

ANNEX F

LAND USE

ANNEX - F

LAND USE

List of Tables

| | | |
|-----------|---|-----|
| Table F-1 | Flora in the basin..... | F-1 |
| Table F-2 | Categories of Land use in Several Studies | F-8 |

List of Figures

| | | |
|--------------|---|------|
| Figure F-1-1 | Gradation of Inclination in Karoon River Basin..... | F-10 |
| Figure F-1-2 | Gradation of Elevation in Karoon River Basin | F-14 |

Table F-1 Flora in the basin

Note : in valuation, EN are endangered species, VU are vulnerable species, LR are species having lower risk in extinction and DD are species which their data are deficient

| No. | Genus | Species | Family | Valuation |
|-----|----------------|--------------------------------|-----------------------|-----------|
| 1 | Acantholepis | orientalis | Compositae キク科 | |
| 2 | Acantholimon | aspadanum | Plumbaginaceae イソマツ科 | DD |
| 3 | Acanthophyllum | bracteatum | Caryophyllaceae ナデシコ科 | |
| 4 | Acer | cineracense | Aceraceae カエデ科 | |
| 5 | Acer | monspessulanum | Aceraceae " | LR |
| 6 | Adonis | aestivalis | Ranunculaceae キンボウゲ科 | |
| 7 | Aellenia | auricula | Chenopodiaceae アカザ科 | |
| 8 | Aeluropus | lagopoides | Gramineae イネ科 | |
| 9 | Aeluropus | littoralis | Gramineae " | |
| 10 | Aethionema | carneum | Cruciferae アブラナ科 | |
| 11 | Aethionema | elongatum | Cruciferae " | |
| 12 | Agropyron | trichophorum | Gramineae イネ科 | |
| 13 | Ajuga | chamecistus subsp. chamecistus | Labiatae シソ科 | LR |
| 14 | Ajuca | " subsp. eurphrasoides | Labiatae " | LR |
| 15 | Ajuga | " subsp. scoparia | Labiatae " | LR |
| 16 | Ajuga | " subsp. tomentella | Labiatae " | LR |
| 17 | Allium | capitellatum | Liliaceae ユリ科 | |
| 18 | Alyssum | bracteatum | Cruciferae アブラナ科 | LR |
| 19 | Alyssum | dasycarpum | Cruciferae " | |
| 20 | Alyssum | linifolium | Cruciferae " | |
| 21 | Alyssum | marginatum | Cruciferae " | |
| 22 | Amaranthus | chlorostachys | Amaranthaceae ヒユ科 | LR |
| 23 | Amygdalus | lycioides | Rosaceae バラ科 | |
| 24 | Anchusa | azurea | Boraginaceae ムラサキ科 | |
| 25 | Anchusa | italica | Boraginaceae " | |
| 26 | Anemone | biflora | Ranunculaceae キンボウゲ科 | |
| 27 | Arabis | nova | Cruciferae アブラナ科 | |
| 28 | Arnebia | bungei | Boraginaceae ムラサキ科 | |
| 29 | Arnebia | decumbens | Boraginaceae " | |
| 30 | Artemisia | aucherii | Compositae キク科 | |
| 31 | Arum | elongatum | Araceae サトイモ科 | |
| 32 | Astragalus | arbusculinus | Leguminosae マメ科 | |
| 33 | Astragalus | candolleanus | Leguminosae " | |
| 34 | Astragalus | cephalanthus | Leguminosae " | LR |
| 35 | Astragalus | cornu-caprae | Leguminosae " | LR |
| 36 | Astragalus | glaucacanthus | Leguminosae " | LR |
| 37 | Astragalus | ispahanicus | Leguminosae " | |
| 38 | Astragalus | kirrindicus | Leguminosae " | |
| 39 | Astragalus | macropelmatus | Leguminosae " | |
| 40 | Astragalus | melanodon | Leguminosae " | VU |
| 41 | Astragalus | schistosus | Leguminosae " | |
| 42 | Astragalus | spachianus | Leguminosae " | LR |
| 43 | Astragalus | tribuloides | Leguminosae " | |
| 44 | Astragalus | vanillae | Leguminosae " | |
| 45 | Atriplex | griffithii | Chenopodiaceae アカザ科 | |
| 46 | Atriplex | leucoclada | Chenopodiaceae " | |
| 47 | Aubrietia | parviflora | Cruciferae アブラナ科 | |
| 48 | Berberis | integerrima | Berberidaceae メギ科 | |
| 49 | Bellevalia | longistyla | Liliaceae ユリ科 | |
| 50 | Biarum | platyspathum | Araceae サトイモ科 | LR |
| 51 | Bellevalia | pycnantha | Liliaceae ユリ科 | |

| No. | Genus | Species | Family | Valuation |
|-----|----------------|------------------|-----------------------------|-----------|
| 52 | Biebersteinia | multifida | Geraniaceae フウロウソウ科 | |
| 53 | Boerhavia | diffusa | Nyctaginaceae オシロイバナ科 | |
| 54 | Boissiera | squarrosa | Gramineae イネ科 | |
| 55 | Bongardia | chrysogonum | Berberidaceae メギ科 | |
| 56 | Bothriochloa | ischaemum | Gramineae イネ科 | |
| 57 | Bromus | danthoniae | Gramineae " | |
| 58 | Bromus | tectorum | Gramineae " | |
| 59 | Brossardia | papyracea | Cruciferae アブラナ科 | LR |
| 60 | Buchingera | axillaris | Cruciferae " | LR |
| 61 | Buffonia | macrocarpa | Caryophyllaceae ナデシコ科 | LR |
| 62 | Bunium | persicum | Umbelliferae セリ科 | |
| 63 | Bupleurum | exaltatum | Umbelliferae " | |
| 64 | Calamagrostis | pseudophragmites | Gramineae イネ科 | |
| 65 | Callipeltis | cucullaria | Rubiaceae アカネ科 | |
| 66 | Campanula | erinus | Campanulaceae キキョウ科 | |
| 67 | Capsella | bursa-pastoris | Cruciferae アブラナ科 | |
| 68 | Carthamus | lanatus | Compositae キク科 | |
| 69 | Catabrosa | aquatica | Gramineae イネ科 | |
| 70 | Celtis | caucasica | Ulmaceae ニレ科 | |
| 71 | Centaurea | acuta | Compositae キク科 | |
| 72 | Centaurea | behen | Compositae " | |
| 73 | Centaurea | bruguierana | Compositae " | |
| 74 | Centaurea | depressa | Compositae " | |
| 75 | Centaurea | iberica | Compositae " | |
| 76 | Cephalaria | dichaetophora | Dipsaceae マツムシソウ科 | |
| 77 | Ceratocephalus | Falcatus | Ranunculaceae キンボウゲ科 | |
| 78 | Chaerophyllum | macropodium | Umbelliferae セリ科 | |
| 79 | Chalcanthus | renifolius | Cruciferae アブラナ科 | |
| 80 | Chardinia | orientalis | Compositae キク科 | |
| 81 | Chesneya | astragalina | Leguminosae マメ科 | |
| 82 | Cicer | oxyodon | Leguminosae " | |
| 83 | Cirsium sp. | | Compositae キク科 | |
| 84 | Cistanche | eremodoxa | Oronbanchaceae ハマウツボ科 | |
| 85 | Cistanche | tubulosa | Orobanchaceae " | |
| 86 | Clypeola | jonthlaspi | Cruciferae アブラナ科 | |
| 87 | Clypeola | dichotoma | Cruciferae " | |
| 88 | Clypeola | aspera | Cruciferae " | |
| 89 | Clypeola | lappacea | Cruciferae " | |
| 90 | Colchicum | montanum | Liliaceae(Colchicaceae) ユリ科 | |
| 91 | Conringia | persica | Cruciferae アブラナ科 | |
| 92 | Conringia | perfoliata | Cruciferae " | |
| 93 | Convolvulus | fruticosus | Convolvulaceae ヒルガオ科 | |
| 94 | Convolvulus | pilosellaefolius | Convolvulaceae " | |
| 95 | Cousinia | multiloba | Compositae キク科 | |
| 96 | Crataegus sp. | | Rosaceae バラ科 | |
| 97 | Crepis | kotschyana | Compositae " | |
| 98 | Crepis | sancta | Compositae " | |
| 99 | Crucianella | glauc | Rubiaceae アカネ科 | |
| 100 | Crucianella | gilanica | Rubiaceae " | |
| 101 | Cruciata | coronata | Rubiaceae " | |
| 102 | Cynanchum | acutum | Asclepiadaceae ガガイモ科 | |
| 103 | Dactylorhiza | umbrosa | Orchidaceae ラン科 | |

