

## RESULTS OF THE CZECHOSLOVAK-IRANIAN ENTOMOLOGICAL EXPEDITION TO IRAN 1970

### No. 1: Introduction

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In a series of papers we shall present the results of the expedition to Iran of the Department of Entomology of the National Museum (Nat. Hist.) in Prague, which was undertaken in 1970 from 6th June to 7th September. The trip was carried out with a special laboratory terrain car from Prague through Hungary, Yugoslavia, Bulgaria, Turkey to Iran.

During our passage through Anatolia to Iran we collected in 23 Anatolian localities and on our way back in another 18 localities. The journey through Anatolia and all collecting localities are marked on map no. 1. In Iran we collected in 77 localities, which belong to some geographically and floristically interesting areas:

#### 1. Region under influence of the Caspian Sea Basin

Formation of yearly vegetation on the southern coast of Caspian Sea.

The broad leaf trees forest of up to 1200 m. altitude.

Elburz high forest with Cupressus and Juniperus.

Mountain steepe and semi-steppe vegetation of up to 2500 m. altitude.

Formation with vegetation of above 2500 m. of Elburz mountains.

Lowland as well as valleys with desert and semidesert formation.

#### 2. Region under influence of Persian Gulf Basin

Plateau of xerophytic formations at heights as well as at lower parts.

#### 3. Region of Daryacheh Namak and Hamonn Gavkhani Basin

Formation of sand, gravel valleys and upper valleys vegetation.

#### 4. Region of Neyriz and Shiraz Basin

Formation of xerophytic vegetation at lower as well as of saline vegetation.

Details of the trip in Iran as well as all Iranian localities are marked and numbered on the map no. 2. The numbers of localities mentioned in the map of Iran and Anatolia correspond to the numbers of localities in the following list.

For collecting the entomological material we used several different methods and they are changed or combined according to the characters of respective localities to get a complex material in brief time and inconvenient conditions as far as possible. The main collecting methods used were sweeping the vegetation, collecting of single specimen on respective plants, on trees, under the bark of trees and stumps, by beating, under stones by sifting, drifting the insects in shore, in the water as well as on its surface, by light trap, digging out from the earth, tearing out the roots of various plants, digging out the nests of different vertebrates, collecting insects in the net when driving the car, by use of earth snares, by Malaise trap and a number of other specific methods.

The collected material has been deposited in the collections of the Department of Entomology of the National Museum (Nat. Hist.) in Prague and duplicates will be later transferred to the collections of the Plant Pest and Diseases Research Institute (Ministry of Agriculture) in Teheran — Evin.

As mentioned above the results of the expedition to Iran will be gradually published under the following English, German or French title, according to language used:

**Results of the Czechoslovak-Iranian entomological Expedition  
to Iran 1970**

(Together with results of collections made in Anatolia)

**Ergebnisse der tschechoslowakisch-iranischen entomologischen Expedition  
nach dem Iran 1970**

(Mit Angaben über einige Sammelresultate in Anatolien)

**Les résultats de l'expédition entomologique tchécoslovaque-iranienne  
à l'Iran en 1970**

(Avec les résultats sur les collections de l'Anatolie)

As has already been mentioned, the material collected during the expedition on its way through Anatolia to Iran and on its way back will be processed and studied together with the material from Iran. In any case when the results of the working on of the material from Anatolia is included in the paper, a special mention will be made in the subtitle to main title.

Members of the expedition were the entomologists from the Department of Entomology of the National Museum (Nat. Hist.) in Prague: Dr. Jiří Dlabola, Dr. Ludvík Hoberlandt, Mr. Josef Jelinek, Mr. Pavel Mikula, Dr. Josef Moucha, Dr. Aleš Smetana and the mechanician Mr. Karel Štich; the expedition was led by Dr. Ludvík Hoberlandt. The expedition was realized under protection of Dr. Esfandiar Esfandiari, Director of the Plant Pest and Diseases Research Institute (Ministry of Agriculture) in Teheran-Evin and in territory of Iran the mission was accompanied by Dr. Mohammad Safavi, Mr. Abbas Hashemi and Mr. Ali Ilkhani from the above mentioned institute in Teheran.

The present introductory paper includes two maps tracing the route of the expedition and the geographical position of respective localities also a list of localities in correct wording with short characteristics of them. The photographs of some localities are added. The geographical names in Iran as well as in Turkey are used according to the "Gazetter No. 19, Iran, Official Standard

names approved by the United States Board on Geographic names, prepared in the Office of Geography, Department of the Interior, Washington, D. C. — June 1956" and "Gazetter No. 46, Turkey, March 1960". Some Iranian names have been adapted according to Dr. Mohammad Safavi's view.

### List of the localities

**No. 1:** Sapanca gölü (40 43 N, 30 15 E), 13. 6. 1970, West Anatolia, Turkey.

North bank of Sapanca gölü (lake), bank vegetation composed of mediterranean components. Growth of *Mespilus* between sparse fig-trees (*Ficus carica*) and *Pistacia*. Formation of *Salvia*, *Stachys lanata*, *Echium candidissimum*, *Dorycnium*. Locality of dry condition.

**No. 2:** Gerece (40 48 N, 32 12 E), Bolu dağları, 1200 m., 14. 6. 1970, N. W. Anatolia, Turkey.

Low valley of the river Gerece çayı at an altitude of 1200 m. with the growth of *Salix*. Submontan condition.

**No. 3:** Moğan gölü (39 45 N, 32 48 E), 960 m., 14. 6. 1970, Central Anatolia, Turkey.

Salt lake steppe vegetation with predominant growth of *Artemisia*. Collected on the level sandy bank with sparse vegetation of southeast part of the lake, at an altitude of 960 m.

**No. 4:** Bâla (39 34 N, 33 08 E), 14. 6. 1970, Central Anatolia, Turkey.

Ruderal formation near to the road, with *Anchusa*, *Echium*, *Delphinium*, *Achillea*. Small stream with gravel bottom.

**No. 5:** Gülşehir (38 45 N, 34 38 E), 15. 6. 1970, Central Anatolia, Turkey.

North of the town, semidesert and steppe vegetation on loess of the slopes of the valley of Kizilirmak.

**No. 6:** Ürgüp (38 38 N, 34 56 E), 15. 6. 1970, Central Anatolia, Turkey.

Cultivated area with fields, collected under stones.

**No. 7:** Kayseri (38 43 N, 35 30 E), 15. 6. 1970, Central Anatolia, Turkey.

Occasionally collected on ruderal formation with *Echium*.

**No. 8:** Bünyan (38 51 N, 35 52 E), 15. 6. 1970, Central Anatolia, Turkey.

On the road between Kayseri and Malatya, shallow, partly moist valley of small brook among steppe plateau which is for the main part cultivated. Collecting by the net from the car.

**No. 9:** Pınarbaşı (38 44 N, 36 24 E), 16. 6. 1970, Central Anatolia, Turkey.

Ruderal slope of the valley of a small brook among steppe plateau for the most part cultivated. Growth of *Quercus*.

**No. 10:** Gürün (38 43 N, 37 17 E), 1600 m., 16. 6. 1970, Central Anatolia, Turkey.

High plateau steppe at an altitude of 1600 m., near to the road Kayseri—Malatya, about 10 km. S. of Gürün with a water basin. Growth of *Carduus* and *Euphorbia*.

**No. 11:** Derende (38 34 N, 37 30 E), 1250 m., 16. 6. 1970, Central Anatolia, Turkey.

Valley of a brook at an altitude of 1250 m., with a growth of *Euphorbia* and *Myosotis*.

**No. 12:** Balaban (38 34 N, 38 18 E), 16. 6. 1970, Central Anatolia, Turkey.

Broad valley of a brook with growth of *Salix*; undergrowth composed of *Scirpus*, *Carex*, *Trifolium* and allied.

**No. 13:** Karahan pass (38 26 N, 37 40 E), 1880 m., Nuruhak dağ (mountains), 16. 6. 1970, Central Anatolia, Turkey.

Upper end of valley with a growth of *Elaeagnus*.

**No. 14:** Kale (38 23 N, 38 46 E), 16. 6. 1970, in the valley of the river Firat, Central Anatolia, Turkey.

Collected on the road by using a collecting net from the moving car from Kale to the valley of the river Firat (Euphrat).

**No. 15:** Topaluşagi (38 29 N, 38 50 E), 850 m., 16.—17. 6. 1970, Central Anatolia, Turkey.

Steppe area on the left bank of the river Firat in the altitude 850 m.

**No. 16:** Tunceli (39 07 N, 39 32 E), 17. 6. 1970, East Anatolia, Turkey.

Stony bank of the river Hozat, S. E. of the town Tunceli.

**No. 17:** Pülümür pass (39 30 N, 39 54 E), 1955 m., Mercan dağ, Munzur (East Taurus Mountains), 17. 6. 1970, East Anatolia, Turkey.

Alpine vegetation at an altitude of 1955 m. with predominant growth of *Alyssum* and *Centaurea*.

**No. 18:** Karasu, W. of Kargin (39 40 N, 40 10 E), 18. 6. 1970, East Anatolia, Turkey.

Valley of the river Karasu 20 km. W. of Kargin. Collected on *Quercus castaneifolia* as well as under stones near to the river.

