

**AN ANNOTATED LIST OF TAXA OF COCCOIDEA (HOMOPTERA)
DESCRIBED BY F.S. BODENHEIMER (1897-1959)**

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ABSTRACT

The 84 taxa, genera and species, of Coccoidea described by F.S. Bodenheimer (1897—1959) are listed together with discussions on their present taxonomic status, and the availability as well as depository of the type-material. A lectotype is designated for *Pulvinaria pistaciae* Bodenheimer, 1926. KEY WORDS: Coccoidea, scale insects, Middle East, Bodenheimer Collection.

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INTRODUCTION

Prof. F.S. Bodenheimer, the pioneer founder of the study of entomology in Israel, arrived in the country in 1922. Prior to leaving his native Germany for Palestine, young Bodenheimer consulted with Leonhard Lindinger of the Museum of Natural History in Hamburg about selecting a group of insects in which to specialize in the pursuit of his anticipated career in the nascent country. The choice fell on scale insects (Coccoidea) since at that time, as well as today, this group was known to contain the most serious pests of the country's crops (Harpaz, 1984).

In the course of his studies on the taxonomy and biology of scale insects, Bodenheimer collected material from all over the Middle East, including Turkey and Iran. He also embarked on a project of compiling a comprehensive monograph on the Coccoidea of the Middle East, but unfortunately did not live to see it completed and published. The manuscript of the first of the two-volume monograph was deposited by him at the British Museum (Natural History) in London, before entering the hospital where he died in October 1959 (Harpaz, 1984).

While still alive, Bodenheimer willed his collection of Coccoidea to the junior author of this paper (I.H.). Thus, following Bodenheimer's death, the collection was

placed in the custody of I. Harpaz at the Department of Entomology in Rehovot. The collection is herein referred to as the Bodenheimer Collection, Rehovot (BCR).

During his 35-year-long work on this group, Bodenheimer described 84 taxa of Coccoidea, including 16 genera and 68 species or subspecies. Of these, original type-series of no more than 48 species are present in the BCR. Several type-specimens are available in: British Museum (Natural History), London (BMNH); Coccoidea Collection, Department of Entomology, The Volcani Centre, Bet Dagan, Israel (ICV); Museum National d'Histoire Naturelle, Paris (MNHN). The rest are probably missing or lost.

One of Bodenheimer's requests upon bequeathing his collection was not to lend out any of its contents. Shortly after the beginning of our cataloguing work on the collection, a possible explanation for this rather uncommon request became apparent. The material was poorly prepared and most of the specimens had to be remounted. In addition, the number of embarrassing taxonomical errors found therein was much higher than normal, and required a substantial amount of revision and rectification (see also Harpaz (1984, p. 19)]. Nevertheless, this specific wish of Bodenheimer's is still complied with, as reflected by the policy of reluctance to allow borrowing of type-material from this collection during the lifetime of the custodian.

In the following list of genera and species, which Bodenheimer described, the taxa are listed and discussed according to his family designation, and under the name given in the original description.

Each taxon is presented and discussed in the following order: 1) name, year and page reference in the original description; 2) type-species for genera or type-locality and host plant for species; 3) present taxonomic status if established or suggested by later students; and 4) data on status, availability and depository of type-series.

In 1929 Bodenheimer and Theodor published a book on their joint expedition to the Sinai Peninsula, which included also the descriptions of six species and one genus of scale insects. The authorship of these taxa should be credited to Bodenheimer singly, since he was the sole author of the relevant chapter (pp. 104-117).

The present publication is dedicated to Prof. J. Kugler on the occasion of his seventieth birthday in recognition of his numerous contributions to the science of insect taxonomy and to the study of the entomofauna of Israel. Prof. Kugler himself was a pupil of Bodenheimer at the Hebrew University of Jerusalem during the late 1930s.

ACLERDIDAE

- 1) *Aclerda wiltshirei* Bodenheimer, 1944b:84
Iraq, *Phragmites communis*. Syntypes in BCR.

ASTEROLECANIIDAE

- 2) *Morrisonia* Bodenheimer, 1951:328
Type-species: *Asterolecanium tenax* Bodenheimer, 1929, in: Bodenheimer and Theodor, 1929

This generic name is a homonym being preoccupied in the Lepidoptera and in the Crustacea. In addition, it is an objective synonym of *Trachycoccus* Borchsenius, 1950, because of community of type-species.

- 3) *Asterolecanium tenax* Bodenheimer, 1929:111, in: Bodenheimer and Theodor, 1929
Egypt, Sinai Peninsula, *Tamarix* sp. No types in BCR.