| No. | Genus | Species | Family | Valuation |
|-----|----------------|------------------------------------|-----------------------|-----------|
| 104 | Daphne | mucronata | Thymelaeaceae ジンチョウゲ科 | |
| 105 | Daucus | carota | Umbelliferae セリ科 | |
| 106 | Dendrostellera | lessertii | Thymelaeaceae ジンチョウゲ科 | |
| 107 | Descurainia | sophia | Cruciferae アブラナ科 | |
| 108 | Dianthus | <i>crinitus subsp. kermanensis</i> | Caryophyllaceae ナデシコ科 | |
| 109 | Dianthus | " var. <i>crossopelatus</i> | Caryophyllaceae " | |
| 110 | Dianthus | macranthus | Caryophyllaceae " | LR |
| 111 | Dorema | ammoniacum | Umbelliferae セリ科 | LR |
| 112 | Ducrosia | anethifolia | Umbelliferae " | |
| 113 | Echinops | polygamus | Compositae キク科 | LR |
| 114 | Echinops | ritrodes | Compositae " | |
| 115 | Echiochilon | kotschyi | Boraginaceae ムラサキ科 | DD |
| 116 | Elaeagnus | angustifolia | Elaeagnaceae グミ科 | |
| 117 | Emex | spinosus | Polygonaceae タデ科 | |
| 118 | Epilobium | hirsutum | Onagraceae アカバナ科 | |
| 119 | Eremostachys | pulvinaris | Labiatae シソ科 | |
| 120 | Eremurus | inderiensis | Liliaceae ユリ科 | |
| 121 | Erodium | ciconium | Geraniaceae フウロウソウ科 | |
| 122 | Erodium | gruinum | Geraniaceae " | |
| 123 | Erophila | minima | Cruciferae アブラナ科 | |
| 124 | Eruca | sativa | Cruciferae " | |
| 125 | Eryngium | bungei | Umbelliferae セリ科 | |
| 126 | Erysimum | crassicaule | Cruciferae アブラナ科 | LR |
| 127 | Euphorbia | boissieriana | Euphorbiaceae トウダイグサ科 | |
| 128 | Euphorbia | bungei | Euphorbiaceae " | |
| 129 | Euphorbia | condylocarpa | Euphorbiaceae " | |
| 130 | Euphorbia | macrostegia | Euphorbiaceae " | LR |
| 131 | Euphorbia | petiolata | Euphorbiaceae " | |
| 132 | Euphorbia | sororia | Euphorbiaceae " | |
| 133 | Euphorbia | teheranica | Euphorbiaceae " | LR |
| 134 | Euphorbia | turcomanica | Euphorbiaceae " | |
| 135 | Fagonia | olivieri | Zygophyllaceae ハマビシ科 | |
| 136 | Ferulago | angulata | Umbelliferae セリ科 | |
| 137 | Forsskaolea | tenacissima | Urticaceae イラクサ科 | |
| 138 | Francoeuria | undulata | Compositae キク科 | |
| 139 | Fritillaria | reuteri | Liliaceae ユリ科 | |
| 140 | Fritillaria | imperialis | Liliaceae " | |
| 141 | Geranium | dissectum | Geraniaceae フウロウソウ科 | |
| 142 | Geranium | persicum | Geraniaceae " | |
| 143 | Glycyrrhiza | glabra | Leguminosae マメ科 | LR |
| 143 | Goldbachia | laevigata | Cruciferae アブラナ科 | |
| 144 | Halanthium | rariflorum | Chenopodiaceae アカザ科 | |
| 145 | Halimodendron | halodendron | Leguminosae マメ科 | |
| 146 | Halocnemum sp. | | Chenopodiaceae アカザ科 | |
| 147 | Hammada | salicornica | Chenopodiaceae アカザ科 | |
| 148 | Haplophyllum | glaberrimum | Rutaceae ミカン科 | LR |
| 149 | Haplophyllum | tuberculatum | Rutaceae " | |
| 150 | Helichrysum | oligocephalum | Compositae キク科 | LR |
| 151 | Heliotropium | lasiocarpum | Boraginaceae ムラサキ科 | |
| 152 | Heliotropium | ramosisimum | Boraginaceae " | |
| 153 | Heracleum sp. | | Umbelliferae セリ科 | |
| 154 | Hertia | angustifolia | Compositae キク科 | LR |
| 155 | Hesperis | persica | Cruciferae アブラナ科 | |

| No. | Genus | Species | Family | Valuation |
|-----|--------------------|----------------|-----------------------------|-----------|
| 156 | Heteranthelium sp. | | | |
| 157 | Heterocaryum | szovitsianum | Boraginaceae ムラサキ科 | |
| 158 | Heteroderis | pusilla | Compositae キク科 | |
| 159 | Hippocrepis | unisiliquosa | Leguminosae マメ科 | |
| 159 | Hippuris | vulgaris | Haloragaceae アリノトウグサ科 | |
| 160 | Hordeum | glaucum | Gramineae イネ科 | |
| 161 | Hymenocarpus | circinnatus | Leguminosae マメ科 | |
| 162 | Hymenocrater | bituminosus | Labiatae シソ科 | |
| 163 | Hymenocrater | incanus | Labiatae " | LR |
| 164 | Hyparrhenia sp. | | Gramineae イネ科 | |
| 165 | Inula | britannica | Compositae キク科 | |
| 166 | Inula | oculus-christi | Compositae " | |
| 167 | Iris | hymenospatha | Iridaceae アヤメ科 | LR |
| 168 | Iris | persica | Iridaceae " | |
| 169 | Iris | reticulata | Iridaceae " | LR |
| 170 | Iris | songarica | Iridaceae " | |
| 171 | Isatis | raphanifolia | Cruciferae アブラナ科 | LR |
| 172 | Ixilirion | tataricum | Amaryllidaceae ヒガンバナ科 | |
| 173 | Juniperus | excelsa | Cupressaceae ヒノキ科 | |
| 174 | Jurinea | macrocephala | Compositae キク科 | |
| 175 | Lactuca | undulata | Compositae " | |
| 176 | Lallemantia | iberica | Labiatae シソ科 | |
| 177 | Lallemantia | royleana | Labiatae " | |
| 178 | Lappula | barbata | Boraginaceae ムラサキ科 | |
| 179 | Lappula | spinocarpos | Boraginaceae " | |
| 180 | Lathyrus | inconspicuus | Leguminosae マメ科 | |
| 181 | Lathyrus | sativus | Leguminosae " | |
| 182 | Launaea | spinosa | Compositae キク科 | |
| 183 | Leontice | minor | Berberidaceae メギ科 | |
| 184 | Lepidium | latifolium | Cruciferae アブラナ科 | |
| 185 | Lepidium | persicum | Cruciferae " | |
| 186 | Lepidium | sativum | Cruciferae " | |
| 187 | Lepidium | vesicarium | Cruciferae " | |
| 188 | Leptaleum | filifolium | Cruciferae " | |
| 189 | Limonium | thouini | Plumbaginaceae イソマツ科 | |
| 190 | Linum | catharticum | Linaceae アマ科 | |
| 191 | Linum | strictum | Linaceae " | |
| 192 | Malva | neglecta | Malvaceae アオイ科 | |
| 193 | Malva | sylvestris | Malvaceae " | |
| 194 | Marsdenia | erecta | Asclepiadaceae ガガイモ科 | |
| 195 | Mathiola | ovatifolia | Cruciferae アブラナ科 | LR |
| 196 | Mathiola | alyssifolia | Cruciferae " | |
| 197 | Medicago | coronata | Leguminosae マメ科 | LR |
| 198 | Medicago | laciniata | Leguminosae " | LR |
| 199 | Medicago | lupulina | Leguminosae " | |
| 200 | Medicago | polymorpha | Leguminosae " | |
| 201 | Medicago | radiata | Leguminosae " | |
| 202 | Melica | jacquemontii | Gramineae イネ科 | |
| 203 | Merendera | caucasica | Liliaceae(Colchicaceae) ユリ科 | |
| 204 | Mesostemma | kotschyannum | Caryophyllaceae ナデシコ科 | |
| 205 | Moltkia | caerulea | Boraginaceae ムラサキ科 | |
| 206 | Moriera | spinosa | Cruciferae アブラナ科 | |

| No. | Genus | Species | Family | Valuation |
|-----|-----------------|-----------------|-----------------------|-----------|
| 207 | Morina | persica | Dipsaceae マツムシソウ科 | |
| 208 | Myrtus | communis | Myrtaceae フトモモ科 | |
| 209 | Nardurus | subulatus | Gramineae イネ科 | |
| 210 | Nectaroscordum | tripedale | Liliaceae ユリ科 | |
| 211 | Nepeta | fissa | Labiatae シソ科 | |
| 212 | Nepeta | heliotropifolia | Labiatae " | |
| 213 | Nepeta | persica | Labiatae " | |
| 214 | Nepeta | pungens | Labiatae " | |
| 215 | Ochradenus | ochradeni | Resedaceae モクセイソウ科 | |
| 216 | Onobrychis | crista-galli | Leguminosae マメ科 | |
| 217 | Onobrychis | melanotricha | Leguminosae " | LR |
| 218 | Ononis | serrata | Leguminosae " | |
| 219 | Onopordon | heteracathum | Compositae キク科 | |
| 220 | Onosma | bulbotrichum | Boraginaceae ムラサキ科 | |
| 221 | Onosma | elwendicum | Boraginaceae " | |
| 222 | Onosma | kotschiya | Boraginaceae " | LR |
| 223 | Onosma | microcarpum | Boraginaceae " | |
| 224 | Onosma | rostellatum | Boraginaceae " | |
| 225 | Onosma | sericeum | Boraginaceae " | |
| 226 | Oronbanche | hirtiflora | Oronbanchaceae ハマウツボ科 | |
| 227 | Oronbanche | alba | Oronbanchaceae " | |
| 228 | Outreya | carduiformis | Compositae キク科 | |
| 229 | Pallenis | spinosa | Compositae " | |
| 230 | Papaver | argemone | Papaveraceae ケシ科 | |
| 231 | Papaver | tenuifolium | Papaveraceae " | |
| 232 | Paracaryum | persicum | Boraginaceae ムラサキ科 | |
| 233 | Paracaryum | rugulosum | Boraginaceae " | |
| 234 | Pennisetum | orientale | Gramineae イネ科 | |
| 235 | Pentanema | divaricatum | Compositae キク科 | |
| 236 | Pentanema | pulicariiforme | Compositae " | LR |
| 237 | Peucedanum | cupularis | Umbelliferae セリ科 | |
| 238 | Phalaris | paradoxa | Gramineae イネ科 | |
| 239 | Phlomis | anisodonta | Labiatae シソ科 | |
| 240 | Physorrhynchus | chamaerapistrum | Cruciferae アブラナ科 | LR |
| 241 | Picnomon | acarna | Compositae キク科 | |
| 242 | Picris | strigosa | Compositae " | |
| 243 | Pilostyles | hausknechtii | Rafflesiaceae ラフレシア科 | |
| 244 | Pistacia | khinjuk | Anacardiaceae ウルシ科 | |
| 245 | Plantago | psyllium | Plantaginaceae オオバコ科 | |
| 246 | Plantago | amplexicaulis | Plantaginaceae " | |
| 247 | Plantago | coronopus | Plantaginaceae " | |
| 248 | Plantago | maritima | Plantaginaceae " | |
| 249 | Platanus | orientalis | Platanaceae スズカケノキ科 | |
| 250 | Platyhraete sp. | | Compositae キク科 | |
| 251 | Poa | bulbosa | Gramineae イネ科 | |
| 252 | Poa | sinaica | Gramineae " | |
| 253 | Poa | trivialis | Gramineae " | |
| 254 | Polygala | hohenackeriana | Polygalaceae ヒメハギ科 | |
| 255 | Polygonum | aviculare | Polygonaceae タデ科 | |
| 256 | Polygonum | molliaeforme | Polygonaceae " | |
| 257 | Polygonum | polycnemoides | Polygonaceae " | |

