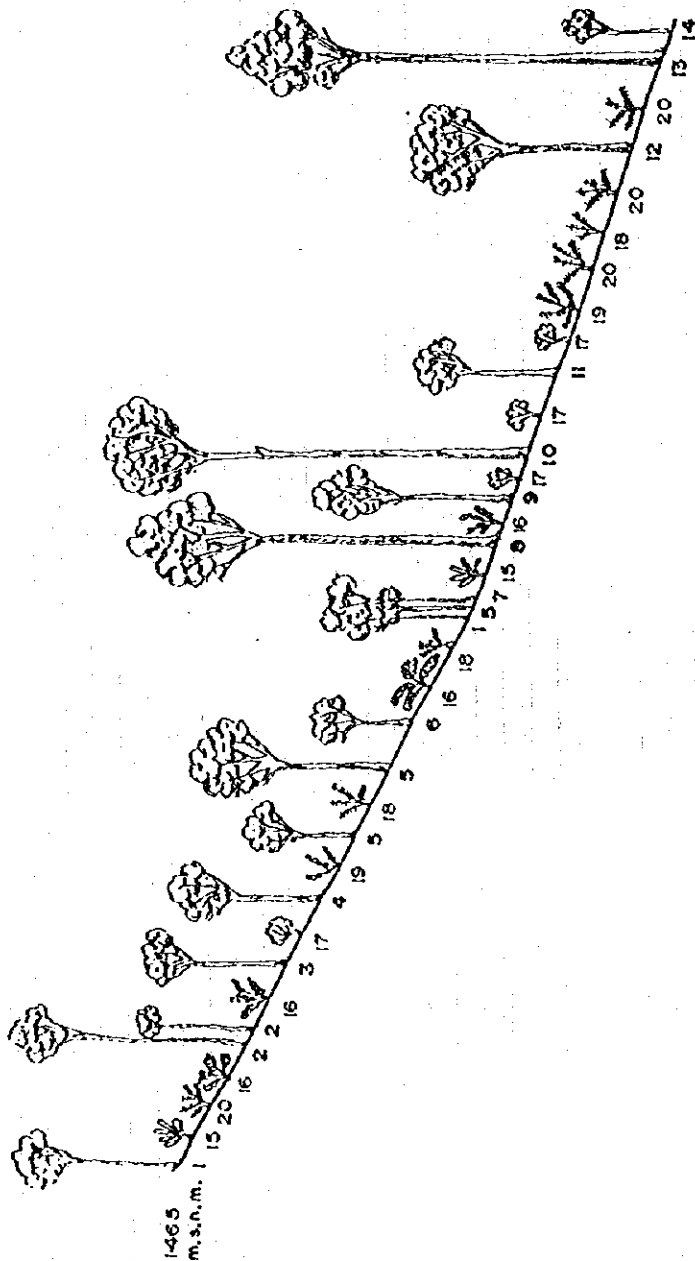
**ARBOLES**

**NOMBRES CIENTIFICOS**

- 1 Saurauia
- 2 Vernonia sp.1
- 3 Viburnum sp.2
- 4 Inga sp.1
- 5 Freziera sp.
- 6 Clusia sp.1
- 7 Nephrolep tinorea
- 8 Ocotea sp.2
- 9 Ocotea floccosa
- 10 Nectandra sp.4
- 11 Vernonia becharoides
- 12 Siparuna
- 13 Nectandra sp.4
- 14 Vernonia sp.1

**ARBUSTOS Y HIERBAS**

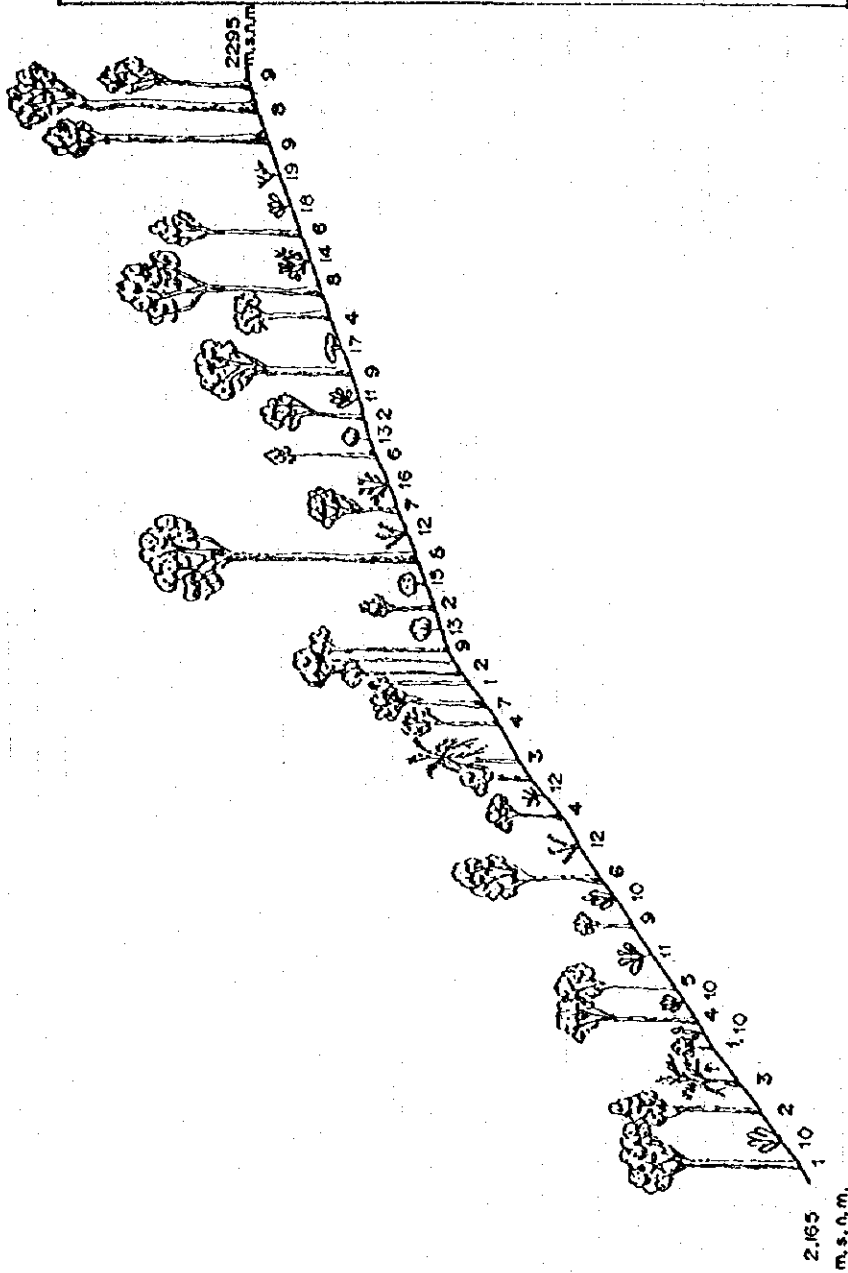
- 15 Heliconia sp.
- 16 Begonia sp.
- 17 Croton sp.
- 18 Piper sp.
- 19 Tibouchina sp.
- 20 Miconia sp.



**TRANSECTO - 7**  
**SECTOR: JUNIN (PARTE SUP.)**

**ARBOLES**  
**NOMBRES CIENTIFICOS**

- 1 Carapa guianensis
  - 2 Eugenia sp.
  - 3 Cyathea sp.
  - 4 Dystovomita sp.
  - 5 Guetarda sp.
  - 6 Carapa guianensis
  - 7 Miconia sp.
  - 8 Gordonia sp.
  - 9 Gordonia sp.
- ARBUSTOS Y HIERBAS**
- 10 Heliconia sp.
  - 11 Lantana sp.
  - 12 Piper sp.
  - 13 Ocotea sp.
  - 14 Hedyosmum sp.
  - 15 Saurdia
  - 16 Rubus sp.
  - 17 Cynanchum
  - 18 Xantosoma sp.
  - 19 Bomarea sp.





**TRANSECTO - 8**  
**SECTOR: BARCELONA -**  
**(CERRO PELADO)**

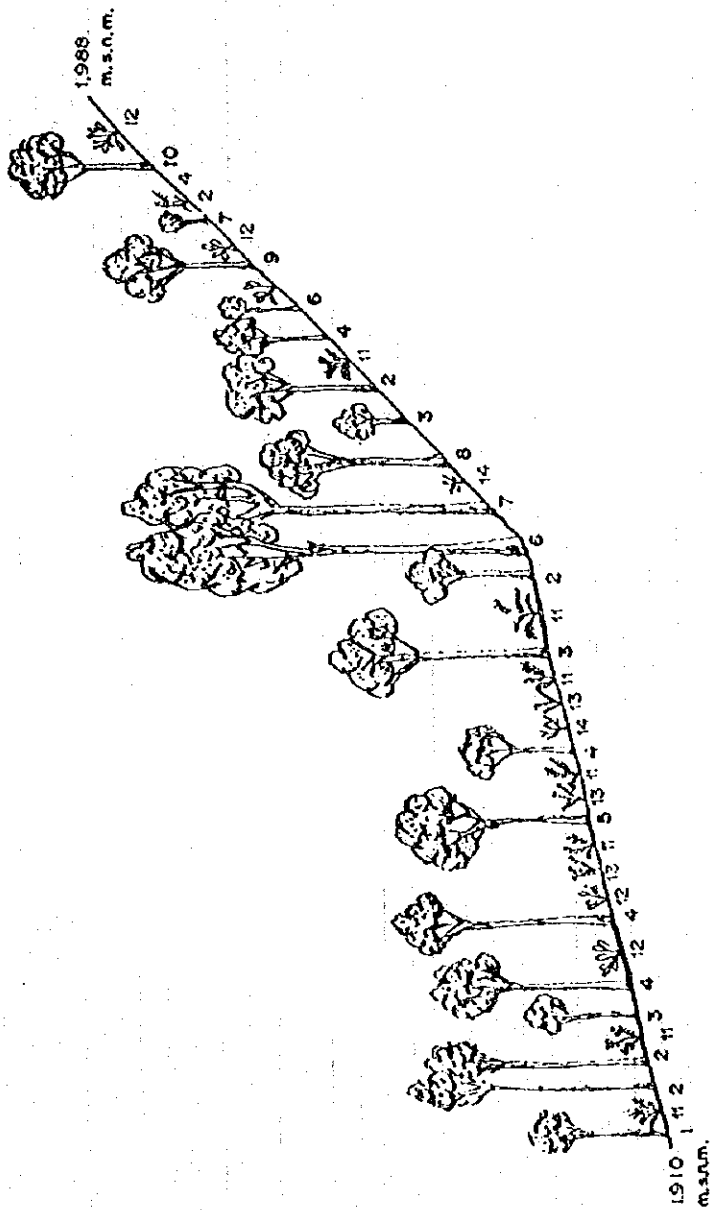
**A R B O L E S**

**NOMBRES CIENTIFICOS**

- 1 Inga sp.2
- 2 Comptonaura sp.
- 3 Ocotea floccrosa
- 4 Tibouchina mollis
- 5 Godmania sp.
- 6 Inga sp.1
- 7 Xanthosoma sp.
- 8 Palicourea sp.3
- 9 Godmania sp.
- 10 Tibouchina mollis

**ARBUSTOS Y HIERBAS**

- 11 Begonia sp.
- 12 Xanthosoma sp.
- 13 Piper spp.
- 14 Bomarea sp.

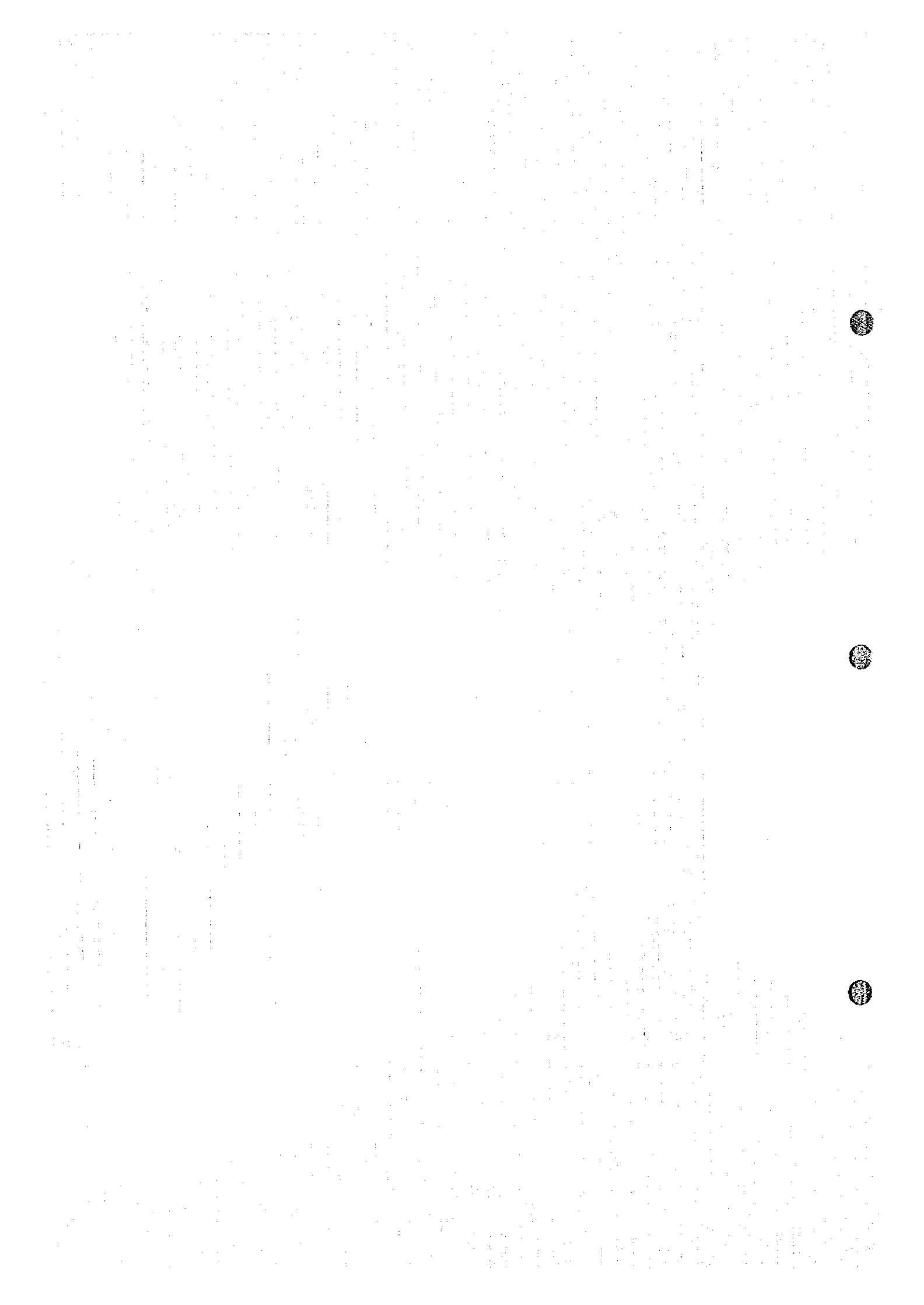


調査区域の植物種

ESPECIES ARBOREAS Y HIERBAS INVENTARIAS EN EL AREA DE ESTUDIO

FAMILIA	Nombre Científico		TRANSECTOS								Total	
			1	2	3	4	5	6	7	8		
ACTINACEAE	Saurauia	bullosa		4								4
ACTINACEAE	Saurauia	tomentosa	3									3
ACTINACEAE	Saurauia	sp.1						5	3			8
ACTINACEAE	Saurauia	sp.2							2	15		17
ACTINACEAE	Saurauia	sp.3									1	1
ANNONACEAE	of. Raimondia	sp.			1							1
ANNONACEAE	-	sp.		7	11							18
ARACEAE	Xanthosoma	sp.		12							15	27
SIGNONIACEAE	Godmania	sp.			1							1
BOMBACACEAE	Ceiba	sp.				4						4
BOMBACACEAE	Matisia	oastano			2							2
BORRAGINACEAE	Cordia	sp.								9		9
BORRAGINACEAE	Toumefortia	fuliginosa				6						6
BORRAGINACEAE	Toumefortia	sp.			2							2
BRUNELLIACEAE	Brunellia	tomentosa				2						2
CAPPARIDACEAE	Capparis	sp.	5			3						8
CAPRIFOLIACEAE	Viburnum	sp.2							1			1
CARICACEAE	Jacaratia	sp.		4								4
CHLORANTHACEAE	Hedyosmum	ouatreosanum				7				14		21
CHLORANTHACEAE	Hedyosmum	sp.	7									7
COMBRETACEAE	Terminalia	sp.						2				2
COMPOSITAE	Tessaria	sp.	9									9
COMPOSITAE	Vernonia	of. baoharoides	6	5					7			18
COMPOSITAE	Vernonia	sp.1	3		1				12			16
COMPOSITAE	Vernonia	sp.2			8	9						17
CYATHEACEAE	Cyathea	sp.			3					13		16
CYATHEACEAE	Nephelea	rinorea		9	12				6			27
DICHAPELALACEAE	Diohapetalum	sp.								5		5
EUPHORBIACEAE	Sapium	sp.	5					5	9			19
FLACOURTIACEAE	Casearia	of. pitumba						12				12
FLACOURTIACEAE	Casearia	sp.1	1		1							2
FLACOURTIACEAE	Pleuranthodendro	sp.							4			4
GUTTIFERACEAE	Klusia	sp.1							12			12
GUTTIFERACEAE	Klusia	sp.2				16						16
GUTTIFERACEAE	Dystovornita	sp.	9					13		27		49
GUTTIFERACEAE	Havetiopsis	sp.						6				6
GUTTIFERACEAE	Symphonia	sp.	3									3
LAURACEAE	Aniba	sp.	4									4
LAURACEAE	Beilschmiedia	sp.	2			5	2					9
LAURACEAE	Nectandra	aoutifolia				2						2
LAURACEAE	Nectandra	sp.1			14	1	1					16
LAURACEAE	Nectandra	sp.2		11	19				1	5	7	43
LAURACEAE	Nectandra	sp.3					3					3
LAURACEAE	Nectandra	sp.4		3		3			2		3	11
LAURACEAE	Nectandra	sp.5	1						2			3
LAURACEAE	Ocotea	of. floccosa	3	17	11	9			1		11	52
LAURACEAE	Ocotea	sp.1			2							2
LAURACEAE	Ocotea	sp.2	5	5	5	3			4			22
LAURACEAE	Ocotea	sp.3	4	10	3							17
LAURACEAE	Ocotea	sp.	13									13
LECYTHIDACEAE	Eschweilera	sp.	2			2						4
LECYTHIDACEAE	Godmania	sp.									3	3
LEGUMINOSAE	Aoaola	sp.1	1									1
LEGUMINOSAE	Inga	sp.1	1						4		13	18
LEGUMINOSAE	Inga	sp.2									9	9
LEGUMINOSAE	Swartzia	of. dariensis				3						3
LEGUMINOSAE	Swartzia	sp.					1					1
MELIACEAE	Carapa	guyanensis			5					22		27
MELIACEAE	Ruagea	glabra			3				1			4
MELASTOMATACEA	Mioonia	thaezans		21								21
MELASTOMATACEA	Mioonia	sp.1	7	2								9
MELASTOMATACEA	Mioonia	sp.2	15							7		22
MELASTOMATACEA	Mioonia	sp.3		5	13							18
MELASTOMATACEA	Mioonia	sp.4				9						9
MELASTOMATACEA	Mioonia	sp.5							15	11		26
MELASTOMATACEA	Tibouchina	mollis	5								7	12
MONIMACEAE	Siparuna	sp.		3		8			7			18
MORACEAE	Brosimum	sp.			2							2

FAMILIA	Nombre Científico		TRANSECTOS								Total	
			1	2	3	4	5	6	7	8		
MORACEAE	Ceoropia	platense	7									7
MORACEAE	Ceoropia	sp.1	5									5
MORACEAE	Ceoropia	sp.2						15				15
MORACEAE	Pseudolmedia	sp.	3									3
MORACEAE	-	sp.								4		4
MYRISTICACEAE	Compsoeura	sp.									3	3
MYRISTICACEAE	Otoba	sp.	12	15	15							42
MYRSINACEAE	Cybianthus	sp.		3	9			3				15
MYRTACEAE	Calyptanthus	sp.	5	2	2							9
MYRTACEAE	Eugenia	sp.		7	12					13		32
MYRTACEAE	Plinia	sp.								5		5
PIPERACEAE	Piper	sp.1							6			6
RUBIACEAE	Cinohona	sp.									3	3
RUBIACEAE	Elasagia	sp.			8						15	23
RUBIACEAE	Faramea	sp.	7					8				15
RUBIACEAE	Guetarda	tournefortiopsis			8							8
RUBIACEAE	Guetarda	sp.								7		7
RUBIACEAE	Palfoourea	sp.1			12	13						25
RUBIACEAE	Palfoourea	sp.2	1									1
RUBIACEAE	Palfoourea	sp.3						11			13	24
RUBIACEAE	Posoqueria	sp.				23	4					27
RUBIACEAE	Psyhotria	raemosa	23				6					29
RUBIACEAE	Psyhotria	sp.1	7	9		7						23
RUBIACEAE	Psyhotria	sp.2	6									6
RUTACEAE	Galipea	sp.								7		7
SOLANACEAE	-	sp.	2	3								5
STAPHYLACEAE	Turpinia	of.occidentalis		1								1
SYMPLOCACEAE	Symploos	sp.		3								3
THEACEAE	Freziera	sp.					2	7				9
THEACEAE	Gordonia	sp.1		7	7							14
THEACEAE	Gordonia	sp.2				1				18		19
THEACEAE	Ternstroemia	sp.					3					3
TRIGONIACEAE	Trigonia	sp.							1			1
ULMACEAE	Celtis	sp.	9									9
ULMACEAE	Trema	maorantha	12									12
VERBENACEAE	Citharexylum	sp.			7							7
WINTERACEAE	Drymis	sp.			4	3						7
desconocidas muertos				3								3
				17	6	16	19	24	11	12		105
MUSACEAE	Heliconia	sp.			2		3		9			14
PIPERACEAE	Pipereoe	sp.		4	5		4	1				14
PIPERACEAE	Peperonia	sp.			1							1
GRAMINACEAE	Chusquea	sp.						1				1
RUBIACEAE	Cinohona	sp.		2		3					5	10
RUBIACEAE	Psyootria	sp.			3							3
ARACEAE	Araoea	sp.		1	3	2			2			8
ARACEAE	Philodendron	sp.				1						1
ARACEAE	Anthurium	sp.			1				4			5
SOLANACEAE	Cestrum	sp.			4							4
URTICACEAE	Bohemeria	sp.			2							2
URTICACEAE	Pilea	sp.				2	1					3
AMARYLLIDACEAE	Bomarea	sp.			3						5	8
ROSACEAE	Lioania	sp.			1		1					2
GUTIFERACEAE	Hypericium	sp.		2		1		2				5
BEGONIACEAE	Begonia	sp.						4		7		11
ATRINIDACEAE	Saurauia	tomentosa	3	1		3			3			10
CAPPARACEAE	Caparis	sp.	2									2
CHLORANTACEAE	Hedyosmum	sp.	3			4			1			8
GUTTIFERAE	Dystovornita	sp.	4									4
MELASTOMACEAE	Mioonia	sp.	8	4		7		4				23
ULMACEAE	Trema	maorantha	3									3
		Total	236	202	234	178	130	143	212	132		1467



- 卷末 23 調査区域の生息動物種
- 卷末 24 調査区域の動物生息分布図
- 卷末 25 貴重及び絶滅危機種



調査区域の生息動物種

ESPECIES REPORTADAS EN ÁREAS PROTEGIDAS CERCANAS Y EN ÁREAS ECOLÓGICAMENTE SIMILARES (1)

(1)

MAMÍFEROS

FAMILIA	Orden	Nombre de Científico	FAMILIA	Orden	Nombre de Científico
MARSUPIALA	Didelphidae	<i>Cahuromys d. darblanus</i>	CARNIVORA	Ursidae	<i>Tremarctos ornatus</i>
MARSUPIALA	Didelphidae	<i>Marmosa impavida caucae</i>	CARNIVORA	Canidae	<i>Speothos vanalcius vanallus</i>
MARSUPIALA	Didelphidae	<i>Marmosa phaea</i>	CARNIVORA	Canidae	<i>Dusicyon culpaeus</i>
MARSUPIALA	Didelphidae	<i>Marmosa robinsoni mimetra</i>	CARNIVORA	Procyonidae	<i>Procyon cancrivorus aequatorialis</i>
MARSUPIALA	Didelphidae	<i>Philander opossum melanurus</i>	CARNIVORA	Procyonidae	<i>Nasua sp.</i>
MARSUPIALA	Didelphidae	<i>Metachirus nudicaudatus phaeurus</i>	CARNIVORA	Procyonidae	<i>Bassaricyon gabbi modestus</i>
MARSUPIALA	Didelphidae	<i>Didelphis marsupialis caucas</i>	CARNIVORA	Mustelidae	<i>Galictis vittata canaster</i>
MARSUPIALA	Didelphidae	<i>Chironectes minimus panamensis</i>	CARNIVORA	Mustelidae	<i>Eira barbara sinuensis</i>
CHIROPTERA	Emballanuridae	<i>Sacopterix Billneata</i>	CARNIVORA	Mustelidae	<i>Conepatus Chinga sub sp.</i>
CHIROPTERA	Emballanuridae	<i>Centrobryterix maximilliani centralis</i>	CARNIVORA	Mustelidae	<i>Lutra longicaudus annectens</i>
CHIROPTERA	Emballanuridae	<i>Balantiopteryx infusca</i>	CARNIVORA	Mustelidae	<i>Mustela frenata</i>
CHIROPTERA	Noctilionidae	<i>Noctilio leporinus Lepornus</i>	CARNIVORA	Felidae	<i>Felis concolor</i>
CHIROPTERA	Noctilionidae	<i>Lonchophylla mordax</i>	CARNIVORA	Felidae	<i>Felis pardalis aequatorialis</i>
CHIROPTERA	Phyllostomidae	<i>Micronycterix megalotis megalotis</i>	CARNIVORA	Felidae	<i>Felis sp.</i>
CHIROPTERA	Phyllostomidae	<i>Lonchrhina aurita occidentalis</i>	CARNIVORA	Felidae	<i>Felis yaghuarouondi panamensis</i>
CHIROPTERA	Phyllostomidae	<i>Phyllostomus hastatus panamensis</i>	CARNIVORA	Felidae	<i>Panthera onca centralis</i>
CHIROPTERA	Phyllostomidae	<i>Glossophaga longirostris longirostris</i>	PERISSODACTYLA	Tapiridae	<i>Tapirus sp.</i>
CHIROPTERA	Phyllostomidae	<i>Glossophaga soricina valens</i>	ARTIODACTYLA	Tayassuidae	<i>Tayassu pecari aequatoris</i>
CHIROPTERA	Phyllostomidae	<i>Lichonycteris obscura</i>	ARTIODACTYLA	Tayassuidae	<i>Tayassu tajacu niger</i>
CHIROPTERA	Phyllostomidae	<i>Anoura caudifera aequatoris</i>	ARTIODACTYLA	Cervidae	<i>Odocoileus virginianus</i>
CHIROPTERA	Phyllostomidae	<i>Cariacoua perspicillata azteca</i>	ARTIODACTYLA	Cervidae	<i>Mazama rufina rufina</i>
CHIROPTERA	Phyllostomidae	<i>Rhinophylla sp.</i>	LAGOMORPHA	Leporidae	<i>Sylvilagus brasiliensis surdaster</i>
CHIROPTERA	Phyllostomidae	<i>Sturria sp.</i>	LONDENTIA	Sciuridae	<i>Sciurus granatensis versicolor</i>
CHIROPTERA	Phyllostomidae	<i>Vampyrops vittatus</i>	LONDENTIA	Sciuridae	<i>Microsciurus flaviventris mimulus</i>
CHIROPTERA	Phyllostomidae	<i>Vampyressa pusilla Thyone</i>	LONDENTIA	Cricetidae	<i>Oryzomys affari Intaguensis</i>
CHIROPTERA	Phyllostomidae	<i>Ectophylla macconelli</i>	LONDENTIA	Cricetidae	<i>Oryzomys capito castaneus</i>
CHIROPTERA	Phyllostomidae	<i>Artibeus cinereus rosebergi</i>	LONDENTIA	Cricetidae	<i>Oryzomys spodiurus</i>
CHIROPTERA	Phyllostomidae	<i>Artibeus jamaicensis traterculus</i>	LONDENTIA	Cricetidae	<i>Oryzomys calliginosus calliginosus</i>
CHIROPTERA	Phyllostomidae	<i>Artibeus lituratus hercules</i>	LONDENTIA	Cricetidae	<i>Oryzomys hammondi</i>
CHIROPTERA	Desmodontidae	<i>Desmodus rotundus</i>	LONDENTIA	Cricetidae	<i>Nectomys affari esmeraldarum</i>
CHIROPTERA	Vespertilionidae	<i>Myotis nigricans nigricans</i>	LONDENTIA	Cricetidae	<i>Rhipidomys latimanus pictor</i>
CHIROPTERA	Vespertilionidae	<i>Myotis albescens</i>	LONDENTIA	Cricetidae	<i>Rhipidomys leucodactylus aequatoris</i>
CHIROPTERA	Vespertilionidae	<i>Eptesicus sp.</i>	LONDENTIA	Cricetidae	<i>Tylomys mirae mirae</i>
CHIROPTERA	Vespertilionidae	<i>Rhogeessa parvula sub sp.</i>	LONDENTIA	Cricetidae	<i>Akodon sp.</i>
CHIROPTERA	Vespertilionidae	<i>Dasypterus sp.</i>	LONDENTIA	Cricetidae	<i>Signmodon hispidus choneasis</i>
CHIROPTERA	Melossidae	<i>Molossops aequatorianus</i>	LONDENTIA	Cricetidae	<i>Ichthyomys hydrobates carinus</i>
CHIROPTERA	Melossidae	<i>Tadarida macrotis</i>	LONDENTIA	Heteromidae	<i>Heteromys australis australis</i>
CHIROPTERA	Melossidae	<i>Eumops auripendula</i>	LONDENTIA	Echimyidae	<i>Proechimys guyanensis sub sp.</i>
CHIROPTERA	Melossidae	<i>Abramsus sp.</i>	LONDENTIA	Echimyidae	<i>Proechimys semispinosus calidior</i>
CHIROPTERA	Melossidae	<i>Eumops glaucinus</i>	LONDENTIA	Echimyidae	<i>Hoplomys gymnurus gymnurus</i>
CHIROPTERA	Melossidae	<i>Molossus sp.</i>	LONDENTIA	Echimyidae	<i>Diplomys caniceps</i>
CHIROPTERA	Melossidae	<i>Molossus molossus molossus</i>	LONDENTIA	Echimyidae	<i>Echimyus sp.</i>
CHIROPTERA	Melossidae	<i>Promops desimont</i>	LONDENTIA	Dasyproctidae	<i>Cuniculus taczomowski</i>
EDENTATA	Myrmecophagidae	<i>Myrmecophaga tridactyla tridactyla</i>	LONDENTIA	Dasyproctidae	<i>Dasyprocta punctata chocoesis</i>
EDENTATA	Myrmecophagidae	<i>Tamandua Tetradactyla chirtquerla</i>	LONDENTIA	Dasyproctidae	<i>Aquididae sp.</i>
EDENTATA	Myrmecophagidae	<i>Cyclops didactyla era</i>	LONDENTIA	Dasyproctidae	<i>Agouti paca quanta</i>
EDENTATA	Bradypoda	<i>Bradypus infuscatus ophippiger</i>	LONDENTIA	Erethizontidae	<i>Coendou bicolor richardsoni</i>
EDENTATA	Bradypoda	<i>Choloepus hollmani capitallis</i>	PLIMATES	Cebidae	<i>Alouatta villosa aequatorialis</i>
EDENTATA	Dasyproctidae	<i>Dasyprocta noemictus aequatorialis</i>	PLIMATES	Cebidae	<i>Ateles fusciceps fusciceps</i>
			PLIMATES	Cebidae	<i>Cebus albifrons aequatorialis</i>
			PLIMATES	Cebidae	<i>Cebus capucinus</i>

ESPECIES REPORTADAS EN ÁREAS PROTEGIDAS CERCANAS Y EN ÁREAS ECOLÓGICAMENTE SIMILARES (3)