**No. 19:** Kandilli (39 55 N, 40 51 E), 1720 m., 18. 6. 1970, East Anatolia, Turkey.

Sparse vegetation along fields at an altitude of 1720 m.: *Brassica*, *Anchusa*, *Carduus*, *Centaurea*, *Papaver*.

**No. 20:** Erzurum (39 55 N, 41 17 E), 1900 m., 18. 6. 1970, East Anatolia, Turkey.

Fields with weeds at an altitude of 1900 m. Growth of *Anchusa*, *Delphinium*, *Euphorbia*, *Rumex*. A small brook with growth of *Juncus*.

**No. 21:** Tahir (39 52 N, 42 27 E), 2400 m., 18. 6. 1970, East Anatolia, Turkey.

Alpine meadows at an altitude of 2400 m., predominantly with *Orchis*, *Gla-diolus*, *Primula*.

**No. 22:** Tahir geçidi (pass) (39 49 N, 42 33 E), 2475 m., Çakmak dağ, Aras mountains, 18. 6. 1970, East Anatolia, Turkey.

Alpine meadows at an altitude of 2475 m., swept and collected under stones.

**No. 23:** Ağrı (39 40 N, 43 10 E), 1640 m., 19. 6. 1970, East Anatolia, Turkey.

East of the town at an altitude of 1640 m., collected among fields: *Euphorbia*, *Papaver*.

**No. 24:** Maku (39 17 N, 44 31 E), 19.—20. 6. 1970, Azarbaidjan, N. W. Iran.

East of the town, collected by light trap. Growth of *Alhagi*, *Stipa*.

**No. 25:** Zonus Chay (river) (38 29 N, 45 31 E), 66 km. W. of Marand, 20. 6. 1970, Azarbaidjan, N. W. Iran.

Area of dry rice fields and steppe formation with *Alhagi*, *Zygophyllum*, *Delphinium*. River terrace with growth of *Elaeagnus* and *Tamarix*. River bank with gravel and sand.



- No. 26:** Marand (38 26 N, 45 46 E), 20. 6. 1970, Azarbaidjan, N. W. Iran.  
Valley with *Populus nigra*, *Salix* and *Tamarix*. Undergrowth with grass, *Euphorbia*, *Achillea*, *Salvia*, *Astragalus*.
- No. 27:** Sufian (38 17 N, 45 59 E), 30 km. W. of Tabriz, Azarbaidjan, 20.—21. 6. 1970, N. W. Iran.  
Slopes with steppe formation (grazed); small irrigated oasis with planted almond-trees and apricot-trees, small fields of lucerne with abundant undergrowth of grass and *Plantago*. Plains close to the slopes with swampy basin (salty). Collected by light trap.
- No. 28:** Zandjan (36 40 N, 48 29 E), 23. 6. 1970, Gilan, N. W. Iran.  
Semidesert formation with growth of *Ephedra*.
- No. 29:** Ghazvin (36 16 N, 50 00 E), 24. 6. 1970, Tehran (province), N. W. Iran.  
Semidesert formation with *Alhagi*, *Zygophyllum*, *Artemisia* and *Reseda*.
- No. 30:** Ab-yeq (36 02 N, 50 31 E), 24. 6. 1970, Tehran (province), N. W. Iran.  
50 km. W. of Karadj, semidesert formation on the slopes of hills north of the road Ghazvin-Tehran. Vegetation predominantly *Artemisia*, *Carduus*, *Euphorbia*, *Anchusa*.
- No. 31:** Tehran-Evin (35 40 N, 51 26 E), 1700 m., 27. 6. 1970, North Iran.  
Evin, north part of Tehran, collected in the garden of the Plant Pest and Diseases Research Institute, Tehran; *Aple-trees* and alfalfa.
- No. 32:** Ali-abad (35 08 N, 50 59 E), 28. 6. 1970, Tehran (province), North Iran.  
Drying up salty bed of the river. The bottom with gravel, sand and salty mud. Terrace of the river with growth of *Tamarix*. Closed area with semidesert formation predominantly with *Prosopis*.
- No. 33:** Kushke-nosrat (35 06 N, 50 54 E), 28. 6. 1970, Tehran (province), North Iran.  
North strand of salt lake basin Daryatchehe Ghom (House-Soltan) drying up. Sparse vegetation of *Alhagi* and *Salsola*. Area in the direction of basin with predominant *Salsola* and then with *Tamarix*. Collected by light trap.
- No. 34:** Robate-Tork (33 45 N, 50 51 E), 29. 6. 1970, Tehran (province), North Iran.  
Marsh in dry bed of a river. Growth of *Tamarix* with an abundant undergrowth of grass and various other plants.
- No. 35:** Damaneh (33 01 N, 50 29 E), 2200 m., 30. 6. 1970, Esfahan (province), Central Iran.  
Plateau at an altitude of 2200 m., waste area with sparse growth of *Centaurea*, *Glycyrrhiza*.
- No. 36:** Eskandari (32 49 N, 50 26 E), 2000 m., 1. 7. 1970, Esfahan (province), West Iran.  
S. W. of village, irrigation channel with *Mentha* and *Veronica*.
- No. 37:** Organ (32 46 N, 50 27 E), 2000 m., 1. 7. 1970, Esfahan (province), West Iran.  
Bank of the river Zayandeh-Rud, gravel with sand and grass.

**No. 38:** Valley of upper stream of the river Zayandeh-Rud, 50 km. N. of Kuhrang (32 32 N, 50 20 E), 2200 m., 1. 7. 1970, Lorestan, West Iran.

Collected in the stony area of the upper valley near the stream of the river Zayandeh-Rud.

**No. 39:** Marg-e Malek (32 29 N, 50 30 E), 30 km. E. of Kuhrang (32 32 N, 50 20 E), 3200 m., Kuhha-ye Zagros (chain of East Zagros mountains), 1. 7. 1970, Lorestan, West Iran.

High mountain pastures with growth of *Centaurea*, *Astragalus*, *Paris*. Mountain stream with stony banks.

**No. 40:** Kuhrang (32 32 N, 50 20 E) — Farsan (32 15 N, 50 34 E), 1700 m., Kuhha-ye Zagros (chain of East Zagros mountains), 3. 7. 1970, Lorestan, S. W. Iran.

Deep valley of a mountain brook at an altitude of 1700 m. with bare stony banks.

**No. 41:** Sabat-abad (30 06 N, 53 08 E), 70 km., N. of Shiraz, 4. 7. 1970, Fars, S. W. Iran.

High stony slope with clump-like xerophytic vegetation of disperse *Crataegus* and *Pistacia mutica*.

**No. 42:** Shiraz (29 36 N, 52 32 E), north part of the town, 4. 7. 1970, Fars, S. W. Iran.

North part of the town with growth of *Alhagi*.

**No. 43:** Shiraz (29 36 N, 52 32 E), west part of the town, 5. 7. 1970, Fars, S. W. Iran.

S. W. vicinity of the town, salty brook near to the road to Kazerun. Bottom of the brook with mud, banks with salty sediments and growth of *Schoenoplectus* and *Typha*.

**No. 44:** Dashte-Arjan (29 39 N, 51 58 E), 50 km. W. of Shiraz (river Shur), 5. 7. 1970, Fars, S. W. Iran.

Dry riverbed of the river Shur covered with bushes of *Salix*, *Elaeagnus* and *Berberis*.

**No. 45:** Kazerun (29 37 N, 51 38 E), 5.—6. 7. 1970, Fars, S. W. Iran.

10 km. N. of Kazerun, submontane area with forest formations of *Quercus persica*, *Amygdalus escoparius*, *Pistacia mutica*. Collected by light trap.

**No. 46:** Deh Sheykh (29 38 N, 52 19 E), 25 km. W. of Shiraz, 6. 7. 1970, Fars, S. W. Iran.

Abundant growth of *Salix* along a brook.

**No. 47:** 30 km. E. of Sahl-abad (29 16 N, 53 54 E), South part of the Daryatche-ye Bakhtegan (lake) (29 20 N, 54 05 E), 7. 7. 1970, Fars, S. W. Iran.

Salty lake area of Bakhtegan with muddy shallow banks covered with *Salzola* and *Tamarix*, which passes into semidesert formation with predominant growth of *Artemisia*. Collected by light trap.

**No. 48:** Ab-Chenar, 10 km. S. W. of Neyriz (29 12 N, 54 19 E), 8. 7. 1970, Fars, South Iran.

Mountain range with *Acer*.