| No. | Genus | Species | Family | Valuation |
|-----|-----------------|------------------|-----------------------|-----------|
| 258 | Polygonum | paranchioides | Polygonaceae " | |
| 259 | Polygonum | persicaria | Polygonaceae " | |
| 260 | Polygonum | rottboellioides | Polygonaceae " | |
| 261 | Populus | caspica | Salicaceae ヤナギ科 | EN |
| 262 | Populus | euphratica | Salicaceae " | |
| 263 | Prangus sp. | | | |
| 264 | Psammogeton | brevisetum | Umbelliferae セリ科 | |
| 265 | Psathyrostachys | fragilis | Gramineae イネ科 | |
| 266 | Pseudocamelina | glaucophylla | Cruciferae アブラナ科 | LR |
| 267 | Pseudocamelina | violacea | Cruciferae " | DD |
| 268 | Pterocephalus | canus | Dipsaceae マツムシソウ科 | |
| 269 | Pteroporum | aucheri | Polygonaceae タデ科 | |
| 270 | Pteroporum | olivieri | Polygonaceae " | |
| 271 | Pulicaria | gnaphalodes | Compositae キク科 | |
| 272 | Quercus | castaneifolia | Fagaceae ブナ科 | |
| 273 | Ranunculus | pichleri | Ranunculaceae キンボウゲ科 | LR |
| 274 | Reaumuria | oxiana | Tamaricaceae ギョリュウ科 | LR |
| 275 | Reseda | bungei | Resedaceae モクセイソウ科 | LR |
| 276 | Reseda | lutea | Resedaceae " | |
| 277 | Rhamnus | cornifolia | Rhamnaceae クロウメモドキ科 | |
| 278 | Rochelia | disperma | Boraginaceae ムラサキ科 | |
| 279 | Rosa | canina | Rosaceae バラ科 | |
| 280 | Rosa | lutea | Rosaceae " | |
| 281 | Rosularia | sempervivum | Crassulaceae ベンケイソウ科 | |
| 282 | Rumex | cyprium | Polygonaceae タデ科 | |
| 283 | Salix | aegyptiaca | Salicaceae ヤナギ科 | |
| 284 | Salvia | atrobatana | Labiatae シソ科 | |
| 285 | Salvia | hydrangea | Labiatae " | |
| 286 | Salvia | mirzayanii | Labiatae " | |
| 287 | Salvia | palaestina | Labiatae " | |
| 288 | Salvia | reuterana | Labiatae " | |
| 288 | Salvia | sclarea | Labiatae " | |
| 289 | Salvia | syriaca | Labiatae " | |
| 290 | Salvia | viridis | Labiatae " | |
| 291 | Sameraria | armena | Cruciferae アブラナ科 | |
| 292 | Samolus | valerandi | Primulaceae サクラソウ科 | |
| 293 | Sanguisorba | minor | Rosaceae バラ科 | |
| 294 | Scandix | iberica | Umbelliferae セリ科 | |
| 295 | Scariola sp. | | Compositae キク科 | |
| 296 | Schimpera | arabica | Cruciferae アブラナ科 | |
| 297 | Schumannia | karelinii | Umbelliferae セリ科 | |
| 298 | Scorzonera | tortuosissima | Compositae キク科 | |
| 299 | Scutellaria | ariana | Labiatae シソ科 | |
| 300 | Scutellaria | pinnatifida | Labiatae " | |
| 301 | Sedum | annuum | Crassulaceae ベンケイソウ科 | |
| 302 | Sedum | hispanicum | Crassulaceae " | |
| 303 | Seidlitzia | cinerea | Chenopodiaceae アカザ科 | |
| 304 | Senecio | gallicus | Compositae キク科 | |
| 305 | Sieberra | nana | Compositae " | |
| 306 | Silene | conoidea | Caryophyllaceae ナデシコ科 | |
| 307 | Silene | spergulifolia | Caryophyllaceae " | |
| 308 | Silene | " var. arbuscula | Caryophyllaceae " | |

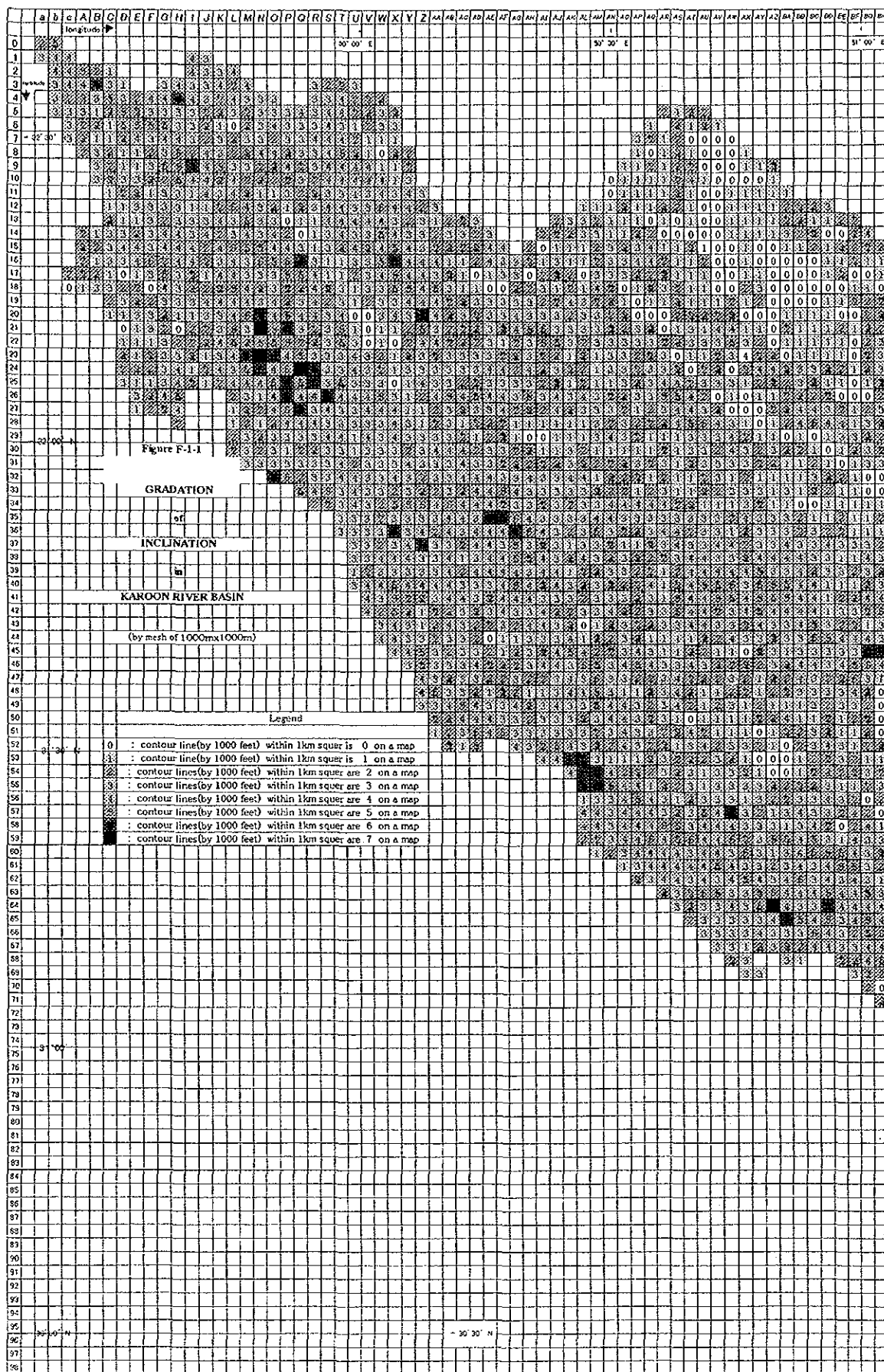
| No. | Genus | Species | Family | Valuation |
|-----|----------------|--------------------|--------------------------|-----------|
| 309 | Silybum | marianum | Compositae キク科 | |
| 310 | Sisymbrium | irio | Cruciferae アブラナ科 | |
| 311 | Sium | sisaroides | Umbelliferae セリ科 | |
| 312 | Solanum | nigrum | Solanaceae ナス科 | |
| 313 | Solenanthus | circinnatus | Boraginaceae ムラサキ科 | |
| 314 | Sophora | alopecuroides | Leguminosae マメ科 | |
| 315 | Sophora | pachycarpa | Leguminosae " | |
| 316 | Sorghum | balepense | Gramineae イネ科 | |
| 317 | Spergularia | marina | Paronychiaceae ナデシコ科 | |
| 318 | Stachys | lavandulifolia | Labiatae シソ科 | |
| 319 | Stachys | kurdica | Labiatae " | |
| 319 | Stachys | pilifera | Labiatae " | LR |
| 320 | Sterigmostemum | sulphureum | Cruciferae アブラナ科 | |
| 321 | Sternbergia | colchiciflora | Amaryllidaceae | |
| 322 | Stipa | capensis | Gramineae イネ科 | |
| 323 | Stipa | lessingiana | Gramineae " | |
| 324 | Stipagrostis | plumosa | Gramineae " | |
| 325 | Stipagrostis | paradisea | Gramineae " | |
| 326 | Suaeda sp. | | Chenopodiaceae アカザ科 | |
| 327 | Taeniatherum | crinitum | Gramineae " | |
| 328 | Tamarix | bachtiarica | Tamaricaceae ギョリュウ科 | |
| 329 | Tamarix | laxa | Tamaricaceae " | |
| 330 | Tamarix | passerinoides | Tamaricaceae " | |
| 331 | Tamarix | ramosissima | Tamaricaceae " | |
| 332 | Tamarix | ramosissima | Tamaricaceae " | |
| 333 | Tanacetum | parthenium | Compositae キク科 | |
| 334 | Taraxacum | bessarabicum | Compositae " | |
| 335 | Telephium | imperati | Paronychiaceae | |
| 336 | Thysanotus | persica | Labiatae シソ科 | |
| 337 | Thymelaea | passerina | Thymelaeaceae ジンチョウゲ科 | |
| 338 | Torularia | torulosa | Cruciferae アブラナ科 | |
| 339 | Trachynia | distachya | Gramineae イネ科 | |
| 340 | Tragopogon | caricifolius | Compositae キク科 | LR |
| 341 | Tragopogon | collinus | Compositae " | |
| 342 | Tragopogon | graminifolius | Compositae " | |
| 343 | Tribulus | longipetalus | Zygophyllaceae ハマビシ科 | |
| 344 | Trigonella | foenum-graecum | Leguminosae マメ科 | |
| 345 | Trifolium | fragiferum | Leguminosae " | |
| 346 | Trigonella | monspeliaca | Leguminosae " | |
| 347 | Trigonella | spruneriana | Leguminosae " | |
| 348 | Tulipa | cuspidata | Liliaceae ユリ科 | |
| 349 | Tulipa | humilis | Liliaceae " | |
| 350 | Urginea sp. | | Liliaceae " | |
| 351 | Vaccaria | pyramidata | Caryophyllaceae ナデシコ科 | |
| 352 | Valerianella | vesicaria | Valerianaceae オミナエシ科 | |
| 353 | Verbascum | dissectum | Scrophulariaceae ゴマノハグサ科 | LR |
| 354 | Verbascum | sinuatum | Scrophulariaceae " | |
| 355 | Veronica | anagallis-aquatica | Scrophulariaceae " | |
| 356 | Veronica | farinosa | Scrophulariaceae " | LR |
| 357 | Vicia | iranica | Leguminosae マメ科 | |
| 358 | Zannichellia | palustris | Potamogetonaceae ヒルムシロ科 | |
| 359 | Zataria | multiflora | Labiatae シソ科 | LR |
| 360 | Ziziphora | tenuoir | Labiatae " | |
| 361 | Zoega | purpurea | Compositae キク科 | |
| 362 | Zygophyllum | fabago | Zygophyllaceae ハマビシ科 | |
| 363 | Zygophyllum | atriplicoides | Zygophyllaceae " | |