REPTILES

FAMILIA	Orden	Nombre de Científico	FAMILIA	Orden	Nombre de Científico
CHELONIA	Kinosternidae	<i>Kinosternon leucostotum dumeril</i>	OPHIDIA	Boidae	<i>Boa constrictor imperator</i>
CHELONIA	Emydidae	<i>Galopsis nasuta</i>	OPHIDIA	Colubridae	<i>Atractus sp.</i>
CHELONIA	Emydidae	<i>Galopsis annulata</i>	OPHIDIA	Colubridae	<i>Hasilogodyras boddaerti boddaerti</i>
SAURIA	Anquidae	<i>Diploglossus monotropis</i>	OPHIDIA	Colubridae	<i>Oxybelis brevirostris</i>
SAURIA	Telidae	<i>Ameliva bridgesti</i>	OPHIDIA	Colubridae	<i>Sixon nebulata nebulata</i>
SAURIA	Iguanidae	<i>Anolis chloris</i>	OPHIDIA	Elapidae	<i>Micurus ancoralis ancoralis</i>
SAURIA	Iguanidae	<i>Anolis granuliceps</i>	OPHIDIA	Viperidae	<i>Bothrops nasuta</i>
SAURIA	Iguanidae	<i>Anolis princeps</i>			
SAURIA	Iguanidae	<i>Basiliscus galeritus</i>			
SAURIA	Iguanidae	<i>Eryalioides heterolepis</i>			

ESPECIES REPORTADAS EN ÁREAS PROTEGIDAS CERCANAS  
Y EN ÁREAS ECOLÓGICAMENTE SIMILARES (2)

AVES (1)

(2)

Orden	Nombre de Científico	Orden	Nombre de Científico
A. - de 0 a 800 m.s.n.m.		A. - de 0 a 800 m.s.n.m.	
Tinamidae	<i>Flinamus major</i>	Bucconidae	<i>Notarchus pectoralis</i>
Tinamidae	<i>Crypturellus cinereus</i>	Bucconidae	<i>Nystalus radiatus</i>
Phalacrocoracidae	<i>Phalacrocorax olivaceus</i>	Bucconidae	<i>Malacoptila panamensis</i>
Ardeidae	<i>Casmerodius albus</i>	Capitonidae	<i>Capito squamatus</i>
Ardeidae	<i>Egretta thula</i>	Capitonidae	<i>Eubucco borleri</i>
Ardeidae	<i>Florida carulea</i>	Ramphastidae	<i>Pteroglossus erythroptylus</i>
Ardeidae	<i>Butorides striatus</i>	Ramphastidae	<i>Pteroglossus sanguineus</i>
Ardeidae	<i>Agamia agami</i>	Ramphastidae	<i>Ramphastos brevis</i>
Cathartidae	<i>Coragyps atratus</i>	Ramphastidae	<i>Setendera reinwardtii</i>
Cathartidae	<i>Cathartes</i>	Picidae	<i>Picus rubiginosus</i>
Accipitridae	<i>Elanoides forficatus</i>	Picidae	<i>Picumnus olivaceus</i>
Accipitridae	<i>Ictinia olumbicata</i>	Picidae	<i>Ceileus forficatus</i>
Accipitridae	<i>Accipiter bicolor</i>	Picidae	<i>Dryocopus lineatus</i>
Accipitridae	<i>Buteo magnirostris</i>	Picidae	<i>Melanerpes pucheran</i>
Accipitridae	<i>Leucopternis princeps</i>	Picidae	<i>Veniliornis cassini</i>
Falconidae	<i>Herpetotheres cachinnas</i>	Picidae	<i>Piculus leucolaemus</i>
Falconidae	<i>Microrastur ruficollis</i>	Endrocolaptidae	<i>Dendrocincla fuliginosa</i>
Pandionidae	<i>Pandion hallaeus</i>	Endrocolaptidae	<i>Glyphorhynchus spirurus</i>
Cracidae	<i>Panelope purpurascens</i>	Endrocolaptidae	<i>Dendrocolaptes certhia</i>
Phalacrocoracidae	<i>Rhynchortyx cinctus</i>	Endrocolaptidae	<i>Xiphorhynchus lachrymosus</i>
Rallidae	<i>Neocrex erythrops</i>	Endrocolaptidae	<i>Xiphorhynchus erythroptylus</i>
Heliornithidae	<i>Heliornis fulcata</i>	Endrocolaptidae	<i>Lepidocolaptes souleyetii</i>
Scolopacidae	<i>Actitis macularia</i>	Endrocolaptidae	<i>phloeocastus guayaquilensis</i>
Columbidae	<i>Columba speciosa</i>	Furnariidae	<i>Synallaxis brachyura</i>
Columbidae	<i>Columba cayanaensis</i>	Furnariidae	<i>Hylodictes subulatus</i>
Columbidae	<i>Columba plumbea</i>	Furnariidae	<i>Phyllidox erythrocerus</i>
Columbidae	<i>Columba goodsoni</i>	Furnariidae	<i>Automolus ochrolaemus</i>
Columbidae	<i>Claravis pretiosa</i>	Furnariidae	<i>Xenops rufilaud</i>
Columbidae	<i>Leptotila pallida</i>	Furnariidae	<i>Xenops minutus</i>
Columbidae	<i>Geotrygon saphirina</i>	Furnariidae	<i>Sclerurus guatemalensis</i>
Columbidae	<i>Geotrygon veraguensis</i>	Furnariidae	<i>Sclerurus mexicanus</i>
Psittacidae	<i>Pionopsitta haematotis</i>	Formicariidae	<i>Cymbilaimus lineatus</i>
Psittacidae	<i>Pionus menstruus</i>	Formicariidae	<i>Ttaraba major</i>
Psittacidae	<i>Pionus chalcopterus</i>	Formicariidae	<i>Thamnophilus punctatus</i>
Cuculidae	<i>Piaya cayana</i>	Formicariidae	<i>Thamnophilus anabatinus</i>
Cuculidae	<i>Piaya minuta</i>	Formicariidae	<i>Myrmothreula brachyura</i>
Cuculidae	<i>Crotophaga ani</i>	Formicariidae	<i>Myrmothreula surinamensis</i>
Cuculidae	<i>Crotophaga sulcirostris</i>	Formicariidae	<i>Myrmothreula fulviventris</i>
Cuculidae	<i>Tapera naevia</i>	Formicariidae	<i>Myrmothreula axillaris</i>
Strigidae	<i>Galucidium brasilianum</i>	Formicariidae	<i>Microrhopias quixensis</i>
Caprimulgidae	<i>Nyctiphrynus ocellatus</i>	Formicariidae	<i>Cercomacra tyrannina</i>
Caprimulgidae	<i>Caprimulgus parvulus</i>	Formicariidae	<i>Stipa berlepschi</i>
Apodidae	<i>Streptoprocne zonaris</i>	Formicariidae	<i>Myrmeciza exsul</i>
Apodidae	<i>Cypseloides natus</i>	Formicariidae	<i>Myrmeciza laevis</i>
Apodidae	<i>Chaetura cinereiventris</i>	Formicariidae	<i>Myrmeciza immaculata</i>
Apodidae	<i>Chaetura spinicauda</i>	Formicariidae	<i>Gymnophis leucaspis</i>
Trochilidae	<i>Andron aequatorialis</i>	Formicariidae	<i>Phaenostictus moleanani</i>
Trochilidae	<i>Glaucis aenea</i>	Formicariidae	<i>Formicarius nigrocapillus</i>
Trochilidae	<i>Threnetes ruckeri</i>	Formicariidae	<i>Formicarius nigricapillus</i>
Trochilidae	<i>Phaetornis yaruqui</i>	Formicariidae	<i>Hyllopezus perspicillatus</i>
Trochilidae	<i>Phaetornis longuemareus</i>	Formicariidae	<i>Pygiptila stellaris</i>
Trochilidae	<i>Eutoxera aquila</i>	Formicariidae	<i>Dysithamnus mentalis</i>
Trochilidae	<i>Florisuga mellivora</i>	Formicariidae	<i>Dysithamnus puncticeps</i>
Trochilidae	<i>Popelairia conversii</i>	Cotingidae	<i>Carpodectes hokel</i>
Trochilidae	<i>Thalurana furcata</i>	Cotingidae	<i>Lipaugus unirufus</i>
Trochilidae	<i>Hyocharis grayi</i>	Cotingidae	<i>Pachyrhamphus cinnamomeus</i>
Trochilidae	<i>Amazilia amabilis</i>	Cotingidae	<i>Platypsaris homochrous</i>
Trochilidae	<i>Amazilia rosenbergi</i>	Cotingidae	<i>Tityra semifasciata</i>
Trochilidae	<i>Amazilia tzacatl</i>	Cotingidae	<i>Tityra inquisitor</i>
Trochilidae	<i>Chalybura urochrysa</i>	Cotingidae	<i>Querula purpurata</i>
Trochilidae	<i>Heliotrix barroet</i>	Tipidae	<i>Pipra mentalis</i>
Trochilidae	<i>Acestria bombus</i>	Tipidae	<i>Pipra coronata</i>
Trogonidae	<i>Trogon viridis</i>	Tipidae	<i>Manacus manacus</i>
Trogonidae	<i>Trogon rufus</i>	Tipidae	<i>Chloroptero holochlora</i>
Trogonidae	<i>Trogon comptus</i>	Tipidae	<i>Sapayoa aenigma</i>
Momotidae	<i>Ectoplon platyrhynchum</i>	Tyrannidae	<i>Sayornis nigricans</i>
Momotidae	<i>Baryphengus ruficapitis</i>	Tyrannidae	<i>Colonia colonus</i>
Galbulidae	<i>Galbula ruficauda</i>	Tyrannidae	<i>Tyrannus melancholicus</i>
Bucconidae	<i>Notarchus macrocorychus</i>	Tyrannidae	<i>Tyrannus niveigularis</i>



ESPECIES REPORTADAS EN ÁREAS PROTEGIDAS CERCANAS  
Y EN ÁREAS ECOLÓGICAMENTE SIMILARES (2)

AVES (2)

(3)

Orden	Nombre de Científico	Orden	Nombre de Científico
A. - de 0 a 800 m s.n.m.		A. - de 0 a 800 m s.n.m.	
Tyrannidae	Legatus leucophalus	Thraupidae	Bangsia rotschilii
Tyrannidae	Conopias parva	Thraupidae	Thraupis episcopus
Tyrannidae	Megarynchus pitangua	Thraupidae	Thraupis palmarum
Tyrannidae	Myiodynastes maculatus	Thraupidae	Rhamphocelus icteronotus
Tyrannidae	Myiozetetes cayanensis	Thraupidae	Chlorothraupis olivacea
Tyrannidae	Myiozetetes granadensis	Thraupidae	Tachyphonus luctuosus
Tyrannidae	Myiozetetes similis	Thraupidae	Tachyphonus delatrill
Tyrannidae	Rhytipternis simplex	Thraupidae	Heterospingus xanthopygius
Tyrannidae	Mitrephanes phaeocercus	Thraupidae	Mitrospingus castanil
Tyrannidae	Terentrioccus erythrurus	Thraupidae	Erythrothlypis salmoni
Tyrannidae	Myobius barbatus	Thraupidae	Chlorospingus flavovirens
Tyrannidae	Myiophobus fasciatus	Thraupidae	Chlorospingus flavigularis
Tyrannidae	Myiophobus phoenicomitra	Fringillidae	Saltator maximus
Tyrannidae	Myioliccus ornata	Fringillidae	Saltator stripenis
Tyrannidae	Platyrinchus coronatus	Fringillidae	Pitylus grossus
Tyrannidae	Phynchocyclus brevirostris	Fringillidae	Cyanocompsa cyanoidae
Tyrannidae	Todirostrum cinereum	Fringillidae	Volatinia jacarina
Tyrannidae	Lophotriccus pileatus	Fringillidae	Sporophila americana
Tyrannidae	Myiornis ecaudatus	Fringillidae	Sporophila nigricollis
Tyrannidae	Elaenia flavogaster	Fringillidae	Sporophila telasco
Tyrannidae	Myiopagis viridicata	Fringillidae	Arremon aurantirostris
Tyrannidae	Campostoma absoletum	Fringillidae	Arremonops conirostris
Tyrannidae	Tyranniscus nigrocapilus	B. - De 3000 a 4500 m s.n.m.	
Tyrannidae	Tyrannulus elatus	Podicipedidae	Podiceps occipitalis
Tyrannidae	Leptopogon superciliosus	Podicipedidae	Podilymbus podiceps
Tyrannidae	Mionectes olivaceus	Anatidae	Anas flavirostris
Hirundidae	phaeoprogne tapera	Cathartidae	Vultur gryphus
Hirundidae	Progne chalybea	Accipitridae	Buteo polysoma
Hirundidae	Notiochelidon cyanoleuca	Accipitridae	Geranoaetus melanoleucus
Hirundidae	nochelidon tibialis	Falconidae	Falco sparverius
Hirundidae	Steigodopteryx ruficollis	Falconidae	Phalacroboenus carunculatus
Hirundidae	Riparia riparia	Falconidae	Fulica americana
Troglodytidae	Troglodytes aedon	Charadriidae	Vanellus resplendens
Troglodytidae	Thryothorus nigricapillus	Scolopachidae	Gallinago nobilis
Troglodytidae	Henicorhina leucophrys	Laridae	Larus serranus
Troglodytidae	Henicorhina leucosticta	Columbidae	Columba livia
Troglodytidae	Campylorhynchus zonatus	Columbidae	Columba fasciata
Turdidae	Turdus absoletus	Columbidae	Zenaidura macroura
Turdidae	Microbatas cineriventris	Columbidae	Caprimulgus longirostris
Sylviidae	Poliopitila plumbea	Apodidae	Cypseloides nuytius
Sylviidae	Poliopitila schistaceigula	Trochilidae	Lesbia victorinae
Sylviidae	Smaragdolanus leucotis	Trochilidae	Lesbia nuna
Vireonidae	Vireo olivaceus	Trochilidae	Colibri coruscans
Vireonidae	Hypothymis ochraceus	Trochilidae	Patagona gigas
Vireonidae	Hypothymis minor	Trochilidae	Oreotrochilus estella
Vireonidae	Melanerpes formicivorus	Trochilidae	Ramphomicron microrhynchum
Icteridae	Melanerpes formicivorus	Trochilidae	Agelaius phoeniceus
Icteridae	Scaphidura oryzivora	Picidae	Piculus rivoli
Icteridae	Caclus cela	Formicariidae	Grallaria gigantea
Icteridae	Dives warszewitzi	Furnariidae	Cinclodes excelsior
Icteridae	Cassidix mexicanus	Furnariidae	Cinclodes luscus
Icteridae	Icterus mesomelas	Colingidae	Ampelis rubrocapitata
Parulidae	Geothlypis semiflava	Tyrannidae	Elaenia albiceps
Parulidae	Basileuterus rivularis	Tyrannidae	Melocercus leucophrys
Coerebidae	Coereba flaveola	Tyrannidae	Ochlocoeca fumicolor
Coerebidae	Chlorophanes spiza	Hirundidae	Notiochelidon cyanoleuca
Coerebidae	Dacnis cyana	Hirundidae	Notiochelidon murina
Coerebidae	Dacnis lineata	Turdidae	Turdus serranus
Coerebidae	Dacnis venusta	Turdidae	Turdus fuscafer
Coerebidae	Dacnis berlepschi	Motacillidae	Anthus bogotensis
Thraupidae	Chlorophonia flavirostris	Coerebidae	Diglossa carbonaria
Thraupidae	Euphonia xanthogaster	Thraupidae	Anisognathus igniventris
Thraupidae	Euphonia fulvicrissa	Fringillidae	Zonotrichia capensis
Thraupidae	Euphonia tanthrostris	Fringillidae	Atlapetes rufinucha
Thraupidae	Tangara rufigula	Fringillidae	Atlapetes pallidinucha
Thraupidae	Tangara cyanicollis	Fringillidae	Catamantia inornata
Thraupidae	Tangara nigrocincta	Fringillidae	Pheucticus chrysoplepus
Thraupidae	Tangara palmeri	Fringillidae	Cyanocompsa cyanoides
Thraupidae	Tangara gyrola	Fringillidae	Spinus magellanicus
Thraupidae	Tangara lavinia	Fringillidae	Spinus pinescens

INSECTOS

(4)

FAMILIA	Orden	TRANSECTO		
		CHALGUAYACU - JUNIN	MAGNOLIA	BARCELONA
DERMAPTERA	Carabidae	○		
DERMAPTERA	Gryllidae	○		
DERMAPTERA	Canthartidae	○		
DERMAPTERA	Chrysomelidae	○		
DERMAPTERA	Blattidae	○		
DERMAPTERA	Vespidae	○		○
DERMAPTERA	Formicidae	○		
DERMAPTERA	Oestridae	○		
DERMAPTERA	Scarabaeidae	○		
DERMAPTERA	Phasmidae	○		
DERMAPTERA	Tettigonoidea	○		○
DERMAPTERA	Curculionidae	○		
DERMAPTERA	Elateridae	○		
DERMAPTERA	Cicindelidae	○		
DESMAPTERA	Passalidae	○		○
DESMAPTERA	Buprestidae	○		○
DESMAPTERA	Dytiscidae	○		○
DESMAPTERA	Acrididae	○		
DESMAPTERA	Formicidae	○		
DESMAPTERA	Apidae	○		
DESMAPTERA	Carabidae	○		
DIPTERA	Lomyridae	○		
DIPTERA	Ephemeroptera	○		
DIPTERA	Rutelidae	○		
DIPTERA	Lucanidae	○		
MEGALOPTERA	Acrididae	○		
MEGALOPTERA	Dynastidae	○		
HEMIPTERA	Passalidae	○		
HEMIPTERA	Buprestidae	○		
HEMIPTERA	Cercopidae	○		
LEPIDOPTERA	Cicadellidae	○		
LEPIDOPTERA	Dytisidae	○		
LEPIDOPTERA	Brenthidae	○		
LEPIDOPTERA	Hydrophilidae	○		
LEPIDOPTERA	Cerambycidae	○		
LEPIDOPTERA	Ichneumidae	○		
LEPIDOPTERA	Staphylinidae	○		
LEPIDOPTERA	Actidae	○		
LEPIDOPTERA	Geleicoidea	○		
LEPIDOPTERA	Noctuidea	○		
LEPIDOPTERA	Cicadidae	○		
LEPIDOPTERA	Tettigonoidea	○		
LEPIDOPTERA	Reduviidae	○		
LEPIDOPTERA	Chrysomelidae	○		
LEPIDOPTERA	Scarabaeidae	○		
LEPIDOPTERA	Formicidae		○	○
LEPIDOPTERA	Gnathidae		○	○
LEPIDOPTERA	Cercopidae		○	
LEPIDOPTERA	Opilionidae		○	
LEPIDOPTERA	Passalidae		○	
LEPIDOPTERA	Carabidae		○	○
LEPIDOPTERA	Chrysomelidae		○	
LEPIDOPTERA	Lampyridae		○	
LEPIDOPTERA	Canthartidae		○	
LEPIDOPTERA	Meliponidae		○	
LEPIDOPTERA	Vespidae		○	○
LEPIDOPTERA	Oestridae			○
LEPIDOPTERA	Elateridae	○		
ODONATA	Actidae	○		
EPHEMEROPTERA	Formicidae	○		
HIMENOPTERA	Gryllidae	○		

AVES

(5)

FAMILIA	Orden	Especie	TRANSECTO			SECTOR
			CHALGUAYACU - JUNIN	MAGNOLIA	BARCELONA	INTERVENIDO
FALCONIFORMES	Cathartidae	Cathartes aura		○		○
FALCONIFORMES	Cathartidae	Coragyps atratus	○	○	○	○
FALCONIFORMES	Accipitridae	Accipiter bicolor			○	
FALCONIFORMES	Accipitridae	Buteo polyosoma	○			
CUCULIFORMES	Cuculidae	Crotophaga ani		○		
CUCULIFORMES	Cuculidae	Playa cayana		○		
GALLIFORMES	Cracidae	Penelope montagnii	○			
GALLIFORMES	Columbidae	Columba fasciata	○			
GALLIFORMES	Columbidae	Columba subvinacea	○			
GALLIFORMES	Columbidae	Geotrygon frenata	○			
PSITTACIFORMES	Psittacidae	Pionus chalcopterus	○			
APODIFORMES	Apodidae	Streptoprogne zonaris				○
APODIFORMES	Trochilidae	Doryfera ludovicianae	○			
APODIFORMES	Trochilidae	Agelaiocercus kingi	○			
APODIFORMES	Trochilidae	coeligena wilsoni	○			
APODIFORMES	Trochilidae	Agelaiocercus coelestis	○			
APODIFORMES	Trochilidae	Colibri thalassinus	○			
TROGONIFORMES	Trogonidae	Trogon complanatus	○			
TROGONIFORMES	Trogonidae	Pharomachrus auriceps	○			
PICIFORMES	Capitonidae	Sayornis ramphastinus	○			
COLUMBIFORMES	Columbidae	Columba plumbea			○	
COLUMBIFORMES	Cuculidae	Playa cayana			○	
PICIFORMES	Capitonidae	Sayornis ramphastinus			○	
PICIFORMES	Bucconidae	Nystalus radiatus ?			○	
PICIFORMES	Bucconidae	Hapaloptila castaneae			○	
PASSERIFORMES	Tyrannidae	Myiozetetes cayanensis			○	
PASSERIFORMES	Vireonidae	Vireo leucophrys			○	
PASSERIFORMES	Fringillidae	Pheucticus auroventris		○	○	
PASSERIFORMES	Fringillidae	Zonotrichia capensis			○	
PASSERIFORMES	Fringillidae	Zonotrichia capensis			○	
PASSERIFORMES	Fringillidae	Tiaris olivacea			○	○
PASSERIFORMES	Fringillidae	Sporophila nigricollis			○	○
PASSERIFORMES	Fringillidae	Sporophila obscura			○	○
PASSERIFORMES	Troglodytidae	Chirospingus semifuscus			○	○
PASSERIFORMES	Troglodytidae	Euphonia musica			○	○
PASSERIFORMES	Troglodytidae	Euphonia xanthogaster			○	○
PASSERIFORMES	Thraupidae	Ramphocelus icteronotus			○	○
PASSERIFORMES	Thraupidae	Thraupis episcopus			○	○
PASSERIFORMES	Tyrannidae	Tyrannus melancholicus			○	○
PASSERIFORMES	Tyrannidae	Tyrannus tyrannus			○	○
PASSERIFORMES	Formicariidae	Myrmotherula schisticolor			○	○
PASSERIFORMES	Icteridae	Psarocolius angustifrons			○	○
PASSERIFORMES	Hirundinidae	Notiochelidon cyanoleuca	○	○	○	○
PASSERIFORMES	Columbidae	Pachyrhamphus polychopterus	○			

MAMIFEROS

(6)

FAMILIA	Orden	Especie	TRANSECTO		
			CHALGUAYACU - JUNIN	MAGNOLIA	BARCELONA
MARSUPIALIA	Didelphidae	Caluromys derbianus	○	○	
MARSUPIALIA	Didelphidae	Didelphis albiventris	○	○	○
MARSUPIALIA	Didelphidae	Marmosa robinsoni	○	○	○
MARSUPIALIA	Didelphidae	Marmosa impavida	○	○	
MARSUPIALIA	Didelphidae	Metachirus nudicaudatus	○	○	○
MARSUPIALIA	Didelphidae	Philan der opossum	○	○	○
CHIROPTERA	Emballonuridae	Especie sin identificar	○		
CHIROPTERA	Emballonuridae	Cormura brevirostris		○	
CHIROPTERA	Phyllostomidae	Aoura sp.	○		○
CHIROPTERA	Phyllostomidae	Carollia brevicauda		○	○
CHIROPTERA	Phyllostomidae	Carollia castanea			
CHIROPTERA	Phyllostomidae	Chiroderma sp.	○		
CHIROPTERA	Phyllostomidae	Desmodus sp.	○		
CHIROPTERA	Phyllostomidae	Lonchophylla sp.	○		
CHIROPTERA	Phyllostomidae	Micronycteris sp.	○		
CHIROPTERA	Phyllostomidae	Rhinophylla sp.	○		
CHIROPTERA	Phyllostomidae	Sturnira sp.	○		
CHIROPTERA	Phyllostomidae	Vampyrops sp.	○		
CHIROPTERA	Vespertilionidae	Myotis sp.	○		
CHIROPTERA	Molossidae	Promops sp.	○		
CHIROPTERA	Molossidae	Tadarida sp.	○		
LAGOMORPHA	Leporidae	Sylvilagus brasiliensis			○
PRIMATES	Cebidae	Cebus sp.	○		
EDENTATA	Dasyproctidae	Dasyprocta novemcinctus	○		
RODENTIA	Sciuridae	Microsciurus mimulus	○		○
RODENTIA	Sciuridae	Sciurus granatensis	○		○
RODENTIA	Cricetidae	Oryzomys albigularia	○		
RODENTIA	Cricetidae	Oryzomys spodiurus	○		
RODENTIA	Cricetidae	Oryzomys sp.	○		
RODENTIA	Erethizontidae	Coendou bicolor	○		○
RODENTIA	Dinomyidae	Dinomys branckii	○		○
RODENTIA	Dasyproctidae	Dasyprocta punctata	○		○
RODENTIA	Agoutidae	Agouti pacá	○		○
CARNIVORA	Canidae	Speothos venaticus	○		○
CARNIVORA	Mustelidae	Conepatus chinga	○		○
CARNIVORA	Felidae	Felis pardalis	○		○
CARNIVORA	Felidae	Felis concolor	○		○
CARNIVORA	Felidae	Felis tigrina	○		
CARNIVORA	Felidae	Leo onca	○		
PERISSODACTYLA	Tapiridae	Tapirus bairdi	○		
PERISSODACTYLA	Tapiridae	Tapirus pinchaque	○		
ARTIODACTYLA	Tayassuidae	Tayassu sp.	○		
ARTIODACTYLA	Cervidae	Mazama sp.	○		

REPTILES

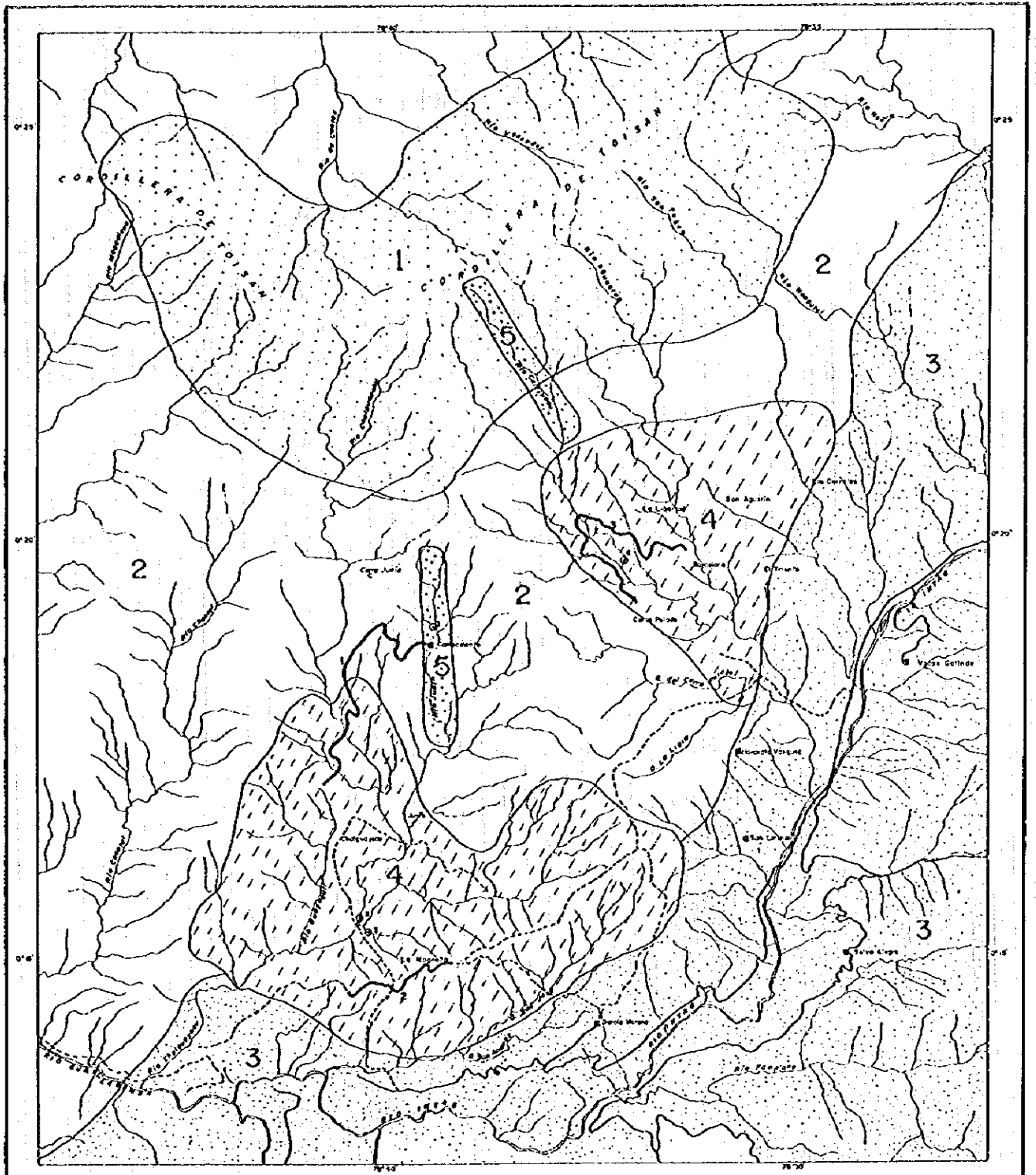
(7)

FAMILIA	Orden	Especie	TRANSECTO		
			CHALGUAYACU - JUNIN	MAGNOLIA	BARCELONA
SAURIA	Gekkonidae	Lepldoblepharis grandis	○	○	
SAURIA	Iguanidae	Iguana iguana	○		
SAURIA	Gekkonidae	Lepldoblepharis sp.			○
SAURIA	Gymnophthalmidae	Alopoglossus festae			○
SAURIA	Gymnophthalmidae	Proctoporus hypostictus			○
SAURIA	Polychridae	Anolis gemmosus	○	○	○
SAURIA	Polychridae	Ameiva septemlineatus			○
SAURIA	Polychridae	Ophryessoides iridescens		○	
SERPENTES	Boidae	Boa constrictor imperator	○		
SERPENTES	Colubridae	dendrophidion brunneum	○		
SERPENTES	Colubridae	Atractus sp.		○	
SERPENTES	Colubridae	Imantodes cenchoa		○	
SERPENTES	Colubridae	Clelia Clelia			○
SERPENTES	Viperidae	Bothriechis schlegelii	○		
SERPENTES	Viperidae	Bothrops atrox	○	○	

ANFIBIOS

(8)

FAMILIA	Orden	Especie	TRANSECTO		
			CHALGUAYACU - JUNIN	MAGNOLIA	BARCELONA
ANURA	Bufoidae	Atelopus coynel	○		
ANURA	Bufoidae	Bufo marinus	○	○	○
ANURA	Leptodactylidae	Efeutherodactylus wagneri	○		
ANURA	Leptodactylidae	Efeutherodactylus achalinus	○		○
ANURA	Leptodactylidae	Efeutherodactylus appendiculatus	○		
ANURA	Leptodactylidae	Efeutherodactylus walkeri	○		
ANURA	Leptodactylidae	Efeutherodactylus duellmani	○		
ANURA	Leptodactylidae	Efeutherodactylus sp. nov. sp.	○		
ANURA	Centrolenidae	Centrolene geckoideum		○	
ANURA	Hylidae	Gastrofeca sp.			○
ANURA	Hylidae	Hyla alytolylax		○	
ANURA	Hylidae	Hyla sp.			○



**SIMBOLOGIA**

Cursos de agua	Tremaclos orachus Felidae
Poblados	Marsupialia Chiroptera, Tarsusidae, Canidae, Falconiformes, Galliformes, Psittaciformes, Trogoniformes, Piciformes, Passeriformes
Senderos	Rodentia, Marsupialia, Zonotrichia Capensis, Coragyps Atreus
Carretera	Rodentia, Mammalia, Marsupialia, Sauridae, Artiodactyla, Falconiformes, Trogoniformes, Apodiformes, Piciformes
Transectos	Rupicola Peruviana
Fauna oculta	
Campamento	

**MAPA DE FAUNA  
MAMIFEROS - AVES  
AREA MINERA JUNIN**

調査区域の動物生息分布図

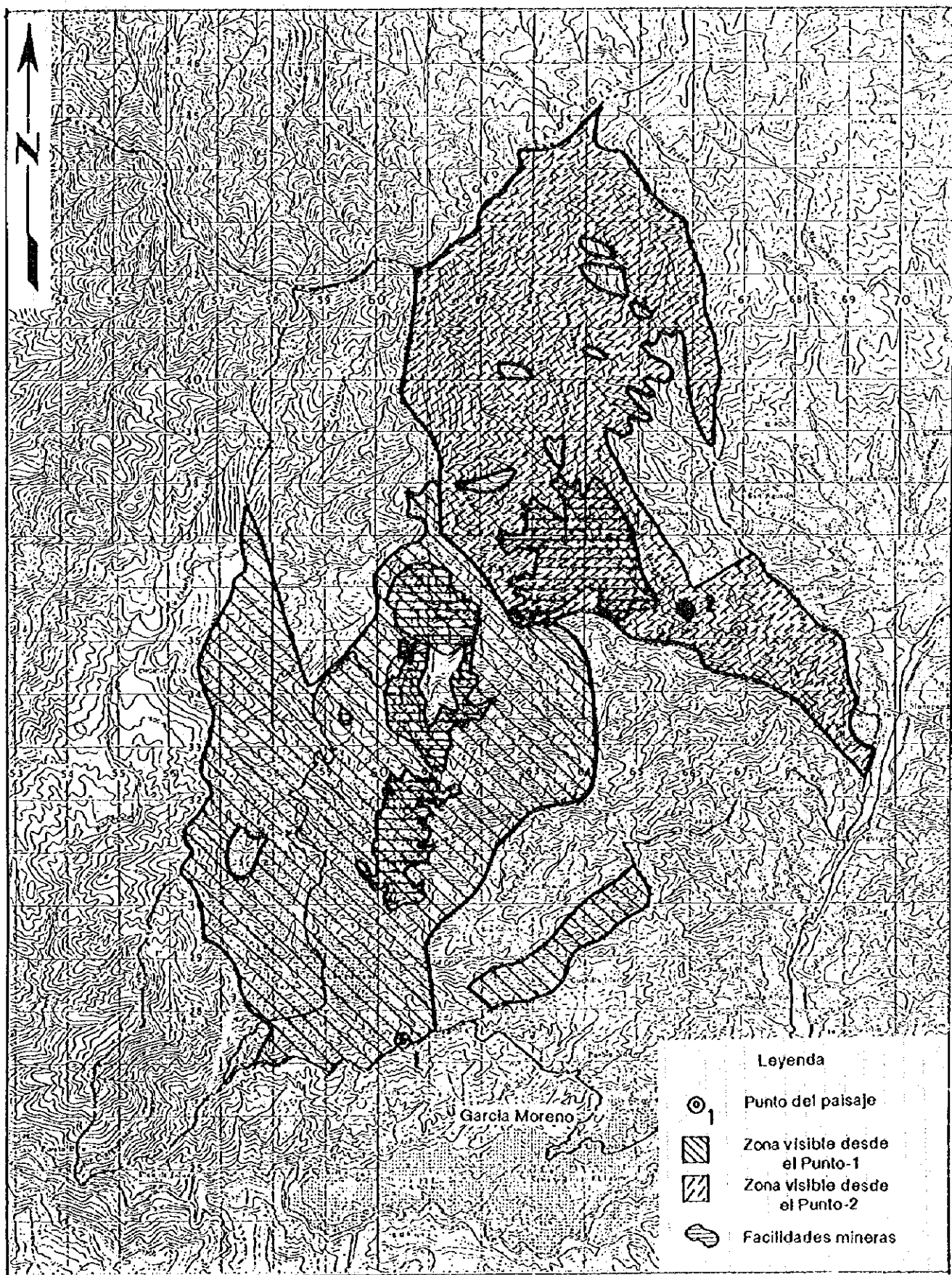
貴重及び絶滅危機種

FAMILIA	NOMBRE CIENTIFICO
RUBIACEAE	Cinchona sp.
MYRISTICACEAE	Eugenia sp.
MYRISTICACEAE	Otoba sp.
LAURACEAE	Ocotea floccrosa
MELIACEAE	Carapa guianensis
COMBRETACEAE	Terminalia sp.
LECYTIDAE	Godmania sp.
LEGUMINOCEAE	Swardtiza dariensis
COMPOSITAE	Tessaria sp.
LAURACEAE	Nectandra sp.
BRUNELLIACEAE	Brunellia tomentosa
MORACEAE	Pseudolmedia sp.

