

## LIST OF SPECIES OF HYMENOPTERA

Collected in Arizona by the University of Kansas Entomological Expeditions of 1902, 1903, 1904, 1905, and 1906.

By F. H. SNOW, University of Kansas, Lawrence.

THE determinations of species not already in the collection of the University of Kansas were made by Mr. H. L. Viereck, of the Academy of Natural Sciences of Philadelphia, assisted in certain families by Profs. H. T. Fernald, A. D. MacGillivray, and T. D. A. Cockerell, and Mr. C. T. Brues, to all of whom grateful acknowledgments are hereby tendered. There are still a considerable number of species not yet reported, which will be published at a later date. The localities are given in connection with each species. Oak Creek Canyon camp was made at Thomas's ranch, twenty miles southwest of Flagstaff, in Coconino county, altitude, 6000 feet; the camp at the base of Humphrey's Peak, in Coconino county, was at an altitude of 9500 feet; Congress Junction is in Yavapai county, 125 miles south of Ash Fork, altitude, 3000 feet; the Bill Williams Fork camp, was near Tappan's ranch, on the dividing line between Mojave and Yuma counties, altitude, 1000 feet; San Bernardino ranch is in the southeast corner of Arizona, in Cochise county, our camp being located eighteen miles east of Douglas, altitude, 3750 feet. Tucson and the Baboquivari Mountain camps are in Pima county, at an altitude of 3100 feet and 3750 feet.

### Family TENTHREDINIDÆ.

- Atomocera ruficollis* Norton. Oak creek, 1 specimen.  
*Hylotoma conspiculata* Macgillivray, new species. Oak creek, 1 specimen.  
*Pristiphora siskiyouensis* Marlatt. Oak creek, 1 specimen.  
*Pteronus coloradensis* Marlatt. Oak creek, 1 specimen.  
*Selandria media* Norton. Oak creek, 1 specimen.  
*Tenthredo variegatus* Norton. Oak creek, 11 specimens.  
    *xanthus* Norton. Oak creek, 7 specimens.  
    undetermined species. Oak creek, 1 specimen.

### Family SIRICIDÆ.

- Cephus cinctus* Norton. Oak creek, 1 specimen.  
*Sirex albicornis* Harris, var. *californicus* Norton. 4 specimens.

### Family EVANIIDÆ.

- Gasteruption pexplexus* Cresson. Oak creek, 1 specimen.



## Family ICHNEUMONIDÆ.

- Ichneumon allapsus* Cresson. Humphrey's Peak, at base and summit, 3 specimens.  
*animosus* Cresson, var. *rubellus* Cresson. 1 specimen.  
*arizonensis* Viereck, new species. Oak creek, 1 specimen.  
*citrinifacialis* Viereck, new species. Oak creek, 2 specimens.  
*hemimelanus* Viereck, new species. Oak creek, 1 specimen.  
*humphreyi* Viereck, new species. Humphrey's Peak, at base, 1 specimen.  
*lætus* Brulle. Oak creek, 1 specimen.  
*longulus* Cresson. Oak creek, 1 specimen; San Bernardino ranch, 3.  
*maurus* Cresson. Oak creek, 1 specimen.  
*nigrosignatus* Viereck, new species. Oak creek, 1 specimen.  
*vittifrons* Cresson. Oak creek, 1 specimen.  
*Hemiteles lathroscopoides* Viereck, new species. Oak creek, 4 specimens.  
*Pezomachus homalommoides* Viereck, new species. Oak creek, 1 specimen.  
*Cryptus albotarsis* Cresson. Oak creek, 1 specimen.  
*consobrinus* Viereck, new species. Oak creek, 1 specimen.  
*politicallypterus* Viereck, new species. San Bernardino ranch, numerous specimens.  
*Theronia fulvescens mellipennis* Viereck. Oak creek, 10 specimens.  
*Pimpla annulipes* Brulle. Oak creek, 1 specimen.  
*pedalis* Cresson. Oak creek, 1 specimen.  
*Ophion purgatum* Say. Baboquivari, 1 specimen.  
*Glypta egregiafovea* Viereck, new species. Oak creek, one specimen.  
*Nototrachys ejunoidus* Say. Oak creek, 1 specimen.  
*reticulatus* Cresson. Oak creek, numerous specimens.  
*texanus* Cresson. Oak creek, numerous specimens.  
*Bassus lætataris* Fab. Oak creek, two specimens.  
*Thyreodon morio* Fab., race *transitionalis* Vier., new race. Oak creek, 2 specimens.  
*Paniscus geminatus* Say. Oak creek, Bill Williams fork, Baboquivari, 1 specimen at each place.  
*Amblyteles hudsonicus* Cresson. Oak creek, 1 specimen.  
*nubivagus* Cresson. Humphrey's Peak, at base, 1 specimen.