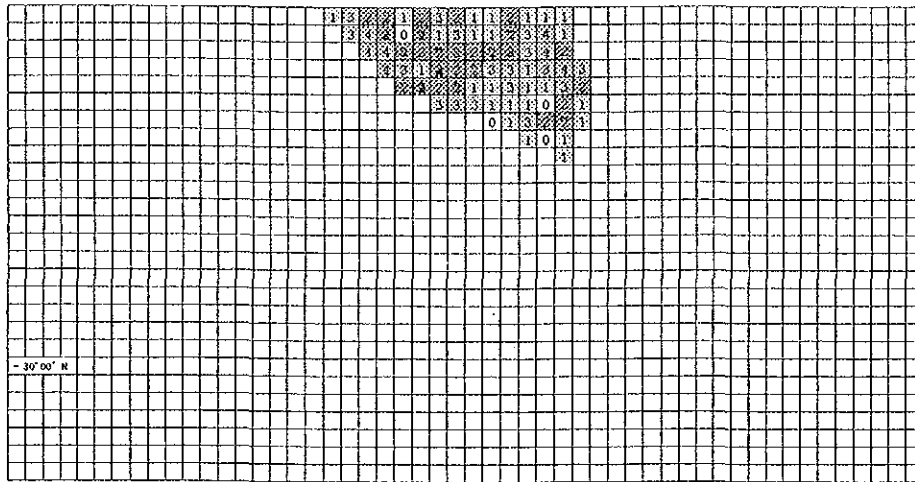
Bibliography: "The Families and Genera of the Flora of Iran" Research Inst. of Forest & Rangeland
 "Red Data Book of Iran" Research Inst. of Forest & Rangeland

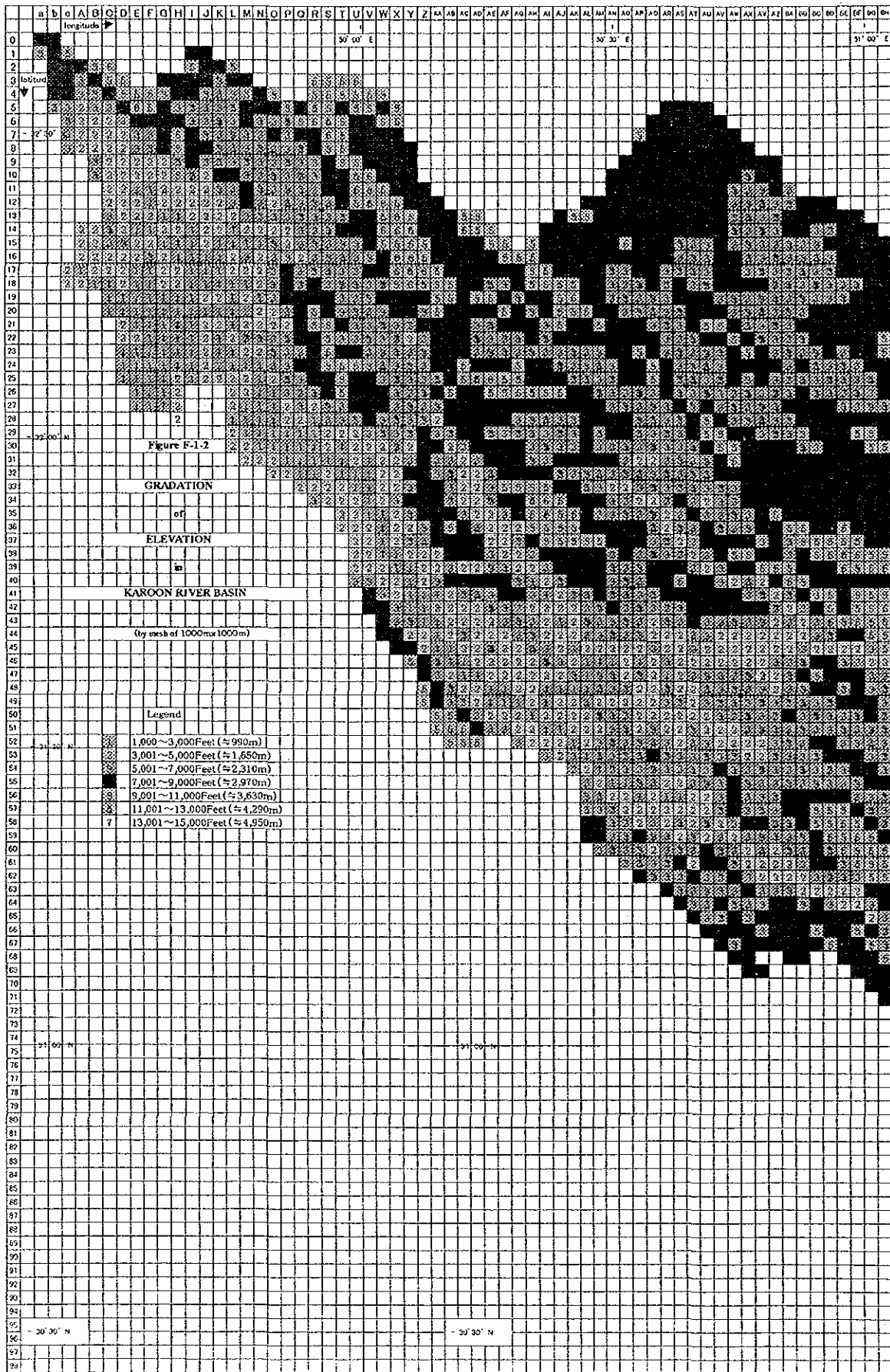
Table F-2 Categories of Land use in Several Studies

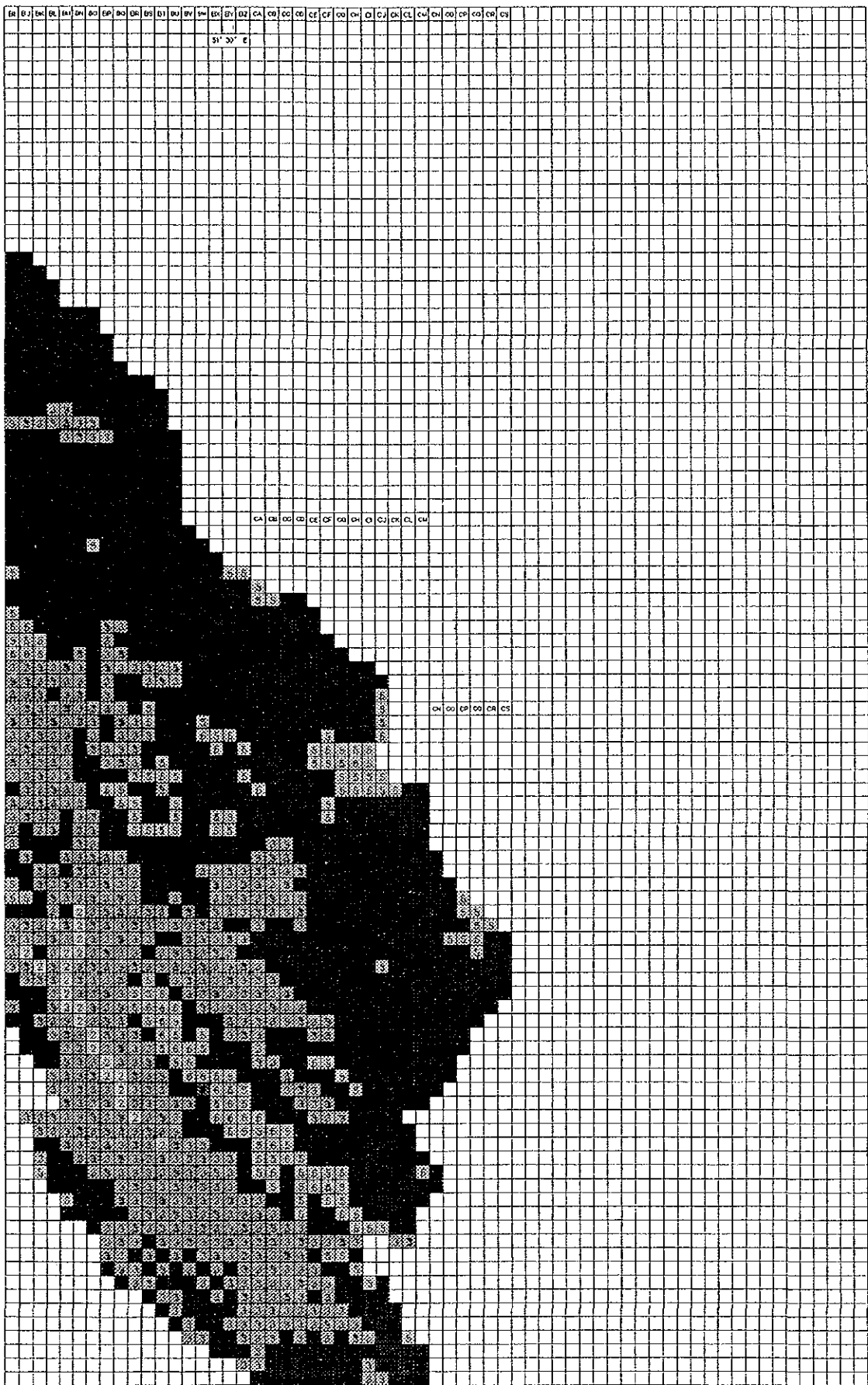
| Study on K1---K6 by MOA 1985 | Study on K1---K6 by Ministry of Jihad 1995 | Study on K7 by Ministry of Jihad 1994 | Study on K8 by Ministry of Jihad 1999 | in this Study |
|------------------------------------|---|---|---|--------------------|
| Irrigated Farmland | A1 : Irrigated Farmland without limitation A2 : Irrigated Farmland with limitation AO : Irrigated Orchard | Irrigated Farmland | I : Irrigated Farmland I-D : Irrigated & Dry Farmland | Irrigated Farmland |
| Dry Farmland | D : Dry Farmland | Dry Farmland | D : Dry Farmland | Dry Farmland |
| Rangeland | R1 : Dense Rangeland R2 : Fairly dense Rangeland R3 : Poor Rangeland RA : Rangeland with irrigated farming RD : Rangeland with dry farming RB : Wast land | Rangeland | R1 : a type of Rangeland R10 : a type of Rangeland R2 : a type of Rangeland R4 : a type of Rangeland R6 : a type of Rangeland R8 : a type of Rangeland R9-CL : a type of Rangeland with cultivation R11-CL : a type of Rangeland with cultivation R18-CL : a type of Rangeland with cultivation R15-F3-CL : a type of Rangeland with Forest and cultivation R16-F3-CL : a type of Rangeland with Forest and cultivation | Rangeland |
| Forest | F1 : Dense Forest F2 : Fairly dense Forest F3 : Poor Forest | Forest | F11 : a type of Forest F2-R11 : a type of Forest with Rangeland F2-R14 : a type of Forest with Rangeland F2-R3 : a type of Forest with Rangeland F2-R7 : a type of Forest with Rangeland F3-R11 : a type of Forest with Rangeland F3-R15 : a type of Forest with Rangeland F3-R2 : a type of Forest with Rangeland F3-R3 : a type of Forest with Rangeland F3-R7 : a type of Forest with Rangeland F4-R7 : a type of Forest with Rangeland F7-R14 : a type of Forest with Rangeland F7-R3 : a type of Forest with Rangeland F7-R7 : a type of Forest with Rangeland F8-R13 : a type of Forest with Rangeland F8-R14 : a type of Forest with Rangeland F8-R7 : a type of Forest with Rangeland | Forest |