COCCIDAE

- 4) *Bodenheimera* Bodenheimer, 1935:251; 1953b:130
Type species: *Lecanium (Eulecanium) racheli* Bodenheimer, 1924
The characteristics of this valid genus in the Coccidae have been established by Ben-Dov (1969), who presented also the history of that exceptional case in zoological nomenclature where a generic name of an animal is based on the personal name of the author who described it.
- 5) *Paralecanopsis* Bodenheimer, 1951:329; 1953b:109
Type-species: *Paralecanopsis turcica* Bodenheimer, 1951
After studying the type-species of this monotypic genus, Ben-Dov (1980) regarded it as a subjective synonym of *Lecanopsis* Targioni Tozzetti.
- 6) *Eulecanium aptii* Bodenheimer, 1941:74
Turkey, *Abies nordmanniana*. Borchsenius (1957) palced this soft scale insect in *Nemolecanium* Borchsenius. No types in BCR.
- 7) *Eulecanium kosswigi* Bodenheimer, 1953b:100
Turkey, *Pyrus eleagnifolius*. Borchsenius (1957) transferred this species to *Palaeolecanium* Sulc. No types in BCR.
- 8) *Eulecanium tamaricis* Bodenheimer, 1953b:103
Turkey, *Tamarix palasii*. I the original description Bodenheimer stated that the types of this species were destroyed. Borchsenius (1957) assigned the species to the genus *Parthenolecanium* Sulc. No types in BCR.
- 9) *Filippia gossypii* Bodenheimer, 1944c:89
Iran, cotton. Borchsenius (1957) noted that the generic placement of this Iranian soft scale cannot be ascertained. Syntypes in BCR.
- 10) *Lecanium (Eulecanium) racheli* Bodenheimer, 1924:68
Israel, *Vitex agnus-castus*. The taxonomic characters of the type-species of *Bodenheimera*, as well as confirmation of its placement in the Coccidae, have been established by Ben-Dov (1969, 1971). Lectotype, designated by Ben-Dov (1980), and paralectotypes in BCR.

- 11) *Paralecanopsis turcica* Bodenheimer, 1951:329; 1953b:109
Turkey, grass. Ben-Dov (1980) found that the description of this species was based on type-series comprising larval instars only, and suggested that it might be identical with *Lecanopsis porifera* Borchsenius, 1952. No formal synonymy was introduced, but *L. turcica* was transferred to *Lecanopsis*. Type-series in BCR.
- 12) *Pulvinaria dianthi* Bodenheimer, 1943:12
Iraq, *Dianthus*. Borchsenius (1957) placed this soft scale, originally described from Iraq, in *Rhizopulvinaria* Borchsenius. Syntypes in BCR.
- 13) *Pulvinaria pistaciae* Bodenheimer, 1926b:189
Israel, *Pistacia palestina*. Known so far from various countries in Central Asia and the Middle East (Borchsenius, 1957). Assigned by Borchsenius (1952) as type-species of the monotypic genus *Anapulvinaria*. Taxonomic redescriptions of the species were presented by Borchsenius (1957) and Davatchi (1958). No syntypes in BCR. A lectotype is designated here from a lot (in BMNH) of 4 females labelled *Pulvinaria pistaciae* Bodenh., on *Pistacia palestina*, Palestine, ex. coll. Bodenheimer, 6.VII.1925 (2 females), 16.IV.1926 (2 females). These specimens were received from Bodenheimer at BMNH in 25.II.1926, close to the time of the original collection. Lectotype and 2 paralectotypes in BMNH, 1 paralectotype in ICV.

CONCHASPIDIDAE

- 14) *Archaspis* Bodenheimer, 1943:25
Type-species: *Archaspis ephedrae* Bodenheimer, 1943:26
- 15) *Archaspis ephedrae* Bodenheimer, 1943:26
Iraq, *Ephedra alte*. The assignment of these taxa by Bodenheimer (1943, 1944a) to the Conchaspidae was first disputed by Balachowsky (1948) and later by Mamet (1954). Ben-Dov (1980) examined the type-series and synonymized it with *Quadraspidiotus ceconii* (Leonardi) in the Diaspididae. Consequently, *Archaspis* became a subjective synonym of *Quadraspidiotus* MacGillivray. Lectotype, designated by Ben-Dov (1980), in BCR.

DIASPIDIDAE

- 16) *Anatolaspis* Bodenheimer, 1949:39; 1953a:9
Type-species: *Anatolaspis abedini* Bodenheimer, 1949
This genus was accepted by Borchsenius (1966) as an objective synonym of *Parlatoreopsis* Lindinger, 1912 because the type-species of *Anatolaspis* was regarded as a synonym of *Chionaspis longispinus* Newstead, the type-species of *Parlatoreopsis*.
- 17) *Archangelskaia* Bodenheimer, 1951:331
Type-species: *Parlatoria ephedrae* Lindinger, 1911
Bodenheimer (1951) noted the affinity of this genus to *Parlatoria* Targioni

Tozzetti, in the original description. Balachowsky(1953) placed it in synonymy with *Parlatoria*, whereas Borchsenius (1966) regarded *Archangelskaia* as a valid genus in the Parlatorini.

18) *Eremaspis* Bodenheimer, 1951:330

Type-species: *Pinnaspis zillae* Hall, 1923

Borchsenius (1966) placed this genus as a subjective synonym of *Contigaspis* MacGillivray.

19) *Eremohallaspis* Bodenheimer, 1951:330

Type-species: *Coccomytilus farsetiae* Hall, 1926

Balachowsky (1954) accepted this genus as valid in the Lepidosaphedini, whereas Borchsenius (1966) regarded it as a subjective synonym of *Artemispis* Borchsenius.