## Family BRACONIDÆ.

- Chelonus altitudinis* Viereck, new species. San Bernardino ranch, 2 specimens.  
*exogyrus* Viereck, new species. Bill Williams fork and San Bernardino ranch, 1 specimen at each camp.  
*nucleolus* Viereck, new species. Oak creek, 1 specimen.  
*texanoides* Viereck, new species. Bill Williams fork, 1 specimen.  
*Agathis vulgaris* Cresson. San Bernardino ranch, 1 specimen.  
*Crassomicrodus nigricaudus* Viereck, new species. San Bernardino ranch.  
*Ipbiaulax cinnabarinus* Viereck, new species. Bill Williams fork, 1 specimen.  
*faustus* Cress. Bill Williams fork, 2 specimens.  
*perepicus* Viereck, new species. Bill Williams fork, 2 specimens; San Bernardino ranch, 2 specimens.  
*propinquus* Viereck, new species. Oak creek, 1 specimen.  
*rugator* Say. Bill Williams fork, 5 specimens.  
*Vipio erythrus* Viereck, new species. Bill Williams fork, 2 specimens.



Family ENCYRTIDÆ.

*Copidosoma gelechiæ* Howard. Oak creek, 1 specimen.

Family PERILAMPIDÆ.

*Perilampus cyaneus* Brulle. Oak creek, 2 specimens.

*hyalinus* Say. Oak creek, 1 specimen.

*Euperilampus opacus* Ashmead. Oak creek, 1 specimen.

Family CHALCIDIDÆ.

*Leucospis affinis* Say. Oak creek, 1 specimen; Congress Junction, 1 specimen.

*bicincta* Viereck, new species, 1 specimen.

*sulcata* Westw. Oak creek, 2 specimens.

*Stomatoceras*, undetermined species. Congress Junction, 1 specimen.

*Spilochalcis torvina* Cresson. Oak creek, 2 specimens.

*Chalcis flavipes* Fab. Oak creek and San Bernardino ranch, 1 specimen at each camp.

*Acanthochalcis argenteomaculata* Ashm. Bill Williams fork, Congress Junction, San Bernardino ranch, and Tucson, numerous specimens.

Family FIGITIDÆ.

*Eucoila impatiens* Say. Oak creek, 1 specimen.

*Figites coloradensis* Ashm. Oak creek, 1 specimen.

Family SCELIONIDÆ.

*Scelio venata* Brues, new species. Baboquivari, 1 specimen.

Family DIAPRIDÆ.

Family CHRYSIDIDÆ.

*Ceratopria*, undetermined species. Oak creek, 1 specimen.

*Notozus marginatus* Patton. Oak creek, one specimen.

*Holopyga horus* Aaron. Oak creek, 1 specimen.

*Tetrachrysis cæruleus* Fab. Oak creek, 1 specimen; Tucson, 16.

*intricata* Brulle. Congress Junction. 1 specimen.

*lauta* Cress. Oak creek, 6 specimens.

*tripartita* Aaron. Oak creek and Tucson, 1 specimen at each place.

*Metapochia*, undetermined species. Oak creek, 1 specimen.

*Parnopes westcotti* Mell. and Brues. Bill Williams fork, 1 specimen.

Family FORMICIDÆ.

*Camponotus castaneus* Latr., var. *americanus* Mayr. Oak creek, 4 specimens.

*lævigatus* Smith. Oak creek, 1 specimen.

*maculatus* Latr., var. *mccooki* Forel. Oak creek, 4 specimens.

*Formica fusca* Linn., var. *subpolita* Mayr. Bill Williams fork and San Bernardino ranch, several specimens each.

var. *neoclara* Emery. Tucson, 2 specimens.

var. *argentata* Wheeler. Baboquivari, 1 specimen.

Family DORYLIDÆ.

*Labidus mexicanus* Smith. San Bernardino ranch, 1 specimen.



## Family MYRMICIDÆ.

- Pogonomyrmex barbatus* Smith. Congress Junction, numerous specimens.  
*barbatus* Smith, var. *nigrescens* Wheeler. Cactus Plain, 7 specimens.  
*californicus* Buckley. Baboquivari and Bill Williams fork, 1 specimen at each place.  
*occidentalis* Cresson. Oak creek, numerous specimens.

## Family MUTILLIDÆ.

- Mutilla ægina* Cresson. Oak creek, 8 specimens; San Bernardino ranch, 1 specimen.  
*bellona* Cresson. Oak creek, 3 specimens; Humphrey's Peak, 1 specimen.  
*californica* Rad. Oak creek, 13 specimens; Baboquivari, 1 specimen.  
*fulvohirta* Cresson. Baboquivari, 1 specimen.  
*gloriosa* Sauss., var. Congress Junction, Bill Williams fork, San Bernardino ranch, Baboquivari, several specimens.  
*montivaga* Cress. San Bernardino ranch, 1 specimen.  
*oajaca* Blake. San Bernardino ranch, 12 specimens; Tucson, 4 specimens.  
*ochracea* Blake. Congress Junction, 1 specimen.  
*orcus* Cresson. Congress Junction, Oak creek and Bill Williams fork, 1 specimen at each camp; Baboquivari and Tucson, several specimens; San Bernardino ranch, 21 specimens.  
*pacifica* Cress. Bill Williams fork, 1 specimen.  
*propinqua* Cress. San Bernardino ranch, 1 specimen.  
*sackenii* Cress. Congress Junction, 2 specimens; Bill Williams fork, 21 specimens.  
*snoworum* Cockerell and Fox. Oak creek, 1 specimen.  
*Photopsis belfragei* Bdv. Tucson, 2 specimens; Baboquivari, 1 specimen.  
*Brachycistis glabrella* Cress. San Bernardino ranch, 6 specimens; Tucson, 1 specimen.