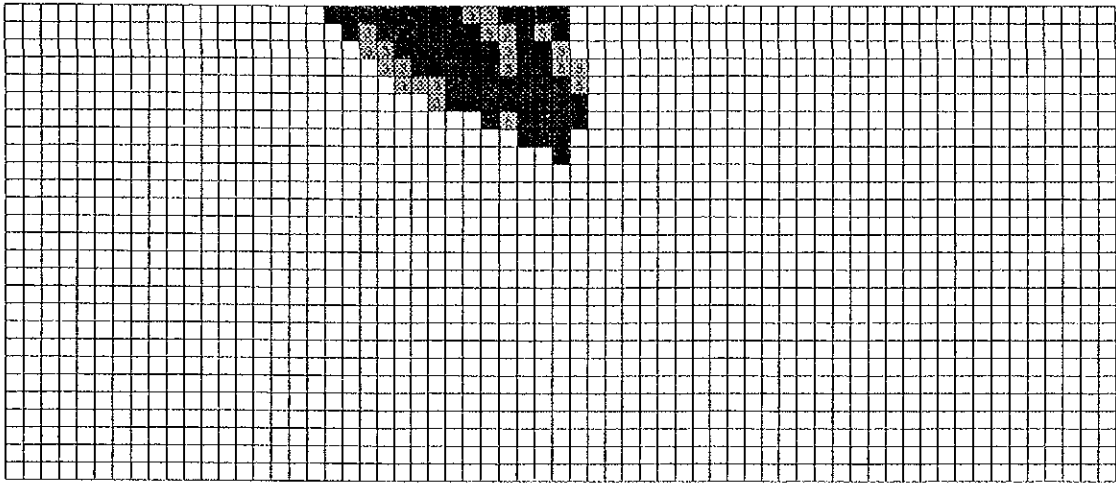
| continue to next page | continue to next page | continue to next page | continue to next page | continue to next page |
|------------------------------------|---|---|--|---------------------------|
| Study on K1---K6 by MOA 1985 | Study on K1---K6 by Ministry of Jihad 1995 | Study on K7 by Ministry of Jihad 1994 | Study on K8 by Ministry of Jihad 1999 | in this Study |
| continue from previous page | continue from previous page | continue from previous page | F5-RC : a type of Forest with Rocky land F6-RC : a type of Forest with Rocky land F7-RC : a type of Forest with Rocky land F6-K : a type of Forest in the Karooon riparian area | continue from previous |
| Forest | | Forest | | Forest |
| Forest with (intercropping) | | | F2-CL : a type of Forest with cultivation(intercropping) F3-CL : a type of Forest with cultivation(intercropping) F2-R15-CL : a type of Forest with Rangeland & | Forest with intercropping |
| Rock | OC : Rock outcrops | | RC : Rocky land | Rocky land |
| Permanent snow | BL : Waste land U : Towns and Villages W : Pond | Barren | Karooon : Water bodies of Karooon River A : Land for oil Industry | Others |











ANNEX G

VEGETATION/ ECOLOGY/ ENVIRONMENT

ANNEX G

VEGETATION/ECOLOGY/ENVIRONMENT

Content

| | |
|---|------|
| G.1 Data Collection | G-1 |
| G.2 General Guidelines for Conducting Environmental Impact Assessment | G-1 |
| Relation between Vegetation Cover & Vegetation Production in 5 Master Plan Area | G-15 |
| Present and Future Prospection of Land Cover and Vegetation in Vastegan | G-17 |
| Present and Future Prospection of Land Cover and Vegetation in Bazoft | G-19 |
| Present and Future Prospection of Land Cover and Vegetation in Sarbaz | G-21 |
| Present and Future Prospection of Land Cover and Vegetation in Tangsorkh | G-23 |
| Present and Future Prospection of Land Cover and Vegetation in Zeras | G-25 |
| Initial Environmental Examination for K4-1-9 Vastegan | G-27 |
| Initial Environmental Examination for K5-19a Chaman-Goli Bazoft | G-29 |
| Initial Environmental Examination for K7-0-19-1 Sarbaz | G-31 |
| Initial Environmental Examination for K7-48 Tangsorkh | G-33 |
| Initial Environmental Examination for K8-28 Zeras | G-35 |

List of Table

| | |
|--|------|
| Table G-1 Distribution of Dominant Natural Vegetation in Secondary Sub basin of the Study Area | G-3 |
| Table G-2 List of Genetic Reserves occurring in the Study Area | G-4 |
| Table G-3 List of Cultural Assets Existing in the Study Area | G-5 |
| Table G-4 Summary of Vegetation Survey in K4-1-9 Vastegan | G-8 |
| Table G-5 Summary of Vegetation Survey in K5-19a Chaman-Goli Bazoft | G-9 |
| Table G-6 Summary of Vegetation Survey in K7-0-19-1 Sarbaz | G-10 |
| Table G-7 Summary of Vegetation Survey in K7-48 Tangsorkh | G-12 |
| Table G-8 Summary of Vegetation Survey in K8-28 Zeras | G-13 |

List of Figure

| | |
|--|-----|
| Figure G-1 Appropriate Location of Environmental Reserve in the Study Area | G-6 |
|--|-----|

G.1 Data Collection

Various sources in Tehran and in provinces of the Study Area were approached and the required data and documents collected. The collected materials are in the following contexts:

- (1) Data and information on natural vegetation
- (2) Vegetation maps
- (2) Environmental laws, regulations and guidelines
- (3) Data and documents on environmental reserves and national parks
- (4) Data and documents on genetic reserves
- (5) Documents on cultural assets existing in the Study Area.

G.2 General Guidelines for Conducting Environmental Impact Assessment

- (1) The Environmental Impact Assessment (EIA) report must be prepared by the experts, scientific centers, and expert companies, whose competency has been ratified by the related authorities.
- (2) The EIA will be carried out for the two separated stages of Construction and Operation with clarified references to the main activities. The experts preparing the report will also refer to the main activities due to be carried out to reduce the negative environmental impacts and their expenses.
- (3) Experts preparing the EIA report will express their advice at the conclusion of the report in one of the following ways:
 - a) Due to the severity and the wide extent of its unfavorable impacts on the environment, the execution of the project is not advised.
 - b) If certain precautions and activities are considered and put into execution to reduce the unfavorable environmental impacts, the execution of the project is permissible.

(4) Department of the Environment (DOE), on the bases of communicated regulations, announces its final opinion in less than three month.

(5) When, according to the EIA and based on the laws and regulations for protection of environment, the execution/operation of the project will have unfavorable impacts on the environment, the DOE will inform the case to planning ministry/institution so that it can revise the project and remove the obstacles.

(6) An EIA must cover the following aspects:

a) Physical Environment- topography, hydrology, climate, soil and geology.

b) Natural Environment- flora, fauna and their habitats.

c) Social and Cultural Environment- human health, employment, housing, education, and cultural and religious believe of the society.

d) Impacts of the subject project on other developmental plans, such as impact on agricultural, industrial, logistic/social service, and land use plans of the region.