20) *Ferrisidiaspis* Bodenheimer, 1951:329

Type-species: *Diaspis syriaca* Lindinger, 1912

Balachowsky (1954) and Borchsenius (1966) both regarded this genus as a subjective synonym of *Diaspis* Costa.

21) *Genistaspis* Bodenheimer, 1949:38; 1952:348

Type-species: *Genistaspis zelihae* Bodenheimer, 1949:83

At present it is regarded (Borchsenius, 1966) as a valid genus in the Aspidiotini, although with unclear affinities. Bodenheimer (1949, 1952) noted that it is closely related to *Targionia* Signoret.

22) *Koroneaspis* Bodenheimer, 1943:9

Type-species: *Lepidosaphes aegilopos* Koroneos, 1934:74

Balachowsky (1954) and Borchsenius (1966) accepted this genus as valid in the Lepidosaphedina.

23) *Marchaliella* Bodenheimer, 1951:331

Type-species: *Chionaspis lepineyi* Balachowsky, 1928:273

Balachowsky (1954) and Borchsenius (1966) placed this genus as a subjective synonym of *Chionaspis* Signoret.

24) *Mongrovaspis* Bodenheimer, 1951:331

Type-species: *Leucaspis quadrispinosa* Green, 1934:110

Balachowsky(1953) and Borchsenius (1966) placed this valid genus in the Leucaspidina of the Leucaspidini.

25) *Sinaidiaspis* Bodenheimer, 1951:329

Type-species: *Diaspis capparis* Bodenheimer, 1929:108, in: Bodenheimer and Theodor, 1929

Ben-Dov (1980) showed that this genus is an objective synonym of *Rungaspis* Balachowsky, 1949, because of synonymy of the type-species of both genera.

- 26) *Anatolaspis abedini* Bodenheimer, 1949:101; 1953a:9
 Turkey, *Euphorbia* sp. Balachowsky (1953) synonymized this species with *Parlatoreopsis longispinus* (Newstead). Syntypes in BCR, and MNHN.
- 27) *Aonidia halli* Bodenheimer, 1929:104, in: Bodenheimer and Theodor, 1929
 Sinai Peninsula, *Tamarix* sp. It was assigned the type-species of the genus *Cryptoparlatoreopsis* Borchsenius, 1947. Accepted as a valid species in the latter genus by both Balachowsky (1951) and Borchsenius (1966). Syntypes in BCR.
- 28) *Aspidiotus aharonii* Bodenheimer, 1924:23
 Israel, *Ceratonia siliqua*. Borchsenius (1966) placed this species among taxa with unclear identity. No syntypes in BCR.
- 29) *Aspidiotus herzlianus* Bodenheimer, 1924:30
 Israel, *Asparagus aphyllus*. Balachowsky (1950a) examined a cotype of this species and synonymized it with *Quadraspidotus ceconii* (Leonardi). Syntypes in BCR and MNHN.
- 30) *Aspidiotus sinaiticus* Bodenheimer, 1929:106; in: Bodenheimer and Theodor, 1929
 Sinai Peninsula, *Olea europaea*. Balachowsky (1950a) studied type material of this species and concluded that it is identical with *Quadraspidotus pyri* (Lichtenstein). He therefore synonymized it with the latter. Syntypes in BCR.
- 31) *Chionaspis engeddensis* Bodenheimer, 1924:40
 Israel, *Tamarix*. This valid species in the genus *Chionaspis* (Balachowsky, 1954; Borchsenius, 1966; Bazarov and Shmelev, 1971) was redescribed by Balachowsky (1954). Syntypes in BCR.
- 32) *Cocco-mytilus halli* forma *ephedrae* Bodenheimer, 1943:8
 Iraq, *Ephedra alte*. Originally described as a subspecies of *Nilotaspis halli* (Green). It was raised to species rank, *Nilotaspis ephedrae*, by Borchsenius (1966). No syntypes in BCR.
- 33) *Cocco-mytilus sureyanus* Bodenheimer, 1941:66
 Turkey, *Astragalus*. Balachowsky (1954) synonymized this Turkish species with *Nilotaspis halli* (Green), whereas Borchsenius (1966) accepted it as a valid species in the genus *Nilotaspis*. Syntypes in BCR and MNHN.
- 34) *Diaspis capparidis* Bodenheimer, 1929:108, in: Bodenheimer and Theodor, 1929
 Sinai Peninsula, *Capparis galeata*. Balachowsky (1948, 1958) suggested that this is a synonym of *Rungaspis trabuti* Balachowsky, while Borchsenius (1966) regarded it as a valid species in *Rungaspis*. Ben-Dov (1980) found that the type-series was lost, but, after studying topotypic material from Sinai, concluded that it is a valid species in *Rungaspis*. In addition, he showed that *D. capparidis* is the senior synonym of *R. trabuti* Balachowsky, the type-species of *Rungaspis*.