- No. 49:** Estahbanat (29 08 N, 54 04 E), 8.—9. 7. 1970, Fars, South Iran.  
Mountain valley with semidesert characters and with beginning cultivation of *Ficus carica*. Collected by light trap.
- No. 50:** Fasa (28 56 N, 53 42 E), 9. 7. 1970, Fars, South Iran.  
Irrigated gardens with citrus and palm cultures.
- No. 51:** Djahrom (28 31 N, 53 33 E), 9. 7. 1970, Fars, South Iran.  
North part of the town. Dry shallow bed of small brook in semidesert formation with *Schoenoplectus* and *Nerium*.
- No. 52:** Wadi of the river Rudkhanehe Shur, 5 km. N. of Djahrom (28 31 N, 53 33 E), 9.—10. 7. 1970, Fars, South Iran.  
Dry salt riverbed in semidesert formation with abundant growth of *Tamarix*. Collected by light trap.
- No. 53:** Ali-abad (29 30 N, 52 35 E), 75 km. N. W. of Djahrom, wadi of the river Shur, 10. 7. 1970, Fars, South Iran.  
Wadi of the river Shur with growth of *Vitex agnus-cartus*, *Alhagi*, and *Nerium kotschyi*. Banks partly muddy, partly sandy.
- No. 54:** Sivand (30 05 N, 52 56 N), wadi of the river Rudkhanehe Sivand, 7 km. N. of Takhte-Djamshid (Porsepolis), 10. 7. 1970, Fars, S. W. Iran.  
Wadi of the river Rudkhanehe Sivand among semidesert formation. Collected by light trap.
- No. 55:** Deh-Bid (pass), 2510 m. (30 38 N, 53 13 E), Kuh-e Khatun (mountain), 11. 7. 1970, Fars, West Iran.  
Mountain pass area with growth of *Artemisia* at an altitude of 2510 m.
- No. 56:** Khankhoreh (30 52 N, 53 09 E), 11. 7. 1970, Fars, West Iran.  
Semidesert area on both sides of the road Shiraz - Abadeh, about 100 km. S. of Abadeh. Growth of green *Euphorbia* and *Artemisia*.
- No. 57:** Valley of the stream Darband Sar (36 01 N, 51 28 E), 2000—2500 m., Reshtehe Kuhhaye Alborz (Elburz Mountain Central), 15. 7. 1970, Tehran (province), North Iran.  
Valley of the Darband Sar at an altitude of 2000—2500 m., below the upper limit of forest. Growth of *Juglans regia*, *Salix*, *Populus*, *Mespilus* etc.
- No. 58:** Valley of the stream Darband Sar near Shirpala shelter (36 10 N, 51 28 E), 2500—3000 m., Reshtene Kuhhaye Alborz (Elburz Mountains Central), 16. 7. 1970, Tehran (province), North Iran.  
Valley of the stream Darband Sar near Shirpala shelter at an altitude of 2500—3000 m. above the upper limit of forest. Growth along the stream and brooks composed of *Ligularia persica*, *Trifolium pratense*, *Mentha*, *Carduus*.
- No. 59:** Kuhhaye Tochal (35 53 N, 51 25 E), 2000—2500 m., Reshtehye Kuhhaye Alborz (Elburz Mountains Central), 18.—19. 7. 1970, Tehran (province), North Iran.  
Valley of a brook at an altitude of 2000—2500 m., above the village Tochal. Growth of *Salix*, *Juncus* and grasses.
- No. 60:** Kuhhaye Tochal (35 53 N, 51 25 E), 3000—3400 m., Reshtehe Kuhhaye Alborz (Elburz Mountains Central), 18.—19. 7. 1970, Tehran (province), North Iran.

South slopes of the mountains at an altitude of 3000–3400 m. with vegetation in blossom, predominantly with *Achillea*, *Carduus*, *Euphorbia*.

**No. 61:** Kuhhaye Tochal (35 53 N, 51 25 E), 3600–3900 m., Reshtehe Kuhhaye Alborz (Elburz Mountains Central), 18.–19. 7. 1970, Tehran (province), North Iran.

Peak area at an altitude of 3600–3900 m. on the Mountain Kuhhaye Tochal with snow fields and small lake. Growth of grass and pillow-like alpine vegetation.

**No. 62:** Rudehen (35 44 N, 51 52 E), Tehran (province), 20. 7. 1970, North Iran. Village 35 km. E. of Tehran, steppe formation with predominant *Salvia*.

**No. 63:** Gazanak (Ask) (35 52 N, 52 09 E), 1400 m., in the valley of the river Haraz Chay, Reshtehe Kuhhaye Alborz (Elburz Mountains Central), 20.–21. 7. 1970, Mazandaran, North Iran.

Bank of the river Haraz Chay with growth of *Zygophyllum*, *Carpinus* combined with small area of steppe character and small isolated fields.

**No. 64:** Damavand, Lajran (Ab-Garm) (35 16 N, 52 08 E), 2400 m., Reshtehe Kuhhaye Alborz (Elburz Mountains Central), 21. 7. 1970, Mazandaran, North Iran.

Mountain plain at an altitude of 2400 m. with stones, grass and disperse *Astragalus*.

**No. 65:** Damavand (35 56 N, 52 08 E), east slope of the mountain, 2500 m., Reshtehe Kuhhaye Alborz (Elburz Mountains Central), 21. 7. 1970, Mazandaran, North Iran.

East slope of the mountain at an altitude of 2500 m. with stones and disperse growth of *Astragalus* and *Acantholimon*. Collected by light trap.

**No. 66:** Damavand (35 56 N, 52 08 E), east slopes of the mountain, 3000–3500 m., Reshtehe Kuhhaye Alborz (Elburz Mountains Central), 22. 7. 1970, Mazandaran, North Iran.

Grassy xerophytic vegetation and stones on east slope of the mountain at an altitude of 3000–3500 m. mixed with *Astragalus*, *Acantholimon*, *Papaver orientalis*, *Saxifraga* and *Cerastium*.

**No. 67:** Damavand (35 56 N, 52 08 E), south-east slope of the central massif, 3850 m., Reshtehe Kuhhaye Alborz (Elburz Mountains Central), 22. 7. 1970, Mazandaran, North Iran.

Snow fields on the lava debris on the south-east slope of the central massif at an altitude of 3850 m.

**No. 68:** Damavand, Lajran (Ab-Garm), (35 16 N, 52 08 E), 2400 m., Reshtehe Kuhhaye Alborz (Elburz Mountains Central), 23. 7. 1970, Mazandaran, North Iran.

Plains on the east foot of the mountain at an altitude of 2400 m., grassy vegetation with *Astragalus* and *Artemisia*.

**No. 69:** Valley of the river Haraz Chay, 22 km. S. of Amol (36 23 N, 52 20 E), 400 m., Reshtehe Kuhhaye Alborz (Elburz Mountains Central), 23.–24. 7. 1970, Mazandaran, North Iran.

Valley of the river Haraz Chay at an altitude of 400 m. within reach of the

influence of the Caspian Sea with virgin forest of *Parrotia persica*, *Ulmus scabra*, *Ruscus hyrcanus* and *Prunus*.

**No. 70:** Babol (36 34 N, 52 42 E) — Shahi (36 28 N, 52 53 E), 24. 7. 1970, Mazandaran, North Iran.

Babol — Shahi, collected at nightfall in net on the car.

**No. 71:** Shahi (36 28 N, 52 53 E), 24. 7. 1970, Mazandaran, North Iran.

Shahi: collected in the fallow between rice fields with conspicuous growth of *Eryngium noeanum*.

**No. 72:** Behshahr (36 43 N, 53 34 E), 25. 7. 1970, Mazandaran, North Iran.

Valley, east of the town, with dry riverbed; growth of primeval *Quercus castaneifolia*, *Parrotia persica*, *Ficus carica*, *Vitis venifera*, *Buxus sempervirens*, *Stachys*.

**No. 73:** Kord-Kuy (36 48 N, 54 07 E), 25 km. W. of Gorgan (36 50 N, 54 29 E), 25. 7. 1970, Mazandaran, North Iran.

Collected at nightfall in the net on the car 25 km. W. of Gorgan. Light trap.

**No. 74:** Robate-Ghozlog (36 42 N, 54 37 E), 10 km. S. of Gorgan (36 50 N, 54 29 E), 500 m., 26. 7. 1970, Mazandaran, North Iran.

Original vegetation in the valley of a small river with stony banks; main woods: *Parrotia persica*, *Ulmus scabra*, *Pterocarya fraxinifolia*, *Vitis venifera*, *Ruscus hyrcanus*, *Hedera pastuchowii*.

**No. 75:** Fyez-abad (36 52 N, 54 33 E), 25 km. E. of Gorgan (36 50 N, 54 29 E), 27. 7. 1970, Mazandaran, North Iran.

Dry forest with fallen trees near to the road to Gorgan. Growth of *Quercus castaneifolia* and *Parrotia persica*.

**No. 76:** Minudasht (37 20 N, 53 30 E), 27. 7. 1970, Mazandaran, North Iran.

Water pool with muddy banks and abundant growth of grass.

**No. 77:** Vicinity of Dasht (37 17 N, 56 07 E), Shah Mohammad Reza Wildlife Park, 650 m., 27.—30. 7. 1970, Mazandaran, North Iran.

Wildlife Park with abundant forest of *Quercus castaneifolia* and *Ulmus scabra* with grassy undergrowth. Shrubby undergrowth composed of *Zelkovia*. Banks of east tributary of the river Rud-i Gorgan running through the forest overgrown with *Acer*.

**No. 78:** Robate-Ghareh Bil (37 19 N, 56 26 E) east part of Shah Mohammad Reza Wildlife Park, 1000 m., 30. 7. 1970, Mazandaran, North Iran.

East part of the reservation. Rocky slopes of the valley on the road Minudasht-Bodjnourd with a growth of *Juniperus oxycedrus*, bottom of the valley with bushy growth of *Paliurus* and steppe vegetation of *Artemisia*, *Zygophyllum*, *Carduus*, *Echium* and *Counvolvulus* and *Sarothamnus*.

**No. 79:** Bandare Shah (36 56 N, 54 06 E), 1. 8. 1970, Mazandaran, North Iran.

Salt muddy zone of Caspian Sea with growth of *Salicornia*.