## Family TIPHIIDÆ.

- Tiphia tarda* Say. Bill Williams fork, Oak creek, Congress Junction, and San Bernardino ranch, 2 specimens in each camp.  
*Paratiphia albilabris* Spin. Oak creek and Bill Williams fork, 5 specimens in each camp; Tucson, many specimens.

## Family SCOLIIDÆ.

- undetermined species. Oak creek, 1 specimen.  
*Scolia fervida* Burm. Congress Junction, Oak creek, Bill Williams fork, San Bernardino ranch, and Baboquivari, numerous specimens each.  
 new species. Bill Williams fork, 1 specimen.  
*Discolia hæmatodes* Burm. Bill Williams fork, 1 specimen; Oak creek, 5 specimens.  
*Elis dives* Prov. Bill Williams fork, numerous specimens; San Bernardino ranch, 1 specimen.  
*pilipes* Sauss. Oak creek and Baboquivari, 1 specimen in each place.  
*pollenifera* Vier., var. *a*, new species. Bill Williams fork, 2 specimens.  
*plumipes* Drury. Bill Williams fork, numerous specimens; Baboquivari, 1 specimen.  
*xantiana* Sauss. Bill Williams fork, 1 specimen.



Family MYZINIDÆ.

- Plesia interrupta* Say. Oak creek, very numerous specimens.  
*frontalis* Cresson. Congress Junction, Bill Williams fork, and Baboquivari, numerous specimens.  
*hamata* Say. Oak creek, numerous specimens.

Family EUMENIDÆ.

- Eumenes bollii* Cress. Oak creek, 5 specimens; Congress Junction, San Bernardino ranch, Tucson, and Baboquivari, 1 each.  
*coloradensis* Cress. Oak creek, many specimens.  
*Odynerus annulatus* Say. Congress Junction, Oak creek, and Bill Williams fork, numerous specimens; San Bernardino ranch and Baboquivari, 2 each; Flagstaff, 1; Tucson, many specimens, in some cases the males showing the female pupa of the Coleopteron, *Xenos peckii* Kirby, protruding from a ventral segment.  
*anormis* Say. Oak creek, 6 specimens; Tucson, 18.  
*arizonensis* Cam. Congress Junction, 1 specimen.  
*behrensii* Cress. Humphrey's Peak, 3 specimens.  
*birenimaculatus* Sauss. Humphrey's Peak, 2 specimens.  
*bustamenti* Sauss. Oak creek, 3 specimens.  
*capra* Sauss. Oak creek, 30 specimens.  
*hidalgi* Sauss. Oak creek and San Bernardino ranch, 1 specimen each.  
*iturbidi* Sauss. Oak creek, 1 specimen; Baboquivari, 3.  
*pratensis* Sauss. Congress Junction, 4 specimens; Bill Williams fork and San Bernardino ranch, 2 each.  
*reflexus* Cress. Oak creek, 1 specimen.  
*taos* Cress. Congress Junction and Oak creek, 1 specimen each; Tucson, 8.  
*texensis* Sauss. Congress Junction, 2 specimens.  
*tigris* Sauss. Humphrey's Peak and Oak creek, several specimens from each locality.  
*tuberculiceps* Sauss. Humphrey's Peak, 2 specimens; Oak creek, 20 specimens.  
*toltecus* Sauss. Congress Junction and Oak creek, numerous specimens; Tucson, 8; Baboquivari, 2.  
*Pterochilus 5-fasciatus* Say. San Bernardino ranch, 1 specimen.

Family VESPIDÆ.

- ✓ *Polybia flavitarsus* Sauss. Oak creek and Baboquivari, many specimens each.  
✓ *Polistes aurifer* Sauss. Oak creek, 3 specimens; Baboquivari, several specimens.  
✓ *flavus* Cress. Congress Junction, Bill Williams fork, and Baboquivari, numerous specimens at each locality.  
✓ *navajoe* Cress. Congress Junction, 1 specimen; Oak creek and Baboquivari, many specimens each.  
✓ *texanus* Cress. Bill Williams fork, 50 specimens; Baboquivari, numerous specimens.  
✓ *Vespa diabolica* Sauss. Oak creek, 3 specimens.  
✓ *occidentalis* Cress. Oak creek, many specimens.