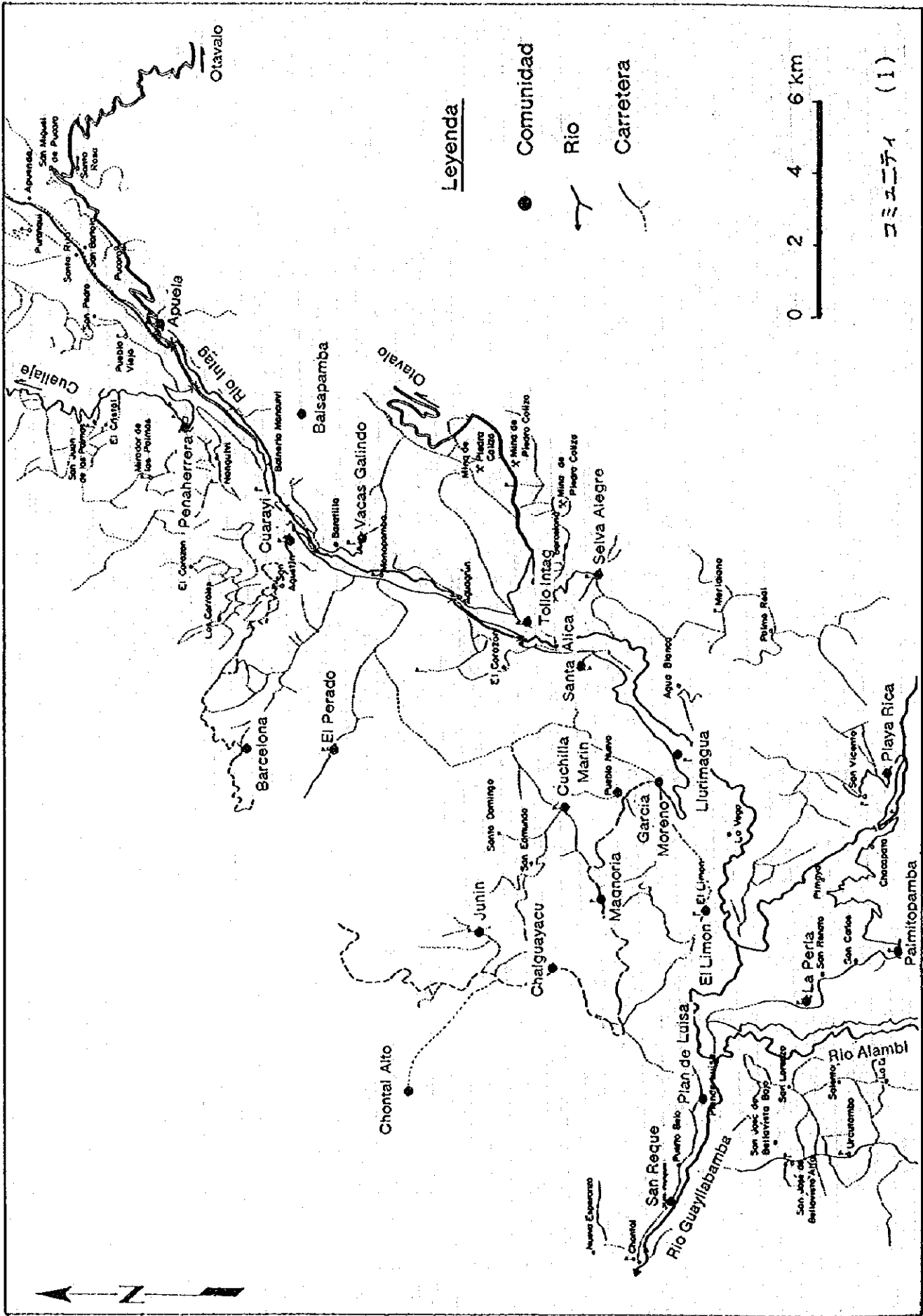
- 卷末 26 主要眺望地点
- 卷末 27 コミュニティー
- 卷末 28 地方行政区分
- 卷末 29 人口統計







主要眺望地点



コミュニティ (2)

Provincia	Canton	Parroquia	Comunidad
Imbabura	Cotacachi	Apuela	Apuela *1
		Garcia Moreno	Garcia Moreno *1
			Santa Alicia
			El Pelado
	Llurimagua	Cuchilla Marin	
Junin			
La Magnolia			
El Limon	Chalguayacu		
	Chontal		
	Plan de Luisa		
San Rique			
	Vacas Galindo	Vacas Galindo *1	
	Balsapamba		
Penaherrera	Penaherrera		
	Cuarabi		
Barcelona			
	Otavalo	Selva Alegre	Selva Alegre *1
Pichincha	Quito	Nanegal	Playa Rica
			Palmitopamba
			La Perla



人口統計

(1) Poblacion local y tablas de crecimiento

(1)

Area de Investigacion (Parroquia)	Area	Poblacion			Densidad de Poblacion(1995)	Tasa de Crecimiento
	km <sup>2</sup>	1982	1990	1995	Hab/km <sup>2</sup>	%
Apuela	230.0	2456	2392	2411	10.48	-0.33
Cabeceras Parroquiales		499	352	355		-4.30
Resto de Parroquias		1957	2040	2056		0.56
Garcia Moreno	755.6	3997	4374	4476	5.92	0.83
Cabeceras Parroquiales		271	118	186		-4.66
Resto de Parroquias		3726	4256	4290		1.50
Penaherrera	120.0	2740	2663	2684	22.37	-0.43
Cabeceras Parroquiales		332	370	373		1.43
Resto de Parroquias		2408	2293	2311		-0.60
Vacas Galindo	40.0	1129	1179	1188	29.70	0.23
Cabeceras Parroquiales		208	199	201		-0.49
Resto de Parroquias		921	980	987		0.39
Selva Alegre	129.0	2028	2081	2098	16.26	0.48
Cabeceras Parroquiales		403	203	204		-3.21
Resto de Parroquias		1625	1878	1894		2.00
TOTAL	1274.6	12350	12689	12857	10.09	0.40
Cabeceras Parroquiales		1713	1242	1319		-3.35
Resto de Parroquias		10637	11447	11538		-0.92

(INEC, 1995)

(2)

(2) Tasa de Crecimiento

Area de Investigacion (Parroquia)	Duracion (ano)			
	1950-1962	1962-1974	1974-1982	1982-1990
Apuela	5.21	0.09	-0.27	-0.33
Garcia Moreno	5.77	4.03	2.81	0.83
Penaherrera	1.55	2.3	0.21	-0.34
Vacas Galindo	4.05	0.83	-1.05	0.23
Selva Alegre	6.71	2.3	1.08	0.48

(INEC, 1995)

### (3) Poblacion por Edad Segun Parroquias

Area de Investigacion (Parroquia)	Edad(1990)			Total
	0-19	20-59	>60	
Apuela	1339	828	225	2392
Garcia Moreno	2648	1569	223	4440
Penaherrera	1453	979	231	2663
Vacas Galindo	668	424	87	1179
Selva Alegre	1112	819	155	2081
Total	7220	4614	921	12755

(INEC, 1995)

### (4) Poblacion por Sexo Segun Parroquias

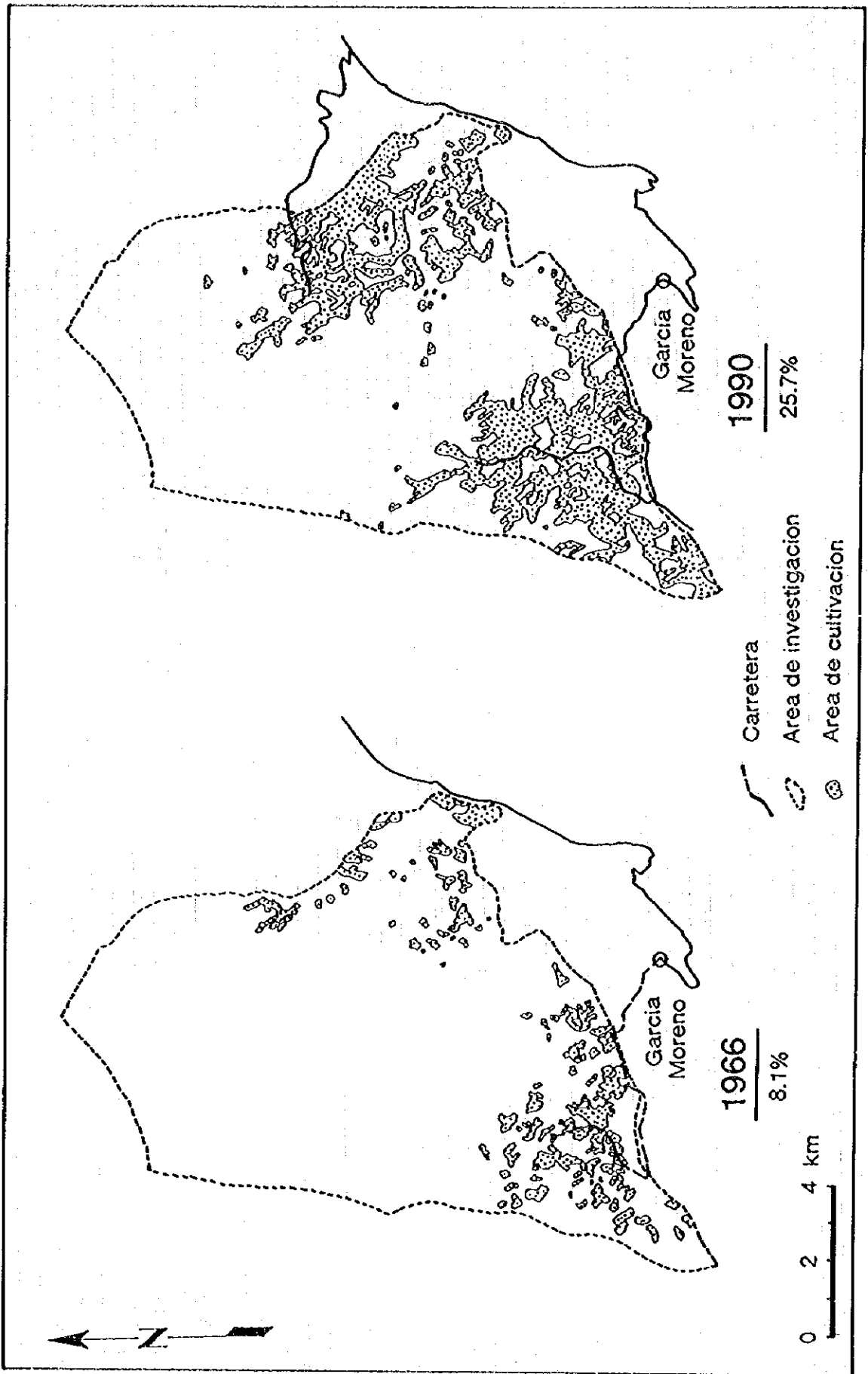
Area de Investigacion (Parroquia)	1990			Total
	Hombres	Mujeres	Indice Masculino	
Apuela	1257	1135	1.11	2392
Garcia Moreno	2466	1974	1.25	4440
Penaherrera	1429	1234	1.16	2663
Vacas Galindo	637	547	1.16	1179
Selva Alegre	1155	926	1.25	2081
Total	6939	5816	1.19	12755

(INEC, 1995)

卷末 30 開墾  
卷末 31 農業生産物







開墾

## 農業生産物

### Produccion en la Provincia de Imbabura

(Pocentaje en relacion a la produccion total del país, 1994)

Productos Principales	(%)	Productos Secundarios	(%)
Frijol seco	16,96	Cabuya	74,63
Mais suave seco	12,60	Esparrago	33,54
Zanahoria blanca	11,49	Vid	30,80
Trigo	9,93	Coliflor	22,28
Arveja seca	8,31	Quinua	19,45
Arveja tierna	7,52	Pepinillo	18,69
Tomate rinon	6,87	Rabano	15,51
Cebada	6,30	Aguacate	14,01
Frijol tierno	6,06	Aji	13,99
Maiz suave choclo	5,20	Anis	12,96
Col	3,16	Camote	12,31
Haba seca	2,77	Mel loco	7,78
Lechuga	2,74	Chocho	7,02
Cebolla colorada	2,18	Limon	3,63
Yuca	2,04	Remolacha	2,87
Papa	1,14	Mora	2,20
Cebolla blanca	1,08	Durazno	1,99
Maiz duro	0,93	Palma africana	1,67
Zanahoria amarilla	0,40	Pimiento	1,47
Haba tierna	0,26	Chirimoya	1,26
Lenteja	0,12	Platano	1,10
		Tomate de arbol	1,05
		Mandarina	1,00
		Manzana	0,93
		Frutilla	0,84
		Papaya	0,80

(INEC, 1994)

卷末 32 調査区域の教育状況

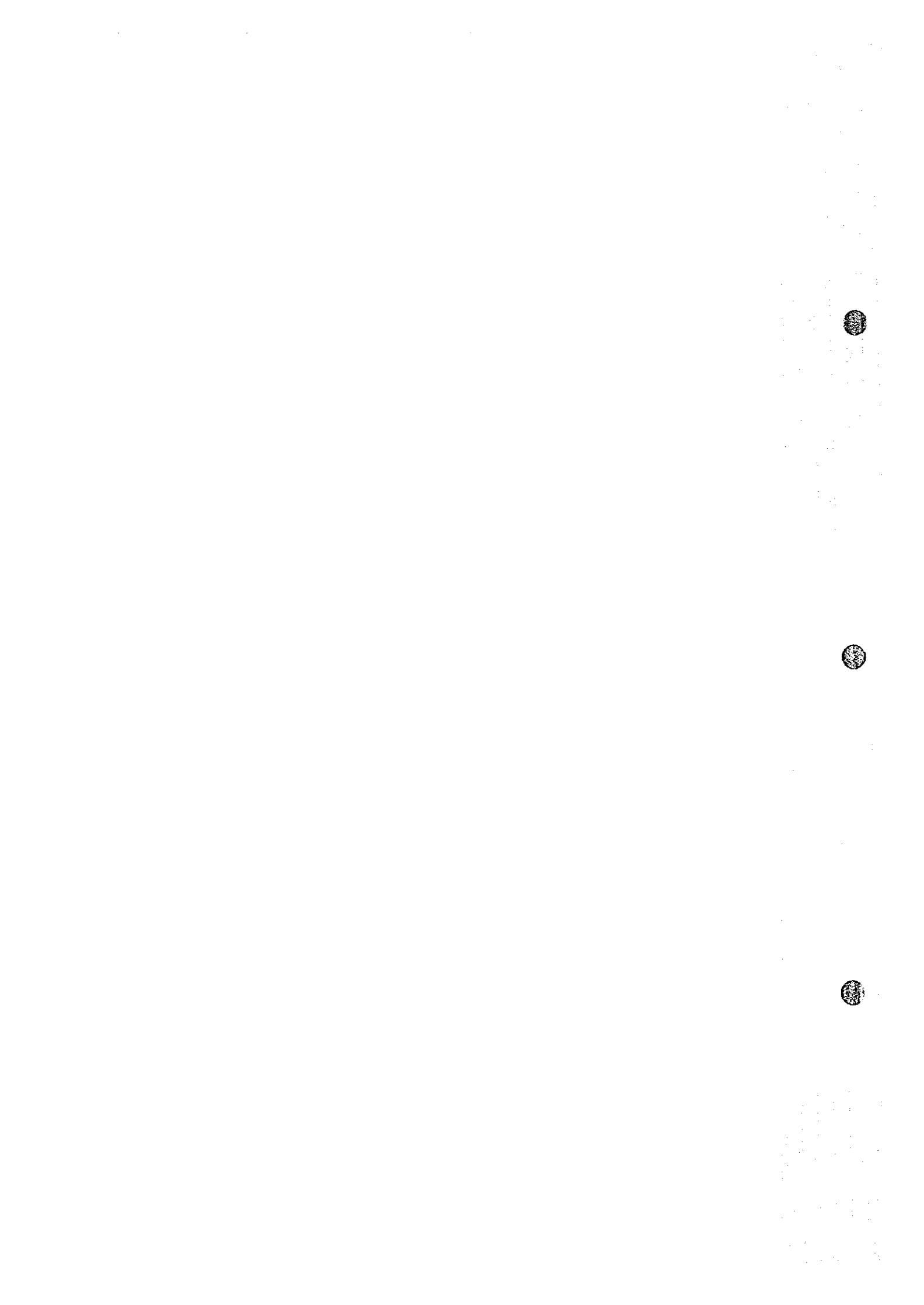


調査区域の教育状況

Poblacion de 6 Anos y Mas, por Nivel de Instruccion Segun Parroquias, 1990

Area de Investigacion	Nivel de Instruccion							Total
	Ninguno	Centro de Alfabetizacion	Primaria	Secundaria	Superior	Postgrado	No declarado	
Apuela	2	435	51	1	112	11	0	65
Cabeceras parroquias	300	38	12	175	65	7		3
Resto parroquias	2	397	39	1,087	47	4		62
Garcia Moreno	3,443	603	12	2,68	100	13	0	35
Cabeceras parroquias	153	13	0	114	20	4		2
Resto parroquias	3,29	590	12	2,566	80	9		33
Penaherrera	2,127	425	29	1,478	147	10	0	28
Cabeceras parroquias	302	29	4	192	61	6		10
Resto parroquias	1,825	396	25	1,296	86	4		18
Vacas Galindo	927	209	9	667	33	4	0	5
Cabeceras parroquias	158	19	0	123	14	1		1
Resto parroquias	796	190	9	544	19	3		4
Selva Alegre	1,674	461	6	1,058	73	29	0	47
Cabeceras parroquias	170	30	2	103	21	9		5
Resto parroquias	1,504	431	4	955	52	20		42
Total	10,107	2,133	107	7,155	465	67	0	180
Cabeceras parroquias	1,083	129	18	707	181	27		21
Resto parroquias	9,024	2,004	89	6,448	284	40		159

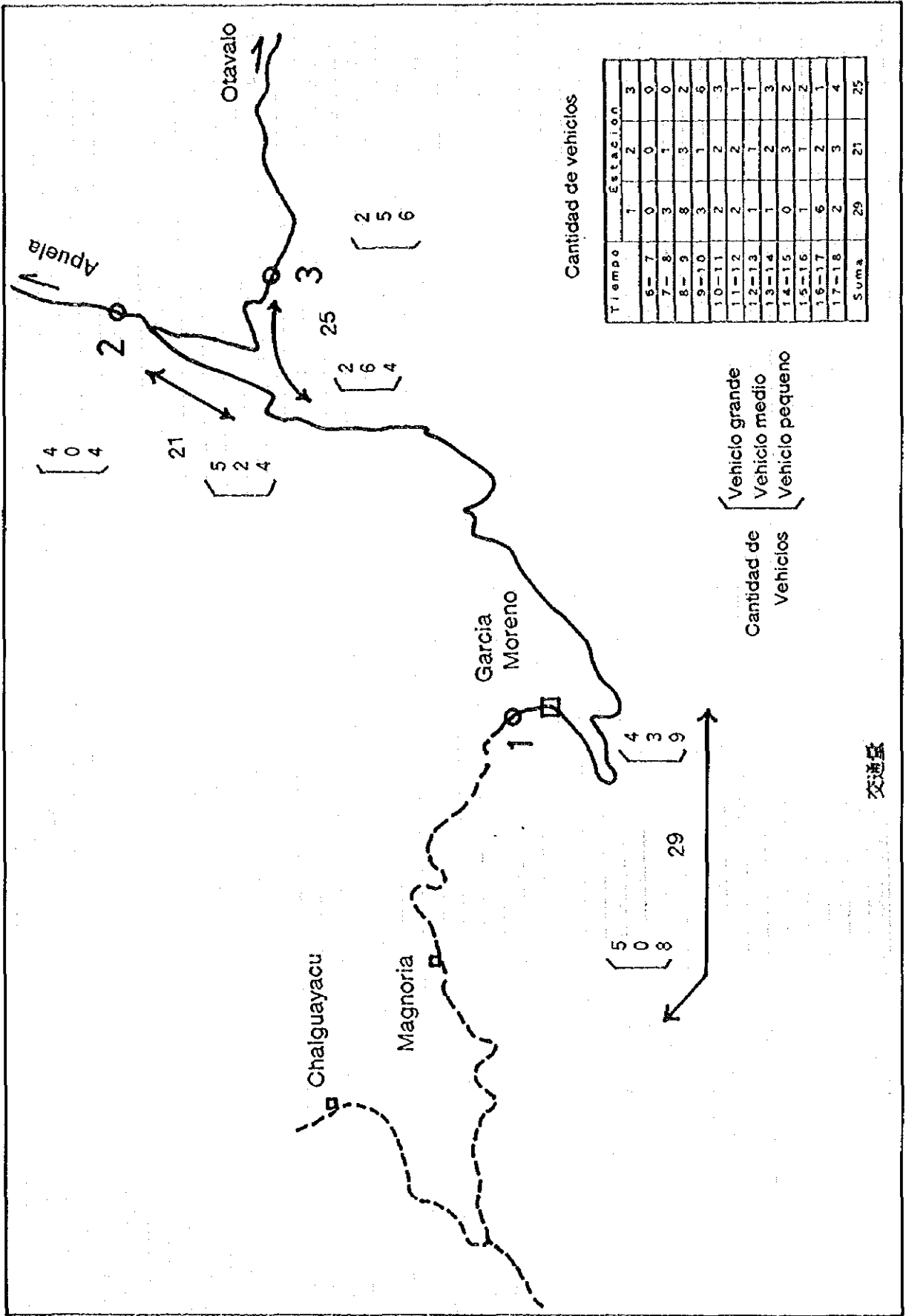
(INEC, 1990)