**No. 80:** Shahi (36 28 N, 52 53 E), 5 km. S. of the town, 1. 8. 1970, Mazandaran, North Iran.

Valley with fields, slopes with mixed forest, 5 km. S. of Shahi.

**No. 81:** Veresk (35 55 N, 52 56 E), 800 m., Reshtehe Kuhhaye Alborz (Elburz Mountains East), 2. 8. 1970, Tehran (province), North Iran.

Rocky valley with ruderal vegetation with *Mentha*, *Hieracium*, *Cichorium* etc. Rice fields on slopes.

**No. 82:** Gardanehe Gaduk (pass) (35 55 N, 52 55 E), 2200 m., Restehe Kuhhaye Alborz (Elburz Mountains East), 2. 8. 1970, Tehran (province), North Iran.

Broad seat of mountain pass at an altitude of 2200 m, with stones and sparse xerophytic vegetation; climate-divide between west Caspian climate and central-iranian dry climate.

**No. 83:** Eyn Varzan, 2000 m., Reshtehe Kuhhaye Alborz (Elburz Mountains East), 2.-3. 8. 1970, Tehran (province), North Iran.

Mountain brook in a narrow valley at an altitude of 2000 m. Valley with a semidesert vegetation of *Gypsophila* and *Acantholimon*, terraces with sparse *Salix* and *Berberis*.

**No. 84:** Tehran-Evin (35 40 N, 51 26 E), 1700 m., 9. 8. 1970, North Iran.

Garden of the Plant Pest and Diseases Research Institute, collected by light trap.

**No. 85:** Karadj (35 48 N, 50 59 E), dam; 3 km. N. of the dam, 1650 m., 10. 8. 1970, Tehran (province), North Iran.

Collected on the bank of the river Karadj, 3 km. N. of the dam under stones and in sand.

**No. 86:** Kandavan (36 07 N, 51 19 E), valley N. of tunnel, 2545 m., Reshtehe Kuhhaye Alborz (Elburz Mountains Central), 11. 8. 1970, Tehran (province), North Iran.

Valley north of tunnel at an altitude of 2545 m. Extensive grassy meadows along brooks with typical growth of *Heracleum persicum*, *Ligularia persica*, *Carduus*, *Mentha*, *Geranium*, *Primula*, *Colchicum*, *Alchemilla*.

**No. 87:** Kandavan (pass) (36 07 N, 51 19 E), 3000 m., Reshtehe Kuhhaye Alborz (Elburz Mountains Central), 11. 8. 1970, Tehran (province), North Iran.

Mountain pass at an altitude of 3000 m. Mountain grassy formation with *Centaurea* and *Alchenilla*.

**No. 88:** Abbas-abad (36 44 N, 51 08 E), 11. 8. 1970, Mazandaran, North Iran.

Sterile zone of costal area of Caspian Sea, bordered by gardens and mixed forest.

**No. 89:** Valley of the river Rude Chalus (36 40 N, 52 25 E), 15 km. S. of Chalus (36 38 N, 51 26 E), 200 m., 12. 8. 1970, Mazandaran, North Iran.

A forest meadow at an altitude of 200 m. on the bank of the river Chalus with *Cichorium*, *Coronilla varia* and *Stachys*.

**No. 90:** Plain of the Kalardasht, northern slope of the Alam Kuh massif, 5 km. N. E. of Rudbarak (32 32 N, 50 20 E), 1350 m., Restehe Kuhhaye Alborz (Elburz Mountains West), 12. 8. 1970, Tehran (province), North Iran.

Pasturelands and fields bordered by stones at an altitude of 1350 m., 5 km. N. E. of Rudbarak.

**No. 91:** Plain of the Kalardasht, northern slope of the Alam Kuh massif, Rudbarak (32 32 N, 50 20 E), 1500 m., Reshtehe Kuhhaye Alborz (Elburz Mountains West), 12. 8. 1970, Tehran (province), North Iran.

Mountain beech-forest with undergrowth damaged by pasture. Adjacent pastureland with bushy growth of *Prunus divaricata* at an altitude of 1500 m.

**No. 92:** Plain of the Kalardasht, northern slope of the Alam Kuh massif, Rudbarak (32 32 N, 50 20 E), 1850–2400 m., Reshtehe Kuhhaye Alborz (Elburz Mountains West), 13. 8. 1970, Tehran (province), North Iran.

Mountain forest at an altitude of 1850–2400 m. with *Fagus orientalis*, *Acer*, *Fraxinus*, in the upper border to an altitude of 2400 m. and higher with *Quercus*. Trees at 1850 m. with abundant fungi. Secondary undergrowth with *Urtica*, *Geranium*, *Alchemilla*, *Colchicum*.

**No. 93:** Abbas-abad (36 44 N, 51 08 E), 14. 8. 1970, Mazandaran, North Iran.

Sandy beach of the Caspian Sea with stranded seaweeds. Collected under seaweeds.

**No. 94:** Khorram-abad (36 46 N 50 53 E), 90 m., 14. 8. 1970, Mazandaran, North Iran.

Old citrus gardens. Collected in the detritus.

**No. 95:** Pushte-Kuh (pass) (36 55 N, 49 13 E), 2200–2300 m., Talesh (mountain), 16. 8. 1970, Gilan, N. W. Iran.

Broad pass area on ridge of mountain at an altitude of 2200–2300 m. 24 km. N. of Khalkhal; grassy meadows, pastured.

**No. 96:** Kivi Bala (37 41 N, 48 21 E), 21 km. W. of Khalkhal (37 30 N, 48 25 E), 1500 m., 16. 8. 1970, Azarbaidjan, N. W. Iran.

Moist valley of a brook at an altitude of 1500 m. with a growth of grass, *Salvia*, *Glycyrrhiza*.

**No. 97:** 23 km. S. W. of Marand (38 26 N, 45 46 E), 17. 8. 1970, Azarbaidjan, N. W. Iran.

Steppe formation on the bank of a brook 23 km. S. W. of Marand, with clumps of *Alhagi*.

**No. 98:** 21 km. E. of Marand (38 26 N, 45 46 E), 18. 8. 1970, Azarbaidjan, N. W. Iran.

21 km. E. of Marand on the road Marand - Maku, at an altitude of 1000 m., salty swamp with growth of *Phragmites*, on the margin with *Salicornia* and *Salsola*.

**No. 99:** Ghushchi (37 59 N, 45 03 E), N. W. part of Lake Rezaiyeh (Lake Urmia), 1400 m., 19. 8. 1970, Azarbaidjan, N. W. Iran.

Gravel beach of Lake Rezaiyeh in the N. W. part near to the village Ghushchi at an altitude of 1400 m. Collected under stones and stranded weeds.

**No. 100:** 25 km. N. of Rezaiyeh (37 33 N, 45 04 E), 1300 m., 19. 8. 1970, Azarbaidjan, N. W. Iran.

25 km. N. of Rezaiyeh (town), salinity on the W. bank of Lake Rezaiyeh at an altitude of 1300 m.; growth of *Juncus* and *Salicornia*.

**No. 101:** Esendere (37 45 N, 44 28 E), 1700 m., 20. 8. 1970, East Anatolia, Turkey.

Steppe formation in the boundary area at an altitude of 1700 m.

**No. 102:** 20 km. N. E. of Yükseskova (37 30 N, 44 15 E), 2100 m., 20. 8. 1970, S. E. Anatolia, Turkey.

Stony bank of a brook with *Salix* in steppe plain at 2100 m.

**No. 103:** 16 km. N. of Baskale (38 02 N, 44 00 E), 2150 m., 20. 8. 1970, S. E. Anatolia, Turkey.

Steppe region; shallow gravel bank of a brook at an altitude of 2150 m.