## Family CEROPALIDÆ (POMPILIDÆ.)

- Pepsis boguei* Fox. Oak creek, 4 specimens; San Bernardino, 1 specimen; Tucson and Baboquivari, several specimens.
- chrysothemis* Lucas. Congress Junction, 4 specimens; San Bernardino ranch, 1 specimen; Tucson, several specimens.
- cinnabarina* Lucas. Oak creek, 2 specimens; San Bernardino ranch, 1 specimen; Tucson and Baboquivari, several specimens.
- domingensis* St. Farg. Oak creek, 2 specimens.
- formosa* Say. San Bernardino ranch, Bill Williams fork, and Tucson, numerous specimens.
- marginata* Beauv. Oak creek, one specimen; Congress Junction, San Bernardino ranch, Baboquivari, and Tucson, numerous specimens.
- montezuma* Smith. Oak creek, 6 specimens; San Bernardino ranch, 2 specimens.
- ornata* St. Farg. Congress Junction, Bill Williams fork, Tucson, and Baboquivari, numerous specimens; San Bernardino ranch, 1 specimen.
- pallidolimbata* Lucas. San Bernardino ranch, 1 specimen.
- Ceropales fraternus* Smith. Oak creek, 5 specimens.
- Cryptocheilus conicus* Say. Oak creek, 2 specimens.
- undetermined species. Oak creek, 1 specimen.
- Pedinaspis planatus* Fox. Congress Junction, 1 specimen.
- Anoplius algidus* Sm. Oak creek, 3 specimens.
- apiculatus* Sm. Bill Williams fork, 2 specimens; Tucson, 1 specimen.
- ferrugineus* Say. Bill Williams fork, 1 specimen; Oak creek, 7; Tucson, 1; Baboquivari, 1.
- fulgidus* Cresson. Bill Williams fork, 1 specimen.
- ingenuus* Cress. San Bernardino ranch, 1 specimen.
- interruptus* Say. San Bernardino ranch, 4 specimens.
- marginatus* Say. Oak creek, 1 specimen.
- philadelphicus* St. Farg. San Bernardino ranch, 4 specimens.
- relativus* Fox. San Bernardino ranch, 1 specimen.
- scelestus* Cress. San Bernardino ranch, 1 specimen; Tucson, 2.
- subviolaceus* Cress. Bill Williams fork, 1 specimen.
- tenebrosus* Cress. Tucson, 1 specimen.
- new species. Bill Williams fork, 1 specimen; Tucson, 1.
- new species. Congress Junction, 1 specimen.
- Aporus fasciatus* Sm. Tucson, 1 specimen.
- Priocnemis flammipennis* Sm. Oak creek, 1 specimen; San Bernardino ranch, 6; Tucson, several specimens.
- heiligbrodtii* Cress. Humphrey's Peak and Oak creek, numerous specimens each.
- terminatus* Say. Congress Junction, Oak creek, and San Bernardino ranch, 1 specimen at each camp; Tucson, several specimens.
- Agenia acceptus* Cress. Tucson, 1 specimen.
- Melanaporus dubius* Fox. Oak creek, 2 specimens.
- Mygnimia mexicana* Cress. Congress Junction, 1 specimen; Oak creek, 1; San Bernardino ranch, 6; Humphrey's Peak, numerous specimens.



Family SPHECIDÆ.

- Ammophila aberti* Hald. Congress Junction, 3 specimens; Bill Williams fork, 4; Tucson, 1.  
*argentifrons* Cress. Oak creek, 5 specimens; Tucson, 1.  
*communis* Cress. Oak creek, numerous specimens.  
*gryphus* Smith. Oak creek, numerous specimens.  
*luctuosa* Smith. Oak creek, 1 specimen.  
*macra* Cress. Oak creek, numerous specimens.  
*pruinosa* Cress. Bill Williams fork, 7 specimens; San Bernardino ranch, 1; Tucson, 1.  
*strenua* Cress. Oak creek, 1 specimen; Baboquivari, 1.  
*varipes* Cress. Humphrey's Peak and Oak creek, several specimens in each locality.  
*vulgaris* Cress. Humphrey's Peak and Oak creek, 1 specimen in each locality.  
*xanthoptera* Cam. Oak creek, numerous specimens.  
undetermined species. Oak creek, 3 specimens.
- Pelopæus cementarius* Drury. Congress Junction, Oak creek, Bill Williams fork, and San Bernardino ranch, numerous specimens in each locality.  
*servillei* Lep. Congress Junction, Oak creek, Bill Williams fork, and Tucson, several specimens each.
- Chalybion cæruleum* Linn. Oak creek, 1 specimen; San Bernardino ranch, 3; Tucson, several specimens.
- Chlorion cæruleum* Drury. Congress Junction, Oak creek, Bill Williams fork, San Bernardino ranch, Tucson, and Baboquivari, numerous specimens in each locality.
- Isodontia azteca* Sauss. Oak creek, numerous specimens; Baboquivari, 2.
- Sphex ashmeadi* Fernald. Bill Williams fork, numerous specimens; Congress Junction, 1; San Bernardino ranch, 3; Tucson and Baboquivari, several specimens.  
*decolorata* Blake. Oak creek and Baboquivari, numerous specimens in each locality.  
*decolorata* Blake, var. *baboquivari*, several specimens.  
*ichneumonea* Fabr. Oak creek, abundant specimens; Humphrey's Peak, at base, 1 specimen; Baboquivari, 3.  
*luçæ* Sauss. Oak creek, 5 specimens; Tucson, 2.  
*pennsylvanica* Linn. Oak creek, abundant specimens.
- Sceliphron texanum* Cress. Oak creek, 2 specimens.
- Harpactopus abdominalis*. Oak creek, 4 specimens.  
*rufiventris* Cress. Oak creek, 7 specimens; San Bernardino ranch, 1 specimen.
- Paraspheg ferrugineus* Fox. Congress Junction and Bill Williams fork, 3 specimens at each camp.
- Prionyx striatus* Smith. Bill Williams fork, 6 specimens; Baboquivari, 1.  
*thomæ* Fabr. Oak creek, abundant specimens; Bill Williams fork, 2; San Bernardino ranch, 1; Baboquivari, several specimens.