Table G-1 Distribution of Dominant Natural Vegetation in Secondary Sub basins of the Study Area

| Secondary Sub-basins | Vegetation Area (km ²) | | | | | | | | | | | | | |
|-------------------------|------------------------------------|---------|--------|-------|--------|--------|--------|-------|-------|-------|---------|---------|---------|-------|
| | ASI | ASD | ASC | BRMD | BRMP | ASSP | PSFR | GLCY | GUAS | HOBUE | QDP | WEED | NNV | WET |
| K1 | 61.98 | 1448.56 | 125.94 | 33.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 882.61 | 1367.72 | 0.00 |
| K2 | 0.00 | 584.70 | 70.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 123.55 | 444.47 | 0.00 |
| K3 | 46.62 | 1391.76 | 18.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.81 | 147.91 | 898.11 | 0.00 |
| K4 | 50.13 | 1418.41 | 90.85 | 0.00 | 0.20 | 9.72 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 576.74 | 1040.26 | 28.35 |
| K5 | 6.56 | 914.98 | 308.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.44 | 64.68 | 858.22 | 0.00 |
| K6 | 118.03 | 656.90 | 15.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 170.94 | 509.39 | 0.00 |
| k7 | 11.32 | 1749.06 | 0.34 | 0.00 | 345.35 | 490.19 | 116.25 | 13.16 | 17.14 | 70.63 | 2455.15 | 3.15 | 1474.19 | 0.11 |
| k8 | 259.38 | 183.97 | 1.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1042.68 | 0.85 | 186.40 | 0.00 |
| Entire Study Area | 554.02 | 8348.34 | 631.83 | 33.41 | 345.55 | 499.91 | 116.25 | 13.21 | 17.14 | 70.63 | 3501.08 | 1970.43 | 6778.74 | 28.45 |

Note: For some part of K7 and K8 data do not exist.

Source: JICA Study Team, Inventory Study, 2000.

| | |
|-------|--|
| ASI | Astragalus species with Moderate condition and Increasing trend. |
| ASD | Astragalus species with Poor condition and Decreasing trend. |
| ASC | Astragalus species with Moderate condition and Constant trend. |
| BRMD | Bromus species with Moderate condition and Decreasing trend. |
| BRMP | Bromus species with Poor condition and Decreasing trend. |
| ASSP | Agropyron species with Poor condition and Constant trend. |
| PSFR | Psathyronstachys species with Poor condition and Decreasing trend. |
| GLCY | Glycyrrhiza species with Very poor condition and Constant trend. |
| GUAS | Gundelia species with Poor condition and Decreasing trend. |
| HOBUE | Hordeum species with Moderate condition and Increasing trend. |
| QDP | Quercus species with Poor condition and Constant trend. |
| WEED | Weeds (unwanted plants) with Very poor condition and Decreasing trend. |
| NNV | No Natural Vegetation (rocks, residential areas). |
| WET | Water bodies (lake, farm ponds). |

Table G-2 List of Genetic Reserves Occurring in the Study Area

| Name of Reserve | Area (km ²) | Main Vegetation | | Location |
|------------------------------------|----------------------------|-----------------|----------------|--|
| | | Scientific Name | Common Name | |
| Chaharmahal va Bakhtiyari Province | | | | |
| Chahartaqi | 4.10 | Fraxinus | Ash | Chahartaq village, Ardal district |
| Pahnous | 0.75 | Elmus | Elm | Bazoft area, Farsan district |
| Shams abad | 3.80 | Juniperus | Juniper | Shams abad village, Boroujen district |
| Murd | 0.01 | Myrtacea | Myrtle | Murd area, Lordegan district |
| Esfahan Province | | | | |
| Cheshmeh khoni | 5.00 | Pistacia | Wild pistachio | Cheshmeh khoni village, Semiroum district |
| Tange khushk | 4.00 | Amygdalus | Wild almond | Tange khushk village, Semiroum district |
| Daghbashi | 1.00 | Fraxinus | Ash | Semiroum district |

Note: The genetic reserves are physically (by fence) and legally (by law) protected,
and are under authority of Forest and Range Organization (FRO).

Source: FRO, June, 2000.

Table G-3 List of Cultural Assets Existing in the Study Area

| Name of Asset | Location | Year Registered as an Asset |
|---|------------------------------------|-----------------------------|
| Chaharmahal va Bakhtiari Province | | |
| Eskandari Hill | 18 km away from Share Kord city | 1969 |
| Share Kohnah Hill | 10 km away from Share Kord city | 1969 |
| Ghaleh Kohnah Hill | 12 km away from Share Kord city | 1969 |
| Atabakan Mosque | Inside Share Kord city | 1972 |
| Jamea Mosque of Farrokhsahr | Vicinity of Farrokhsahr town | - |
| Asad Bakhtiari House | Vicinity of Shelamzar town | 1977 |
| Khan Mosque | Inside Share Kord city | 1977 |
| Juneqan Castle | Vicinity of Juneqan town | 1977 |
| Dezak Castle | Vicinity of Dezak village | 1988 |
| Azadeh House | In Chaleshtar village | 1996 |
| Chaleshtar Jamea Mosque | In Chaleshtar village | 1999 |
| Surag Castle | In Surag village | 1997 |
| Jamea Mosque of Shahrak Muhebbali | Vicinity of Share Kord city | 1997 |
| Sotoudeh Castle | In Chaleshtar village | 1998 |
| Parhizgar Bathroom | Inside Share Kord city | 1998 |
| Arbab Mirza Water Drinking Foundation | Inside Share Kord city | 1998 |
| Mashroutiat Petrograph | In Deh Cheshmeh village | 1998 |
| Mirror Room | Inside Share Kord city | 1998 |
| Haj Hossein Salehi Oil Extracting House | Inside Share Kord city | 1998 |
| Yusef Khan Castle | In Shams ababd Village | 1998 |
| Kohgiluyeh va Boyerahmad Province | | |
| Shohada Hill | 11 km away from Yasuj city | 1977 |
| Khusro Hill | Vicinity of Taleh khusro village | 1977 |
| Pataveh Big Bridge | 1 km away from Pataveh village | 1977 |
| Damchenar Ruin | 0.4 km away from Damchenar village | 1977 |

Note: These assets are registered by Cultural Heritage Organization (CHO), and are under authority of this Organization.

Source: CHO, June 2000.

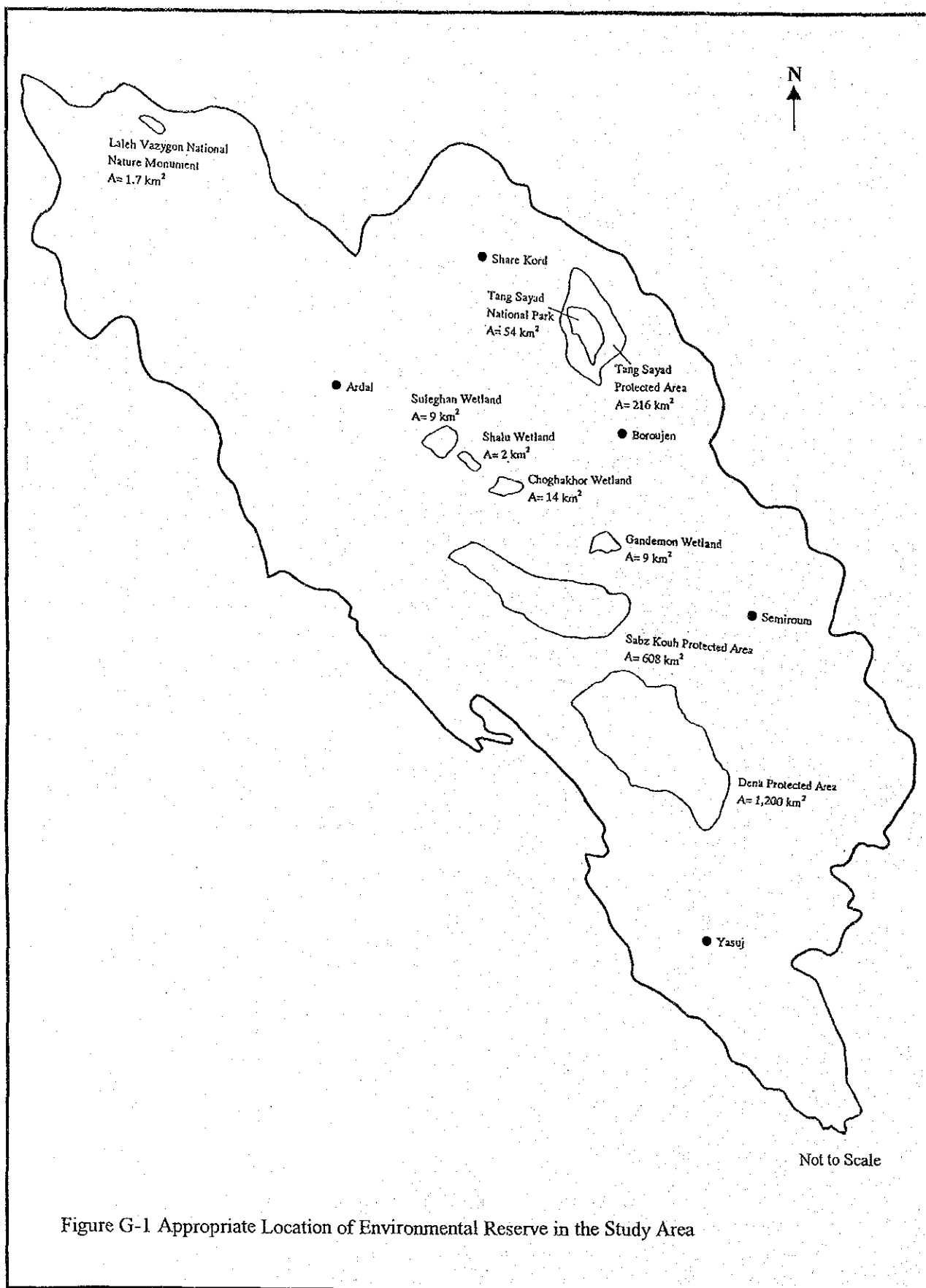


Figure G-1 Appropriate Location of Environmental Reserve in the Study Area

Legend of Vegetation Types

| Code | Scientific Name | Common Name |
|------|----------------------|----------------------------|
| AL | Astragalus-Lactuca | Milkvetch-Lettuce |
| BA | Bromus-Agropyron | Brome-Wheatgrass |
| EL | Eryngium-Lactuca | Eryngo-Lettuce |
| QC | Quercus-Cirsium | Oak-Thistle |
| QB | Quercus-Bromus | Oak-Brome |
| QP | Quercus-Poa | Oak-Bluegrass |
| AA | Astragalus-Agropyron | Milkvetch-Wheatgrass |
| AG | Astragalus-Gundelia | Milkvetch-Artichoke |
| AH | Astragalus-Hordeum | Milkvetch-Wildbarley |
| DA | Daphne-Astragalus | Mezereon-Milkvetch |
| EG | Eryngium-Gundelia | Eryngo-Artichoke |
| GL | Gundelia-Lactuca | Artichoke-Lettuce |
| GE | Gundelia-Eryngium | Artichoke-Eryngo |
| AB | Astragalus-Bromus | Milkvetch-Brome |
| GB | Gundelia-Bromus | Artichoke-Brome |
| QG | Quercus-Gundelia | Oak-Artichoke |
| AE | Astragalus-Euphorbia | Milkvetch-Spurge |
| AP | Astragalus-Prangos | Milkvetch-Opoponax |
| SH | Stipa-Hordeum | Needlegrass-Wildbarley |
| EA | Eryngium-Aegilops | Eryngo-Goatgrass |
| OE | Onopordon-Echinops | Cottonthistle-Globethistle |
| QH | Quercus-Hordeum | Oak-Wildbarley |