- No. 104:** 30 km. N. of Baskale (38 02 N, 44 00 E), 2600 m., 21. 8. 1970, S. W. Anatolia, Turkey.  
Green grassy valley of a brook, partly swampy, with *Juncus*; the bank of the brook narrow with stones.
- No. 105:** Gürpınar (38 15 N, 43 45 E), 1700 m., 21. 8. 1970, S. E. Anatolia, Turkey.  
Area of sands with characteristic vegetation.
- No. 106:** Gevas, Lake Van (38 16 N, 43 07 E), 1720 m., 21. 8. 1970, East Anatolia, Turkey.  
Swampy bank on the southeast part of the Lake Van, with grassy vegetation, at an altitude of 1720 m.
- No. 107:** Gevas, Lake Van (38 16 N, 43 07 E), 1720 m., 21. 8. 1970, East Anatolia, Turkey.  
Salty area near the S. E. bank of the Lake Van at an altitude of 1720 m.
- No. 108:** Toprakkale (37 06 N, 36 06 E), 24. 8. 1970, South Anatolia, Turkey.  
Cultivated zone predominantly with cotton fields near to Adana.
- No. 109:** Erdemli (36 37 N, 34 18 E), 24.–26. 8. 1970, South Anatolia, Turkey.  
Costal sandy zone of Mediterranean Sea with the mouth of a brook with brackish water with reed and *Pennisetum purpureum*. It is the same locality mentioned in the Anatolian expedition 1947 under no. 36.
- No. 110:** Silifke (36 32 N, 33 56 E), 26. 8. 1970, South Anatolia, Turkey.  
Formation of Mediterranean maquis with *Pinus*.
- No. 111:** Anamur (36 06 N, 32 50 E), 27. 8. 1970, South Anatolia, Turkey.  
Stony coast of Mediterranean Sea.
- No. 112:** Gazipaşa (36 15 N, 32 30 E), 27. 8. 1970, South Anatolia, Turkey.  
Mediterranean maquis on slopes over coast of Mediterranean Sea with *Arbutus unedo*.
- No. 113:** Dağ (32 12 N, 30 31 E), 800 m., 48 km. N. of Antalya, 27. 8. 1970, South Anatolia, Turkey.  
Steppe plateau at an altitude of 800 m.
- No. 114:** 30 km. S. E. of Kütahya (39 25 N, 29 59 E), 1150 m., 29. 8. 1970, West Anatolia, Turkey.  
High plateau of 1150 m. with mixed growth of *Quercus*, *Juniperus* and *Thuja*.
- No. 115:** 20 km. N. E. of Kütahya (39 25 N, 29 59 E), 900 m., 29. 8. 1970, West Anatolia, Turkey.  
Plateau with fields and water channels.
- No. 116:** Bilecik (40 15 N, 30 00 E), 480 m., 29. 8. 1970, West Anatolia, Turkey.  
Steppe formations among forest area.
- No. 117:** Babaeski (41 28 N, 27 06 E), 40 km. E. of Edirne, 200 m., 31. 8. 1970, Thrakia, Turkey.  
Cultivated zone — collected by light trap.
- No. 118:** Uzunköprü (41 16 N, 26 41 E), 16 km. W. of Edirne, 1. 9. 1970, Thrakia, Turkey.  
Cultivated zone.

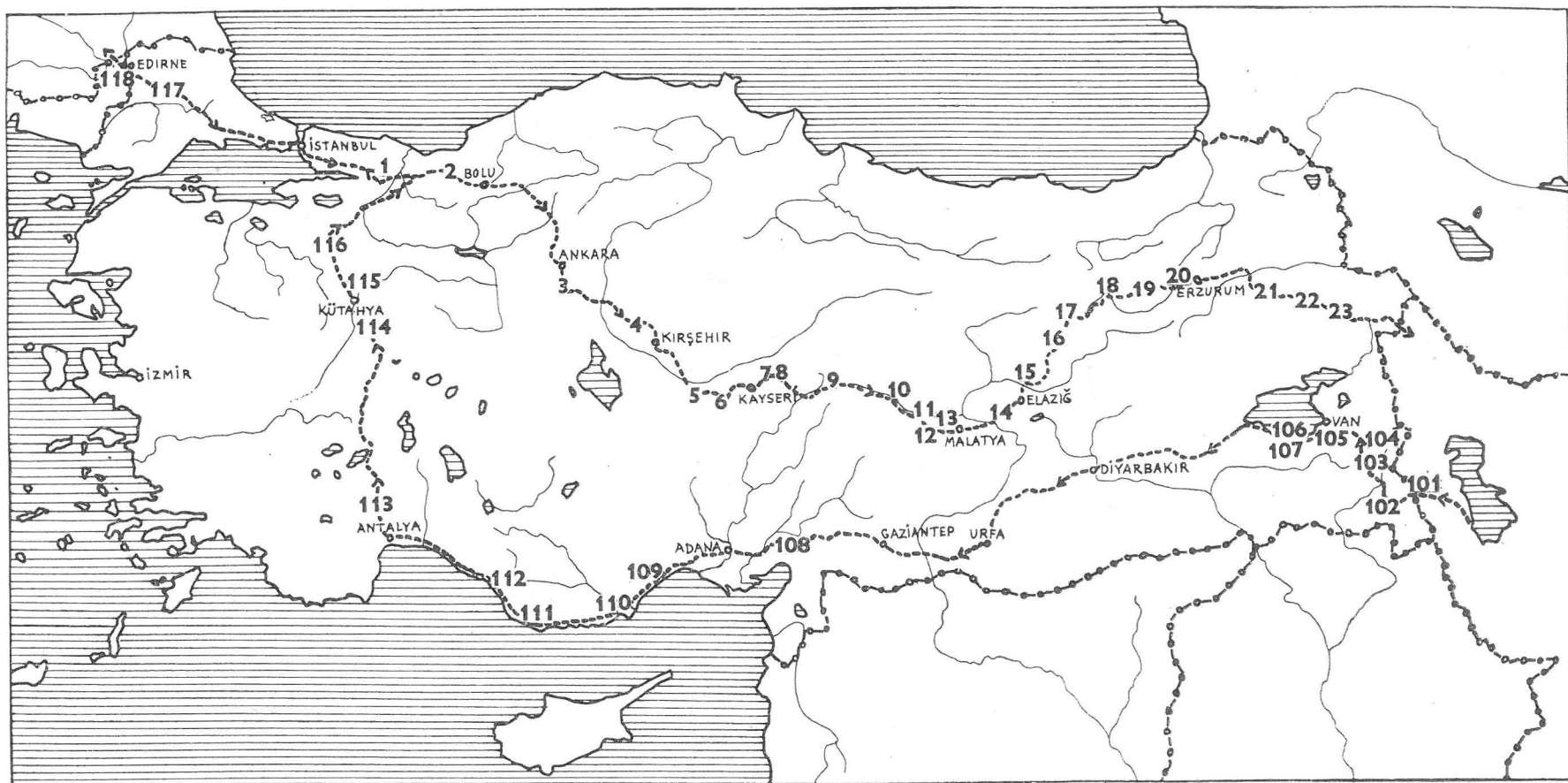


Fig. 1. Map of Turkey tracing the route of the entomological expedition (1970) and the collecting localities are numbered 1-23 and 101-118.

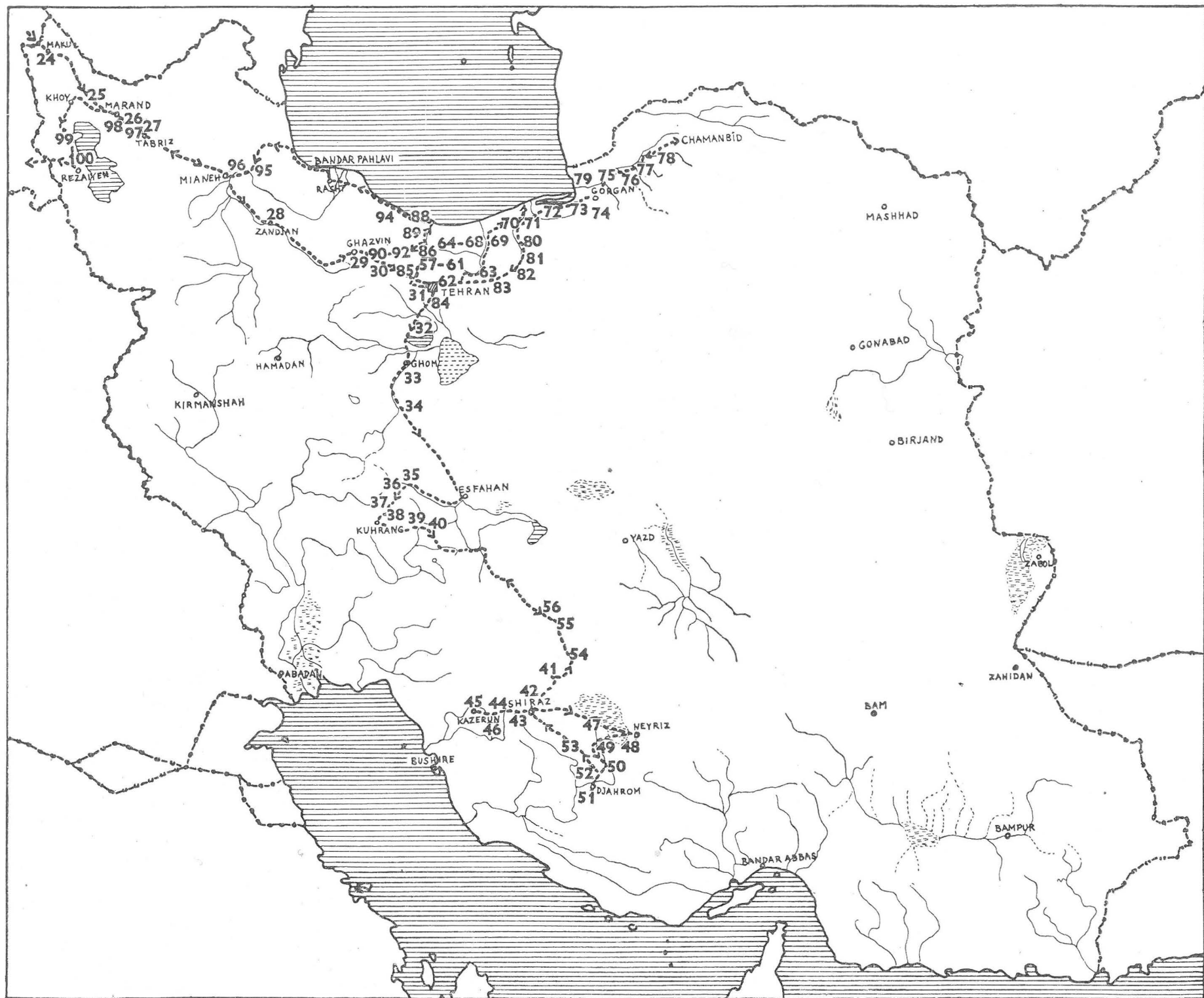


Fig. 2. Map of Iran tracing the route of the entomological expedition (1970) and the collecting localities are numbered 24-100.