## Family LARRIDÆ.

- Astata nevadica* Cress. San Bernardino ranch, 2 specimens; Tucson, 1.  
*nubecula* Cress. Tucson, 1 specimen.  
*unicolor* Say. Oak creek, 3 specimens; San Bernardino, 2.  
*Plenoculus propinquus* Fox. Oak creek, 1 specimen.  
*Lyroda subita* Say. Oak creek and San Bernardino ranch, 1 specimen in each locality.  
*Notogonia argentata* Beauv. Oak creek, 1 specimen; Tucson, 1.  
*nigripennis occidentalis* Vier. Bill Williams fork and San Bernardino ranch, 1 specimen in each locality; Baboquivari, 9.  
*Tachytes abdominalis* Say. San Bernardino ranch, 1 specimen.  
*distinctus* Smith. Bill Williams fork, 1 specimen.  
*fulviventris* Cress. Congress Junction, 1 specimen; Oak creek, 11; Baboquivari, 3.  
*obscurus* Cress. Bill Williams fork, 2 specimens; Oak creek, 5; Tucson, 3.  
*pepticus* Say. Bill Williams fork, 3 specimens; San Bernardino ranch, 1; Baboquivari, numerous specimens.  
*spatulatus* Fox. Oak creek, 5 specimens; Baboquivari, several.  
*Tachysphex propinquus* Vier. Oak creek, 4 specimens.

## Family BEMBECIDÆ.

- Stizus godmani* Cam. Bill Williams fork, 1 specimen; Oak creek, 2.  
*grandis* Say. Tucson, 1 specimen.  
*unicinctus* Say. Tucson, 1 specimen.  
*Bembex amoena* Hdl. Oak creek, 5 specimens.  
*fasciata*. Humphrey's Peak, at base, and Oak creek, numerous specimens each; San Bernardino ranch and Tucson, 1 each.  
*nubilipennis* Cress. Oak creek and San Bernardino ranch, numerous specimens; Flagstaff and Tucson, 1 each.  
*sayi* Cress. Bill Williams fork and Oak creek, 6 specimens in each locality; Congress Junction, 1; Baboquivari and Tucson, 3 each.  
*troglydites* Hdl. Bill Williams fork and Oak creek, 1 specimen in each locality.  
*u-scripta* Fox. Bill Williams fork, 17 specimens.  
*Stictia pictifrons* Smith. Oak creek, 20 specimens; Tucson, 1.  
*Microbembex monodonta* Say. Bill Williams fork, Oak creek, Tucson, and Baboquivari, numerous specimens at each place.  
*pulchella* Cress. Oak creek, 2 specimens.  
*ventralis* Say. Oak creek, abundant; San Bernardino ranch, Congress Junction, and Baboquivari, 1 specimen in each locality.

## Family NYSSONIDÆ.

- Gorytes bipunctatus* Say. Oak creek, 2 specimens.  
*costalis* Cress. Oak creek, 1 specimen.  
*eximius* Prov. Bill Williams fork, 1 specimen.  
*spilopterus* Hdl. Congress Junction, 2 specimens; Oak creek and San Bernardino ranch, 1 each.  
*Paranysson texanus* Cress. Tucson, 4 specimens.



Family TRYPOXYLONIDÆ.

- Trypoxylon arizonensis* Fox. Bill Williams fork, 4 specimens.  
*tridendatum* Packard. Congress Junction, 2 specimens; San Bernardino ranch, 1; Tucson and Baboquivari, 8 each.

Family PHILANTHIDÆ.