Table G-4 Summary of Vegetation Survey in K4-1-9 Vastegan

| Vegetation Type/Code | Area (km ²) | Elevation (m) | Slope | | Vegetation | | | | Non-vegetation | |
|----------------------|-------------------------|---------------|-------|-----------|------------|---------|---------------|--------------------|----------------|---------|
| | | | % | Direction | Species | % cover | Biologic form | Palatability class | Material | % cover |
| AL | 5.83 | 2577 | 38 | W-E | Astragalus | 20 | Shrub | III | Rock | 19 |
| | | | | | Lactuca | 8 | Forbs | III | Stone | 9 |
| | | | | | Daphne | 4 | Bush | - | Litter | 7 |
| | | | | | Gundelia | 3 | Forbs | III | Bare soil | 25 |
| | | | | | Bromus | 2 | Grass | II | | |
| | | | | | Euphorbia | 2 | Forbs | - | | |
| | | | | | Others | 1 | | | | |
| Sum | | | | | | 40 | | | | 60 |
| BA | 3.54 | 2323 | 30 | W-E | Bromus | 22 | Grass | II | Rock | 8 |
| | | | | | Agropyron | 10 | Grass | I | Stone | 6 |
| | | | | | Gundelia | 7 | Forbs | III | Litter | 7 |
| | | | | | Eryngium | 6 | Forbs | III | Bare soil | 27 |
| | | | | | Lactuca | 5 | Forbs | III | | |
| | | | | | Others | 2 | | | | |
| Sum | | | | | | 52 | | | | 48 |
| EL | 2.05 | 2388 | 20 | S-N | Eryngium | 22 | Forbs | III | Rock | 6 |
| | | | | | Lactuca | 9 | Forbs | III | Stone | 28 |
| | | | | | Astragalus | 4 | Shrub | III | Litter | 4 |
| | | | | | Phlomis | 3 | Forbs | III | Bare soil | 21 |
| | | | | | Bromus | 2 | Grass | II | | |
| | | | | | Others | 1 | | | | |
| Sum | 11.42 | | | | | 41 | | | | 59 |

Source: JICA Study Team, Vegetation Survey, May-July 2001.

Table G-5 Summary of Vegetation Survey in K5-19a Chaman-Goli Bazoft

| Vegetation Type/Code | Area (km ²) | Elevation (m) | Slope | | Vegetation | | | | Non-vegetation | |
|----------------------|-------------------------|---------------|-------|-----------|------------|---------|---------------|--------------------|----------------|---------|
| | | | % | Direction | Species | % cover | Biologic form | Palatability class | Material | % cover |
| QC | 8.88 | 1917 | 35 | W-E | Quercus | 5 | Tree | - | Rock | 25 |
| | | | | | Cirsium | 34 | Forbs | III | Stone | 5 |
| | | | | | Bromus | 7 | Grass | II | Litter | 15 |
| | | | | | Poa | 4 | Grass | I | Bare soil | 3 |
| | | | | | Others | 2 | | | | |
| | | | | | | 52 | | | | 48 |
| Sum | | | | | | | | | | |
| | | | | E-W* | Quercus | 2 | Tree | - | Rock | 11 |
| | | | | | Cirsium | 18 | Forbs | III | Stone | 5 |
| | | | | | Daphne | 7 | Bush | - | Litter | 7 |
| | | | | | Onobrychis | 4 | Shrub | I | Bare soil | 40 |
| | | | | | Bromus | 2 | Grass | II | | |
| | | | | | Poa | 2 | Grass | I | | |
| | | | | | Others | 2 | | | | |
| | | | | | | 37 | | | | 63 |
| Sum | | | | | | | | | | |
| QB | 7.81 | 1689 | 18 | N-S | Quercus | 4 | Tree | - | Rock | 35 |
| | | | | | Bromus | 17 | Grass | II | Stone | 8 |
| | | | | | Poa | 7 | Grass | I | Litter | 6 |
| | | | | | Cirsium | 6 | Forbs | III | Bare soil | 16 |
| | | | | | Others | 1 | | | | |
| | | | | | | 35 | | | | 65 |
| Sum | | | | | | | | | | |
| QP | 2.06 | 1752 | 30 | W-E | Quercus | 4 | Tree | - | Rock | 12 |
| | | | | | Poa | 43 | Grass | I | Stone | 4 |
| | | | | | Bromus | 6 | Grass | II | Litter | 17 |
| | | | | | Daphne | 3 | Bush | - | Bare soil | 9 |
| | | | | | Others | 2 | | | | |
| | | | | | | 58 | | | | 42 |
| Sum | 18.75 | | | | | | | | | |

Source: JICA Study Team, Vegetation Survey, May-July 2001.

* Since in this direction % of bare soil was abnormally high, it has been mentioned to clarify the situation.

Table G-6 (1) Summary of Vegetation Survey in K7-0-19-1 Sarbaz

| Vegetation Type/Code | Area (km ²) | Elevation (m) | Slope | | Vegetation | | | | Non-vegetation | |
|----------------------|-------------------------|---------------|-------|-----------|---------------------|---------|---------------|--------------------|----------------|---------|
| | | | % | Direction | Species | % cover | Biologic form | Palatability class | Material | % cover |
| AA | 6.32 | 2418 | 27 | W-E | Astragalus | 22 | Shrub | III | Rock | 18 |
| | | | | | Agropyron | 8 | Grass | I | Stone | 12 |
| | | | | | Gundelia | 5 | Forbs | III | Litter | 5 |
| | | | | | Prangos | 4 | Forbs | I | Bare soil | 20 |
| | | | | | Daphne | 3 | Bush | - | | |
| | | | | | Bromus | 2 | Grass | II | | |
| | | | | | Others | 1 | | | | |
| Sum | | | | | | 45 | | | | 55 |
| AG | 15.58 | 2686 | 39 | S-N | Astragalus | 16 | Shrub | III | Rock | 15 |
| | | | | | Gundelia | 11 | Forbs | III | Stone | 9 |
| | | | | | Lactuca | 6 | Forbs | III | Litter | 3 |
| | | | | | Bromus | 2 | Grass | II | Bare soil | 34 |
| | | | | | Daphne | 2 | Bush | - | | |
| | | | | | Phlomis | 1 | Forbs | III | | |
| | | | | | Others | 1 | | | | |
| Sum | | | | | | 39 | | | | 61 |
| AH | 2 | 2368 | 19 | E-W | Astragalus | 19 | Shrub | III | Rock | 6 |
| | | | | | Hordeum | 14 | Grass | II | Stone | 13 |
| | | | | | Gundelia | 6 | Forbs | III | Litter | 3 |
| | | | | | Bromus | 5 | Grass | II | Bare soil | 27 |
| | | | | | Agropyrum | 3 | Grass | II | | |
| | | | | | Lactuca | 2 | Forbs | III | | |
| | | | | | Acantho- phyllum | 1 | Shrub | III | | |
| | | | | | Others | 1 | | | | |
| Sum | | | | | | 51 | | | | 49 |
| AL | 11.09 | 2486 | 23 | W-E | Astragalus | 18 | Shrub | III | Rock | 7 |
| | | | | | Lactuca | 11 | Forbs | III | Stone | 8 |
| | | | | | Gundelia | 6 | Forbs | III | Litter | 3 |
| | | | | | Stipa | 4 | Grass | II | Bare soil | 38 |
| | | | | | Bromus | 3 | Grass | II | | |
| | | | | | Others | 2 | | | | |
| Sum | | | | | | 44 | | | | 56 |
| DA | 4.52 | 2618 | 22 | S-N | Daphne | 20 | Bush | - | Rock | 7 |
| | | | | | Astragalus | 13 | Shrub | III | Stone | 15 |
| | | | | | Cousinia | 4 | Forbs | III | Litter | 4 |
| | | | | | Phlomis | 3 | Forbs | III | Bare soil | 27 |
| | | | | | Euphorbia | 3 | Forbs | - | | |
| | | | | | Bromus | 3 | Grass | II | | |
| | | | | | Others | 1 | | | | |
| Sum | | | | | | 47 | | | | 53 |

Source: JICA Study Team, Vegetation Survey, May-July 2001.