- 35) *Eremaspis acantholimoni* Bodenheimer, 1953a:29
By comparing the original description of this species with that of *Pinnaspis acantholimoni* Bodenheimer, 1949 (see Item 48, below), it became evident that they refer to the same species. See discussion under the latter species.
- 36) *Fiorinia afchari* Bodenheimer, 1944c:96
Iran, *Periploeca aphylla*. Borchsenius and Williams (1962) synonymized this species with *Fiorinia distinctissima* (Newstead). Syntypes in BCR.
- 37) *Forbesaspis anatolica* Bodenheimer, 1949:68; 1952:341
Turkey, *Amygdalus communis*. Borchsenius (1966) transferred this species to *Quadraspidiotus* MacGillivray. No syntypes in BCR; one syntype in MNHN.
- 38) *Genistaspis zelihae* Bodenheimer, 1949:83; 1952:350
Turkey, Leguminosae. Bodenheimer (1949, 1952) noted its resemblance to *Targionia jaapi* Lindinger. Borchsenius (1966) placed it among Aspidiotine species of unclear systematic placement. Cotypes in BCR and MNHN.
- 39) *Lepidosaphes palaestinensis* Bodenheimer, 1924:50
Israel, *Olea europaea*. Bodenheimer (1953) synonymized it with *Lepidosaphes destefanii* Leonardi. Balachowsky (1954) examined a cotype and supported that synonymy. Borchsenius (1966) placed it as a synonym of *Mytilaspis flava* Targioni Tozzetti. No types in BCR.
- 40) *Lepidosaphes (Cocco-mytilus) zlocistii* Bodenheimer, 1924:54
Israel, *Persica vulgaris*. Balachowsky (1954) and Borchsenius (1966) treated it as a synonym of *Nilotaspis halli* (Green). No types in BCR. Syntypes in MNHN.
- 41) *Leucaspidopsis crataegi* Bodenheimer, 1943:10
Iraq, *Crataegus monogyna*. In the original description Bodenheimer mentioned the affinity of this species to *Suturaspis archangelskayae* (Lindinger). Balachowsky (1953), however, synonymized *L. crataegi* with *archangelskayae* but placed it in *Salicicola*, whereas Borchsenius (1966) followed this synonymy, but placed the species in *Suturaspis* Lindinger. Syntypes in BCR.
- 42) *Leucaspidopsis crataegi* forma *fraxinicola* Bodenheimer, 1943:11
Iraq, *Fraxinus excelsior*. Balachowsky (1953) synonymized this forma with *Salicicola archangelskayae* (Lindinger), and Borchsenius (1966) with the same species, but in *Suturaspis* Lindinger. Syntypes in BCR.
- 43) *Melanaspis recepi* Bodenheimer, 1941:66
Turkey, *Alopecurus agrestis*. Balachowsky (1954) and Borchsenius (1966) synonymized this species with *Mohelnaspis massiliensis* (Goux). Syntypes in BCR and MNHN.
- 44) *Mytilococcus kurdicus* Bodenheimer, 1943:5
Iraq, *Acer cinerascens*. Balachowsky (1954) redescribed this species and transferred it to *Acanthomytilus*. Syntypes in BCR.

- 45) *Mytilococcus sanduri* Bodenheimer, 1943:7
Iraq, *Andropogon*. The synonymy of this species with *Acanthomytilus intermittens* (Hall) was introduced by Balachowsky (1954). Syntypes in BCR.
- 46) *Parlatoria judaica* Bodenheimer, 1924:59
Israel, *Prunus armeniaca*. Bodenheimer (1949, 1953a) noted the morphological affinity of this species to *P. oleae* (Colvée), but regarded it as a distinct species. Borchsenius (1966) placed it in synonymy with *P. oleae*. Cotypes in BCR.
- 47) *Parlatoria morrisoni* Bodenheimer, 1944b:82
Iran, Iraq, various trees. Borchsenius (1966) synonymized this species with *Parlatoria oleae* (Colvée). In addition it is a homonym of *Parlatoria morrisoni* McKenzie, 1943. Syntypes in BCR.
- 48) *Pinnaspis acantholimoni* Bodenheimer, 1949:141
Turkey, *Acantholimon*. This binomen is the senior synonym of *Eremaspis acantholimoni* Bodenheimer, 1953a, both of which were synonymized with *Contigaspis monticola* Borchsenius. *Pinnaspis astragali* Bodenheimer, 1949:141 and *Eremaspis astragali* Bodenheimer, 1953a:31 are very likely a *Lapsus calami* of *P. acantholimoni* and *E. acantholimoni*, respectively. No syntypes in BCR.
- 49) *Quadraspidotus populi* Bodenheimer, 1943:3
Iraq, *Populus euphratica*. Balachowsky (1950a) synonymized this species with *Quadraspidotus slavonicus* (Green). Syntypes in BCR.
- 50) *Syngenaspis sulci* Bodenheimer, 1941:69
Turkey, *Abies bornmulleriana*. McKenzie (1945) and Balachowsky (1953) have both shown that this species is a synonym of *Syngenaspis parlatoriae* Sulc. Syntypes in BCR and MNHN.
- 51) *Targionia duplidens* Bodenheimer, 1929:107, in: Bodenheimer and Theodor, 1929
Sinai Peninsula, *Haloxylon*. Balachowsky (1954) and Borchsenius (1966) synonymized this species with *Artemisaspis farsetiae* (Hall). No syntypes in BCR.
- 52) *Thymaspis salicis* Bodenheimer, 1944c:94
Iran, *Salix*. Borchsenius (1950) referred it to *Epidiaspis*, and Balachowsky (1954) redescribed it. Syntypes in BCR.