Fig. 3. Loc. no. 27: Sufian, 30 km. W. of Tabriz, 20.-21. 6. 1970, Azarbaijan, N. W. Iran. Slopes with grazed steppe formation. (Photo J. Jelínek)

Fig. 4. Loc. no 32: Ali-abad, 28. 6. 1970, Tehran province, N. Iran. Drying up salty bed of the river, terrace of the river with growth of Tamarix. (Photo J. Jelínek)

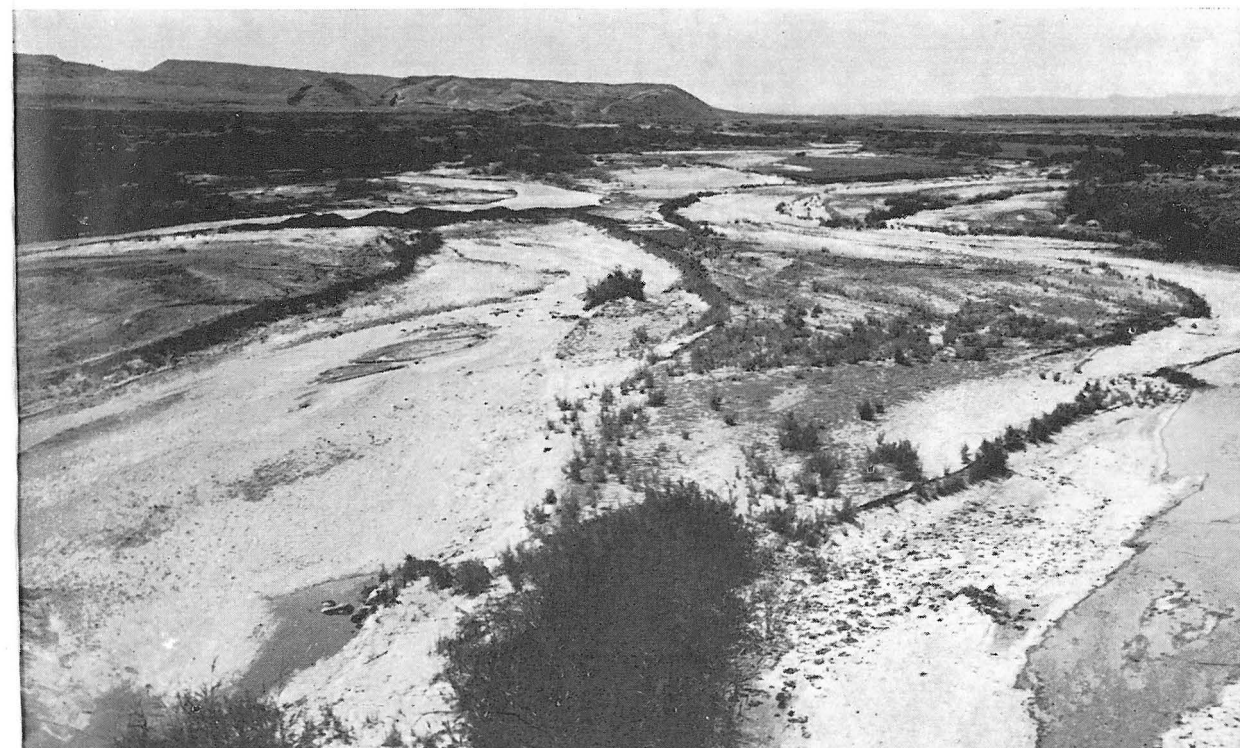






Fig. 5. Loc. no. 38: Valley of upper stream of the river Zayandeh-Rud, 50 km. N. of Kuhrang, 2200 m., 1. 7. 1970, Lorestan, West Iran. Stony area of the upper valley. (Photo P. Mikula)

Fig. 6. Loc. no. 39: Marg-e Malek, 30 km. E. of Kuhrang, 3200 m. East Zagros Mountains, Lorestan, W. Iran, 1. 7. 1970. High mountain pastures with growth of *Astragalus*, *Centaurea*, *Paris*. (Photo L. Hoberlandt)



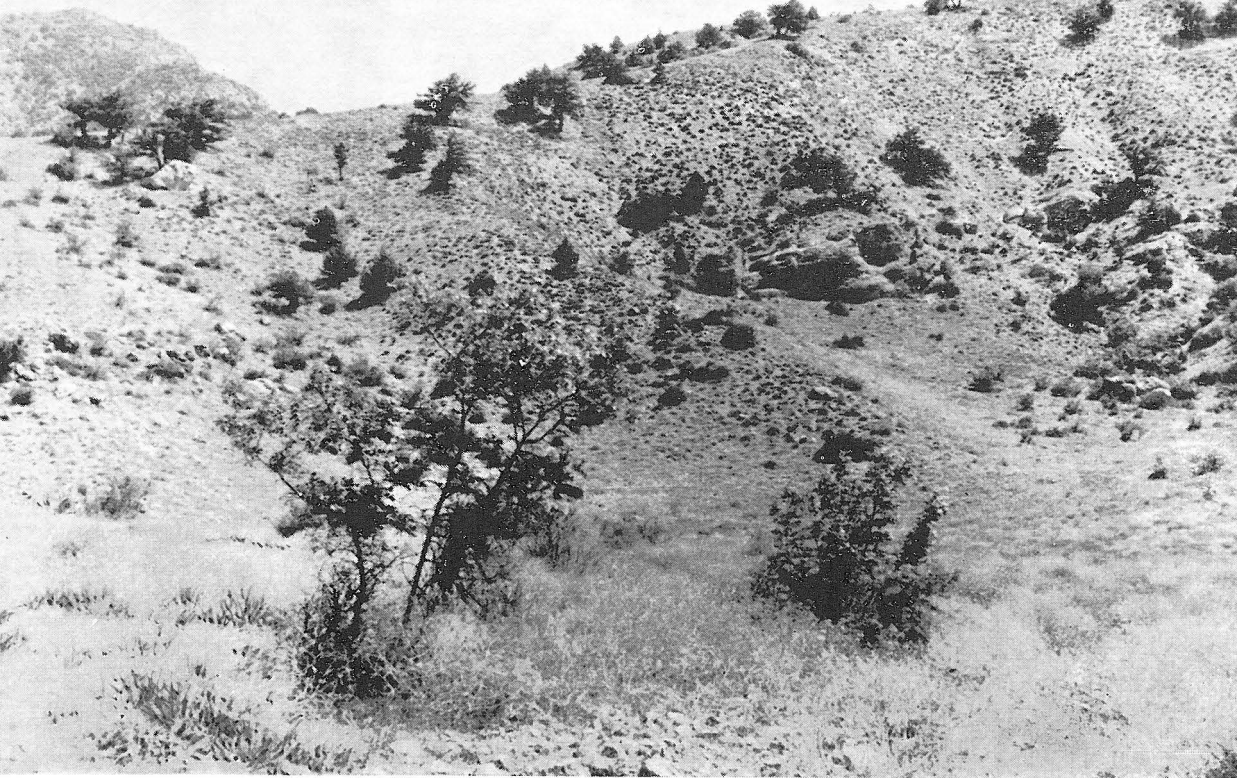


Fig. 7. Loc. no. 42: Shiraz, region north of the town, 4. 7. 1970, Fars, S. W. Iran. Sparse growth of *Alhagi*. (Photo J. Dlabola)

Fig. 8. Loc. no 47: 30 km. E. of Sahl-abad, south part of the lake Daryatche-ye Bakhtegan, 7. 7. 1970, Fars, S. W. Iran. Salty lake area with muddy shallow banks covered with *Salsola* and *Tamarix*. (Photo L. Hoberlandt)