卷末 33 交通量





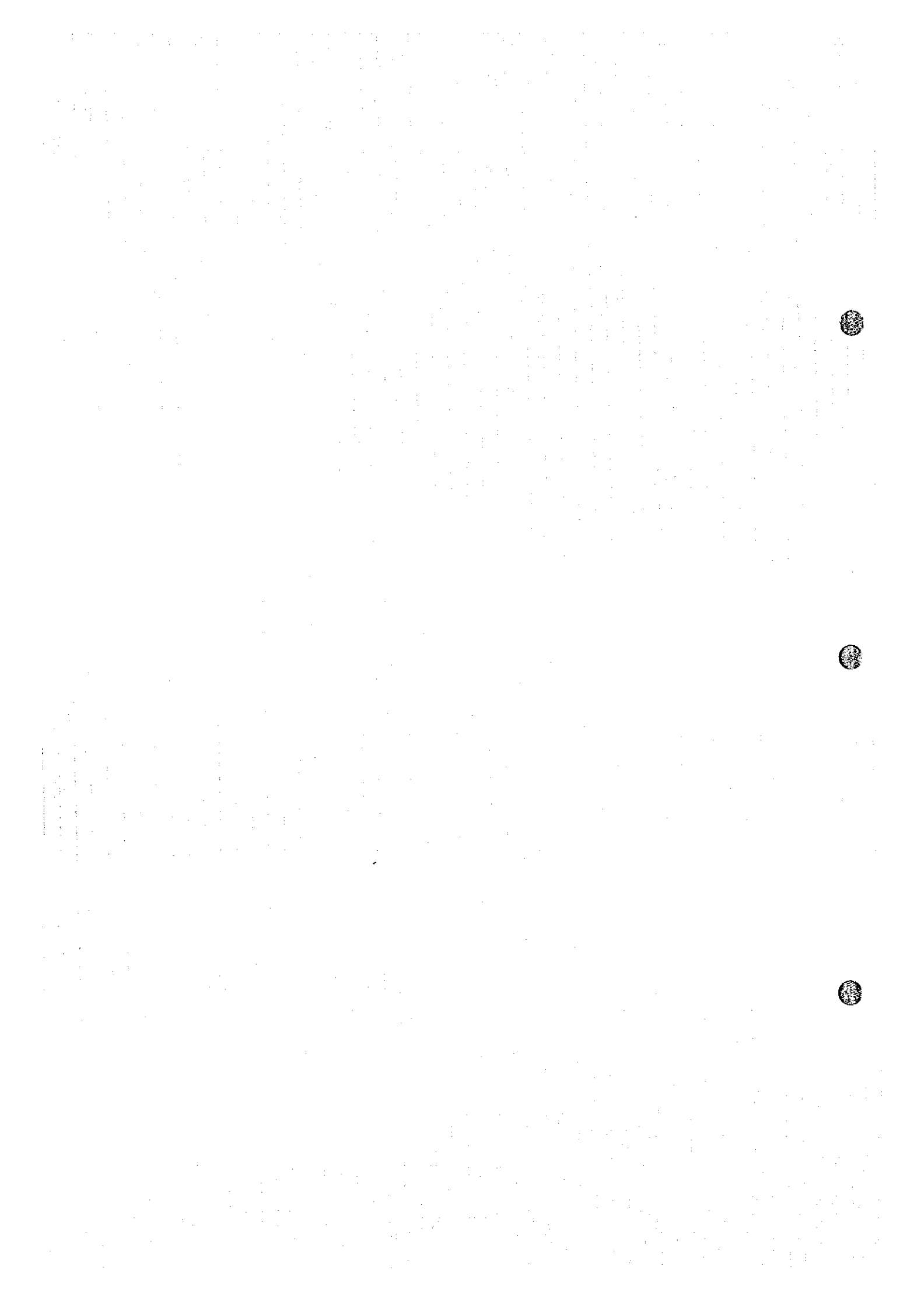


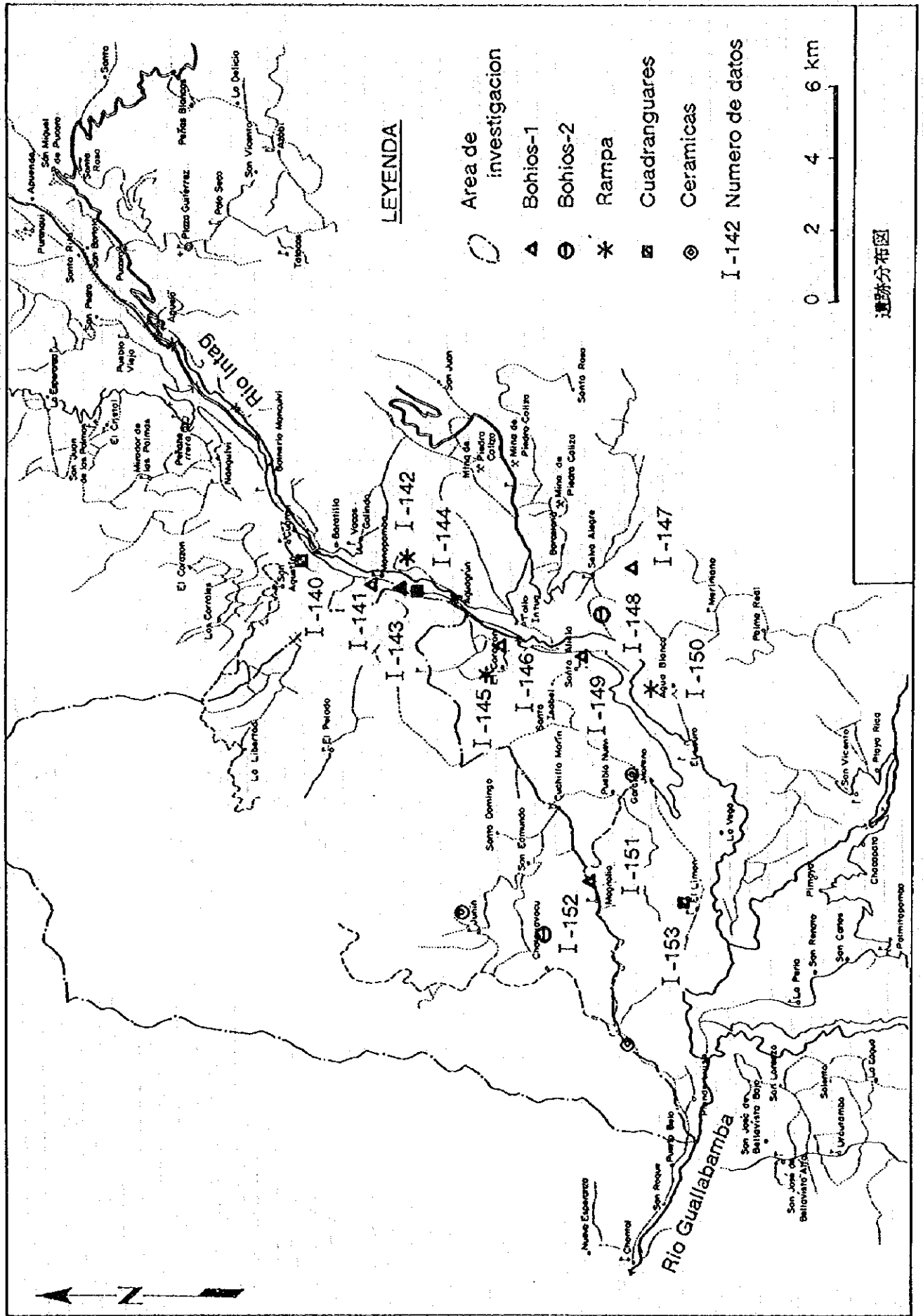
交通量



卷末 34 遺跡分布図

卷末 35 少数民族の分布





**LEYENDA**

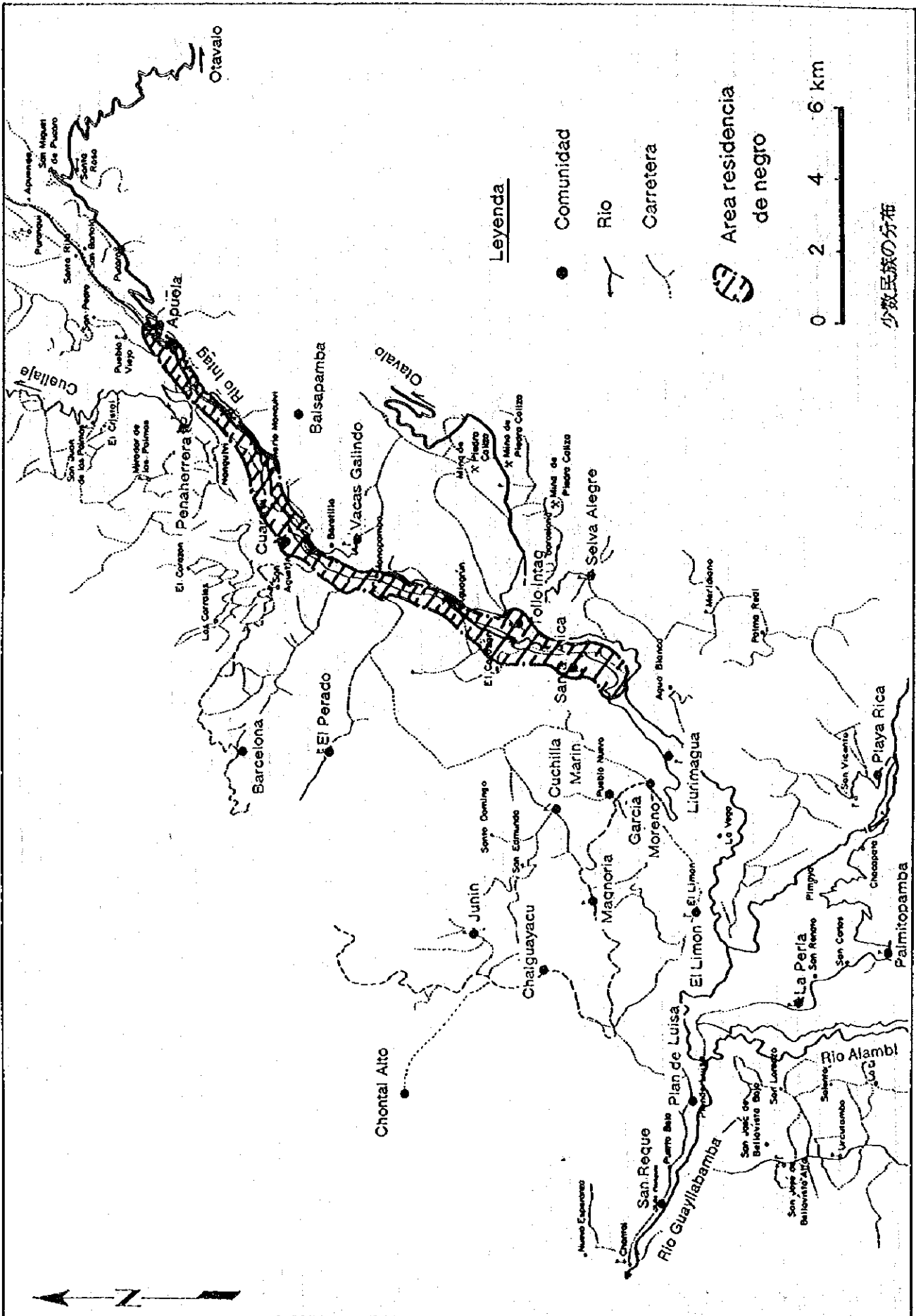
Area de investigacion

- ▲ Bohios-1
- Bohios-2
- \* Rampa
- Cuadrangulares
- ⊙ Ceramics

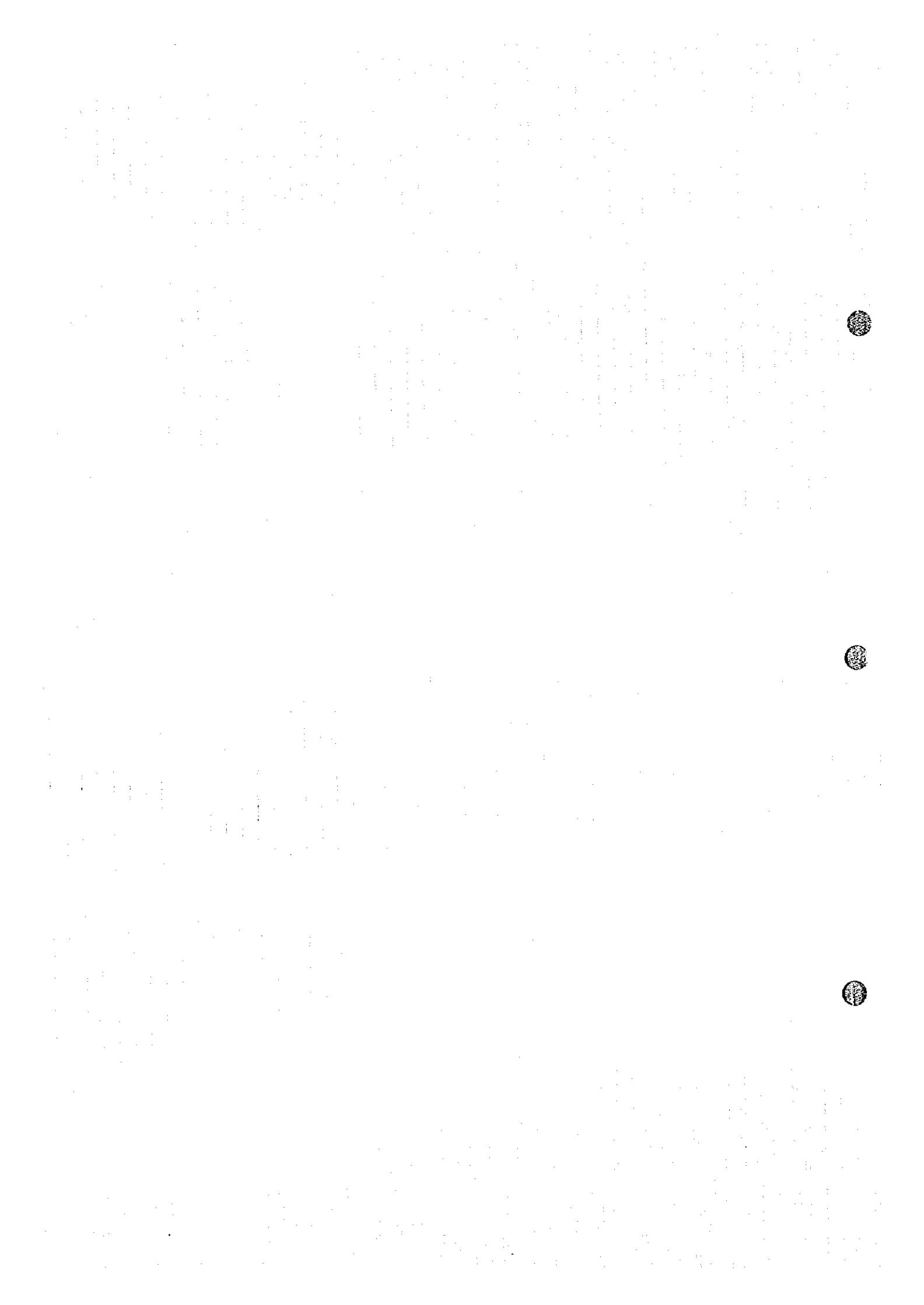
I-142 Numero de datos



遺跡分布図



卷末 36 降下粉塵



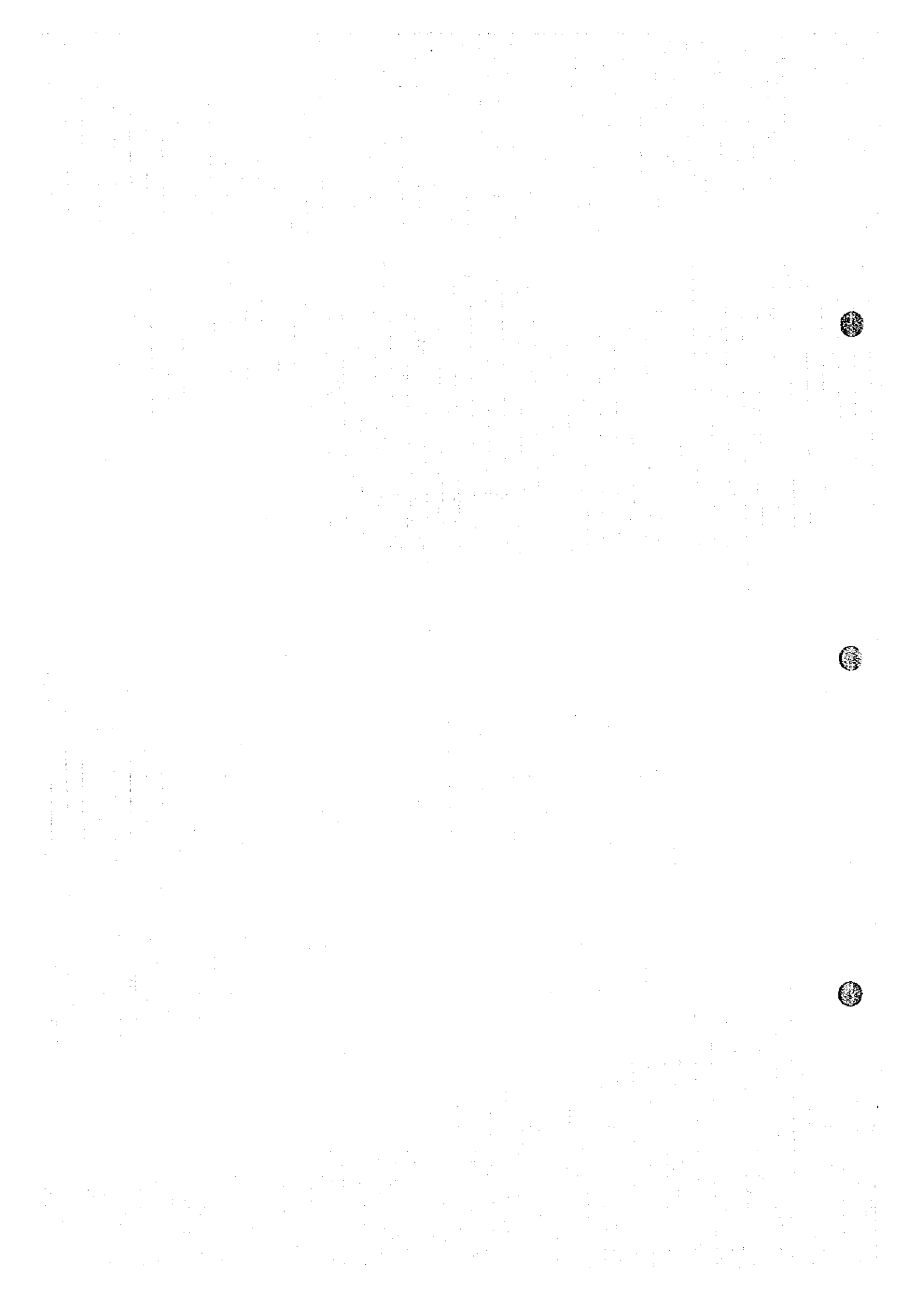


降下粉塵

Localizacion	Caida de polvo	
	mg/mes/cm <sup>2</sup>	
	Estacion seca	Estacion lluvia
1. Garcia Moreno	0.7416	0.3039
2. Junin	0.3066	0.0133



- 巻末 37 河川の水質(1)
- 巻末 38 河川の水質(2)
- 巻末 39 河川の水質の変化
- 巻末 40 ヘキサ及びキーダイヤグラム
- 巻末 41 水質の状況



河川の水質 (1)

(Estacion de seca)

Muestra	SS (mg/ℓ)	OD (mg/ℓ)	DCO (mg/ℓ)	Na <sup>+</sup> (mg/ℓ)	K <sup>+</sup> (mg/ℓ)	Mg <sup>2+</sup> (mg/ℓ)	Ca <sup>2+</sup> (mg/ℓ)	Fe <sup>2+</sup> (mg/ℓ)	Cu <sup>2+</sup> (mg/ℓ)	Pb <sup>2+</sup> (mg/ℓ)
WS-3	2	7.13	1	6.59	1.10	2.03	18.45	< 0.16	0.08	< 0.01
WS-4	1	6.50	1	3.92	0.74	2.53	10.15	< 0.16	< 0.02	< 0.01
WS-5	3	6.50	1	4.06	0.77	2.33	8.45	< 0.16	< 0.02	< 0.01
WS-6	2	6.51	1	1.04	0.43	1.53	4.35	0.36	< 0.02	< 0.01
WS-7	1	6.79	1	5.42	0.71	1.93	20.75	< 0.16	< 0.02	< 0.01
WS-8	2	6.87	2	3.25	0.71	2.03	7.65	< 0.16	< 0.02	< 0.01
WS-9	1	6.55	2	5.77	0.99	2.03	17.95	< 0.16	< 0.02	< 0.01
WS-10	3	6.92	1	3.41	0.79	3.13	11.65	< 0.16	< 0.02	< 0.01
WS-11	3	7.08	2	4.07	0.83	2.43	10.05	< 0.16	< 0.02	< 0.01
WS-12	1	6.69	2	7.39	1.27	4.53	15.65	0.21	< 0.02	< 0.01
WS-13	5	7.20	1	4.56	1.05	2.33	12.05	0.17	< 0.02	< 0.01
WS-14	54	7.82	4	27.24	4.77	13.53	24.15	0.58	< 0.02	< 0.01

Muestra	Zn <sup>2+</sup> (mg/ℓ)	As <sup>2+</sup> (mg/ℓ)	Mo <sup>2+</sup> (mg/ℓ)	Mn <sup>2+</sup> (mg/ℓ)	Cr <sup>2+</sup> (mg/ℓ)	Cd <sup>2+</sup> (mg/ℓ)	Cl <sup>-</sup> (mg/ℓ)	SO <sub>4</sub> <sup>2-</sup> (mg/ℓ)	HCO <sub>3</sub> <sup>-</sup> (mg/ℓ)	NO <sub>3</sub> <sup>-</sup> (mg/ℓ)
WS-3	< 0.04	< 0.01	< 0.08	0.07	< 0.06	< 0.01	2	39	9	3.1
WS-4	< 0.04	< 0.01	< 0.08	< 0.03	< 0.06	< 0.01	< 1	5	16	3.5
WS-5	< 0.04	< 0.01	< 0.08	< 0.03	< 0.06	< 0.01	2	2	10	2.6
WS-6	< 0.04	< 0.01	< 0.08	< 0.03	< 0.06	< 0.01	1	1	6	2.2
WS-7	< 0.04	< 0.01	< 0.08	< 0.03	< 0.06	< 0.01	< 1	43	7	2.6
WS-8	< 0.04	< 0.01	< 0.08	< 0.03	< 0.06	< 0.01	< 1	7	12	3.5
WS-9	< 0.04	< 0.01	< 0.08	< 0.03	< 0.06	< 0.01	2	30	9	2.6
WS-10	< 0.04	< 0.01	< 0.08	< 0.03	< 0.06	< 0.01	1	1	14	3.1
WS-11	< 0.04	< 0.01	< 0.08	< 0.03	< 0.06	< 0.01	2	1	14	3.5
WS-12	< 0.04	< 0.01	< 0.08	< 0.03	< 0.06	< 0.01	5	10	21	2.2
WS-13	< 0.04	< 0.01	< 0.08	< 0.03	< 0.06	< 0.01	< 1	15	16	3.1
WS-14	< 0.04	0.02	0.092	< 0.03	< 0.06	< 0.01	24	28	62	11.9

(Estacion de lluvia)

Muestra	SS (mg/ℓ)	OD (mg/ℓ)	DCO (mg/ℓ)	Na <sup>+</sup> (mg/ℓ)	K <sup>+</sup> (mg/ℓ)	Mg <sup>2+</sup> (mg/ℓ)	Ca <sup>2+</sup> (mg/ℓ)	Fe <sup>2+</sup> (mg/ℓ)	Cu <sup>2+</sup> (mg/ℓ)	Pb <sup>2+</sup> (mg/ℓ)
WS-3	1	6.92	2	5.60	1.50	1.02	17.57	< 0.16	0.08	< 0.01
WS-4	2	6.30	2	4.00	1.20	1.27	6.79	< 0.16	< 0.02	< 0.01
WS-5	1	6.30	2	4.10	1.20	1.15	5.43	< 0.16	< 0.02	< 0.01
WS-6	1	6.57	2	1.60	0.70	0.24	1.79	< 0.16	< 0.02	0.01
WS-7	1	6.76	2	4.70	1.00	0.40	16.06	< 0.16	< 0.02	< 0.01
WS-8	1	7.13	2	3.20	1.10	0.64	4.51	< 0.16	< 0.02	0.01
WS-9	1	6.64	2	5.10	1.40	0.80	17.99	< 0.16	< 0.02	< 0.01
WS-10	2	6.45	2	3.20	1.20	1.02	4.89	< 0.16	< 0.02	0.03
WS-11	2	6.93	2	3.70	1.30	1.14	5.96	< 0.16	< 0.02	0.01
WS-12	6	6.40	2	5.10	1.60	2.25	7.86	< 0.16	< 0.02	0.01
WS-13	3	7.12	2	4.20	1.40	1.08	7.60	< 0.16	< 0.02	0.02
WS-14	250	7.59	6	13.00	4.00	8.29	17.90	1.142	< 0.02	< 0.01

Muestra	Zn <sup>2+</sup> (mg/ℓ)	As <sup>2+</sup> (mg/ℓ)	Mo <sup>2+</sup> (mg/ℓ)	Mn <sup>2+</sup> (mg/ℓ)	Cr <sup>2+</sup> (mg/ℓ)	Cd <sup>2+</sup> (mg/ℓ)	Cl <sup>-</sup> (mg/ℓ)	SO <sub>4</sub> <sup>2-</sup> (mg/ℓ)	HCO <sub>3</sub> <sup>-</sup> (mg/ℓ)	NO <sub>3</sub> <sup>-</sup> (mg/ℓ)
WS-3	< 0.04	0.02	< 0.08	0.04	< 0.06	< 0.01	1	36	12	2.6
WS-4	< 0.04	0.01	< 0.08	< 0.03	< 0.06	< 0.01	1	7	14	2.2
WS-5	< 0.04	0.01	< 0.08	< 0.03	< 0.06	< 0.01	1	1	12	3.1
WS-6	< 0.04	0.01	< 0.08	< 0.03	< 0.06	< 0.01	2	1	2	3.1
WS-7	< 0.04	0.01	< 0.08	< 0.03	< 0.06	< 0.01	1	37	6	3.1
WS-8	< 0.04	0.01	< 0.08	< 0.03	< 0.06	< 0.01	2	7	9	3.1
WS-9	< 0.04	0.02	< 0.08	< 0.03	< 0.06	< 0.01	2	29	9	3.1
WS-10	< 0.04	0.02	< 0.08	< 0.03	< 0.06	< 0.01	1	1	12	3.1
WS-11	< 0.04	0.01	< 0.08	< 0.03	< 0.06	< 0.01	2	1	13	3.5
WS-12	< 0.04	0.02	< 0.08	< 0.03	< 0.06	< 0.01	6	3	17	3.5
WS-13	< 0.04	0.01	< 0.08	< 0.03	< 0.06	< 0.01	1	14	13	3.5
WS-14	< 0.04	0.03	< 0.08	< 0.03	< 0.06	< 0.01	11	15	47	8.8

\* SS: Solidos suspension

OD: Oxígeno disuelto

DCO: Demanda química oxígeno

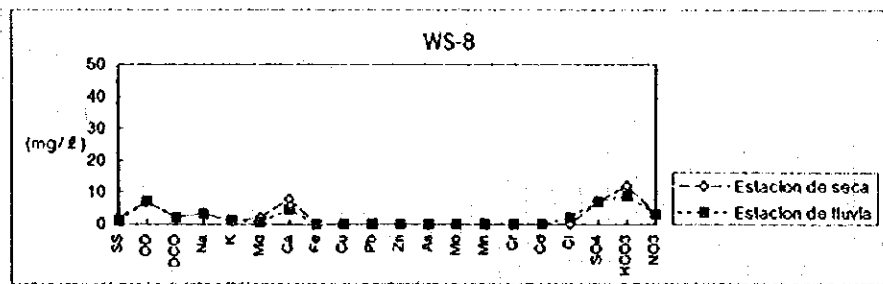
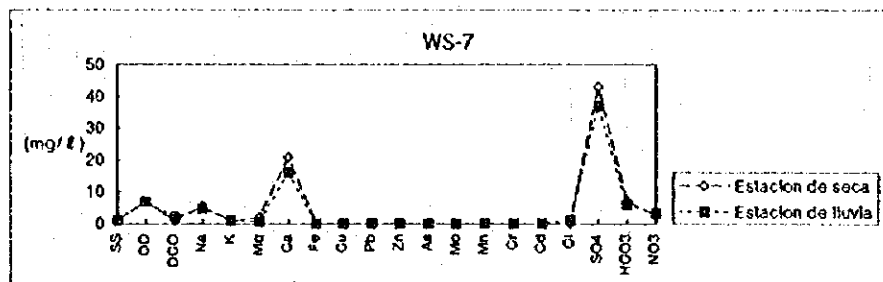
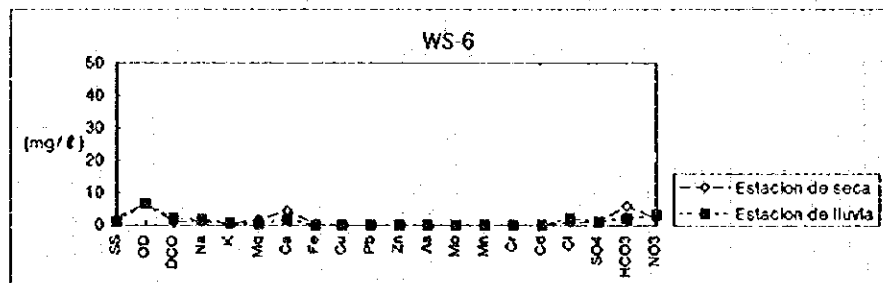
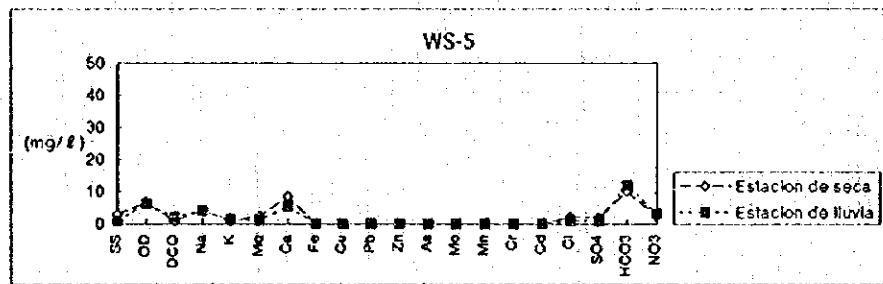
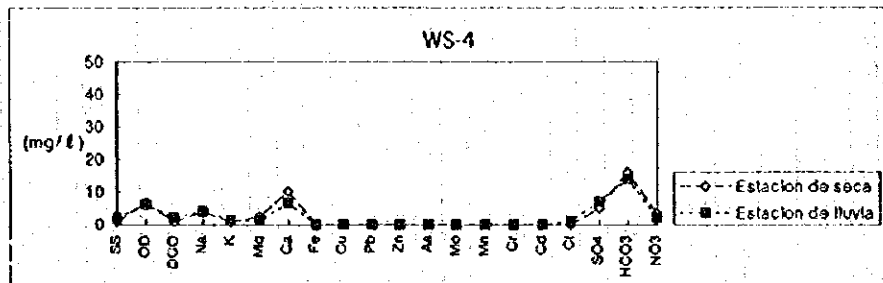
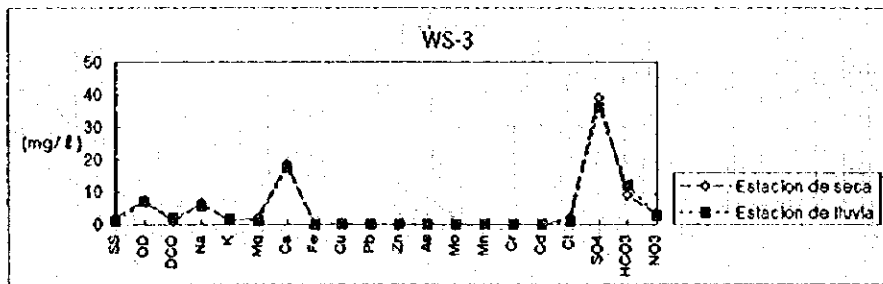
河川の水質 (2)

(1)

No	Area de Cuenca	Largo de Rio	Elevacion de Rio	Declive de Rio	No	Area de Cuenca	Largo de Rio	Elevacion de Rio	Declive de Rio
	(m <sup>2</sup> )	(km)	(m)	(°)		(m <sup>2</sup> )	(km)	(m)	(°)
1	1,512,500	1.55	80	3.0	65	262,500	1.00	400	21.8
2	1,293,750	1.80	60	1.9	67	425,000	0.75	110	8.3
3	431,250	0.40	20	2.9	68	212,500	0.55	60	6.2
4	212,500	0.40	20	2.9	69	412,500	0.95	120	7.2
5	1,343,750	1.05	30	1.6	70	812,500	1.30	440	18.7
6	62,500	0.20	10	2.9	71	512,500	1.35	520	21.1
7	362,500	0.35	20	3.3	72	1,712,500	2.60	760	16.3
8	50,000	0.25	20	4.6	73	350,000	0.75	300	21.8
9	768,750	1.00	50	2.9	74	837,500	1.40	240	9.7
10	1,575,000	1.45	60	2.4	75	281,250	0.55	60	6.2
11	3,087,500	2.75	220	4.6	76	250,000	0.60	80	9.1
12	825,000	1.05	150	8.1	77	225,000	0.80	70	5.0
13	1,331,250	1.55	240	8.8	78	425,000	0.55	240	23.6
14	206,250	0.35	60	9.7	79	500,000	1.00	300	16.7
15	462,500	0.60	60	5.7	80	1,143,750	1.65	440	14.9
16	787,500	1.05	110	6.0	81	368,750	0.55	140	14.3
17	1,406,250	1.20	130	6.2	82	550,000	1.05	520	26.3
18	212,500	0.30	40	7.6	83	600,000	1.05	280	14.9
19	312,500	0.60	70	6.7	84	262,500	0.85	280	18.2
20	318,750	0.65	60	5.3	85	1,962,500	3.05	740	13.6
21	875,000	1.10	70	3.6	86	525,000	1.00	210	11.9
22	398,750	0.85	50	3.4	87	431,250	0.55	50	5.2
23	75,000	0.45	40	5.1	88	1,675,000	1.20	160	7.6
209	781,250	1.20	70	3.3	89	1,768,750	1.55	120	4.4
24	2,443,750	2.65	390	8.4	90	35,000	0.20	10	2.9
25	537,500	0.95	320	18.6	91	1,087,500	1.80	100	3.2
26	1,468,750	2.05	360	10.0	92	182,500	0.35	40	6.5
27	1,306,250	1.85	370	11.3	93	1,362,500	1.55	450	16.2
28	193,750	0.30	30	5.7	94	512,500	2.05	400	11.0
29	743,750	1.40	320	12.9	95	318,750	1.00	160	9.1
30	950,000	2.90	430	8.4	96	318,750	1.00	180	10.2
31	1,018,750	1.90	570	16.7	97	537,500	1.05	160	8.7
32	62,500	1.00	140	8.0	98	618,750	1.55	260	9.5
33	1,737,500	2.05	520	14.2	99	487,500	0.75	140	10.6
34	356,250	0.85	260	17.0	100	925,000	1.35	280	11.7
35	531,250	0.55	120	12.3	101	606,250	1.15	240	11.8
36	493,750	1.10	460	22.7	102	406,250	1.10	320	16.2
37	1,437,500	2.70	720	14.9	103	506,250	1.50	260	9.8
38	593,750	1.10	180	9.3	104	362,500	0.55	160	16.2
39	443,750	0.70	160	12.9	105	175,000	0.35	20	3.3
40	631,250	1.40	400	15.9	106	793,750	1.50	360	13.5
41	1,031,250	1.50	420	15.6	107	285,000	1.30	280	12.2
42	1,150,000	1.75	400	12.9	108	1,450,000	2.00	400	11.3
43	850,000	1.90	300	9.0	109	1,056,250	1.35	360	14.9
44	712,500	1.50	280	10.6	110	631,250	0.70	150	12.1
45	1,993,750	3.25	620	10.8	111	475,000	0.55	80	8.3
46	70,000	0.30	40	7.6	112	62,500	0.25	20	4.6
47	200,000	0.80	120	8.5	113	1,018,750	1.30	80	3.5
48	343,750	1.00	200	11.3	114	62,500	0.15	20	7.6
49	112,500	0.25	20	4.6	115	750,000	1.20	110	5.2
50	925,000	1.70	140	4.7	116	556,250	1.00	140	8.0
51	1,187,500	2.00	300	8.5	117	537,500	1.00	100	5.7
52	537,500	1.15	120	6.0	118	1,193,750	1.45	260	10.2
53	487,500	1.00	110	6.3	119	231,250	0.80	130	9.2
54	368,750	1.00	120	6.8	120	931,250	0.65	160	13.8
55	375,000	0.70	50	4.1	121	487,500	0.95	150	9.0
56	87,500	0.25	20	4.6	122	1,043,750	1.75	420	13.5
57	1,043,750	1.50	40	1.5	123	162,500	0.60	180	16.7
58	193,750	0.75	220	16.3	124	987,500	1.30	440	18.7
59	743,750	1.00	160	9.1	125	356,250	1.00	240	13.5
60	198,750	2.45	280	6.5	126	2,693,750	2.95	780	14.8
61	912,500	2.25	840	20.5	127	475,000	1.05	500	25.5
63	725,000	1.10	500	24.4	128	162,500	0.45	40	5.1
64	418,750	1.25	400	17.7	129	393,750	0.60	40	3.8

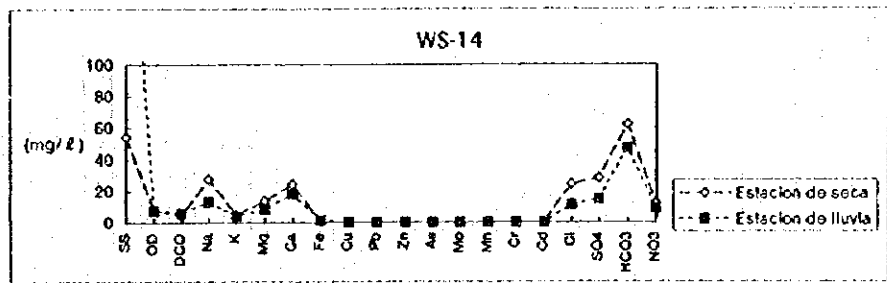
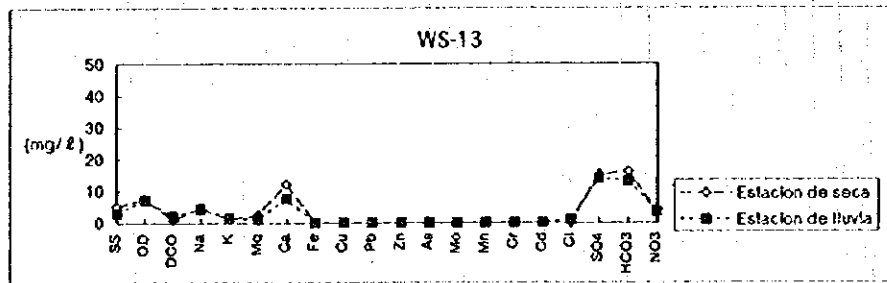
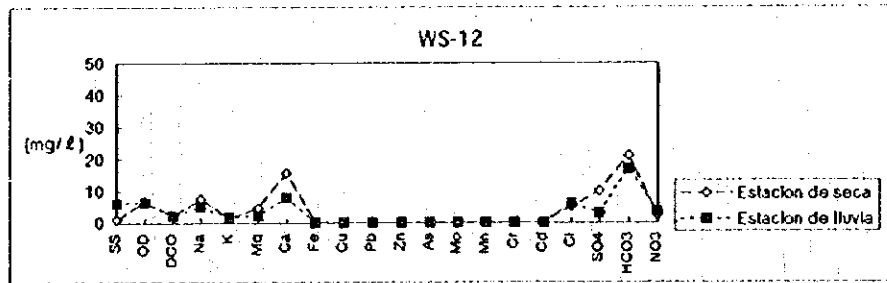
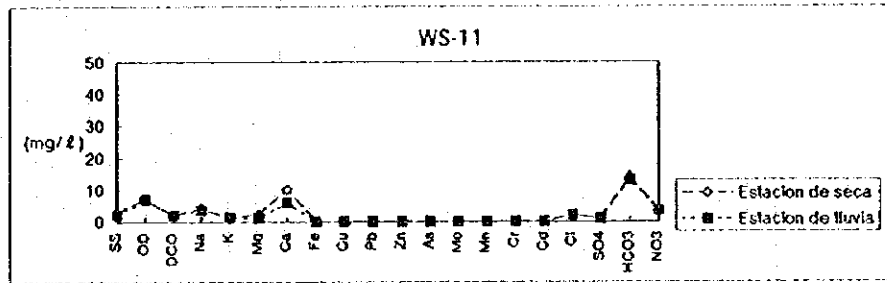
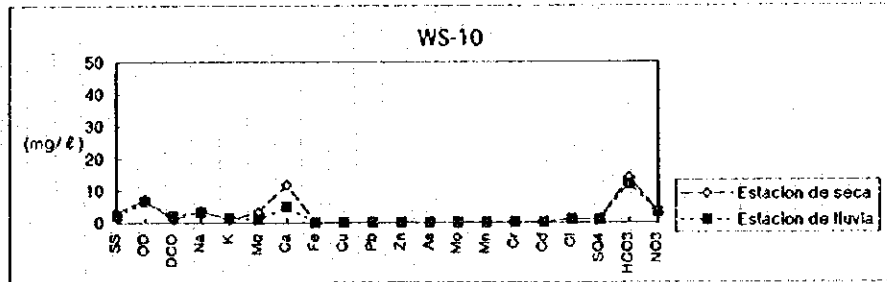
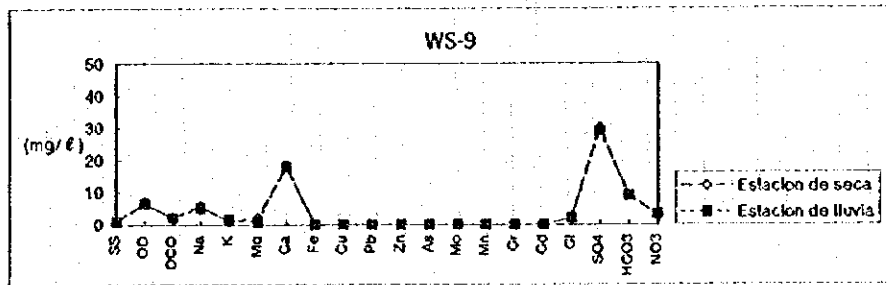
(2)