- Eucerceris canaliculatus* Say. Bill Williams fork, 5 specimens; San Bernardino ranch, 3.  
*rubripes* Cress. Oak creek, 15 specimens.  
*unicornis* Patton. Oak creek, 6 specimens.  
*Cerceris acanthophilus* V. & C. Congress Junction, 12 specimens; Bill Williams fork, 4; Oak creek, 6; Tucson, numerous.  
*biungulata* Cress. Oak creek, 1 specimen.  
*ferruginior* Viereck and Ckll. Oak creek, 5 specimens; Bill Williams fork, 1; Tucson, many.  
*fasciata* Cress. Oak creek, 3 specimens.  
*femur-rubrum* V. & C. Congress Junction, 1 specimen.  
*macrosticta* V. & C. Oak creek, 2 specimens.  
*nasica* V. & C. Oak creek, 2 specimens.  
*platyrhina* V. & C. Oak creek, 1 specimen.  
*rinconis* V. & C. Congress Junction, 1 specimen; Bill Williams fork, 6; Tucson, 4.  
*sexta* Say. Humphrey's Peak, 1 specimen.  
*Philanthus albifrons* Cress. Humphrey's Peak, 3 specimens; Oak creek, 2.  
*crabroniformis* Smith. Congress Junction and Bill Williams fork, numerous specimens; Oak creek, 3; San Bernardino ranch, 1.  
*punctatus* Say. Oak creek, numerous specimens; Bill Williams fork, Congress Junction, and Baboquivari, 1 specimen in each locality; Tucson, numerous specimens.  
*punctatus cockerelli* Dunn. Oak creek, 3 specimens.  
*new species*. Oak creek, 3 specimens.  
*Aphilanthops taurulus* Ckll. Congress Junction, 10 specimens.  
*quadrinotatus* Ashmead. Flagstaff, 1 specimen.  
*new species*. Flagstaff, 1 specimen.

Family MIMESIDÆ.

- Mimesa punctata* Fox. Oak creek, 4 specimens.  
*unicincta* Cress. Bill Williams fork, 1 specimen.

Family PEMPHREDONIDÆ.

- Stigmus inordinatus* Fox. Oak creek, 1 specimen.  
*Pemphredon inordinatus* Say. Oak creek, 1 specimen.

Family CRABRONIDÆ.

- Crabro bellus* Cress. Oak creek, 1 specimen.  
*chrysarginus*. Oak creek, 14 specimens.  
*decemmaculatus* Say. Oak creek, 20 specimens.  
*dilectus* Cress. Oak creek, 8 specimens.  
*imbutis* Fox. Oak creek, 5 specimens.  
*interruptus* St. Farg. Oak creek, 1 specimen.  
*nigrifrons* Cress. Humphrey's Peak, 2 specimens.  
*odyneroides* Cress. Oak creek, 5 specimens.  
*packardii* Cress. Oak creek, 14 specimens.  
*Thyreopus coloradensis* Packard. Humphrey's Peak, 2 specimens.



## Family OXYBELIDÆ.

- Oxybelus cornutus* Say. Oak creek, 50 specimens.  
*emarginatus* Say. Oak creek, 3 specimens; Bill Williams fork, 1.  
*lætus* Say. Oak creek, 3 specimens.  
*4-notatus* Say. Oak creek, 50 specimens.  
*Notoglossa emarginata* Say. Oak creek and Tucson, 2 specimens each.

## Family ANDRENIDÆ.

- Agapostemon melliventris* Cress. Congress Junction, 6 specimens.  
*nigricornis* Fab. Congress Junction, 2 specimens; Tucson, 1.  
*tricolor* St. Farg. Oak creek, numerous specimens.  
*texanus* Cress. Bill Williams fork, Oak creek, Congress Junction, and Tucson, numerous specimens.

## Family HALICTIDÆ.

- Proteraner ranunculi* Robt. Oak creek, 1 specimen.  
*Sphecodes*, four undetermined species. Oak creek, three species; Congress Junction, one species.  
*Halictus ligatus* Say. Oak creek, 10 specimens; Tucson, 4.  
*Colletes americana* Cress. Humphrey's Peak, several specimens; Tucson and Baboquivari, 1 each.  
*consors* Cress. Oak creek, 1 specimen; Baboquivari, 3; Tucson, 25.

## Family PROSOPIDÆ.

- Prosopis affinis* Sm. Oak creek, several specimens.  
*ruidosensis* Ckll. Oak creek, 1 specimen.  
 ten new and undetermined species, Oak creek and Humphrey's Peak, at base.

## Family NOMIDÆ.

- Nomia foxii* D. T. Oak creek, 2 specimens; Tucson, many specimens.  
*nevadensis* Cress. San Bernardino ranch and Bill Williams fork, several specimens.

## Family PANURGIDÆ.

- Rhopitoides fimbriatus* Cress. Humphrey's Peak, 1 specimen.  
*Halictoides oryx* Vier. Oak creek, 1 specimen.  
*Pseudopanurgus rugosus* Robt. Oak creek, 1 specimen.  
*Panurginus innuptus* Ckll. Oak creek, 2 specimens.  
*perlævis* Ckll. Oak creek, 1 specimen.  
 four new and undetermined species.  
*Perdita*—seven new and undetermined species. Bill Williams fork and Oak creek.