ERIOCOCCIDAE

- 53) *Eriococcus mumtazi* Bodenheimer, 1943:22
Iraq, grass, Syntypes in BCR.
- 54) *Eriococcus teucricolus* Bodenheimer, 1943:24
Iraq, *Teucrium polium*. Syntypes in BCR.

KERMESIDAE

- 55) *Kermes bekiri* Bodenheimer, 1953b:147
Turkey, *Quercus aegilops*. Borchsenius (1960) accepted this as a valid species in *Kermococcus*. Cotypes (in extremely poor condition) in BCR.
- 56) *Kermes muhlisi* Bodenheimer, 1941:76
Turkey, *Quercus*. Balachowsky (1950c) suggested that this species is identical to *Kermes roboris* Fourcroy, whereas Borchsenius (1960) listed it among the valid species of *Kermococcus*. Syntypes (in extremely poor condition) in BCR.
- 57) *Kermes sadrii* Bodenheimer, 1953b:145
Turkey, *Quercus aegilops*. Borchsenius (1960) accepted this as a valid species in *Kermococcus*. Syntypes (in extremely poor condition) in BCR.
- 58) *Kermococcus (Kermes) biblicus* Bodenheimer, 1926a:45
Lebanon, *Quercus coccifera*. Balachowsky (1950b) surmised that this species is identical to *Kermes ilicis* L., whereas Borchsenius (1960) regarded it as a valid species in *Kermococcus*. No types in BCR.
- 59) *Kermococcus greeni* Bodenheimer, 1927:181 (*nomen nudum*); 1931:246
Israel, *Quercus coccifera*. Borchsenius (1960) accepted this as a valid species in *Kermococcus*. Syntypes in BCR.
- 60) *Kermococcus nahalali* Bodenheimer, 1927:181 (*nomen nudum*); 1931:246
Israel, *Quercus coccifera*. Borchsenius (1960) listed this species among the valid species of *Kermococcus*. Syntypes in BCR.
- 61) *Nidularia balachowskii* Bodenheimer, 1941:78
Turkey, *Quercus*. Syntypes in BCR.

MARGARODIDAE

- 62) *Acystomargarodes* Bodenheimer, 1953b:152
Type-species: *Margarodes tritici* Bodenheimer, 1941, designated by Morrison and Morrison (1966).

Bodenheimer (1953b) introduced this generic name for two margarodids which he presumed to be characterized by lacking a cyst stage. Morrison and Morrison (1966) commented on this name as follows: "This post-1930 generic name was proposed, in tentative fashion only, for two named species presumably having similar characteristics in the adult stage, but no type-species was selected at the time of publication. Regardless of any zoological validity, the name appears to be deprived of status by the restrictions of Article 13 of the 1961 Zoological Code." To this we may add that the life cycle of *M. tritici* does include a cyst stage, as shown by Duran (1971), thus invalidating the only differentiating character provided by Bodenheimer.

63) *Margarodes tritici* Bodenheimer, 1941:81
Turkey, *Triticum durum*. Bodenheimer (1953b) tentatively placed it in *Acystomargarodes* Bodenheimer, but Morrison and Morrison (1966) claimed that the genus has no status. Jakubski (1965) referred it to *Porphyrophora*, while its life cycle and biology were studied by Duran (1971). Syntypes in BCR.

64) *Matsucoccus josephi* Bodenheimer and Harpaz, 1955:12
Israel, *Pinus halepensis*. In a recent redescription, Ben-Dov (1981) showed this to be a valid species in *Matsucoccus*. Lectotype (designated by Ben-Dov, 1981) and paralectotypes in BCR.

PSEUDOCOCCIDAE

65) *Greenoripersia* Bodenheimer, 1929:112, in: Bodenheimer and Theodor, 1929; Bodenheimer, 1951:329
Type-species: *Greenoripersia kaiseri* Bodenheimer, 1929, in: Bodenheimer and Theodor, 1929.

This genus was validly established in 1929, and more clearly defined by Bodenheimer (1951), who noted its affinity with *Ripersia*.

66) *Greenoripersia kaiseri* Bodenheimer, 1929:112, in: Bodenheimer and Theodor, 1929

Sinai Peninsula, *Tamarix mannifera*. No syntypes in BCR.

67) *Phenacoccus basorae* Bodenheimer, 1943:17
Iraq, *Cynodon dactylon*. No syntypes in BCR.

68) *Phenacoccus euphorbiaefolius* Bodenheimer, 1943:17
Iraq, *Euphorbia* sp. Syntypes in BCR.