Nº	Area de Cuenca (m <sup>2</sup> )	Largo de Río (km)	Elevación de Río (m)	Declive de Río (°)	Nº	Area de Cuenca (m <sup>2</sup> )	Largo de Río (km)	Elevación de Río (m)	Declive de Río (°)
130	637,500	0.55	50	5.2	170	1,918,750	2.05	250	7.0
131	912,500	1.45	160	6.3	171	693,750	1.00	120	6.8
132	181,250	0.45	40	5.1	172	1,462,500	1.90	180	5.4
133	1,631,250	1.50	100	3.8	173	456,250	0.55	60	6.2
134	762,500	1.05	60	3.3	174	3,125,000	2.90	600	11.7
135	37,500	0.10	15	8.5	175	1,143,750	1.00	360	19.8
136	893,750	1.00	50	2.9	176	550,000	1.20	400	18.4
137	1,006,250	1.80	60	1.9	177	962,500	1.25	230	10.4
138	206,250	0.45	50	6.3	178	1,568,750	2.20	480	12.3
139	1,331,250	2.30	200	5.0	179	231,250	0.65	280	23.3
140	1,493,750	2.40	520	12.2	180	868,750	1.10	300	15.3
141	475,000	0.80	120	8.5	181	2,406,250	3.30	640	11.0
142	912,500	1.35	190	8.0	182	1,000	0.08	10	7.1
143	187,500	0.60	100	9.5	183	2,393,750	3.30	600	10.3
144	493,750	0.95	320	18.6	184	425,000	1.35	240	10.1
145	406,250	0.85	320	20.6	185	195,000	0.50	60	6.8
146	2,225,000	2.50	740	16.6	186	350,000	1.00	280	15.6
147	425,000	1.05	300	15.9	187	243,750	0.30	160	28.1
148	381,250	0.95	240	14.2	188	425,000	1.00	200	11.3
149	518,750	0.95	120	7.2	189	306,250	0.95	320	18.6
150	5,287,500	4.50	1000	12.5	190	318,750	0.80	120	8.5
151	1,443,750	1.75	420	13.5	191	156,250	0.30	40	7.6
152	606,250	1.20	180	8.5	192	256,250	0.60	40	3.8
153	481,250	1.05	60	3.3	193	950,000	1.55	220	8.1
154	10,000	0.15	35	13.1	194	143,750	0.30	20	3.8
155	656,250	1.20	200	9.5	195	1,981,250	2.45	160	3.7
156	343,750	0.65	80	7.0	196	937,500	1.55	300	11.0
157	631,250	1.00	320	17.7	197	1,237,500	1.70	340	11.3
158	837,500	1.55	360	13.1	198	443,750	1.15	200	9.9
159	268,750	0.55	240	23.6	199	1,075,000	1.20	200	9.5
160	618,750	1.50	400	14.9	200	1,825,000	2.50	420	9.5
161	1,050,000	1.10	160	8.3	201	168,750	0.25	40	9.1
162	525,000	1.00	320	17.7	202	1,262,500	1.95	150	4.4
163	462,500	0.95	200	11.9	203	1,537,500	1.90	220	6.6
164	712,500	1.00	300	16.7	204	450,000	0.55	170	17.2
165	1,537,500	3.55	480	7.7	205	318,750	1.00	280	15.6
166	306,250	0.95	300	17.5	206	650,000	1.50	440	16.3
167	768,750	1.65	340	11.6	207	693,750	2.05	400	11.0
168	606,250	1.00	150	8.5	208	150,000	0.55	320	30.2
169	1,318,750	1.50	200	7.6					



河川の水質の変化 (1)

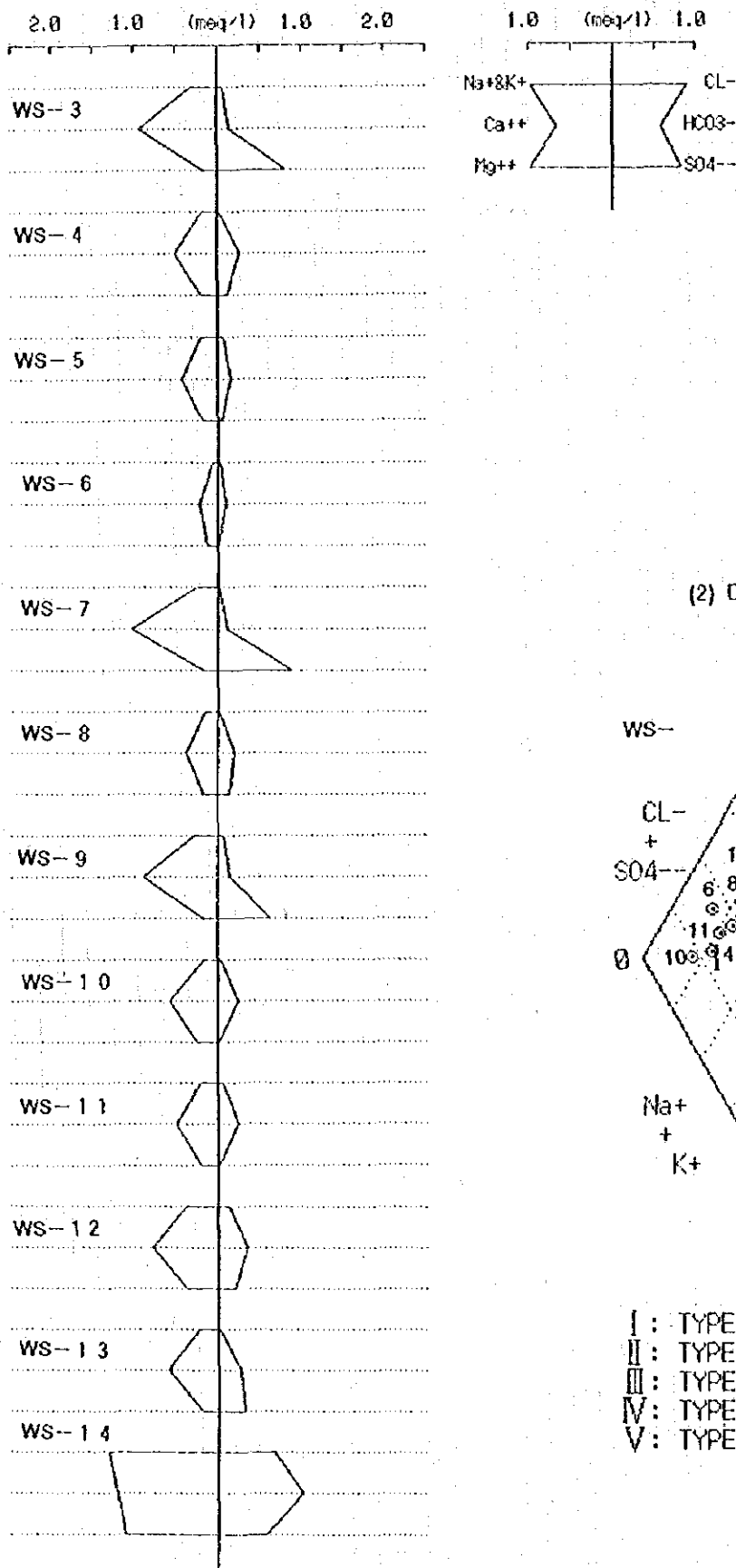




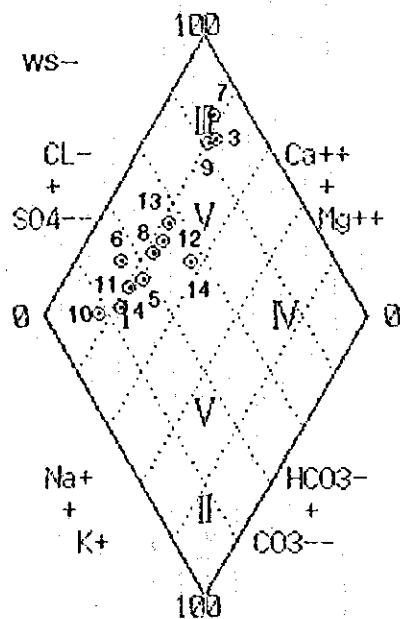
(2)

Estación seca

(1) Diagrama hexagonal



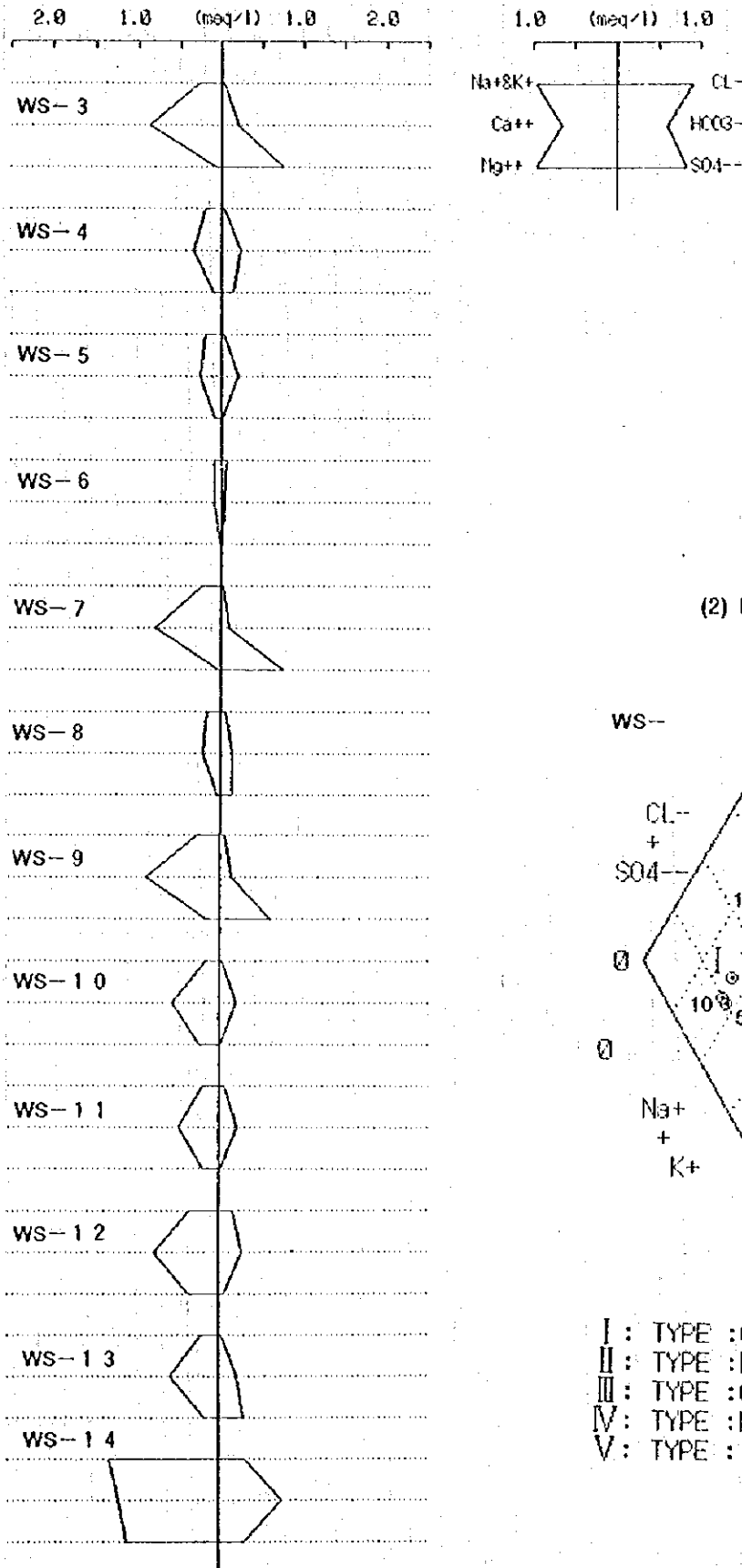
(2) Diagrama clave



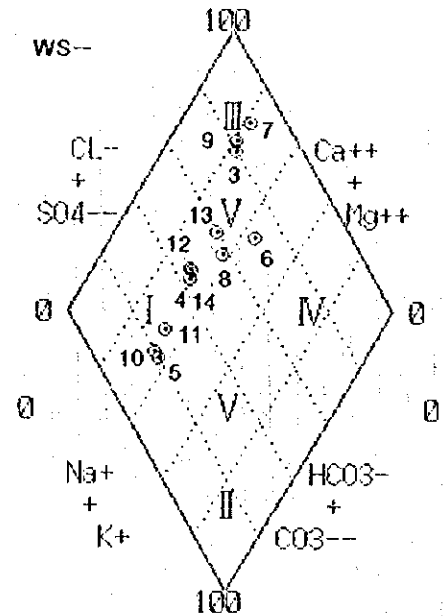
- I : TYPE :  $\text{Ca}(\text{HCO}_3)_2$
- II : TYPE :  $\text{NaHCO}_3$
- III : TYPE :  $\text{CaSO}_4$  or  $\text{CaCl}_2$
- IV : TYPE :  $\text{Na}_2\text{SO}_4$  or  $\text{NaCl}$
- V : TYPE : INTERMEDIATE

Estación lluviosa

(1) Diagrama hexagonal

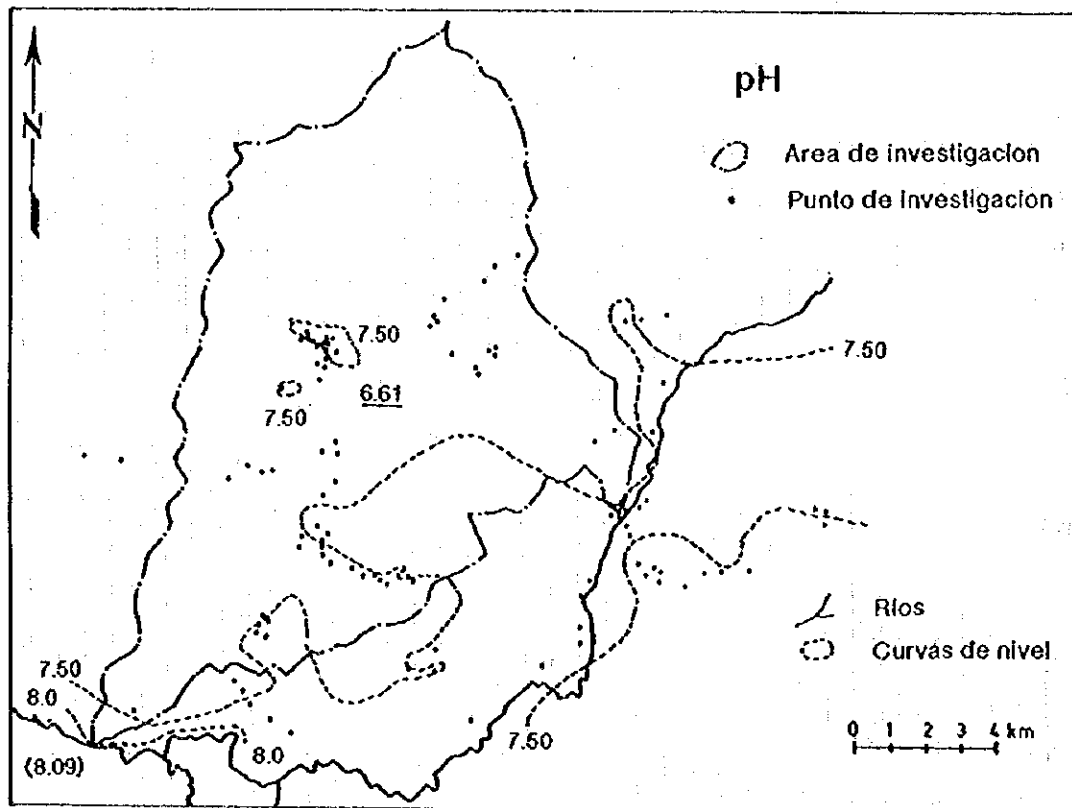
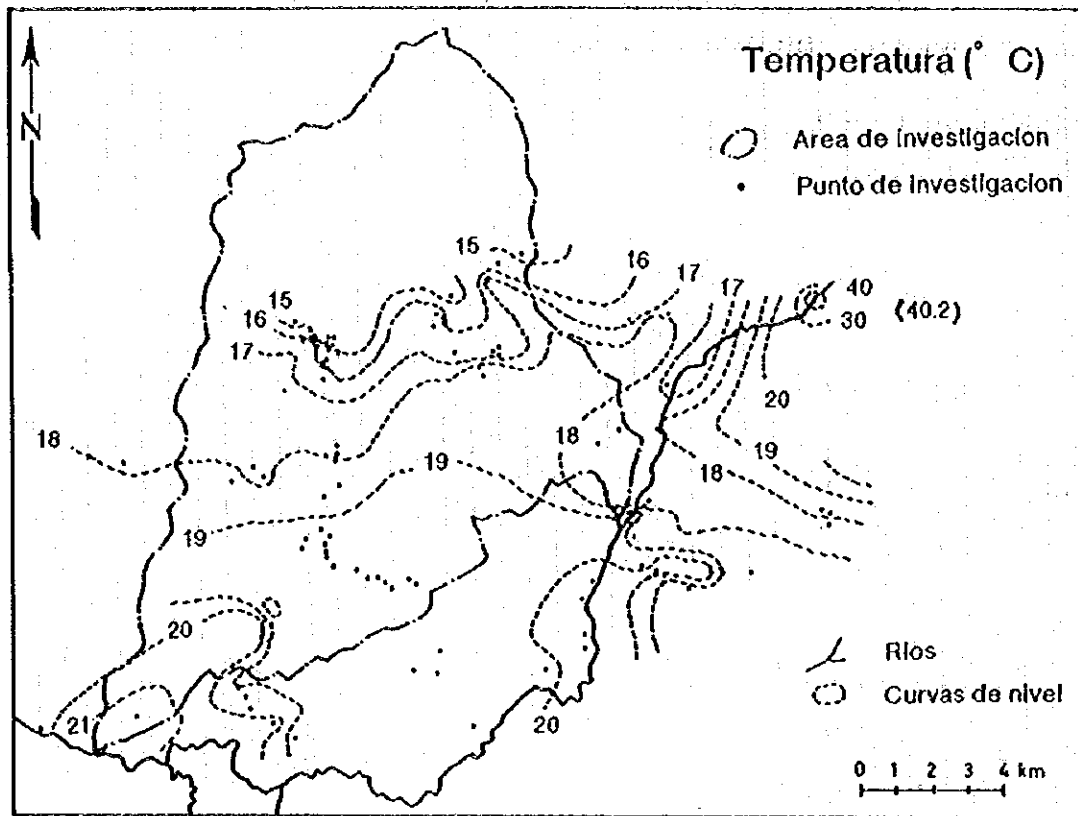


(2) Diagrama clave

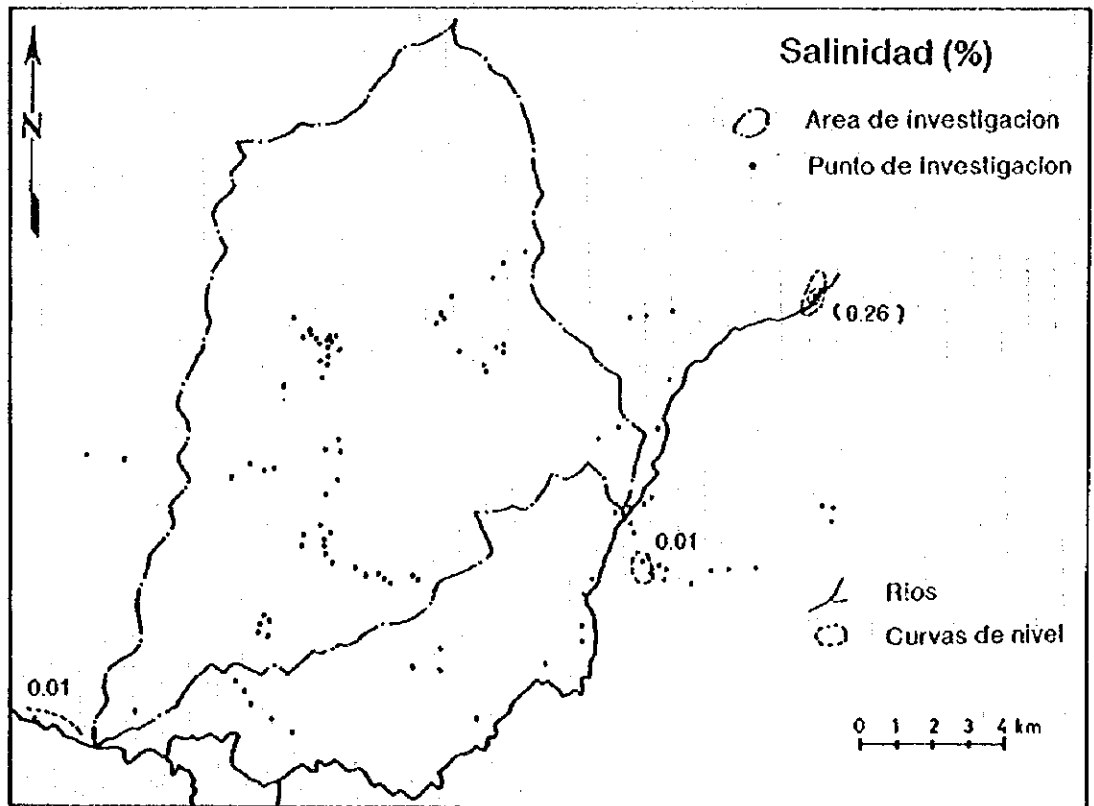
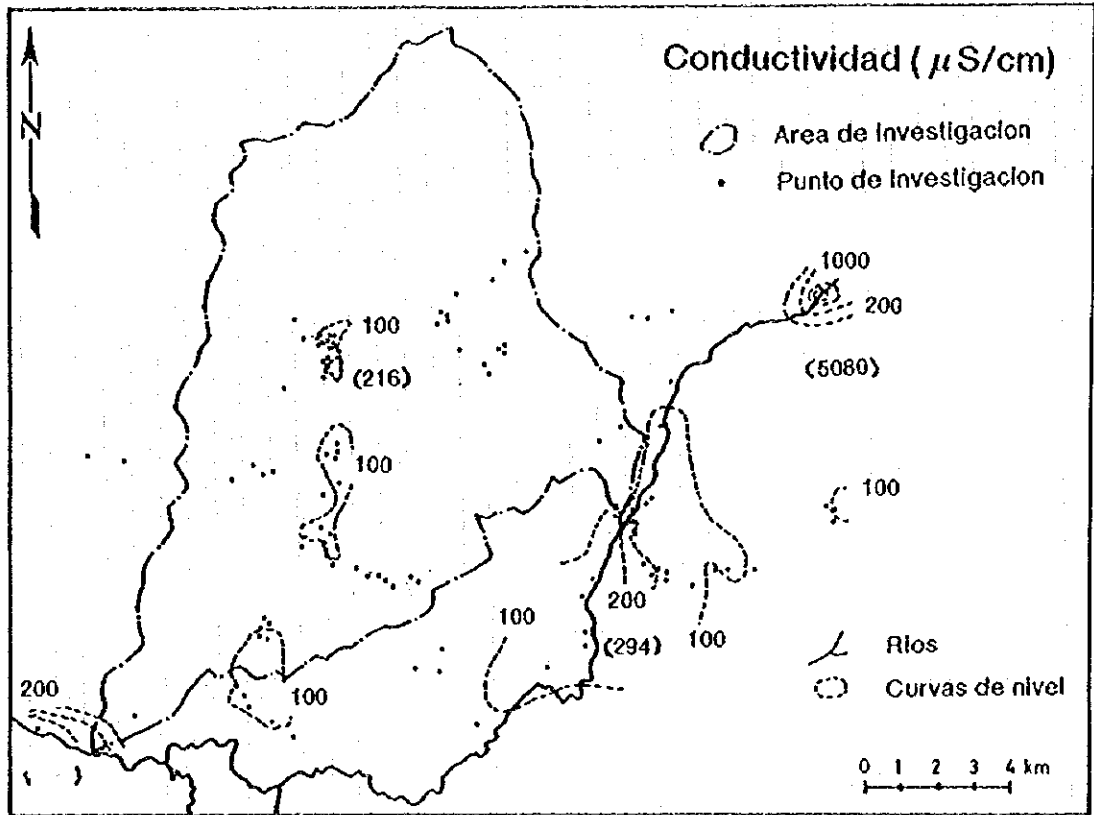


- I : TYPE :  $\text{Ca}(\text{HCO}_3)_2$
- II : TYPE :  $\text{NaHCO}_3$
- III : TYPE :  $\text{CaSO}_4$  or  $\text{CaCl}_2$
- IV : TYPE :  $\text{Na}_2\text{SO}_4$  or  $\text{NaCl}$
- V : TYPE : INTERMEDIATE

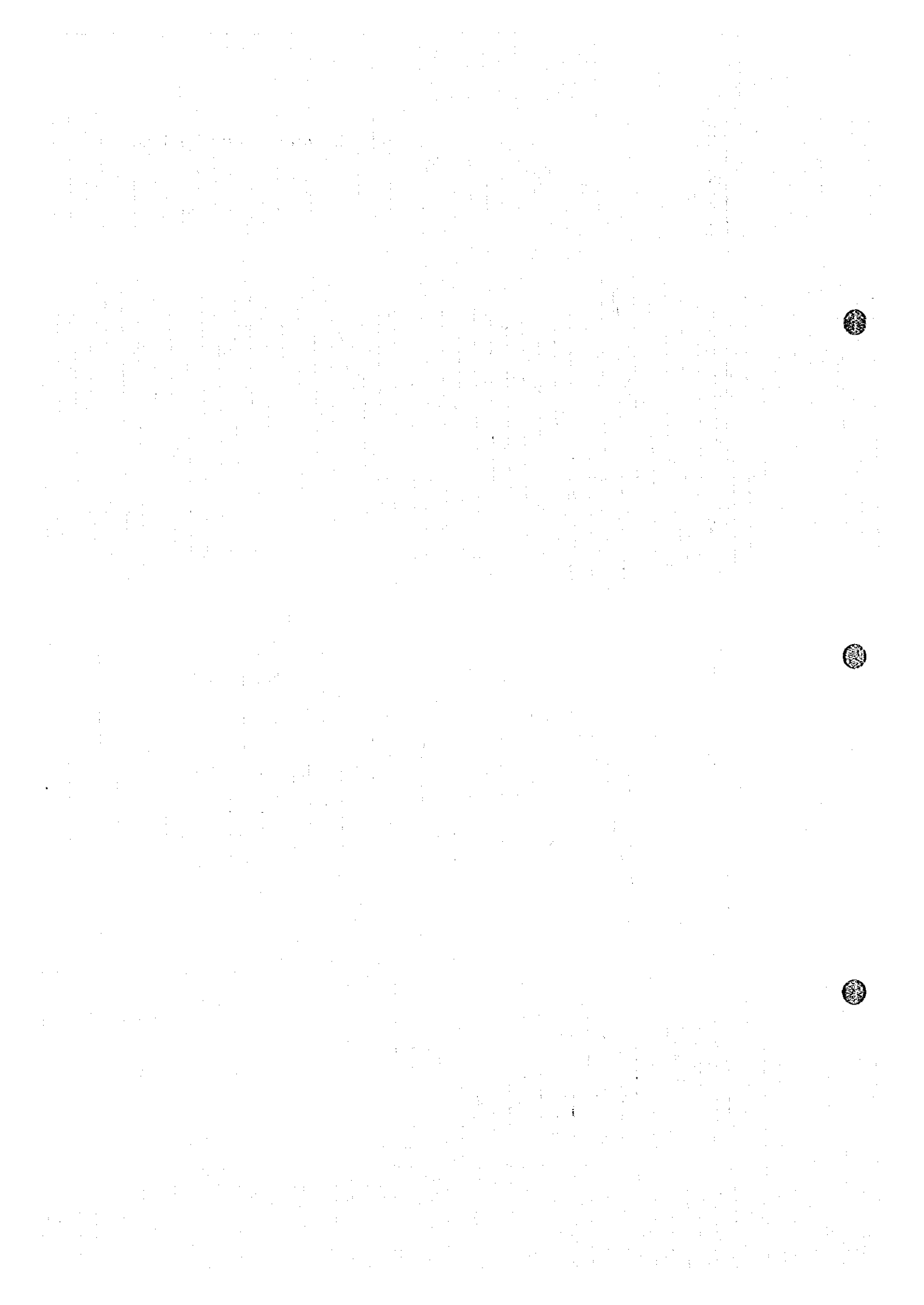
ヘキサ及びキーダイヤグラム (2)



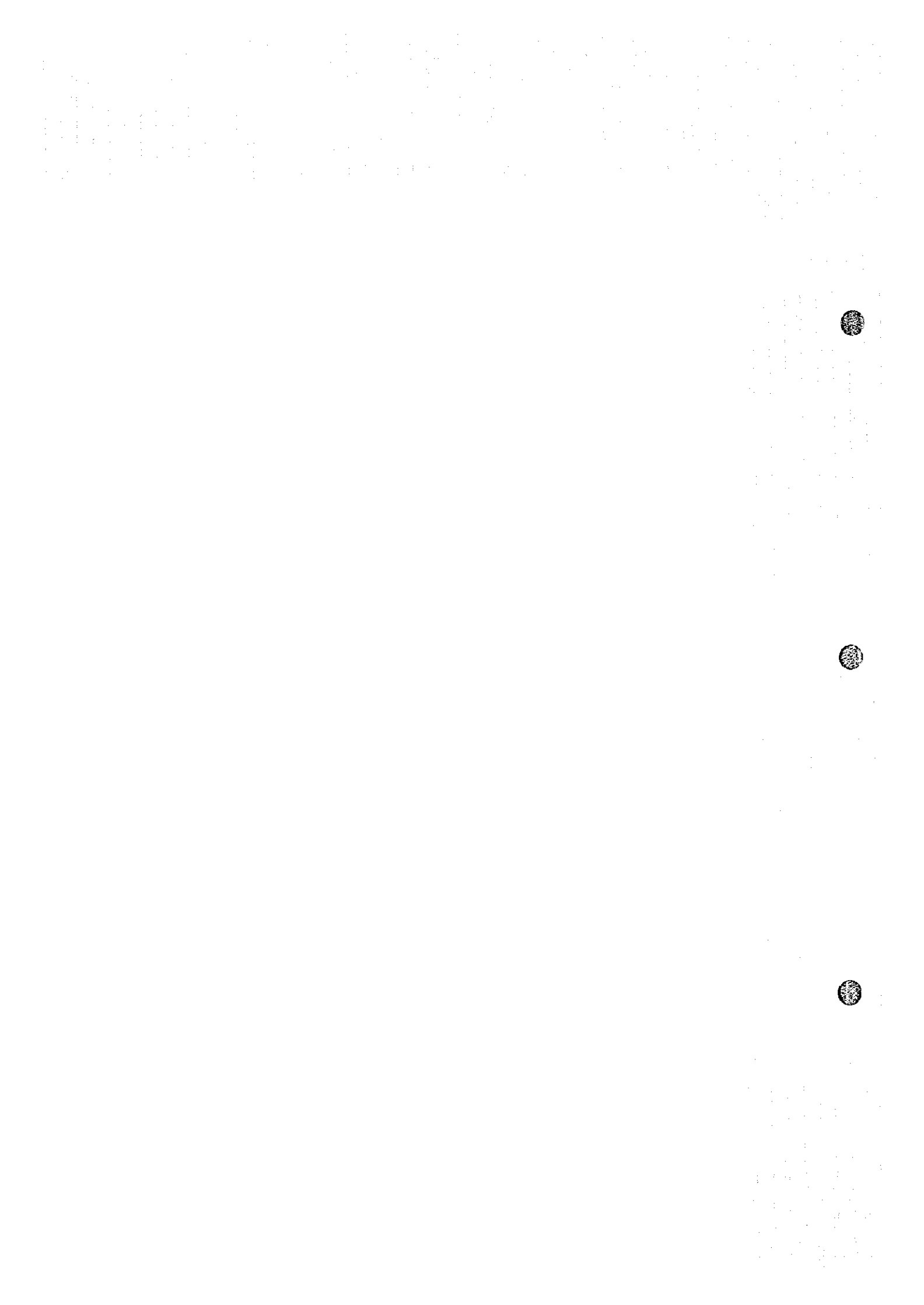
水質の状況 (1)