## Family ANTHOPHORIDÆ.

- Centris atripes* Mocsary. San Bernardino ranch, several specimens; Tucson and Baboquivari, 4 each.  
*morsei marginata* Fox. San Bernardino ranch, 1 specimen.  
*rhodopus* Ckll. Bill Williams fork, many specimens; Tucson and Baboquivari, several each.  
*Anthophora montana* Cress. Oak creek, 1 specimen.  
*smithii* Cress. Tucson, 2 specimens.  
*urbana* Cress. Humphrey's Peak and Oak creek, several specimens each; Tucson, 2.



Family ANTHOPHORIDÆ.

- Anthophora walshii* Cress. Oak creek, several specimens.  
two new species. Congress Junction.
- Amegilla californica* Cress. Oak creek, 2 specimens.  
cleomis Ckll. Oak creek, 4 specimens.
- Clisodon terminalis* Cress. Humphrey's Peak and Oak creek, 1 specimen in each locality.
- Dasiapis ochracea* Ckll. Several specimens.
- Diadasia australis* Cress. Tucson, 1 specimen.  
diminuta Cress. Oak creek and Bill Williams fork, several specimens in each locality.  
enavata Cress. Baboquivari, 1 specimen.  
rinconi Ckll. Bill Williams fork, Oak creek, and Baboquivari, 1 specimen each.
- Tetralonia* (*Synhalonia*) *fuscotincta* Ckll., new species. Oak creek, 1 specimen.  
lippiæ Ckll. Oak creek, 3 specimens.  
lippiæ, subspecies *sublippiæ* Ckll., new subspecies.  
Oak creek. 1 specimen.
- Xenoglossa patricia angustior* Ckll. Congress Junction, 1 specimen.  
pruinosa Say. Oak creek, 1 specimen.
- Melissodes agilis* Cress. Oak creek, many specimens.  
agilis, var. *subagilis* Ckll. Oak creek, numerous specimens.  
aurigenia Cr. Oak creek, numerous specimens.  
communis Cress., var. Oak creek and Bill Williams fork, numerous specimens.  
confusa Cress. Humphrey's Peak, at base, several specimens.  
duplocincta Ckll., new species. Bill Williams fork, numerous specimens; Tucson, 3.  
epicharina Ckll., new species. Oak creek, 1 specimen.  
var. *a.* Oak creek, 1 specimen.  
gilensis Ckll. Oak creek and Bill Williams fork, several specimens; Tucson and Baboquivari, 2 each.  
grindeliæ Ckll. Oak creek, numerous specimens.  
var. Oak creek, 1 specimen.  
hexacantha Ckll., new species. Oak creek, 1 specimen.  
var. *a.* Oak creek, 2 specimens.  
var. *b.* Oak creek, 1 specimen.  
var. *c.* Oak creek, 1 specimen.  
intermediella Ckll., var. San Bernardino ranch and Oak creek, numerous specimens.  
menuacha Cress. Oak creek and Humphrey's Peak, at base, many specimens.  
montana Cress. Oak creek, numerous specimens.  
nigrosignata Ckll., new species. Oak creek, 1 specimen.  
var. *pallidisignata* Ckll. Oak creek, 2 specimens.  
pallidicincta Ckll. Bill Williams fork and Oak creek, several specimens.  
prælauda Ckll., new species. Oak creek, 1 specimen.  
semitristis Ckll., new species. Oak creek, 1 specimen.  
tristis Ckll. Oak creek and Tucson, several specimens.  
tenuitarsis Ckll., new species. Oak creek, 1 specimen.



## Family MELECTIDÆ.

- Nomada texana* Cress. Oak creek, 1 specimen.  
 two new species. Bill Williams fork, 3 specimens.  
*Phileremus*?, undetermined species. Oak creek, 1 specimen.  
*Ericrocis lata* Cress. Bill Williams fork, numerous specimens.  
*Epeolus lunatus* Say. Oak creek, numerous specimens.  
*occidentalis* Cress. Oak creek and San Bernardino, numerous specimens.  
 three undetermined species. Oak creek.  
*Triepeolus verbesinæ* Ckll. Bill Williams fork, 1 specimen.  
 five new and undetermined species. Oak creek.

## Family STELIDÆ.

- Stelis rudbeckiana* Ckll. Oak creek, numerous specimens.  
*Ceolioxys alternata* Say. Oak creek, numerous specimens.  
*menthæ* Ckll. Bill Williams fork, 1 specimen; Tucson, 25.  
*modesta* Sm. Oak creek, 2 specimens.  
*octodentata* Say. Oak creek, numerous specimens; Tucson, 2.  
*porterae* Ckll. Oak creek, 2 specimens.  
*ribis* Ckll. Oak creek, 3 specimens.  
*rufitarsus* Sm. Oak creek, 1 specimen.  
*sayi* Robt. Oak creek, 2 specimens.  
*texana* Cress. Oak creek, 2 specimens.  
 two undetermined species. Oak creek, several specimens each.