69) *Phenacoccus meymeryani* Bodenheimer, 1943:18
Iraq, *Teucrium orientalis*. Syntypes in BCR.

70) *Phenacoccus poterii* Bodenheimer, 1943:20
Israel, *Poterium spinosum*. Syntypes in BCR.

71) *Phenacoccus prosopidis* Bodenheimer, 1943:20
Iraq, *Prosopis stephaniana*. Syntypes in BCR.

72) *Phenacoccus radii* Bodenheimer, 1943:32
Iraq, *Alhagi maurorum*. Syntypes in BCR.

73) *Phenacoccus sherbinovskyi* Bodenheimer, 1943:32
Iraq, grass. Syntypes in BCR.

74) *Pseudococcus daganiae* Bodenheimer, 1926b:191
Israel, *Cynodon dactylon*. Holotype and paratypes in BCR.

- 75) *Pseudococcus fathyi* Bodenheimer, 1944c:90
Iran, *Fraxinus*. Syntypes in BCR.
- 76) *Pseudococcus laingi* Bodenheimer, 1953b:121
Turkey, grass. No syntypes in BCR.
- 77) *Pseudococcus lindingeri* Bodenheimer, 1924:81
Israel, *Panicum colonum*. The taxonomic characters of this species have been clarified recently by Ben-Dov (1980), who transferred it to the genus *Planococcus*. He also showed that this is the valid name for *Planococcus variabilis* (Hall, 1924). Lectotype and paralectotypes (designated by Ben-Dov, 1980) in BCR.
- 78) *Pseudococcus parietaricola* Bodenheimer, 1943:14
Iraq, *Parietaria judaica*. Syntypes in BCR.
- 79) *Rhizoecus cynodontis* Bodenheimer, 1943:16
Iraq, *Cynodon dactylon*. This binomen is a homonym of *Rhizoecus cynodontis* Green, 1931. Syntypes in BCR.
- 80) *Rhizoecus dactyloni* Bodenheimer, 1943:31
Israel, *Cynodon dactylon*. Type in BCR.
- 81) *Ripersia ankarana* Bodenheimer, 1953b:125
Turkey, *Festuca ovina*. Syntypes in BCR.
- 82) *Ripersia asphodeli* Bodenheimer, 1927:178
Israel, *Asphodelus microcarpus*. This species was assigned type-species of *Asphodelococcus* Morrison, 1945. Miller (1975) placed it in the genus *Brevennia*. No syntypes in BCR.
- 83) *Trabutina palestina* Bodenheimer, 1927:179
Israel, *Tamarix*. Syntypes in BCR.
- 84) *Trionymus yaelae* Bodenheimer, 1943:14
Iraq, *Phalaris tuberosus*. Syntypes in BCR.

REFERENCES

- Balachowsky, A. 1928. Contribution à l'étude des Coccides de l'Afrique mineure (4e note). Nouvelle liste de Coccides nord-africains avec description d'espèces nouvelles. *Bulletin de la Société Entomologique de France* 1928:273-279.
- Balachowsky, A. 1948. Les Cochenilles de France, d'Europe, du Nord de l'Afrique et du bassin méditerranéen. IV. Monographie des Coccoidea, Classification – Diaspidinae (Première partie). *Actualités Scientifiques et Industrielles* (Hermann & Cie, Paris) 1054:243-394.