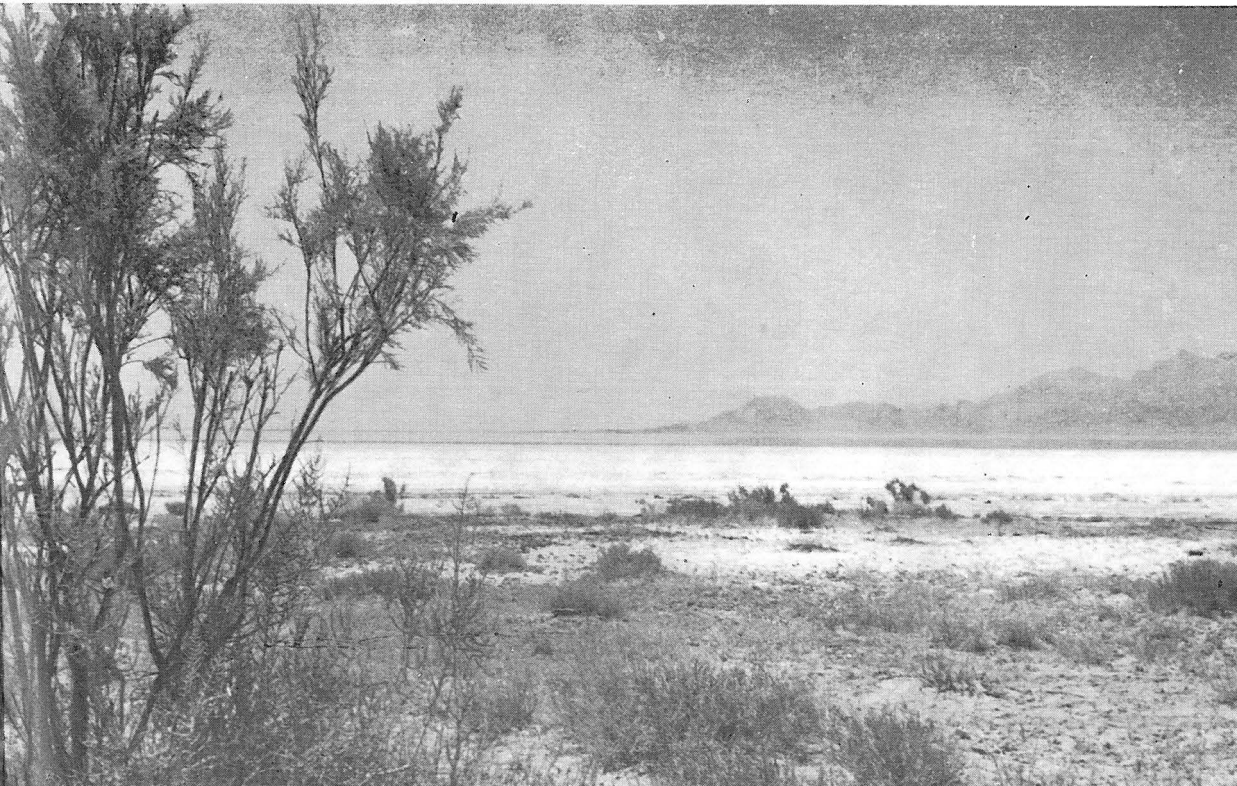






Fig. 9. Loc. no. 50: Fasa, 8. 7. 1970, Fars, S. Iran. Irrigated gardens with citrus and palm cultures. (Photo L. Hoberlandt)

Fig. 10. Loc. no. 52: Wadi of the river Rudkhanehe Shur, 5 km. N. of Djahrom, 9.—10. 7. 1970, Fars, S. Iran. Dry salty riverbed in semidesert formation with abundant growth of Tamarix. (Photo J. Dlabola)





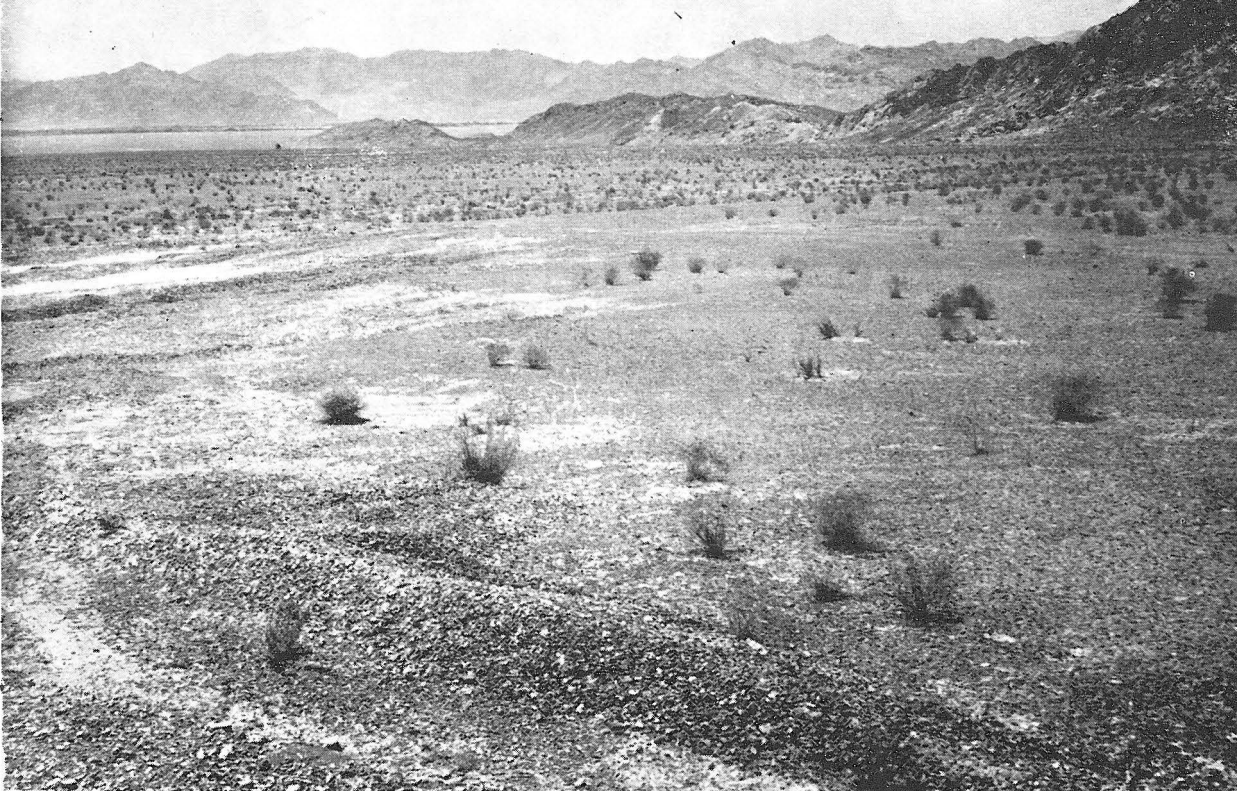


Fig. 11. Loc. no. 56: Khankhoreh, 11. 7. 1970, Fars, W. Iran. Semidesert area about 100 km. S. of Abadeh. Growth of *Euphorbia* and *Artemisia*. (Photo J. Jelinek)

Fig. 12. Loc. no. 60: Kuhhaye Tochal, 3400 m., Central Elburz Mountain, 18. 7. 1970, province Tehran, N. Iran. South slope of the mountain with sparse vegetation of *Achillea*, *Carduus*, *Euphorbia*. (Photo J. Jelinek)

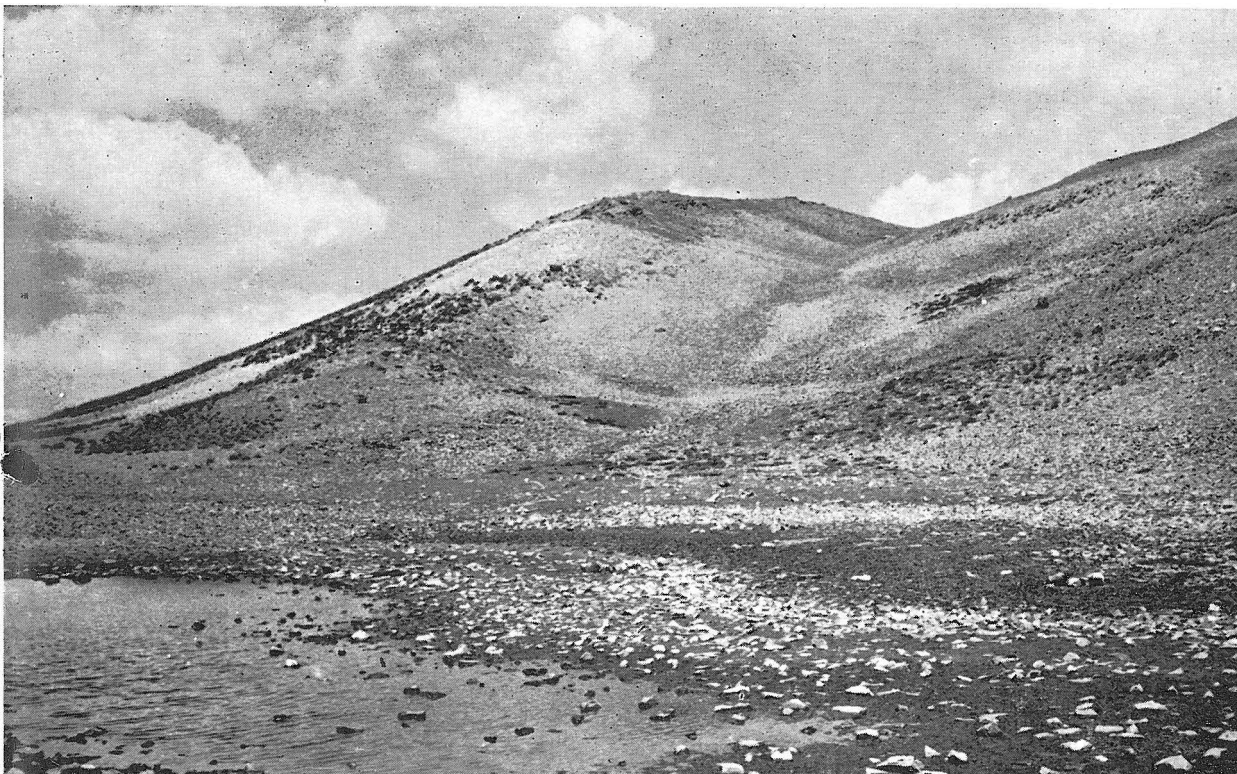




Fig. 13. Loc. no. 61: Kuhhaye Tochal, 3900 m., Central Elburz Mountains, 19. 7. 1970, province Tehran, N. Iran. Peak area with snow fields. (Photo J. Jelínek)  
Fig. 14. Loc. no. 63: Gazanak (Ask), 1400 m. in the valley of the river Haraz Chay, Central Elburz Mountains, 20.–21. 7. 1970, Mazandaran, N. Iran. Valley of the river with growth of *Zygophyllum*, *Carpinus* combined with small areas of steppe character and small isolated fields. (Photo J. Dlabola)