## Family MEGACHILIDÆ.

- Osmia mandibularis* Cress., var. Humphrey's Peak, at base, 1 specimen.  
 undetermined species. Oak creek, several specimens.  
*Heriades gracilior* Ckll. Oak creek, 4 specimens.  
*Ashmeadiella bigeloviae* Ckll. Bill Williams fork, numerous specimens.  
*meliloti* Ckll. Oak creek, 10 specimens.  
*rotundiceps* Cress. Oak creek, 4 specimens.  
*Anthidium emarginatum* Say. Humphrey's Peak and Oak creek, several specimens.  
*maculifrons* Sm. Oak creek, 1 specimen; Tucson, several.  
*maculosum* Cress. Oak creek, Humphrey's Peak, at base, and Tucson, several specimens each.  
*Megachile agustini* Ckll. Oak creek, numerous specimens.  
*avara* Cress. Oak creek, numerous specimens.  
*brevis* Say. San Bernardino ranch, numerous specimens.  
*lanuginosa* Sm. (= *brevis* Say.) Oak creek.  
*cleomia* Ckll. Oak creek, 3 specimens.  
*comata* Cress. Oak creek, 3 specimens.  
*fidelis* Cress. Oak creek, several specimens.  
*near inimica* Cress. Oak creek, several specimens.  
*latimana*. Oak creek, 3 specimens.  
*optiva* Cress? Oak creek, several specimens.  
*perbrevis* Cress. Oak creek, several specimens.  
*pereximia* Ckll. Bill Williams fork, 1 specimen.  
*pugnata* Say. Oak creek, numerous specimens.  
*relativa* Cress. Oak creek, several specimens.



Family MEGACHILIDÆ.

- Megachile texana* Cress. Oak creek, San Bernardino ranch, and Bill Williams fork, several specimens.  
*vidua*, race *monaidum* Ckll. One specimen.  
*Ceratina*, undetermined species. Oak creek and Bill Williams fork, 1 specimen each.  
 undetermined species. Oak creek, 3 specimens.

Family XYLOCOPIDÆ.

- Xylocopa californica* Cress. Oak creek, San Bernardino ranch, Baboquivari, and Tucson, many specimens in each locality.  
*micans*. Oak creek, many specimens.  
 new species. Bill Williams fork, Tucson, and Baboquivari, several specimens each.  
 undetermined species. Oak creek, 4 specimens.

Family BOMBIDÆ.

- Protoxæa gloriosa* Fox. San Bernardino ranch, 10 specimens.  
*Oxæa tristis* Gribodo. San Bernardino ranch, 8 specimens.  
*Psithurus insularis* Sm. Oak creek, 1 specimen.  
*Bombus bifarius* Cress. Oak creek and Humphrey's Peak, at base, 1 specimen each.  
*dorsalis* Cress. Oak creek, 5 specimens.  
*flavifrons* Cress. Humphrey's Peak, several specimens.  
*howardi* Cress. Oak creek and Humphrey's Peak, several specimens.  
*morrisonii* Cress. Oak creek, many specimens.  
*sonorus* Say. San Bernardino ranch and Tucson, many specimens; Baboquivari, 1 specimen.

Family APIDÆ.

- Apis mellifica* Linn. Abundant at all the camps.

SUMMARY OF FAMILIES AND SPECIES OF HYMENOPTERA.

Tenthredinidæ.....	8	Sphecidæ.....	29
Siricidæ.....	2	Larridæ.....	14
Evaniidæ.....	1	Bembecidæ.....	13
Ichneumonidæ.....	29	Nyssonidæ.....	5
Braconidæ.....	12	Trypoxylonidæ.....	2
Encyrtidæ.....	1	Philanthidæ.....	21
Perilampidæ.....	3	Mimesidæ.....	2
Chalcididæ.....	7	Pemphredonidæ.....	2
Figitidæ.....	2	Crabronidæ.....	10
Scelionidæ.....	1	Oxybelidæ.....	5
Diapriidæ.....	1	Andrenidæ.....	4
Formicidæ.....	6	Halictidæ.....	8
Dorylidæ.....	1	Prosopidæ.....	12
Myrmicidæ.....	4	Nomiidæ.....	1
Mutillidæ.....	15	Panurgidæ.....	16
Tiphiidæ.....	3	Anthophoridæ.....	47
Scoliidæ.....	8	Melectidæ.....	16
Myzinidæ.....	3	Stelidæ.....	12
Chrysididæ.....	8	Megachilidæ.....	27
Eumenidæ.....	19	Xylocopidæ.....	4
Vespidæ.....	7	Bombidæ.....	9
Ceropalidæ.....	34	Apidæ.....	1

Totals: Families, 44; species, 435.





Snow, F H. 1907. "List species of Hymenoptera. Collected in Arizona by the University of Kansas entomological expeditions in 1902, 1903, 1904, 1905, and 1906." *Transactions of the Kansas Academy of Science* 20, 127–139.

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