(2)



卷末 42 土壌質の分析結果



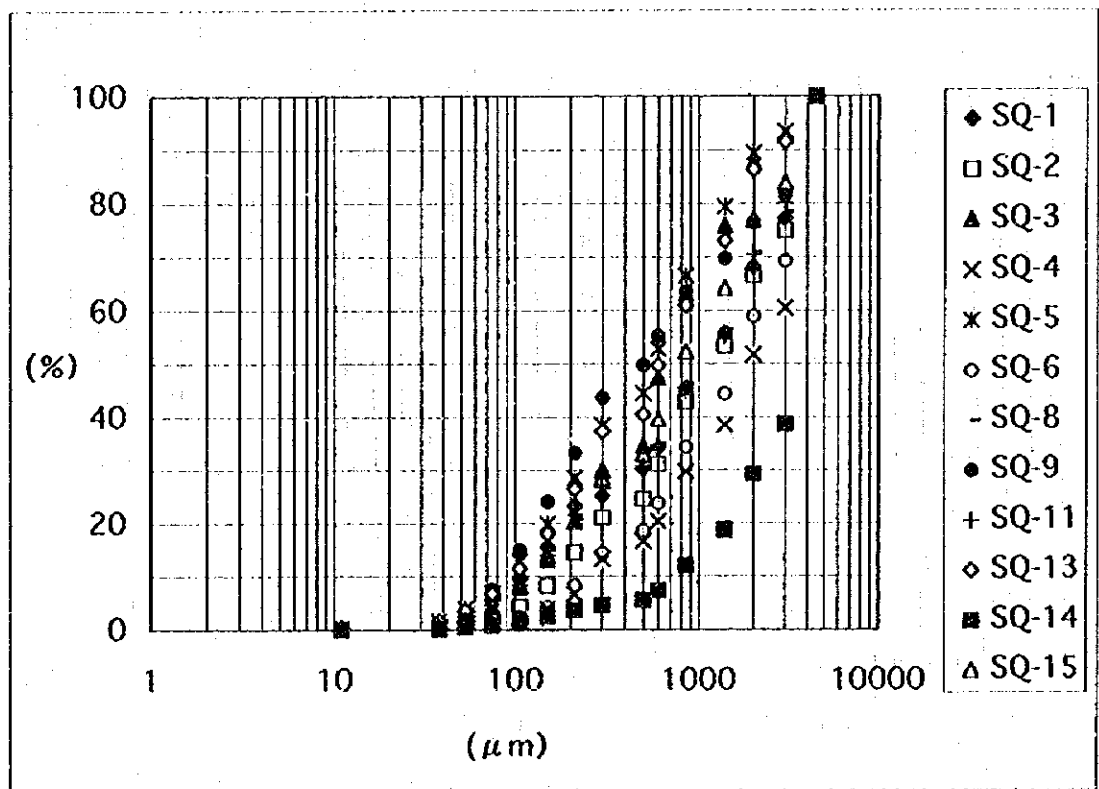


### (1) 化学分析結果

Muestra	Determinaciones							
	Pb (ppm)	Cu (ppm)	Zn (ppm)	Cr (ppm)	Cd (ppm)	As (ppm)	Mo (ppm)	Hg (ppm)
SQ-2	40	790	117	58	< 2	50	5	0.197
SQ-9	38	36	110	56	< 2	40	< 1	0.161
SQ-11	44	59	112	59	< 2	30	1	0.146
SQ-14	40	56	106	73	< 2	30	2	0.507

Limites de detección Pb:2,Cu:2,Zn:2,Cr:2,Cd:2,As:5,Mo:1,Hg:0.01(PPm)

### (2) 粒度分析結果



土壤質

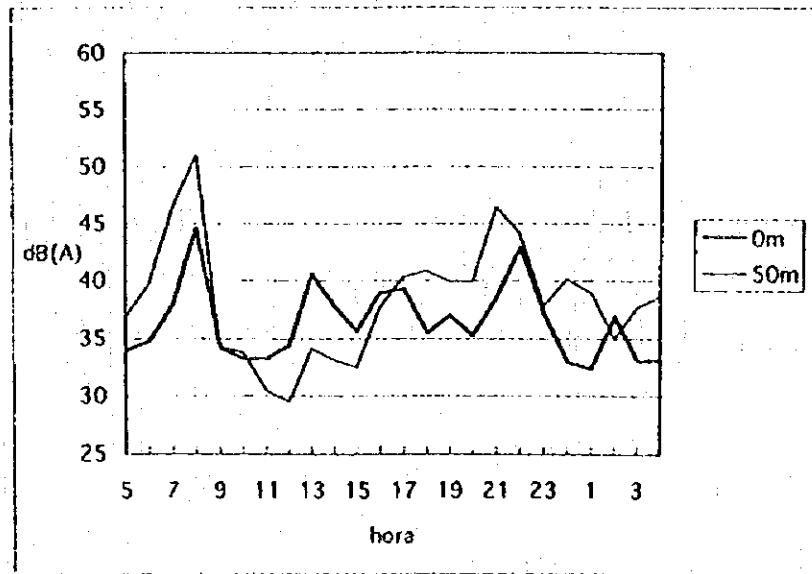
(3) Tramo de granos de suelo

Muestra	Tramo de granos ( $\mu\text{m}$ )						
	Arcilla-limo	arena					Grava
	< 62.5	62.5-125	125-250	250-500	500-1000	1000-2000	> 2000
SQ-1	3.26	6.29	13.64	1.87	20.39	10.25	44.30
SQ-2	1.04	3.21	10.21	6.54	21.87	10.46	46.65
SQ-3	1.80	6.09	12.34	9.59	33.23	12.73	24.27
SQ-4	0.73	1.34	4.60	6.60	11.87	8.86	67.46
SQ-5	3.89	8.86	15.72	9.98	28.08	12.88	20.59
SQ-6	0.75	1.54	6.06	5.96	20.00	10.06	55.63
SQ-8	3.72	6.06	10.99	6.02	19.46	10.28	43.47
SQ-9	3.48	11.04	18.35	10.42	19.85	6.28	30.25
SQ-11	2.46	5.88	13.25	5.06	18.10	10.42	44.83
SQ-13	3.63	7.81	14.97	10.91	23.57	12.16	26.95
SQ-14	0.43	1.03	2.16	0.94	1.49	6.73	87.22
SQ-15	1.90	6.46	12.09	7.91	23.80	41.95	35.87
Promedio	2.26	5.50	11.20	6.81	20.14	12.76	41.33

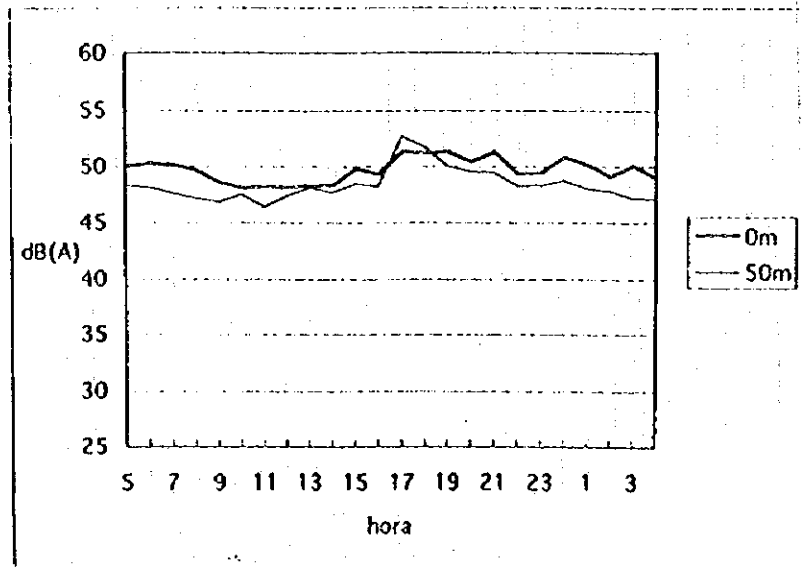
卷末 43 騒音現況図



	García Moreno		Junin	
	0 m	50 m	0 m	50 m
manana 5:00~6:00	34	38	50	48
pleno día 7:00~18:00	37	37	49	48
anocheecer 19:00~20:00	36	40	51	50
noche 21:00~4:00	36	40	50	48



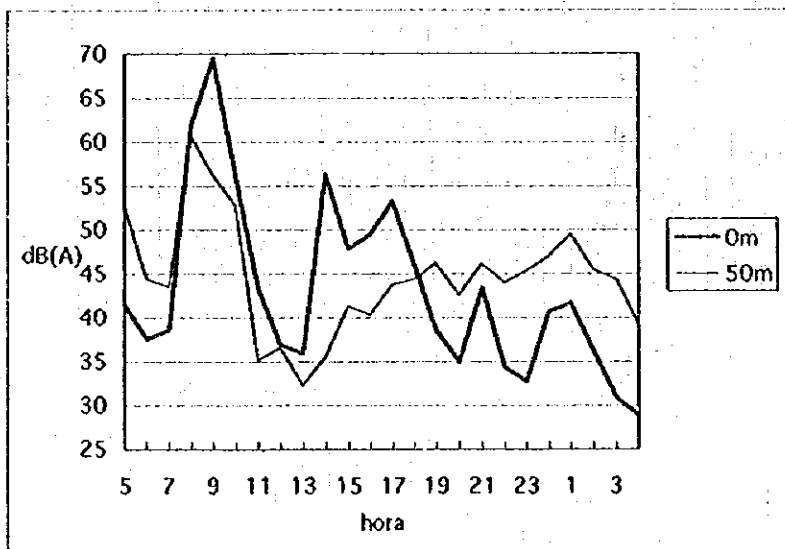
García Moreno



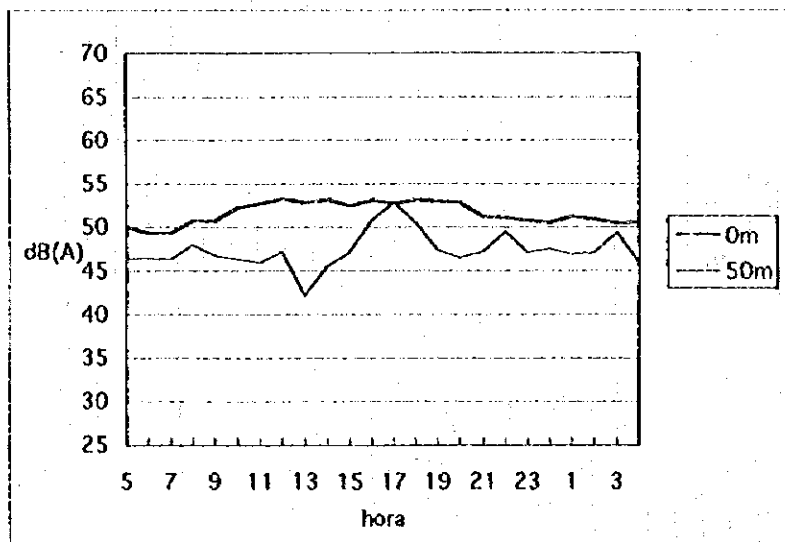
Junin

騒音レベル (1)

	García Moreno		Junín	
	0m	50m	0m	50m
manñana 5:00~6:00	40	44	50	46
pleno día 7:00~18:00	60	52	52	48
anochece 19:00~20:00	37	45	53	47
noche 21:00~4:00	39	46	51	48



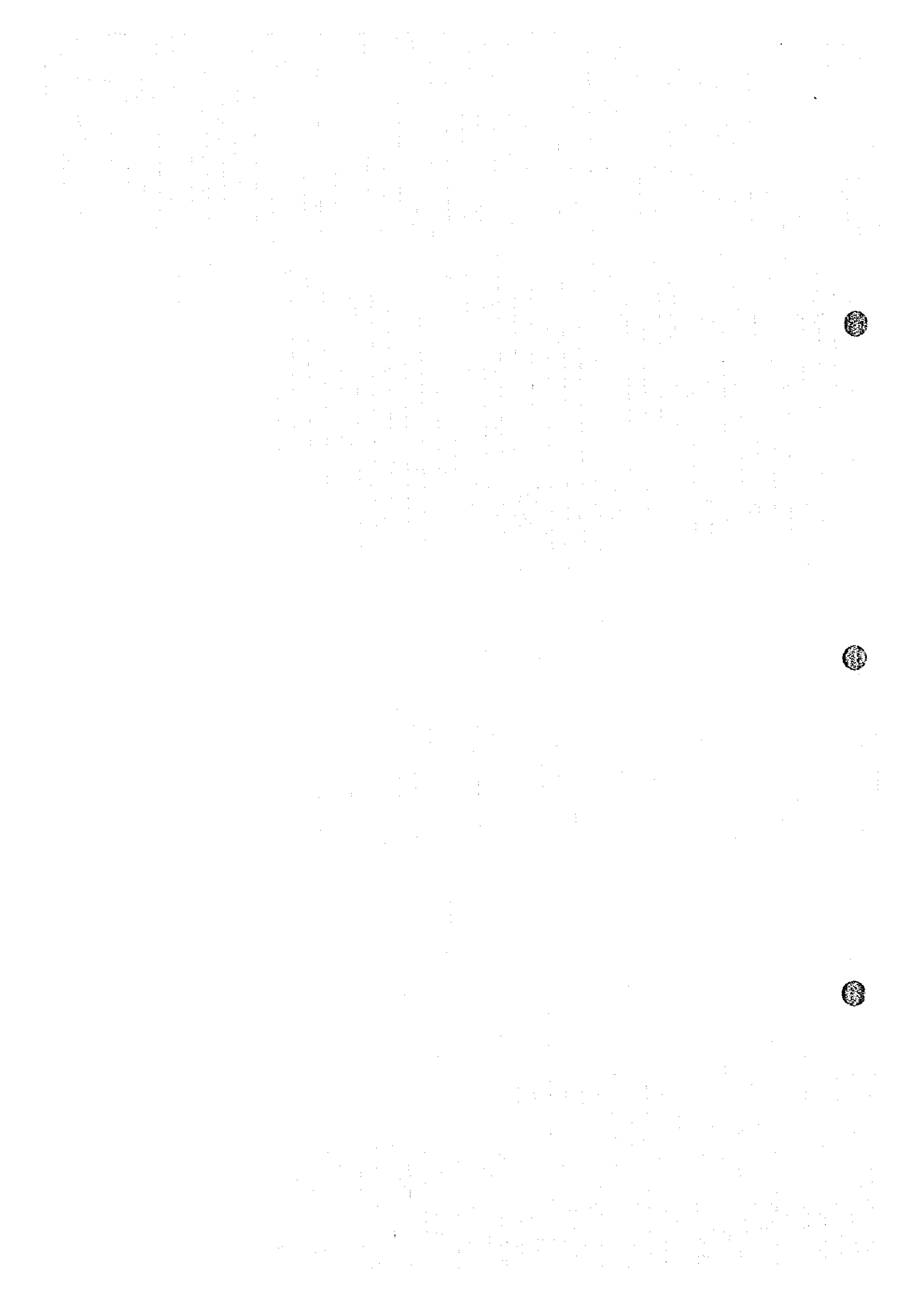
García Moreno



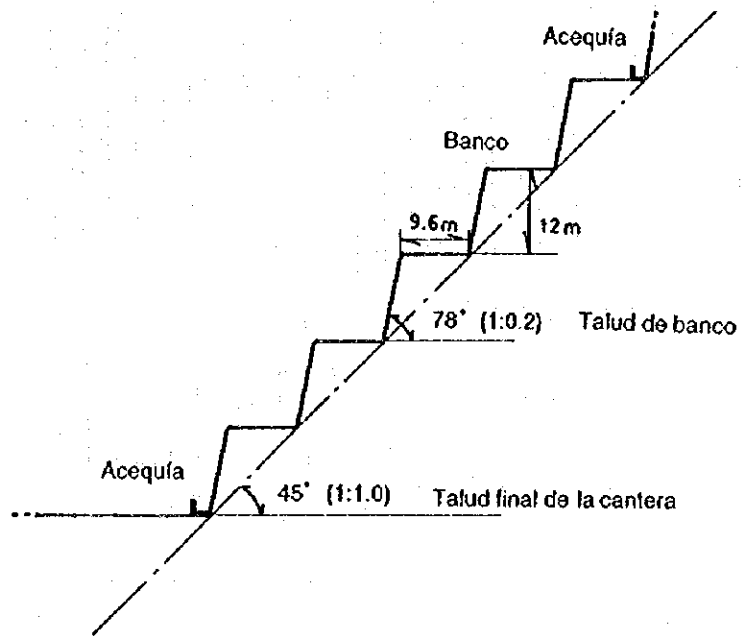
Junín

(2)

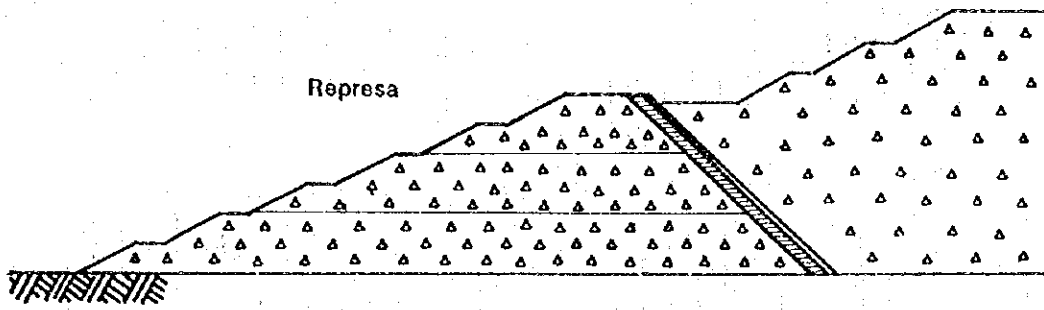
- 卷末 44 オープンピットの最終断面
- 卷末 45 標準道路断面
- 卷末 46 堆積場の法面
- 卷末 47 斜面の安定解析







オープンピットの最終断面



Leyenda

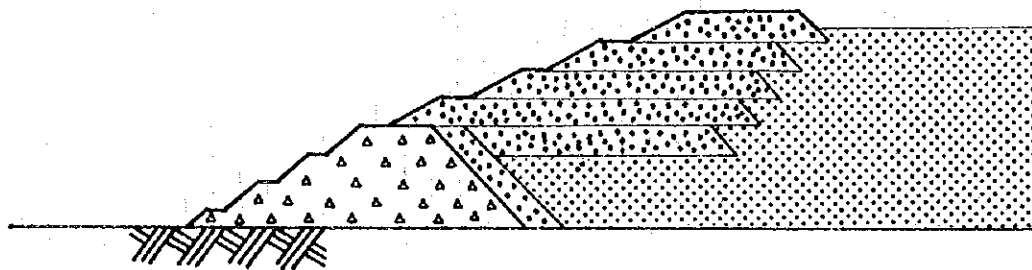


Piedra tritrada



Membrana protectora

(1) かん止堤・すり捨場



Leyenda



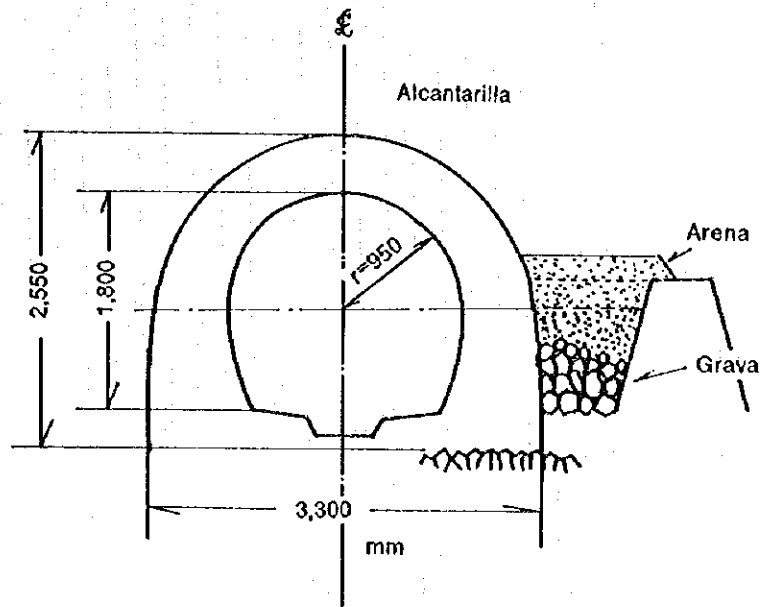
Piedra tritrada



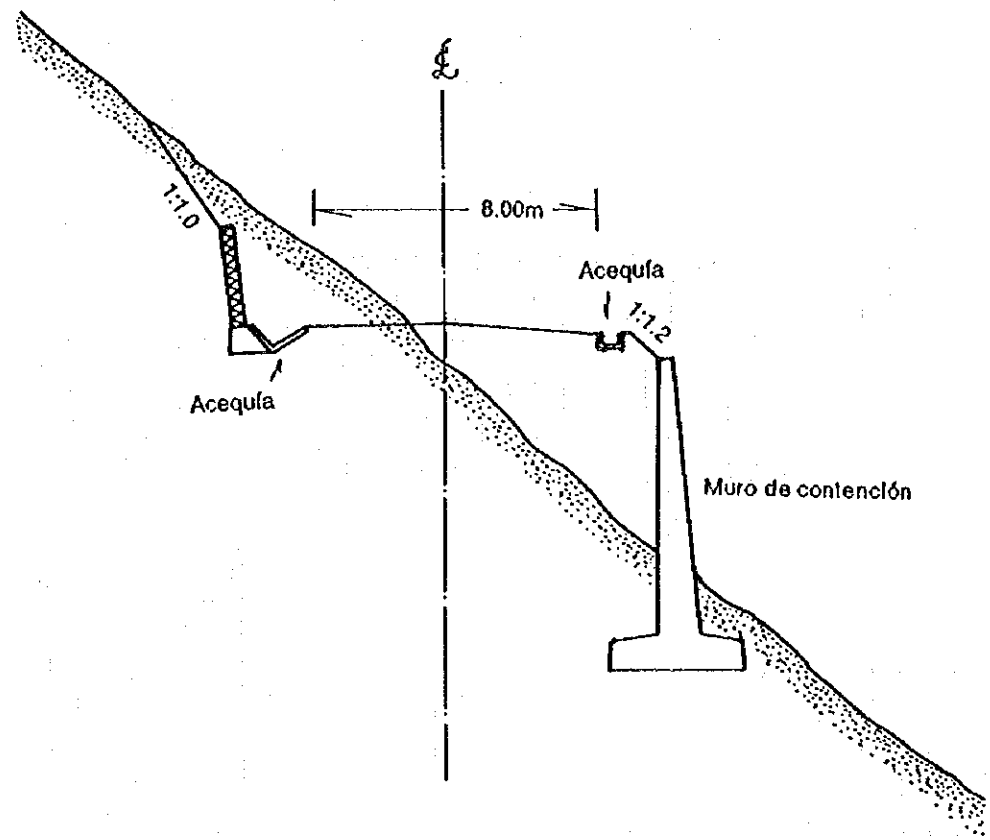
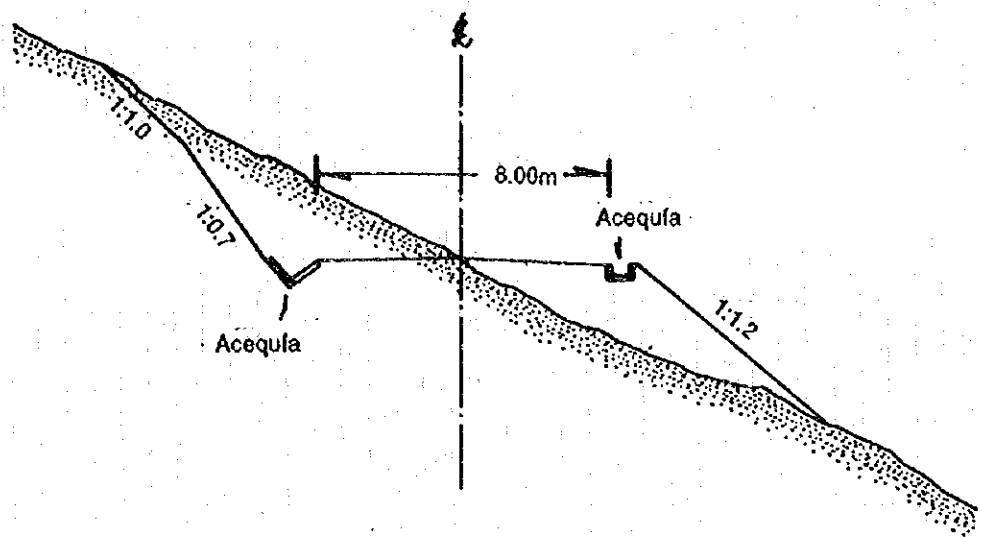
Desechos minerales

(2) かん止堤・鉱さいたい積場

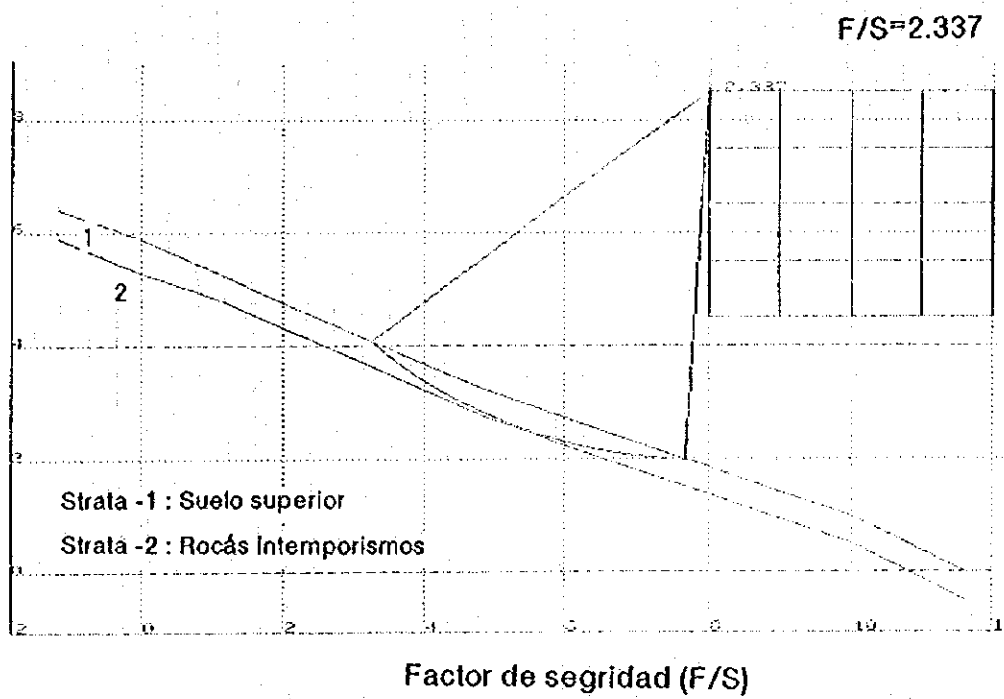
たい積場の法面



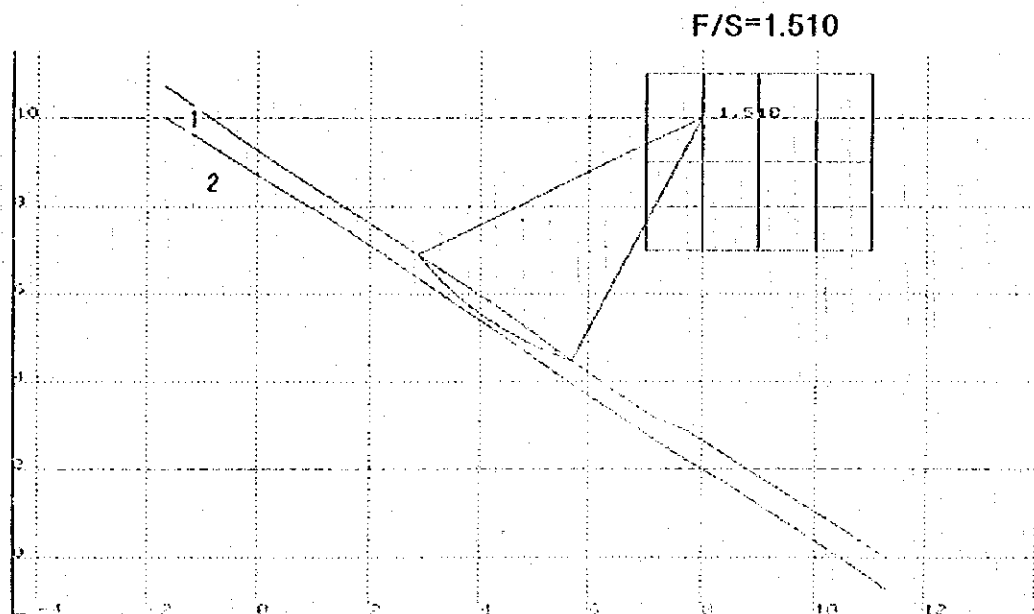
(3) 鉋さいたい積場の底設暗渠の例



標準道路断面

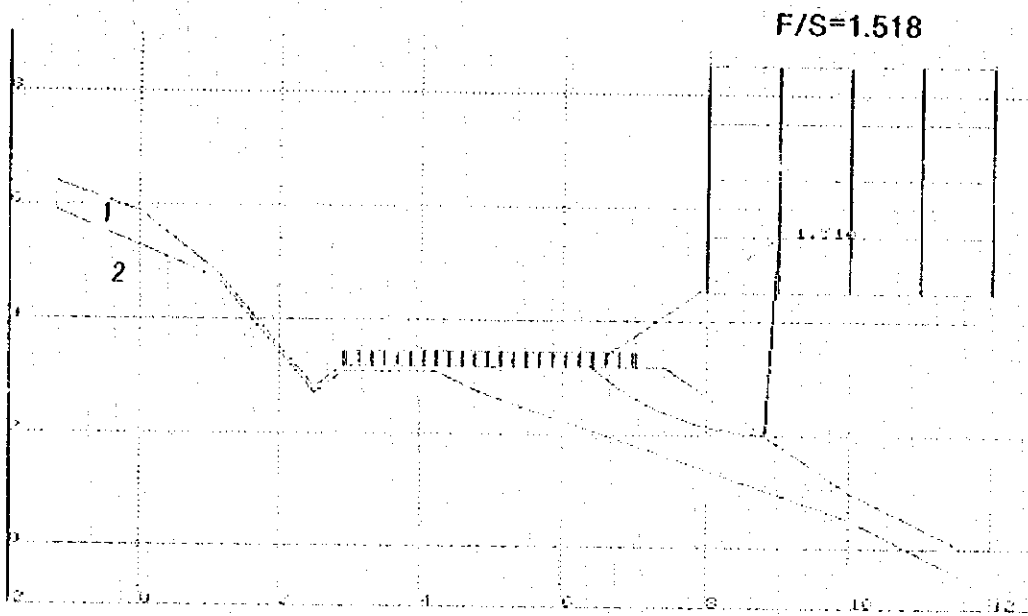


(1) Deslizamiento circular en la pendiente media

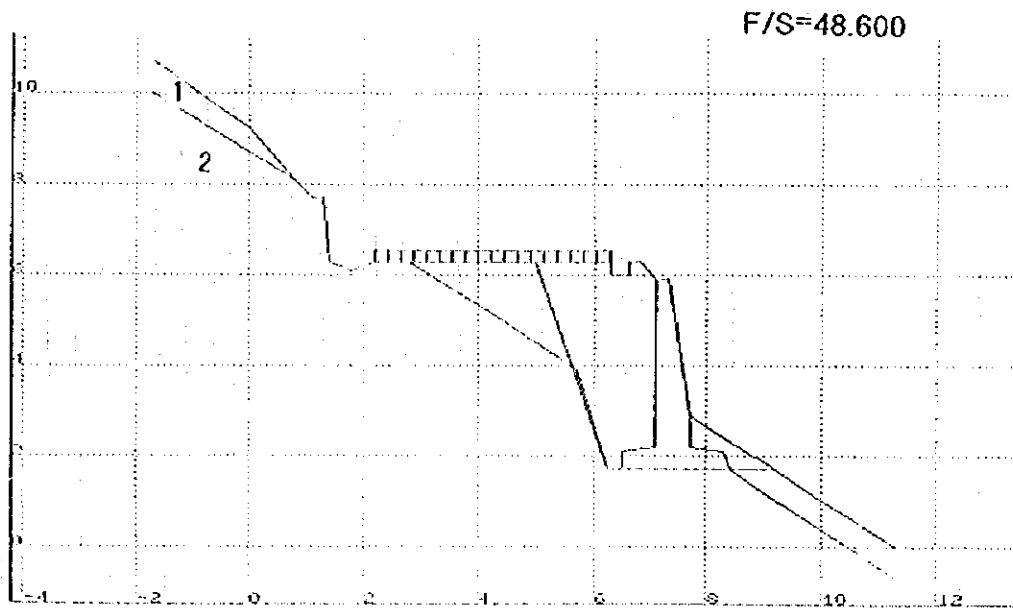


(2) Deslizamiento circular en la pendiente empinada

斜面の安定解析 (1)