Fig. 15. Loc. no. 64: Damavand, Lajran, 2400 m., Central Elburz Mountains, 21. 7. 1970, Mazandaran, North Iran. Mountain plain with stones, grass and disperse *Astragalus*.  
(Photo L. Hoberlandt)

Fig. 16. Loc. no. 66: Damavand, east slopes of the mountain, 3500 m., Central Elburz Mountains, 22. 7. 1970, Mazandaran, N. Iran. Grassy xerophytic vegetation and stones mixed with *Astragalus*, *Acantholimon*, *Papaver orientalis*, *Saxifraga* and *Cerastium*.  
(Photo J. Dlabola)

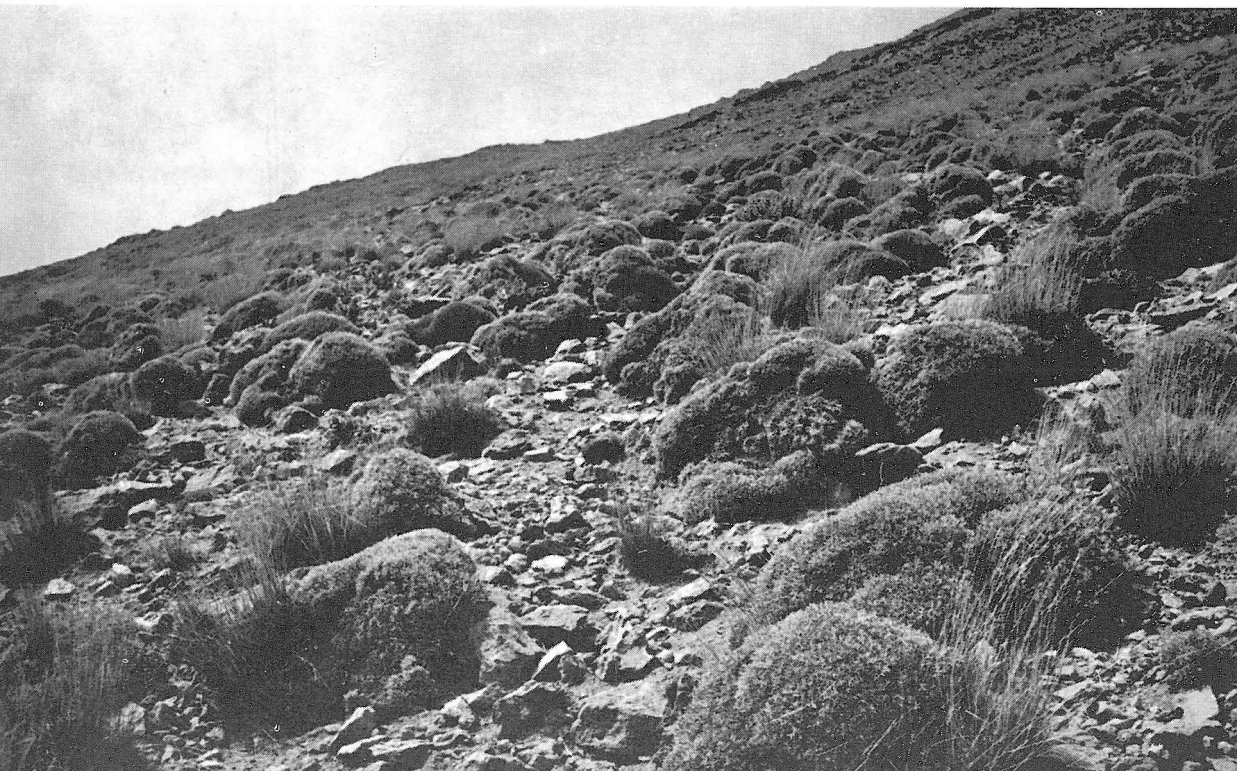




Fig. 17. Loc. no. 67: Damavand, south-east slope of the central massif, 3850 m., Central Elburz Mountains, 22. 7. 1970, Mazandaran, N. Iran. Snow fields on the lava debris. (Photo J. Jelínek)

Fig. 18. Loc. no. 69: Valley of the river Haraz Chay, 22 km. S. of Amol, 400 m., Central Elburz Mountains, 24. 7. 1970, Mazandaran, N. Iran. Valley within reach of the influence of the Caspian Sea with virgin forest of *Parrotis persica*, *Ulmus scabra*, *Ruscus hyrcanus* and *Prunus*. (Photo J. Dlabola)







Fig. 19. Loc. no. 77: Vicinity of Dasht, Shah Mohammad Reza Wildlife Park, 650 m., 28. 7. 1970, Mazandaran, N. Iran. Wildlife Park with abundant forest of *Quercus castaneifolia* and *Ulmus scabra* with grassy undergrowth. (Photo J. Jelinek)

Fig. 20. Loc. no. 77: Vicinity of Dasht, Shah Mohammad Reza Wildlife Park, 650 m., 29. 7. 1970, Mazandaran, N. Iran. Banks of east tributary of the river Rud-i Gorgan running through the forest overgrown with *Acer*. (Photo L. Hoberlandt)

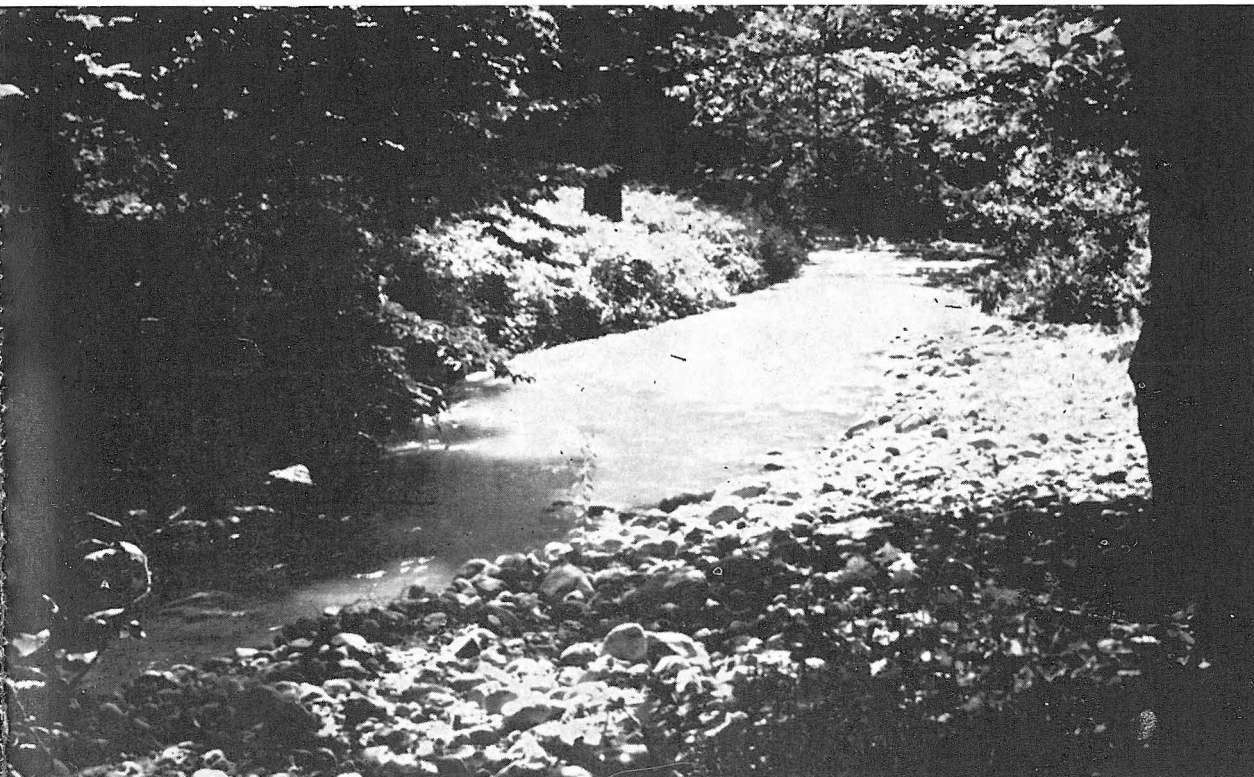




Fig. 21. Loc. no. 78: Robate-Ghareh Bil, east part of Shah Mohammad Reza Wildlife Park, 1000 m., 30. 7. 1970, Mazandaran, N. Iran. Rocky slopes with a growth of *Juniperus oxycedrus*, bottom of the valley with bushy growth of *Paliurus* and steppe vegetation of *Artemisia*.  
(Photo L. Hoberlandt)

Fig. 22. Loc. no. 87: Pass Kandavan, 3000 m., Central Elburz Mountains, 11. 8. 1970, province Tehran, N. Iran. Mountain grassy formation with *Centaurea* and *Alchenilla*.  
(Photo L. Hoberlandt)