- Balachowsky, A. 1949. Sur un genre nouveau d'Aspidiotini (Hem. Coccidae) du sud de l'anti-Atlas (Maroc méridional). *Bulletin de la Société Entomologique de France* 54:74-76.
- Balachowsky, A. 1950a. Les cochenilles de France, d'Europe, du Nord de l'Afrique et du bassin méditerranéen. V. Monographie des Coccoidea, Diaspidinae (Deuxième partie) Aspidiotini. *Actualités Scientifiques et Industrielles* (Hermann & Cie, Paris) 1087:397-557.
- Balachowsky, A. 1950b. Remarques biogéographiques sur l'aire de répartition mondiale du g. *Kermes* (Hom. Coccoidea). *Proceedings of the VIII International Congress of Entomology, Stockholm, 1948*, pp. 342-346.
- Balachowsky, A. 1950c. Les *Kermes* (Hom. Coccoidea) des chênes en Europe et dans le bassin méditerranéen. *Proceedings of the VIII International Congress of Entomology, Stockholm, 1948*, pp. 739-754.
- Balachowsky, A. 1951. Les Cochenilles de France, d'Europe, du Nord de l'Afrique et du bassin méditerranéen. VI. Monographie des Coccoidea, Diaspidinae (Troisième partie) Aspidiotini (fin). *Actualités Scientifiques et Industrielles* (Hermann & Cie, Paris) 1127:561-720.
- Balachowsky, A. 1953. Les Cochenilles de France, d'Europe, du Nord de l'Afrique et du bassin méditerranéen. VII. Monographie des Coccoidea, Diaspidinae IV, Odonaspidini, Parlatorini. *Actualités Scientifiques et Industrielles* (Hermann & Cie, Paris) 1201:725-929.
- Balachowsky, A. 1954. Les Cochenilles Paléarctiques de la Tribu des Diaspidini. *Mémoires Scientifiques de l'Institut Pasteur*, Paris, 450 pp.
- Balachowsky, A. 1958. Les Cochenilles du continent africain noir. vol. II. Aspidiotini (2ème partie) Odonaspidini et Parlatorini. *Annales du Musée Royal du Congo Belge, Tervuren (Belgique) (N.S.) Sciences Zoologiques* 4:145-356.
- Bazarov, B.B. and Shmelev, G.P. 1971. (Scale Insects (Homoptera: Coccoidea) of Tadzhikistan and Adjacent Territories of Central Asia.) *Fauna Tadzhikistan SSR, Vol. XI. Donish, Dushanbe, 238 pp.* (in Russian)
- Ben-Dov, Y. 1969. A generic diagnosis of *Bodenheimeria* Bodenheimer (Homoptera: Coccoidea) with a redescription of *B. rachelae* (Bodenheimer). *Proceedings of the Royal Entomological Society of London (B)* 38:70-74.
- Ben-Dov, Y. 1971. An annotated list of the soft scale insects (Homoptera: Coccoidea) of Israel. *Israel Journal of Entomology* 6:23-34.
- Ben-Dov, Y. 1980. Observations on scale insects (Homoptera: Coccoidea) of the Middle East. *Bulletin of Entomological Research* 70:261-271.
- Ben-Dov, Y. 1981. Redescription of *Matsucoccus josephi* Bodenheimer and Harpaz (Homoptera: Coccoidea: Margarodidae). *Israel Journal of Entomology* 15:35-51.
- Bodenheimer, F.S. 1924. The Coccidae of Palestine, first report on this family. *The Zionist Organization Institute of Agriculture and Natural History, Agricultural Experiment Station, Bulletin* 1, 100 pp.
- Bodenheimer, F.S. 1926a. Première note sur les cochenilles de Syrie. *Bulletin de la Société Entomologique de France* 1926:41-47.
- Bodenheimer, F.S. 1926b. Second note on the Coccidae of Palestine. *Bulletin of Entomological Research* 17:189-192.
- Bodenheimer, F.S. 1927. Third note on the Coccidae of Palestine. *Agricultural Records, Tel Aviv* 2:177-186.
- Bodenheimer, F.S. 1931. Zur Kenntnis der paläarktischen Kermesarten (Rhyn. Cocc.). *Konowia* 10:241-247.
- Bodenheimer, F.S. 1935. Studies on the zoogeography and ecology of palaeartic Coccidae I-III. *Eos* 10:237-271.
- Bodenheimer, F.S. 1941. Seven new species of Coccidae from Anatolia. *Revue de la Faculté des Sciences de l'Université d'Istanbul (Ser. B)* 6:65-84.
- Bodenheimer, F.S. 1943. A first survey of the Coccoidea of Iraq. *Government of Iraq, Ministry of Economics, Directorate General of Agriculture Bulletin* 28, 33 pp.
- Bodenheimer, F.S. 1944a. A conchaspid from Kurdistan and its importance in the phylogeny of the Diaspidae (Hemiptera). *Proceedings of the Royal Entomological Society of London (B)* 13:4-5.
- Bodenheimer, F.S. 1944b. Additions to the Coccoidea of Iraq, with descriptions of two new species. *Bulletin de la Société Fouad 1er d'Entomologie* 28:81-84.