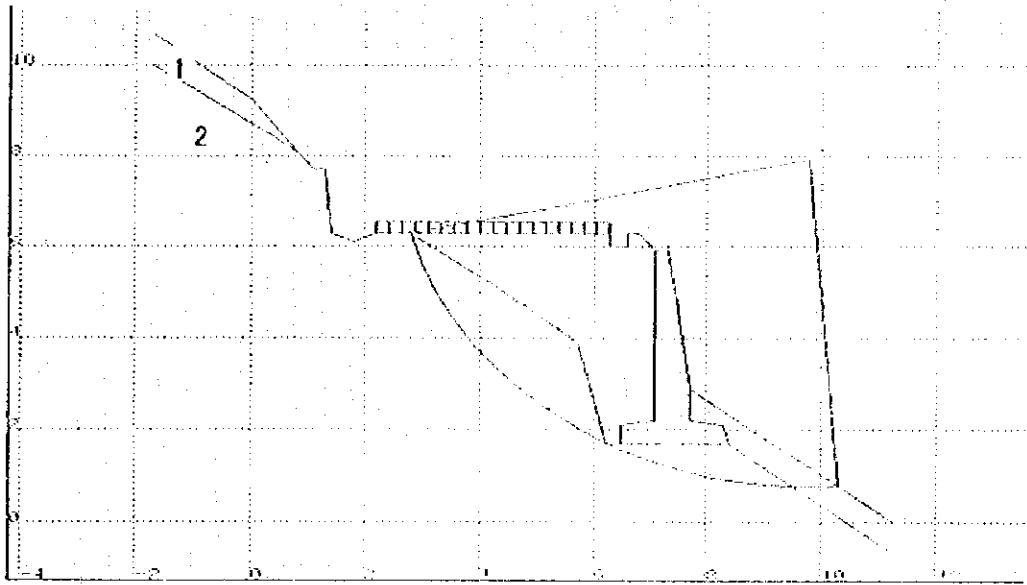
(3) Deslizamiento circular en el dique



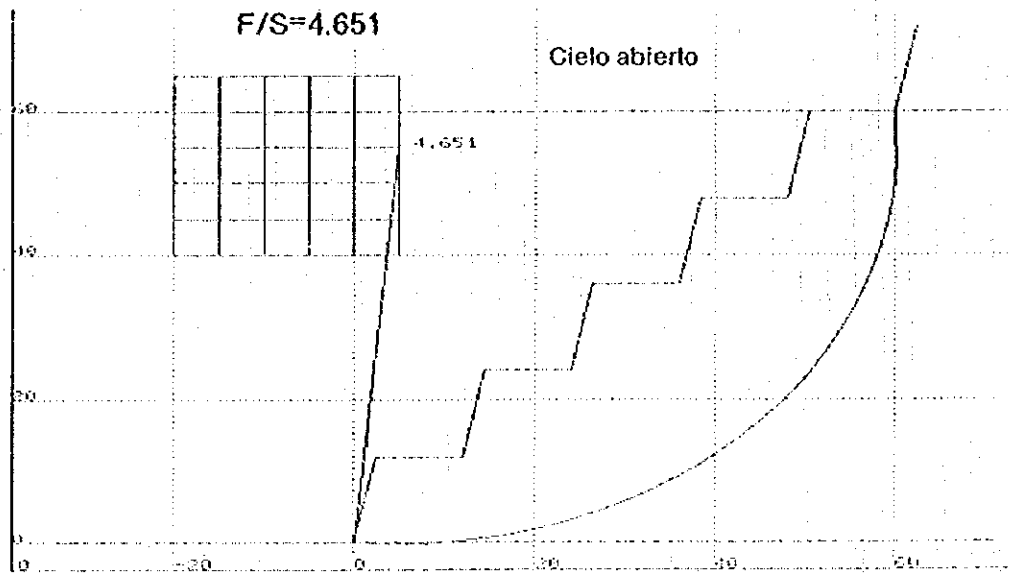
(4) Estabilidad del muro de contención

(2)

F/S=13.531

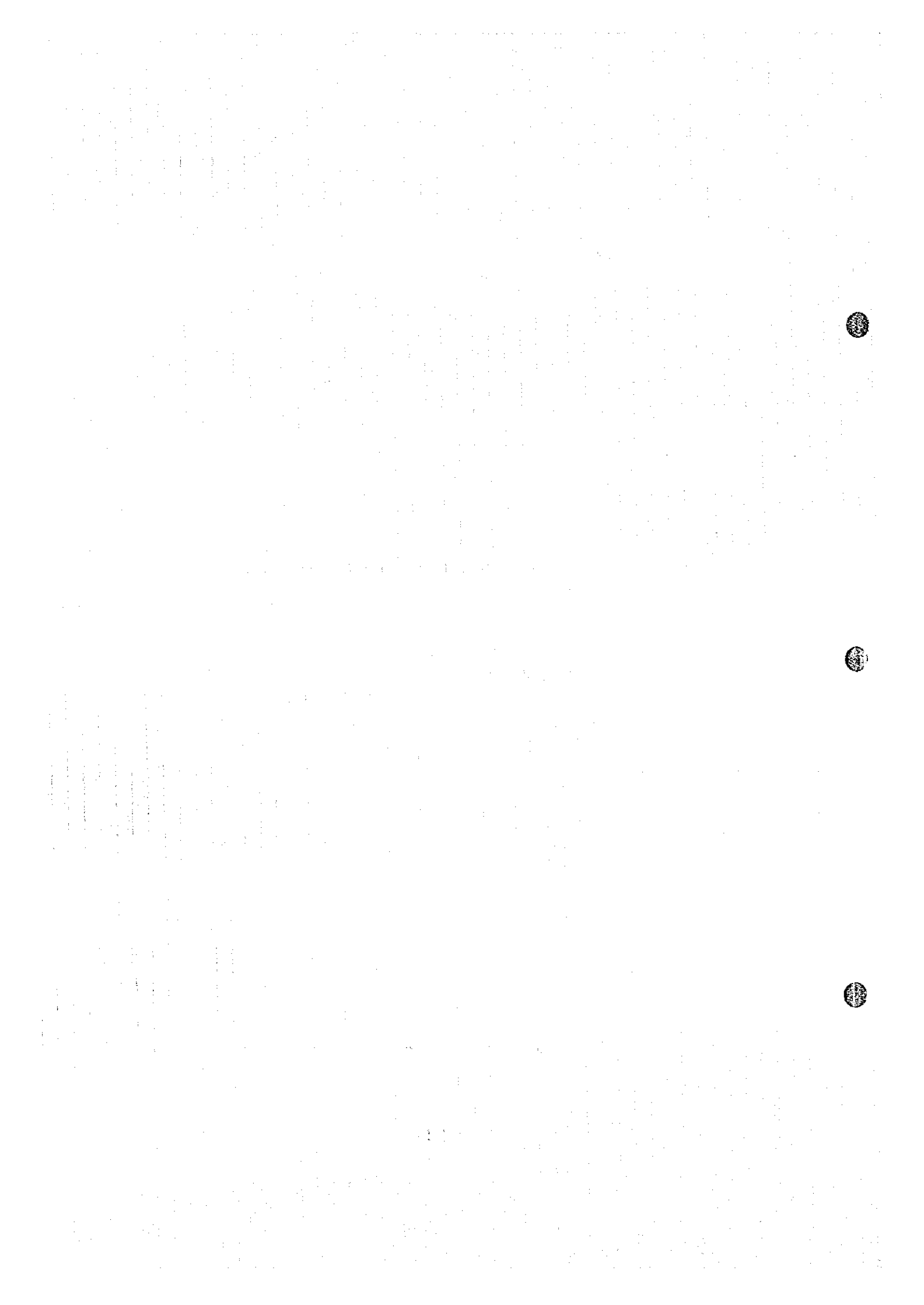


(5) Estabilidad del muro total de contención



(6) Deslizamiento circular de la pendiente final del banco (cielo abierto)

(3)

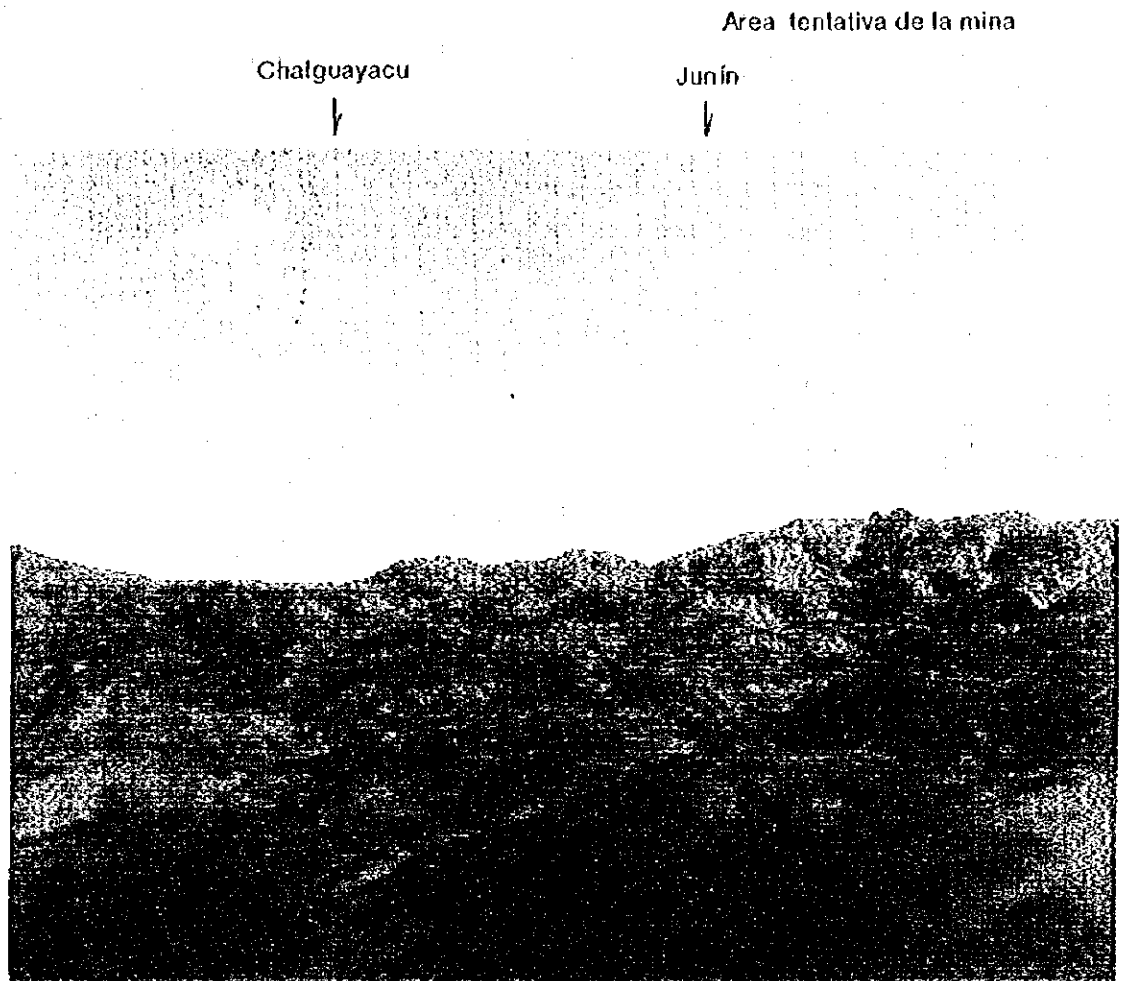




巻末 48 開発地域のモンタージュ写真（マグノリア側）



(1) Vista desde Magnolia del área tentativa de la mina antes del desarrollo

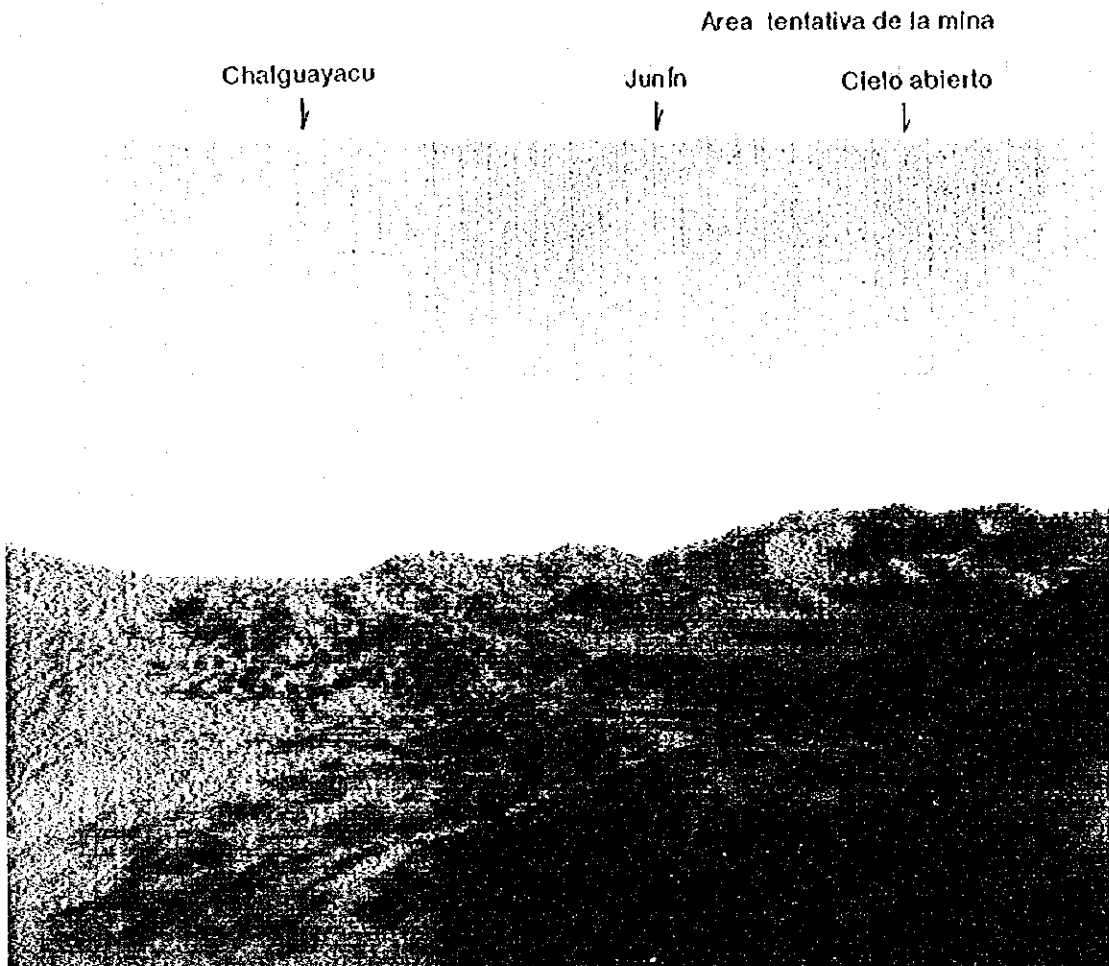


Magnolia

開発地域のモンタージュ写真 (マグノリア側)

(1)

(2) Vista desde Magnolia del área tentativa de la mina despues del desarrollo  
 (Explotación a cielo abierto)



↑  
 Area de residuos Areas de  
 residuos y piedra tritrada

Magnolia

(2) 露天掘り採掘法  
 鉱さいたい積場

Vista desde Magnolia del área tentativa de la mina despues del desarrollo  
(Explotación subterránea)

Chataguayacu

Junín

Area tentativa de la mina

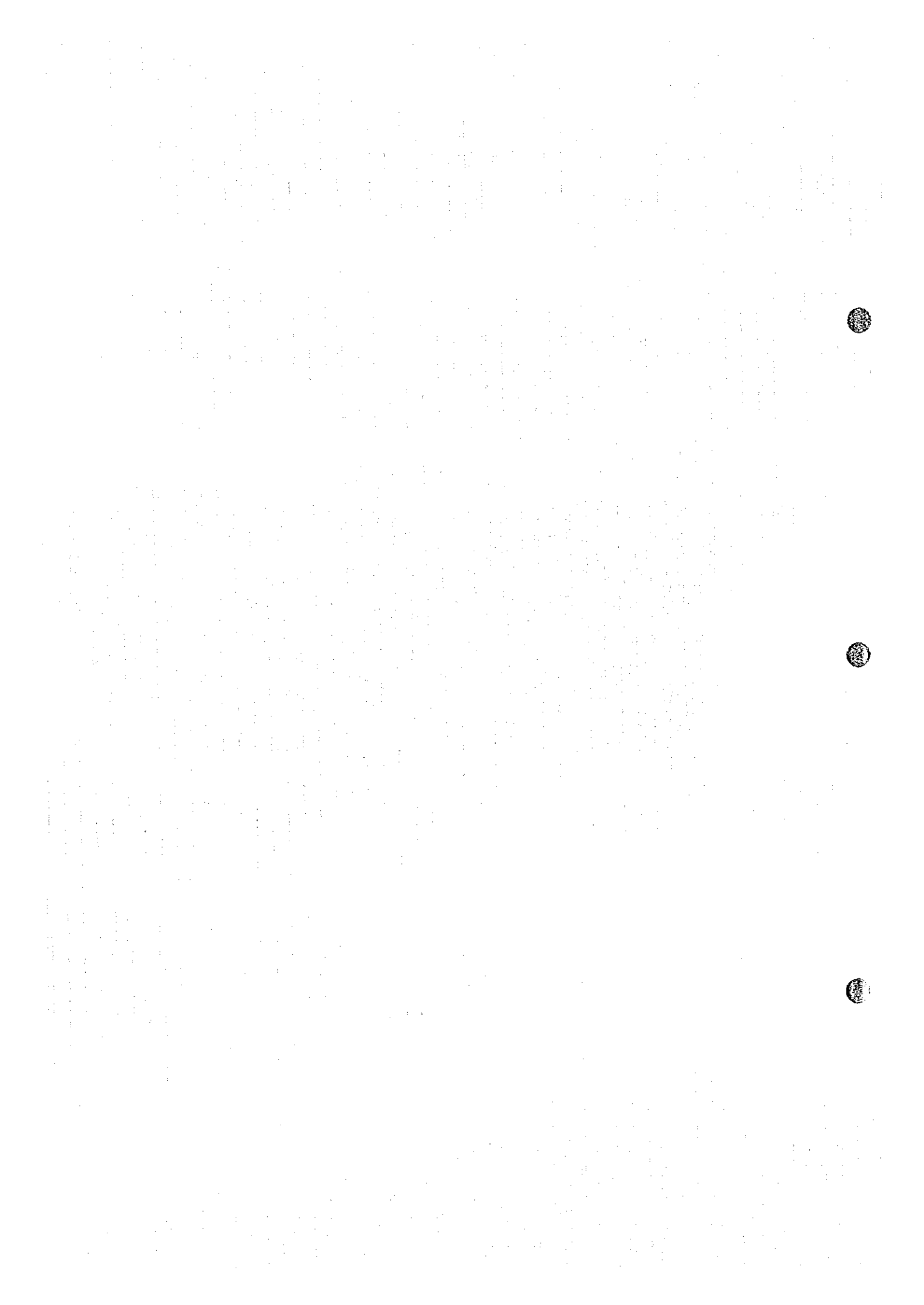


Areas de residuos y piedra tritrada

Magnolia

開発地域のモニター写真 (マグノリア側)

(3) 坑内採掘法



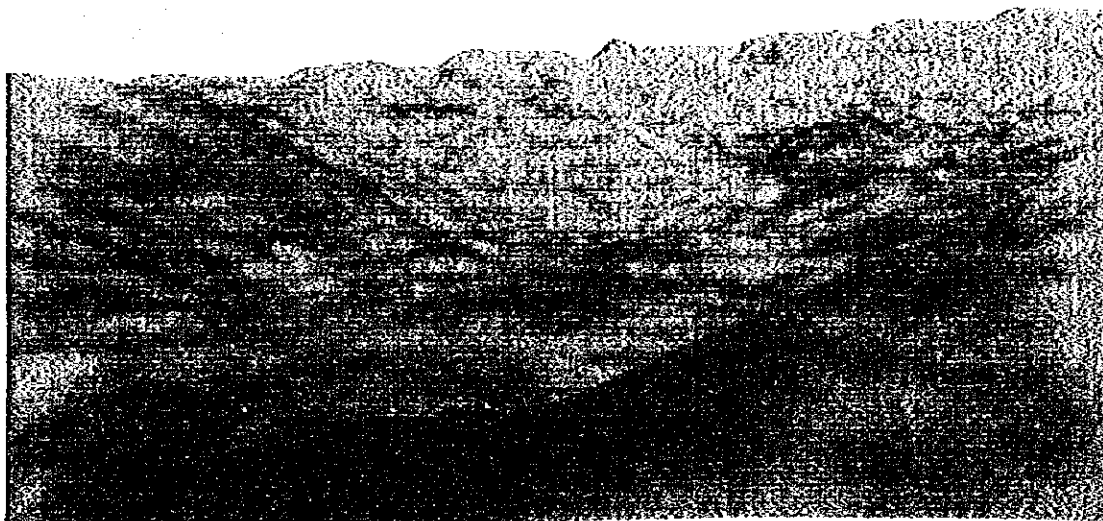
卷末 49 開発地域のモントージュ写真（バルセロナ側）





(3) Vista desde Barcelona del área tentativa de la mina antes del desarrollo

Area tentativa de la mina



Barcelona

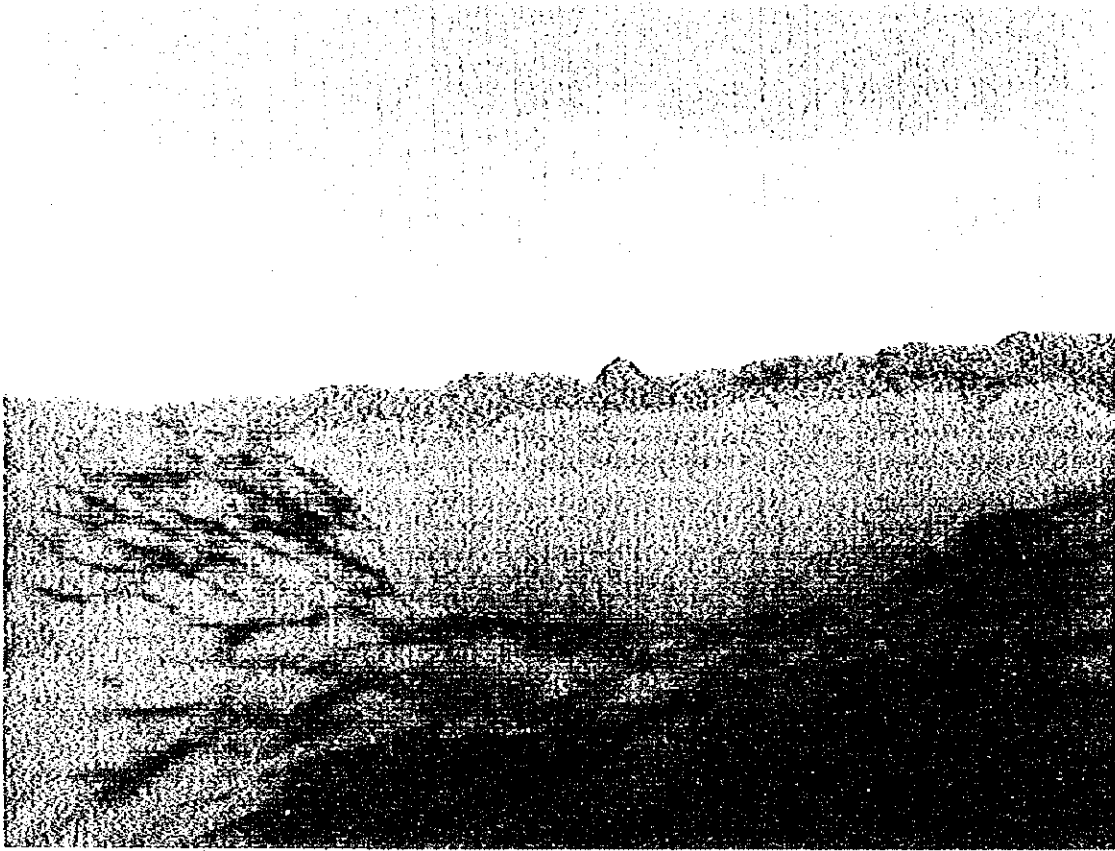
開発地域のモニターシュ写真 (バルセロナ側)

(1)

(4) Vista desde Barcelona del área tentativa de la mina despues del desarrollo

Area de residuos

↓



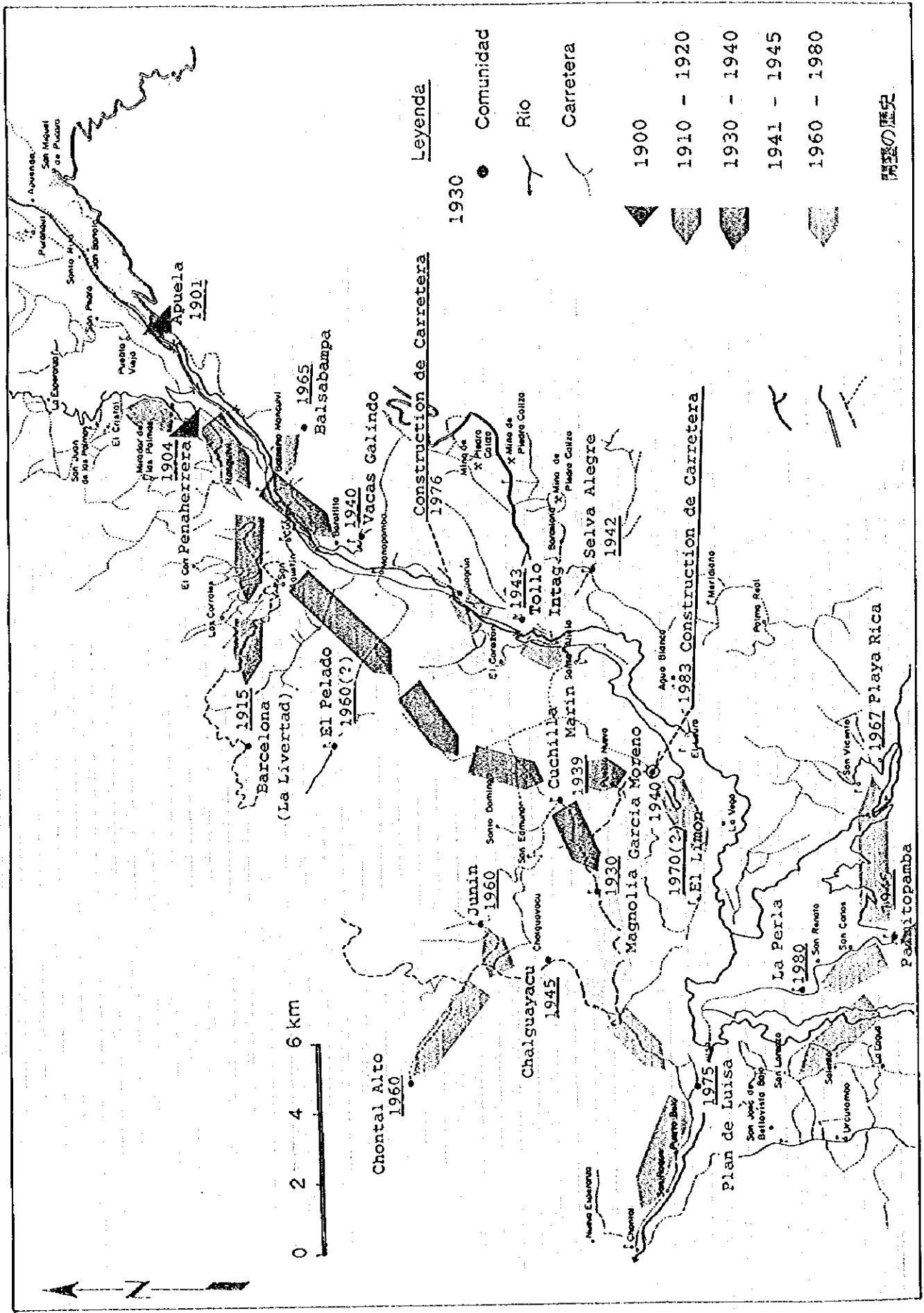
Barcelona

(2) 露天掘り採掘法

すり捨場

卷末 50 開墾の歴史

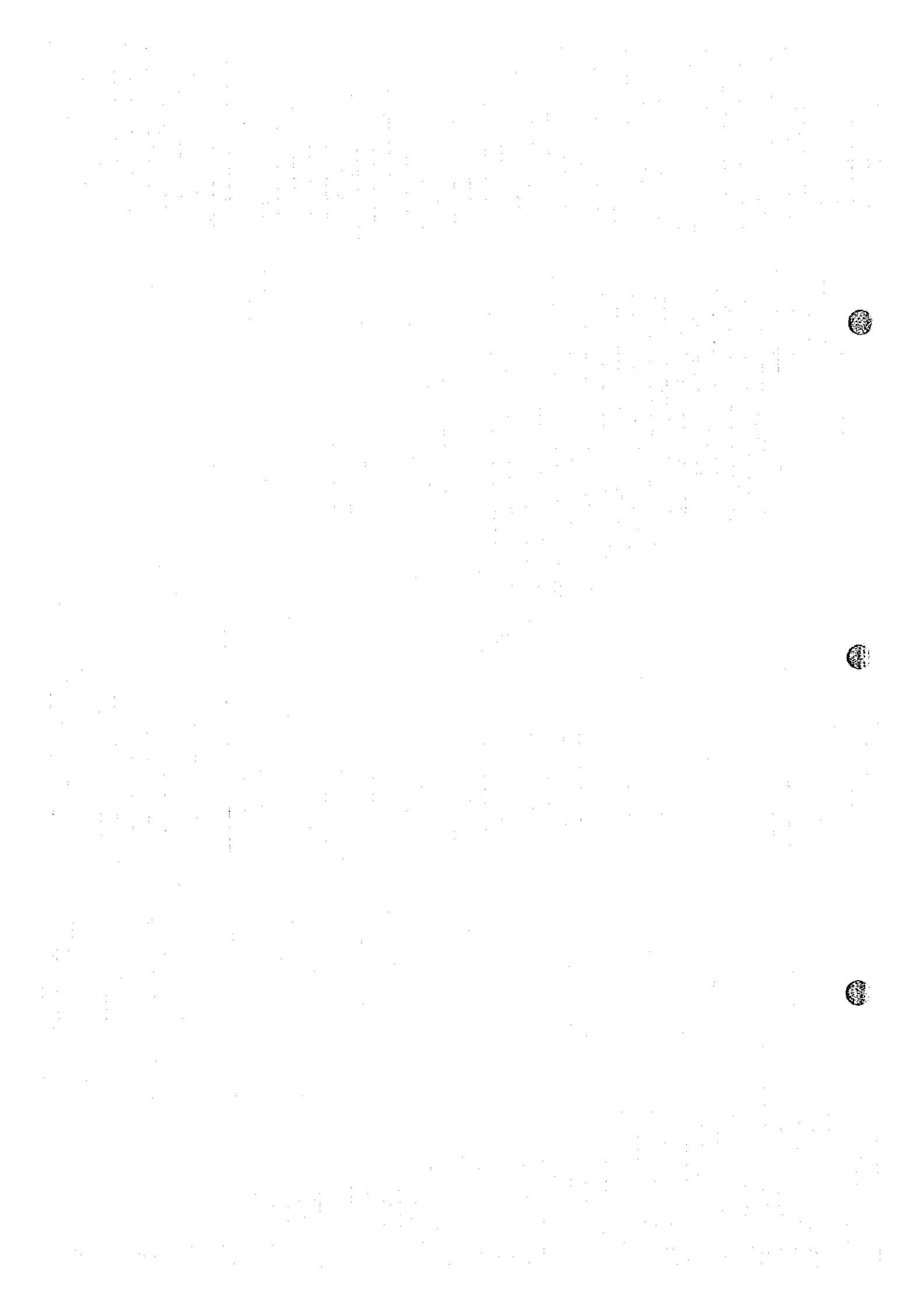




Leyenda

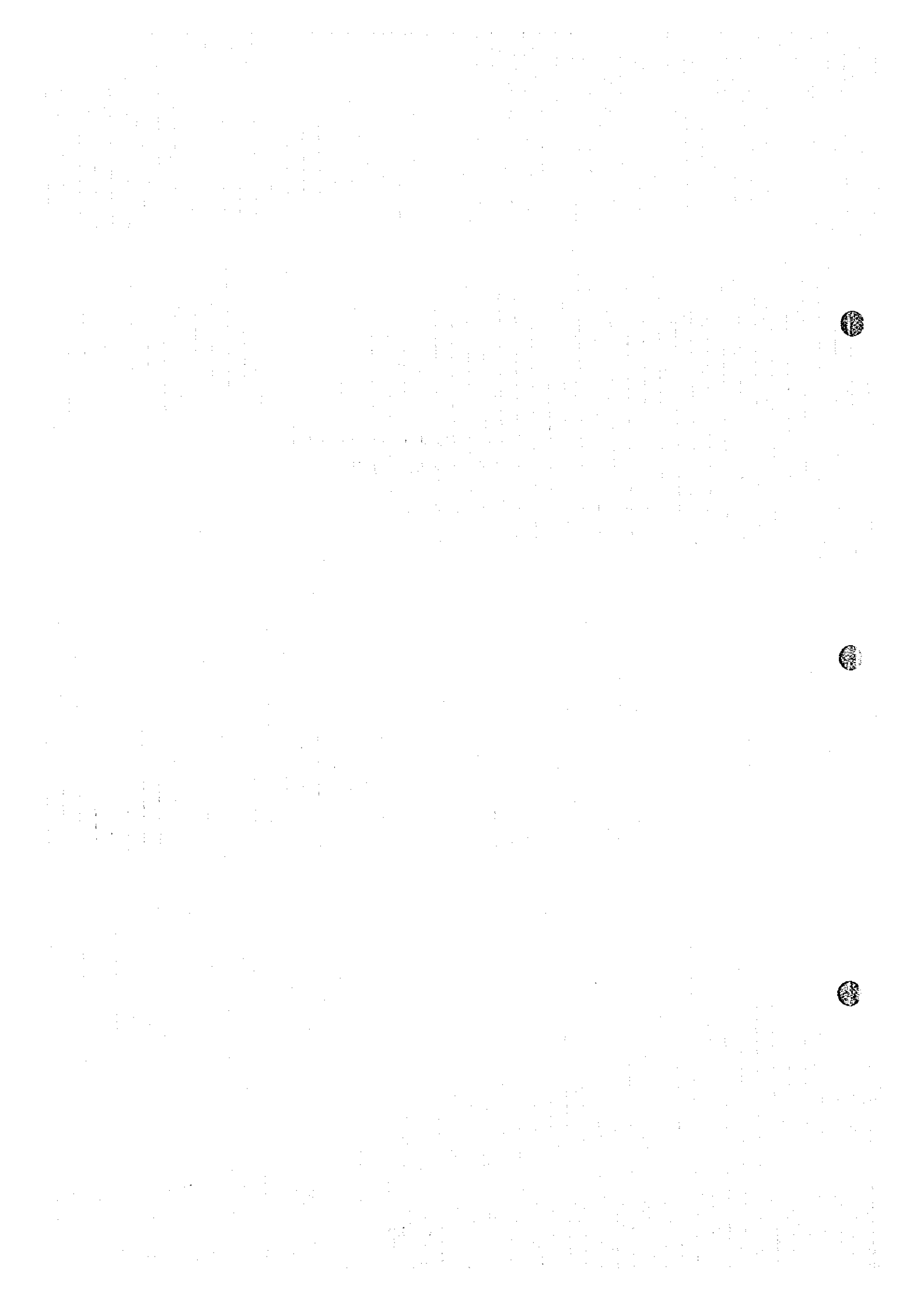
- Comunidad
- Rio
- Carretera
- ▲ 1900
- ▒ 1910 - 1920
- ▒ 1930 - 1940
- 1941 - 1945
- ▒ 1960 - 1980