Table G-6 (2) Summary of Vegetation Survey in K7-0-19-1 Sarbaz

| Vegetation Type/Code | Area (km ²) | Elevation (m) | Slope | | Vegetation | | | | Non-vegetation | |
|-------------------------|----------------------------|------------------|-------|-----------|--------------------|---------|---------------|--------------------|----------------|---------|
| | | | % | Direction | Species | % cover | Biologic form | Palatability class | Material | % cover |
| EG | 1.69 | 2286 | 21 | E-W | Eryngium | 26 | Forbs | III | Rock | 7 |
| | | | | | Gundelia | 11 | Forbs | III | Stone | 11 |
| | | | | | Hordeum | 3 | Grass | II | Litter | 4 |
| | | | | | Bromus | 3 | Grass | II | Bare soil | 24 |
| | | | | | Cirsium | 2 | Forbs | III | | |
| | | | | | Agropyrum | 2 | Grass | II | | |
| | | | | | Agropyron | 2 | Grass | I | | |
| | | | | | Acantho- pyllum | 2 | Shrub | III | | |
| | | | | | Astragalus | 2 | Shrub | III | | |
| | | | | | Others | 1 | | | | |
| Sum | | | | | | 54 | | | | 46 |
| GL | 8.41 | 2251 | 22 | E-W | Gundelia | 23 | Forbs | III | Rock | 8 |
| | | | | | Lactuca | 10 | Forbs | III | Stone | 18 |
| | | | | | Astragalus | 6 | Shrub | III | Litter | 7 |
| | | | | | Stipa | 5 | Grass | II | Bare soil | 11 |
| | | | | | Bromus | 5 | Grass | II | | |
| | | | | | Euphorbia | 2 | Forbs | - | | |
| | | | | | Eryngium | 2 | Forbs | III | | |
| | | | | | Phlomis | 2 | Forbs | III | | |
| | | | | | Others | 1 | | | | |
| Sum | | | | | | 56 | | | | 44 |
| GE | 4.31 | 2376 | 28 | S-N | Gundelia | 27 | Forbs | III | Rock | 10 |
| | | | | | Eryngium | 16 | Forbs | III | Stone | 8 |
| | | | | | Bromus | 6 | Grass | II | Litter | 8 |
| | | | | | Agropyrum | 4 | Grass | II | Bare soil | 13 |
| | | | | | Hordeum | 2 | Grass | II | | |
| | | | | | Cirsium | 2 | Forbs | III | | |
| | | | | | Euphorbia | 2 | Forbs | - | | |
| | | | | | Others | 2 | | | | |
| Sum | 53.92* | | | | | 61 | | | | 39 |

* (1)+(2)

Source: JICA Study Team, Vegetation Survey, May-July 2001.

Table G-7 Summary of Vegetation Survey in K7-48 Tangsorkh

| Vegetation Type/Code | Area (km ²) | Elevation (m) | Slope | | Vegetation | | | | Non-vegetation | |
|----------------------|-------------------------|---------------|-------|-----------|------------|---------|---------------|--------------------|----------------|---------|
| | | | % | Direction | Species | % cover | Biologic form | Palatability class | Material | % cover |
| AB | 11.94 | 2237 | 45 | S-N | Astragalus | 23 | Shrub | III | Rock | 22 |
| | | | | | Bromus | 12 | Grass | II | Stone | 19 |
| | | | | | Gundelia | 5 | Forbs | III | Litter | 7 |
| | | | | | Agropyron | 3 | Grass | I | Bare soil | 8 |
| | | | | | Others | 1 | | | | |
| Sum | | | | | | 44 | | | | 56 |
| AG | 10.77 | 2261 | 42 | N-S | Astragalus | 11 | Shrub | III | Rock | 9 |
| | | | | | Gundelia | 9 | Forbs | III | Stone | 12 |
| | | | | | Bromus | 5 | Grass | II | Litter | 7 |
| | | | | | Agropyron | 2 | Grass | I | Bare soil | 43 |
| | | | | | Others | 2 | | | | |
| Sum | | | | | | 29 | | | | 71 |
| GB | 2.61 | 2551 | 38 | W-E | Gundelia | 8 | Forbs | III | Rock | 22 |
| | | | | | Bromus | 5 | Grass | II | Stone | 14 |
| | | | | | Teucrium | 3 | Forbs | II | Litter | 2 |
| | | | | | Daphne | 2 | Bush | - | Bare soil | 41 |
| | | | | | Astragalus | 2 | Shrub | III | | |
| Sum | | | | | Others | 1 | | | | |
| Sum | | | | | | 21 | | | | 79 |
| QG | 5.86 | 2065 | 25 | W-E | Quercus | 6 | Tree | - | Rock | 15 |
| | | | | | Gundelia | 32 | Forbs | III | Stone | 6 |
| | | | | | Bromus | 14 | Grass | II | Litter | 4 |
| | | | | | Agropyron | 4 | Grass | I | Bare soil | 10 |
| | | | | | Hordeum | 2 | Grass | II | | |
| | | | | | Astragalus | 2 | Shrub | III | | |
| | | | | | Phlomis | 2 | Forbs | III | | |
| Sum | 31.18 | | | | Others | 3 | | | | |
| Sum | | | | | | 65 | | | | 35 |

Source: JICA Study Team, Vegetation Survey, May-July 2001.

Table G-8 (1) Summary of Vegetation Survey in K8-28 Zeras

| Vegetation Type/Code | Area (km ²) | Elevation (m) | Slope | | Vegetation | | | | Non-vegetation | |
|----------------------|-------------------------|---------------|-------|-----------|------------|---------|---------------|--------------------|----------------|---------|
| | | | % | Direction | Species | % cover | Biologic form | Palatability class | Material | % cover |
| AB | 5.29 | 1337 | 49 | W-E | Astragalus | 26 | Shrub | III | Rock | 0 |
| | | | | | Bromus | 10 | Grass | II | Stone | 4 |
| | | | | | Euphorbia | 5 | Forbs | - | Litter | 14 |
| | | | | | Prangos | 3 | Forbs | I | Bare soil | 33 |
| | | | | | Silene | 2 | Forbs | III | | |
| | | | | | Others | 3 | | | | |
| | | | | | Sum | 49 | | | | 51 |
| AE | 2.16 | 1171 | 38 | S-N | Astragalus | 16 | Shrub | III | Rock | 0 |
| | | | | | Euphorbia | 9 | Forbs | - | Stone | 12 |
| | | | | | Stipa | 4 | Grass | II | Litter | 13 |
| | | | | | Sisymbrium | 4 | Forbs | III | Bare soil | 37 |
| | | | | | Hordeum | 2 | Grass | II | | |
| | | | | | Cleome | 2 | Shrub | - | | |
| | | | | | Others | 1 | | | | |
| | | | | | Sum | 38 | | | | 62 |
| AP | 1.48 | 1559 | 53 | W-E | Astragalus | 17 | Shrub | III | Rock | 8 |
| | | | | | Prangos | 8 | Forbs | I | Stone | 6 |
| | | | | | Cirsium | 7 | Forbs | III | Litter | 11 |
| | | | | | Poa | 5 | Grass | I | Bare soil | 29 |
| | | | | | Hordeum | 4 | Grass | II | | |
| | | | | | Echniops | 3 | Forbs | III | | |
| | | | | | Bromus | 1 | Grass | II | | |
| | | | | | Others | 1 | | | | |
| | | | | | Sum | 46 | | | | 54 |
| SH | 4.74 | 1273 | 52 | N-S | Stipa | 35 | Grass | II | Rock | 0 |
| | | | | | Hordeum | 9 | Grass | II | Stone | 10 |
| | | | | | Bromus | 4 | Grass | II | Litter | 8 |
| | | | | | Avena | 2 | Grass | I | Bare soil | 29 |
| | | | | | Cirsium | 1 | Forbs | III | | |
| | | | | | Quercus | 1 | Tree | - | | |
| | | | | | Others | 1 | | | | |
| | | | | | Sum | 53 | | | | 47 |
| EA | 4.31 | 1308 | 43 | N-S | Eryngium | 21 | Forbs | III | Rock | 0 |
| | | | | | Aegilops | 10 | Grass | III | Stone | 6 |
| | | | | | Phlomis | 5 | Forbs | III | Litter | 7 |
| | | | | | Euphorbia | 3 | Forbs | - | Bare soil | 40 |
| | | | | | Hordeum | 2 | Grass | II | | |
| | | | | | Bromus | 2 | Grass | II | | |
| | | | | | Avena | 1 | Grass | I | | |
| | | | | | Quercus | 1 | Tree | - | | |
| | | | | | Others | 2 | | | | |
| | | | | | Sum | 47 | | | | 53 |

Source: JICA Study Team, Vegetation Survey, May-July 2001.

Table G-8 (2) Summary of Vegetation Survey in K8-28 Zeras

| Vegetation Type/Code | Area (km ²) | Elevation (m) | Slope | | Vegetation | | | | Non-vegetation | |
|----------------------|-------------------------|---------------|-------|-----------|------------|---------|---------------|--------------------|----------------|---------|
| | | | % | Direction | Species | % cover | Biologic form | Palatability class | Material | % cover |
| OE | 1.55 | 932 | 41 | N-S | Onopordon | 17 | Forbs | III | Rock | 0 |
| | | | | | Echinops | 9 | Forbs | III | Stone | 13 |
| | | | | | Bromus | 4 | Grass | II | Litter | 9 |
| | | | | | Cirsium | 3 | Forbs | III | Bare soil | 39 |
| | | | | | Eryngium | 2 | Forbs | III | | |
| | | | | | Silene | 2 | Forbs | III | | |
| | | | | | Quercus | 1 | Tree | - | | |
| | | | | | Others | 1 | | | | |
| Sum | | | | | | 39 | | | | 61 |
| QC | 8.11 | 1651 | 54 | N-S | Quercus | 4 | Tree | - | Rock | 4 |
| | | | | | Cirsium | 9 | Forbs | III | Stone | 5 |
| | | | | | Poa | 7 | Grass | I | Litter | 6 |
| | | | | | Bromus | 3 | Grass | II | Bare soil | 59 |
| | | | | | Hordeum | 2 | Grass | II | | |
| | | | | | Others | 1 | | | | |
| Sum | | | | | | 26 | | | | 74 |
| QH | 4.4 | 1472 | 48 | W-E | Quercus | 6 | Tree | - | Rock | 2 |
| | | | | | Hordeum | 14 | Grass | II | Stone | 3 |
| | | | | | Cirsium | 5 | Forbs | III | Litter | 32 |
| | | | | | Bromus | 4 | Grass | II | Bare soil | 30 |
| | | | | | Poa | 3 | Grass | I | | |
| | | | | | Others | 1 | | | | |
| Sum | | | | | | 33 | | | | 67 |
| QB | 1.57 | 1169 | 53 | N-S | Quercus | 5 | Tree | - | Rock | 0 |
| | | | | | Bromus | 25 | Grass | II | Stone | 5 |
| | | | | | Phlomis | 3 | Forbs | III | Litter | 7 |
| | | | | | Avena | 2 | Grass | I | Bare soil | 51 |
| | | | | | Onopordon | 1 | Forbs | III | | |
| | | | | | Others | 1 | | | | |
| Sum | 33.61* | | | | | 37 | | | | 63 |

* (1)+(2)

Source: JICA Study Team, Vegetation Survey, May-July 2001.