- Bodenheimer, F.S. 1944c. Note on the Coccoidea of Iran, with description of new species. *Bulletin de la Société Fouad Ier d'Entomologie* 28:85-100.
- Bodenheimer, F.S. 1949. (The Coccoidea of Turkey. Diaspididae. A monographic study.) Guney, Ankara, 264 pp. (in Turkish)
- Bodenheimer, F.S. 1951. Description of some new genera of Coccoidea. *Entomologische Berichten* 13:328-331.
- Bodenheimer, F.S. 1952. The Coccoidea of Turkey. *Revue de la Faculté des Sciences de l'Université d'Istanbul* (Ser. B) 17:315-351.
- Bodenheimer, F.S. 1953a. The Coccoidea of Turkey II. *Revue de la Faculté des Sciences de l'Université d'Istanbul* (Ser. B) 18:1-61.
- Bodenheimer, F.S. 1953b. The Coccoidea of Turkey III. *Revue de la Faculté des Sciences de l'Université d'Istanbul* (Ser. B) 18:91-164.
- Bodenheimer, F.S. and Harpaz, I. 1955. II. Description of the various stages of *Matsucoccus josephi* n.sp., pp. 12-22, in: Bodenheimer, F.S. and S. Neumark, 1955. The Israel pine Matsucoccus (*Matsucoccus josephi* nov. sp.). Kiryath Sepher, Jerusalem, 122 pp.
- Bodenheimer, F.S. and Theodor, O. 1929. Ergebnisse der Sinai-Expedition der Hebräischen Universität, Jerusalem. J.C. Hinrichs, Leipzig, 143 pp.
- Borchsenius, N.S. 1947. (On three new genera of armoured scales (Coccoidea, Diaspididae) from Central Asia.) *Doklady Akademii Nauk SSSR* (n.s.) 58:343-344. (in Russian)
- Borchsenius, N.S. 1950. (Mealybugs and Scale Insects of USSR (Coccoidea).) *Akademi Nauk SSSR*, Moscow, Leningrad, 250 pp. (in Russian)
- Borchsenius, N.S. 1952. New genera and species of soft scales of the family Coccidae (= Lecaniidae) of the USSR fauna and adjacent countries (Insecta, Homoptera, Coccoidea). *Trudy Zoologicheskii Institut Akademii Nauk SSSR* 12:269-316. (in Russian)
- Borchsenius, N.S. 1957. Fauna of the USSR, Homoptera, Coccidae (n.s. 38) Vol. IX. *Akademi Nauk SSSR*, Moscow, Leningrad, 493 pp. (in Russian)
- Borchsenius, N.S. 1960. (Fauna of USSR, Scale Insects (n.s. 77) Vol. 8. Families Kermococcidae, Asterolecaniidae, Lecanodiaspididae, Acleridae.) *Akademi Nauk SSSR*, Moscow, Leningrad, 282 pp. (in Russian)
- Borchsenius, N.S. 1966. A Catalogue of the Armoured Scale Insects (Diaspidoidea) of the World. Nauka, Moscow, Leningrad, 449 pp.
- Borchsenius, N.S. and Williams, D.J. 1962. On two species of *Fiorinia* Targioni Tozzetti (Homoptera: Coccoidea: Diaspididae) from Pakistan. *Proceedings of the Royal Entomological Society of London* (B) 31:67-70.
- Davatchi, A.G. 1958. Etude biologique de la faune entomologique des *Pistacia* sauvages et cultivés. *Revue de Pathologie Végétale et d'Entomologie Agricole de France, Paris* 37:3-166.
- Duran, M. 1971. (Investigations on ground pearls (*Margarodes* (*Porphyrophora*) *tritici* Bod.) a grain pest in Central Anatolia.) *Plant Protection Bulletin (Turkey) Supplement* 1, 80 pp. (in Turkish, with English summary)
- Green, E.E. 1931. Two new mealybugs from India. *Annals and Magazine of Natural History* (Ser. 10) 7:557-560.
- Green, E.E. 1934. On a remarkable new species of the genus *Leucaspis*. *Bulletin de la Société Royale Entomologique d'Egypte* 18:110-111.
- Hall, W.J. 1923. Further observations on the Coccidae of Egypt. *Ministry of Agriculture, Egypt, Technical and Scientific Service, Bulletin* 36, 67 pp.
- Hall, W.J. 1924. Four new species of Coccidae from Egypt. *Ministry of Agriculture, Egypt, Technical and Scientific Service, Bulletin* 45, 46 pp.
- Hall, W.J. 1926. Contribution to the knowledge of the Coccidae of Egypt. *Ministry of Agriculture, Egypt, Technical and Scientific Service, Bulletin* 72, 41 pp.
- Harpaz, I. 1984. Frederick Simon Bodenheimer (1897-1959): Idealist, Scholar, Scientist. *Annual Review of Entomology* 29:1-23.
- Jakubski, A.W. 1965. A critical revision of the families Margarodidae and Termitococcidae (Hemiptera, Coccoidea). British Museum (Natural History), London, 187 pp.
- Koroneos, J. 1934. Les Coccidae de la Grèce surtout du Pelion (Thessalie). I. Diaspidinae. Athens, 95 pp.
- Lindinger, L. 1911. Beiträge zur Kenntnis der Schildläuse und ihrer Verbreitung II. *Zeitschrift für*

Wissenschaft der Insektenbiologie 7:126-130.

- Lindinger, L. 1912. Die Schildläuse (Coccidae) Europas, Nordafrikas und Vorder-Asiens, einschliesslich der Azoren, der Kanaren und Madeiras. Ulmer, Stuttgart, 388 pp.
- Mamet, R. 1954. A monograph of the Conchaspidae Green (Hemiptera: Coccoidea). *Transactions of the Royal Entomological Society of London* 105:189-239.
- McKenzie, H.L. 1943. Miscellaneous Diaspid studies including notes on *Chrysomphalus* (Homoptera Coccoidea: Diaspididae). *The Bulletin, Department of Agriculture State of California* 32:148-162.
- McKenzie, H.L. 1945. A revision of *Parlatoria* and closely allied genera (Homoptera: Coccoidea: Diaspididae). *Microentomology* 10:47-121.
- Miller, D.R. 1975. A revision of the genus *Heterococcus* Ferris with a diagnosis of *Brevennia* Goux. *Agricultural Research Service United States Department of Agriculture Technical Bulletin* 1497, 61 pp.
- Morrison, H. 1945. The mealybug genus *Heterococcus* Ferris and some of its relatives. *Journal of the Washington Academy of Science* 35:38-55.
- Morrison, H. and Morrison, E.R. 1966. An annotated list of generic names of the scale insects (Homoptera: Coccoidea). *Miscellaneous Publications United States Department of Agriculture* No. 1015, 206 pp.