開拓の歴史

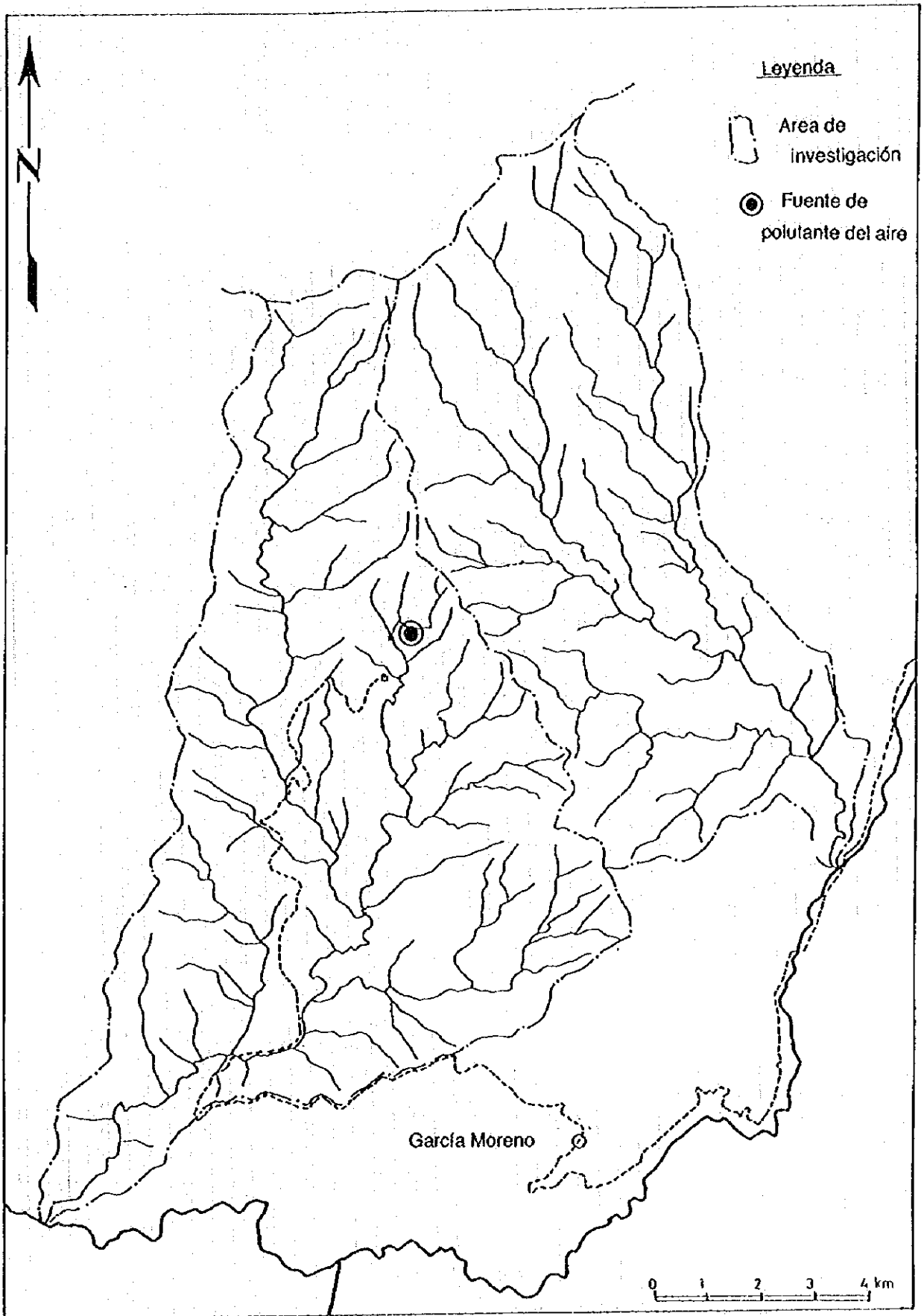


卷末 51 大気汚染物質発生源の位置

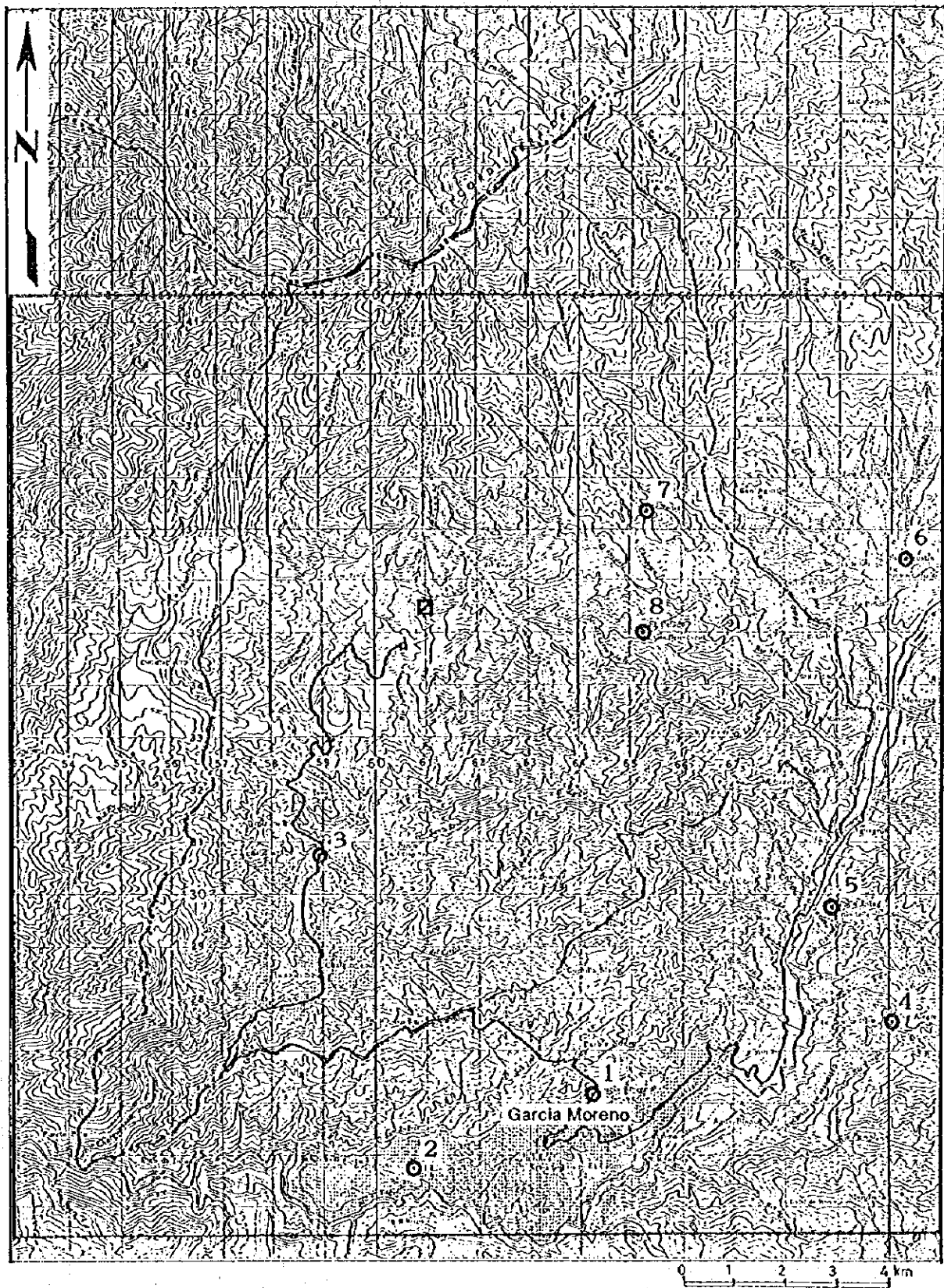
卷末 52 大気汚染の予測







大気汚染物質発生源の位置



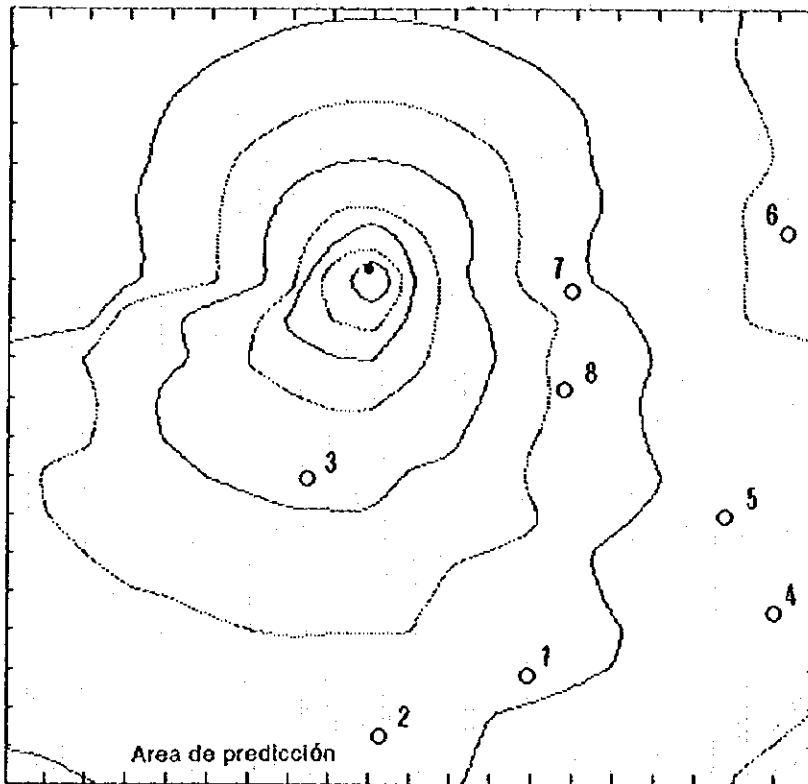
Leyenda

- Area de predicción
- Fuente polutante
- Punto de predicción

大気汚染の予測

(1) 予測地点

A-304



X = 18000.0 m

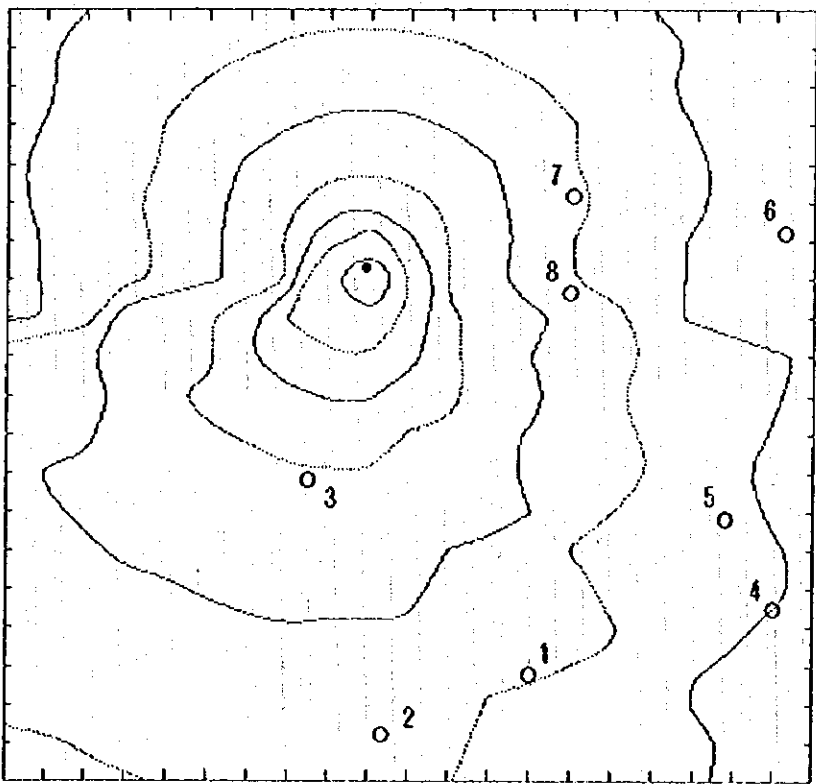
Chimenea 1  
 Numero 1  
 Horas 8760 h  
 totales CONCAWE

Cmax= 6.652E-03 ppm  
 at i= 9 , j= 7

Razón de concentración en  
 función de Cmax

- 5.00E-01 — 2.00E-01
- 1.00E-01 — 5.00E-02
- 2.00E-02 — 1.00E-02
- 5.00E-03 — 2.00E-03
- 1.00E-03 — 5.00E-04

Y = 18000.0 m



X = 18000.0 m

Chimenea 1  
 Numero 1  
 Horas 8760 h  
 totales CONCAWE

Cmax= 5.835E-04 ppm  
 at i= 9 , j= 7

Razón de concentración en  
 función de Cmax

- 5.00E-01 — 2.00E-01
- 1.00E-01 — 5.00E-02
- 2.00E-02 — 1.00E-02
- 5.00E-03 — 2.00E-03
- 1.00E-03 — 5.00E-04

Y = 18000.0 m

2 O Punto de predicción

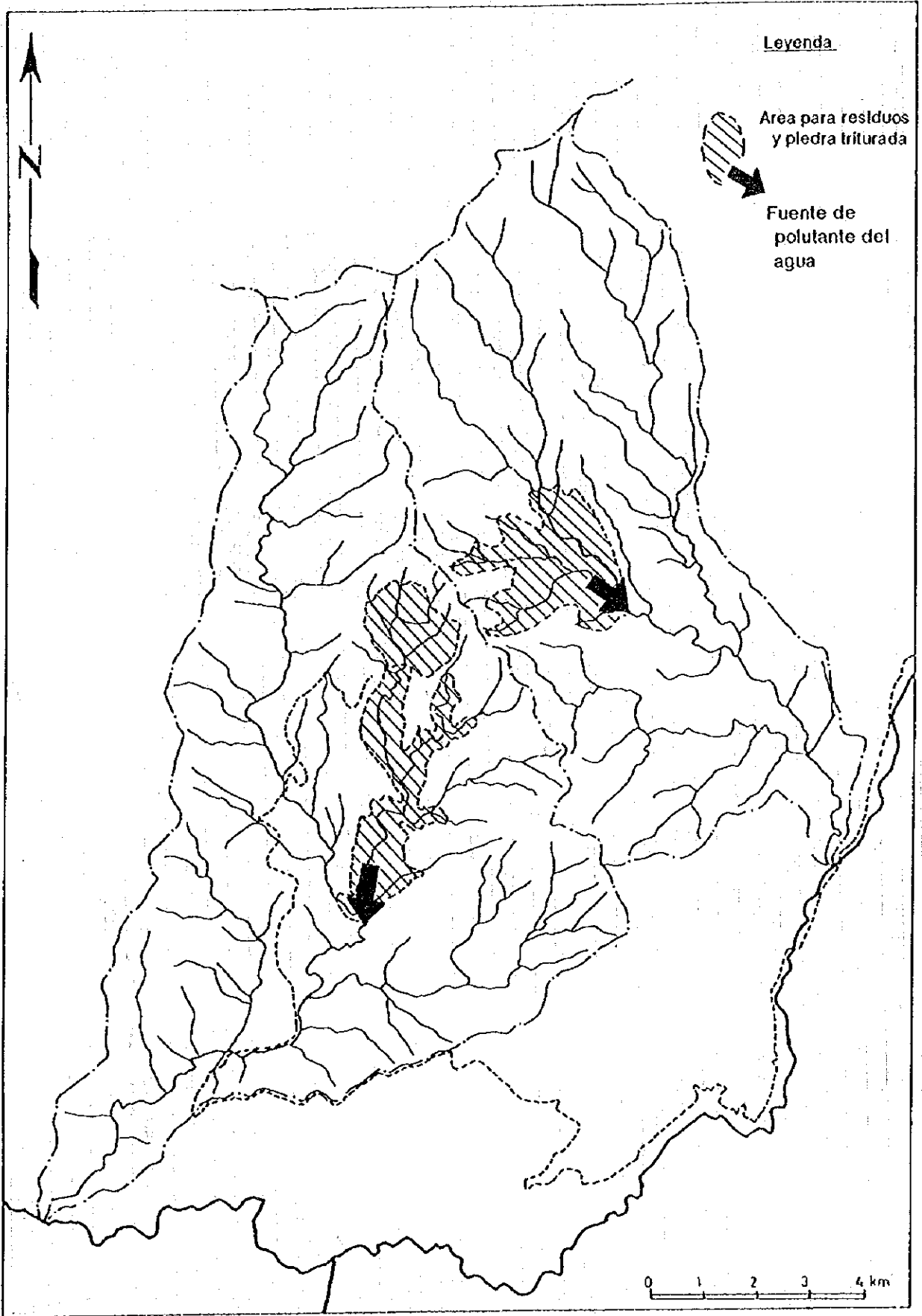
(2) 予測結果



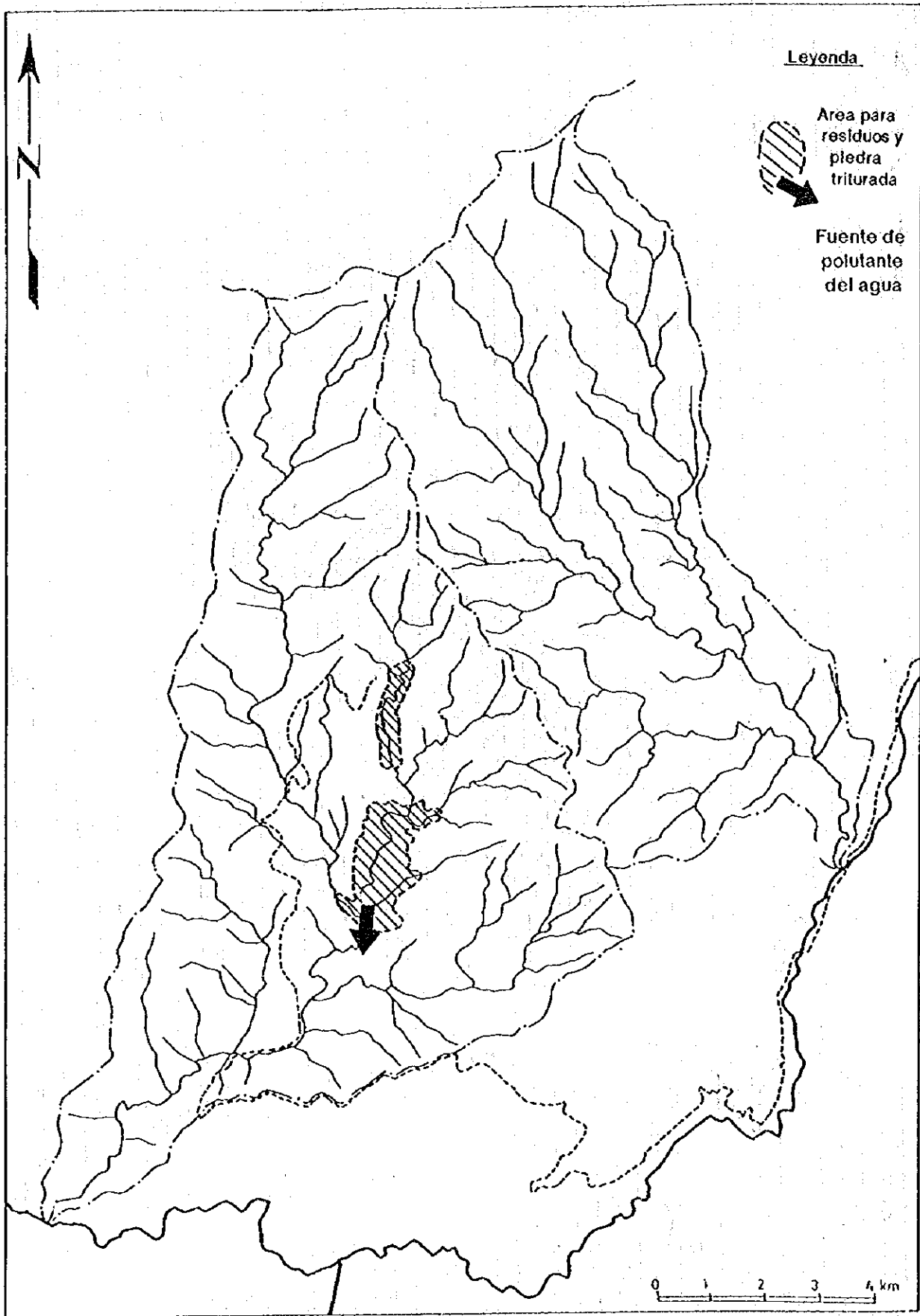
卷末 53 水質汚染物質発生源及びの予測位置

卷末 54 水質汚濁予測位置



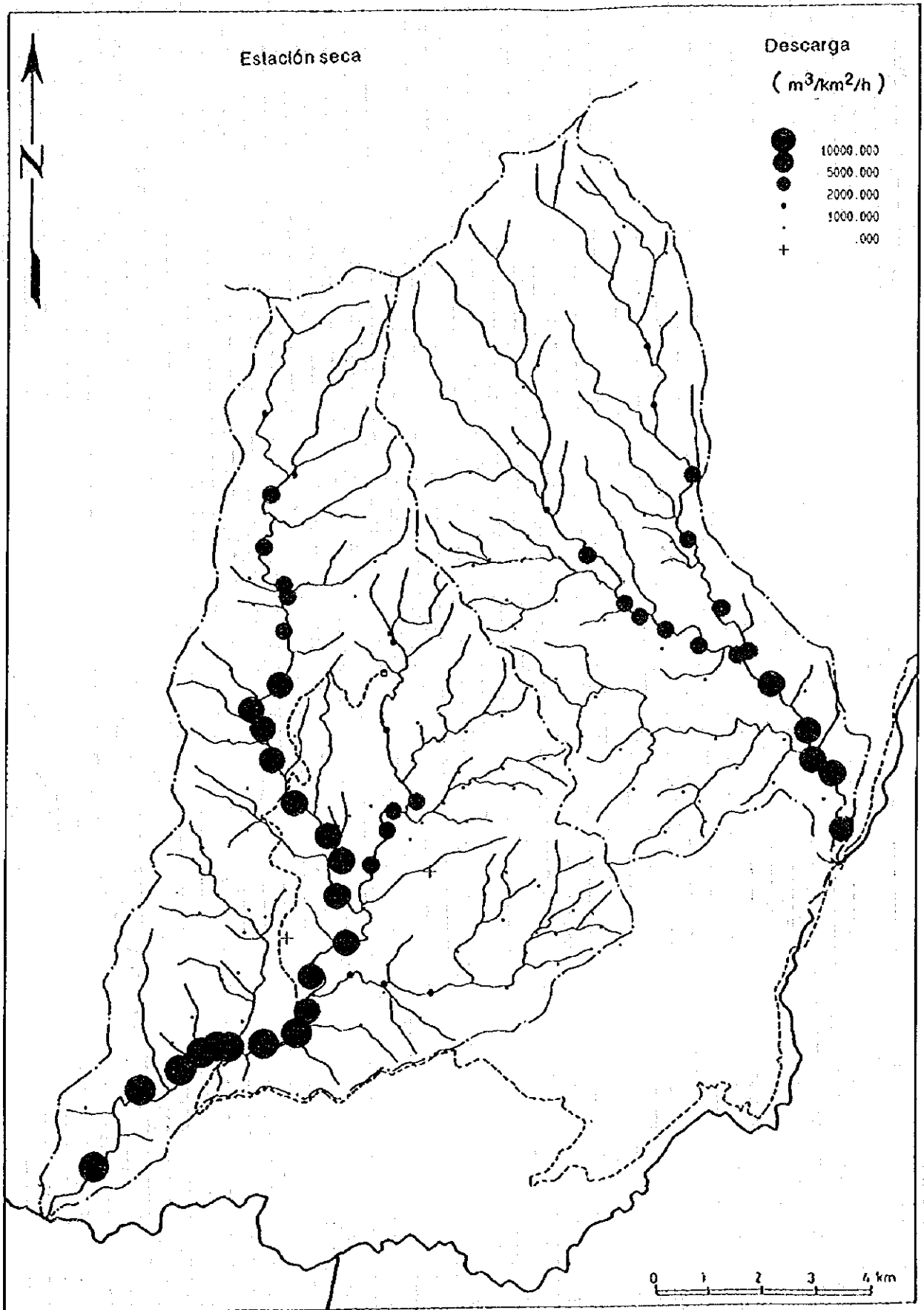


水質汚染物質発生源 (1) 露天掘り採掘法



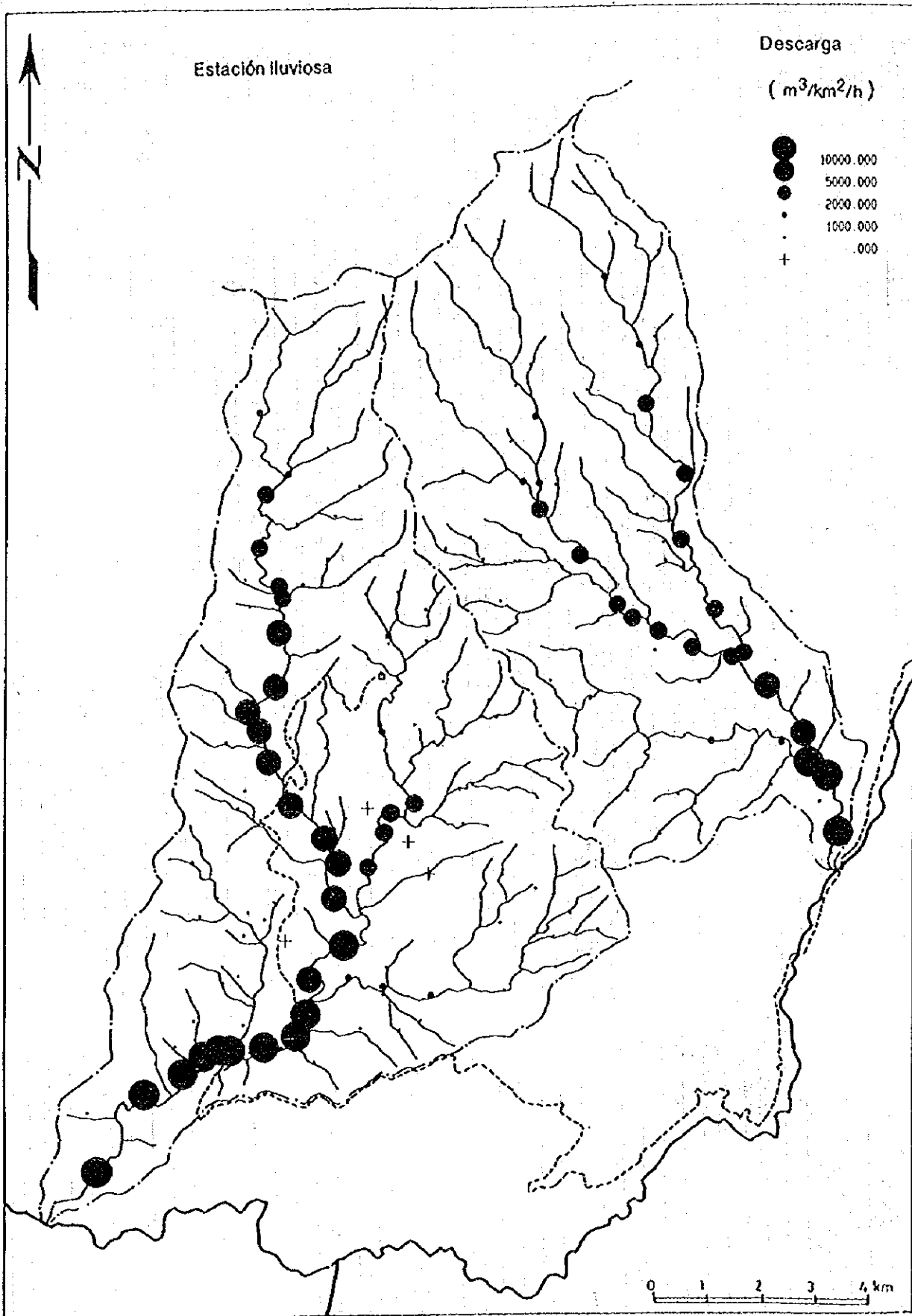
(2) 坑内採掘法





(1) 予測流出量 - 乾季

予測流出量及び流出・浸透量



(2) 予測流出量 - 雨季